Army Communicator

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Headquarters,
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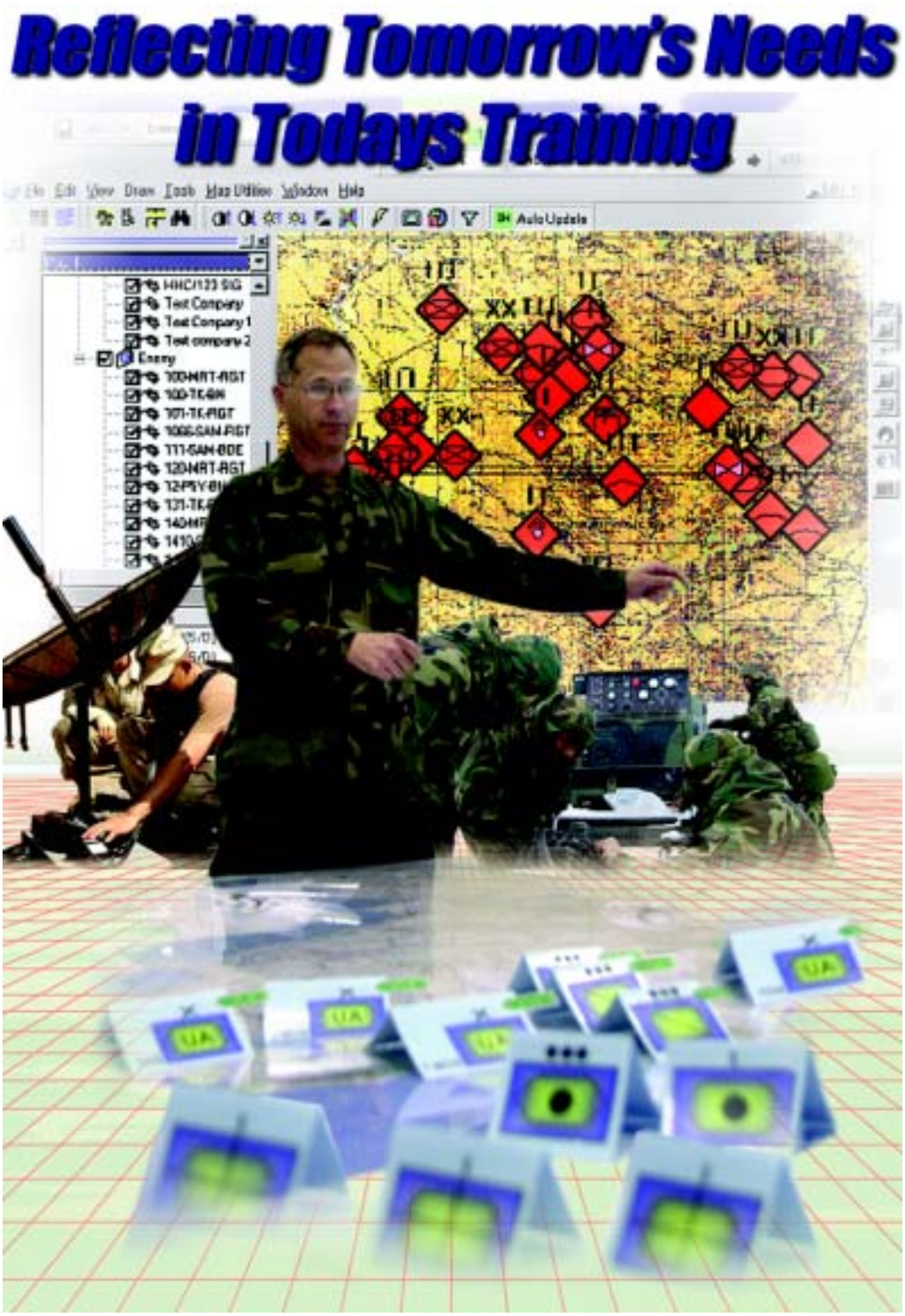
Voice of the Signal Regiment v PB 11-03-2 Summer 2003 Vol. 28 No. 2



Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
2003		**00-00-2003 to 00-00-2003**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Army Communicator. Voice of the Signal Regiment. Vol. 28 No. 2, Summer 2003	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **U.S. Army Signal Center and Fort Gordon,Army Communicator,ATTN: ATZH-POM,Fort Gordon,GA,30905-5301**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**	**Same as Report (SAR)**	**64**	

Chief of Signal's Comments

Greetings to all members of our Regiment

Tremendous events are occurring in both our world and in our profession. It will be a few years before we can sift though the events of Operation Iraqi Freedom and really understand this campaign that is already being called a historic military accomplishment by our joint forces.

Actually, I'm not surprised nor do I believe many of you are. We know that our military is by far the best trained, best equipped and best led force in the world today. There is also no doubt that Signal soldiers and officers of the Regiment played a vital role in each and every step along the way. There are a number of articles in this *Army Communicator* that I especially want to bring to your attention.

The first involves our S6 team. Forefront in the rapid movement of battle was our officers and soldiers serving as the S6 and G6 teams. These officers and their soldiers worked endless days but the results are evident. Always with room to improve, we continue to work our S6 course here at the schoolhouse.

Currently, the 442d Signal Battalion provides every Signal Officer Basic Course and branch detail student with two weeks of S-6 training.

The instruction focuses on the role and responsibilities of the S-6, hands-on equipment training and the military decision making process. Additionally, a map exercise geared at the maneuver battalion level challenges the students in developing a signal plan. Within SOBC only, students whose first assignment is as an S-6 receive an additional two weeks of S-6 training in-lieu of going to a field training exercise.

BG Janet A. Hicks
Chief of Signal

The schoolhouse also started a four-week and two-day S-6 course for our officers to return to from a unit assignment. During this course students are provided two weeks of automation training focusing on routers and operating systems. The remaining two weeks also focuses on equipment, the MDMP process, and an extensive MAPEX at the maneuver battalion and brigade level.

The schoolhouse also provides students with lessons-learned briefings from observer controllers at the national training center. These briefing are designed to inform the students on lesson-learned and tactics, techniques, and procedures that O/C observed during units rotations.

Another article in this edition concerns our battle lab. From April 14 – 18, the Battle Command Battle Lab here at Fort Gordon conducted a first-ever experiment to "fight the network" for the Objective Force. The tactical warfighting piece of the OF consists of the Unit of Action, roughly analogous to a brigade today, and a Unit of Employment, roughly analogous to a division or corps.

While many experiments, wargames, and exercises have been conducted to fight the objective force warfight, to date all have assumed a perfect communications network. This experiment, called the Network MAPEX (UA) 01-03, was the first of its kind, using subject matter experts from all the Training and Doctrine Command schools and centers, Space and Missile Command, Program Manager for Future Combat System networks, TRADOC Systems Managers for Satellite Communications, Warfighter Information Network-Tactical, Joint Tactical Radio System, Office Chief of Signal and many others, to really focus on the impact of the warfight on our networks and its ability to support all of the functional areas. It was a huge success with numerous insights gained on how we must design the network of the future to ensure battlefield success.

Finally, I want to tell you that before the dust has even settled in Iraq, TRADOC is sending a team to the theater of operations to gather an initial dose of lessons learned and insights. We are participating in that effort to turn lessons learned into a resource for the Regiment as soon as possible.

'We know that our military is by far the best trained, best equipped and best led force in the world today. There is also no doubt that Signal soldiers and officers of the Regiment played a vital role in each and every step along the way.'

U.S. ARMY SIGNAL CENTER AND FORT GORDON

COMMAND

EDITORIAL STAFF

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

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

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

CORRESPONDENCE: Address all correspondence to ***Army Communicator,*** U.S. Army Signal Center and Fort Gordon, Signal Towers (Bldg. 29808A), Room 707, Fort Gordon, Ga. 30905-5301. Telephone DSN 780-7204 or commercial (706) 791-7204. Fax number (706) 791-3917.

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

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

PB 11-03-2
Summer 2003
Vol. 28 No. 2

ARMY COMMUNICATOR

Voice of the Signal Regiment

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Features

Cover: Reflecting tomorrow's needs in today's training is depicted in the cover collage in this issue of the *Army Communicator*. MAPEX, tested the Network in a virtual warfight; also depicted in background images are: Warfighter, 10th Mountain Division's winter training exercise and digitization of the battlefield. Cover by SGT Clifton McDonald.

Departments

Official:
JOEL B. HUDSON
Administrative Assistant to the Secretary of the Army
0319812

By Order of the Secretary of the Army:
ERIC K. SHINSEKI
General, United States Army
Chief of Staff

Reflecting tomorrow's needs in today's training

by MAJ Nicole Morris and MAJ Daron Long

Over the past 18 months, the Signal Center continued the revisions of the Signal Captains Career Course curriculum. The changes were designed to graduate a more technically proficient and leadership focused officer in today's contemporary operating environment. Our goal is the officer student's application of theories and knowledge in information technology into common scenario-based practical exercises and integrated map exercises.

As a result, today's signal captains will have the skills and resources to adapt in the dynamic communications landscape on the modern battlefield.

Additionally, the course provides future company commanders with enhanced leadership instruction, command-focused topics and mentorship from senior leaders at Fort Gordon. These changes and our daily adjustments are a direct reflection of the Signal Regiment's needs and responses to our inquiry. We obtained comments from graduating students, operational units and students attending the Signal Pre-Command Course.

Using this feedback and training development requirements, the first redesigned SCCC commenced with SCCC 006-02. This class started in September 2003 and graduated in February 2003.

Our next step is the Signal Officers Basic Course. We are now moving forward and implementing changes in SOBC, with the pilot class slated for June 2003. The mission is to develop technically sound and confident leaders for the Signal Regiment. Like the SCCC, the curriculum will incorporate more theory / concept instructions with practical exercises and less instruction on boxes and memorization. With closed book examinations, we can validate the officer's ability to comprehend process and procedures in the foundation of both technical assets and leadership.

Additionally, the young officer will become aware of his need for continuous self-development (i.e., life-long learning).

The Signal Captain's Career Course

Under the old curriculum, students learned mobile subscriber equipment, digital group multiplexing, and some single channel radios - solely. In a unit however, they had to work with the commercial-off-the-shelf equipment that the unit purchased in order to support the technological requirements of the warfighter. The theory focus helps students understand how the COTS signal equipment works.

The field also wanted more on information assurance procedures, firewalls, certification and accreditation. They wanted the signal officer to know how to manage different kinds of networks. All of these requirements fall within the Telecommunications System Engineer Functional Area 24 field.

Leadership Development Division, 442d Signal Battalion incorporated instruction on switches, data communications, telecommunications, electronics, engineering and network management into SCCC in order to meet these requirements.

LDD's next priority was to meet the student's desire for more automation training. The captains expect their non-signal commanders to have a high level of automation knowledge. They also wanted automation training that they could use towards Computer Information System Company Certified Network Associate certification. This curriculum falls within the Systems Automation FA 53 field. LDD incorporated CISCO semesters 1 and 2 along with instruction on web design and Windows 2000 Server in order to meet these requirements.

The students also wanted a company commander focus for the common core instruction. Civilians and non-signal officers taught common core prior to the re-design. Now, small group leaders instruct students on Uniform Code of Military Justice, Officer Evaluation Reports, Noncommissioned Officer Evaluation Reports, counseling, leadership, and awards. SGLs are imbedded in the communication skills and training management instruction in order to maintain the company command focus. SGLs also ensure students learn the military decision-making process as it applies to the Signal officer instead of the combat arms version.

We continue to request and receive recommendations from the field and students in an effort to improve the course. In the future, additional resources will allow LDD to incorporate more simulations, larger field training exercises, and smaller group instruction for SCCC.

The Signal Officers Basic Course

The redesign is focused on an orderly training strategy. Since SOBC is managed in two separate flows, one SOBC class actually equals two distinct classes and the intent is to train these classes in modules of instruction at the same time. Additionally, the training strategy includes providing reading packets focused on both areas of concentration and areas of general knowledge. Since there may not be

enough time to cover everything there is to know about being a Signal officer, the reading packets bridge a gap and support the lieutenant's success.

The actual modules of instruction have been only slightly modified but will provide greater value to the student. The modules include common core, automation, communications fundamentals, Signal staff officer (S6) knowledge, area common user system and platoon leader, and a capstone field training exercise.

The logistics block has been added to the condensed common core module now consisting of 13 days. In addition to logistics there is a large focus on Army operations, the threat, decision-making procedures, tactical operations and the combat force.

The automation module of 19 days is already in trials. A+ and N+ courses have been replaced with Information Technologies I and II from the CISCO curriculum. A two-day web-design course remains. The change will better prepare the lieutenant for challenging automation issues encountered in the field.

The Communications Fundamentals module of 6.5 days is focused on arming the lieutenant with the knowledge of how signal stuff works. Everything from basic electronics to telephony fundamentals to transmission control protocol/Internet protocol fundamentals will be discussed. This module is the Signal common core and must come prior to the S6 and ACUS modules. The S6 module of 10.5 days will focus on the roles and responsibilities of the S6 and the capabilities of combat net radio and other communications equipment the S6 may come in contact with. Also, it incorporates the MDMP and a map exercise focused signal planning on a maneuver battalion or brigade operations order.

The ACUS module of 22.5 Days will teach theory and capabilities and limitations and how to make a call. The back end of the module is a flip-flop with the General Dynamics folks and one flow will go to TA-10 and have detailed hands-on focus on the "boxes" and the other will go to GD for Network Management training. At the end of the training the two flows will flip-flop. This module finishes with a MAPEX regarding Signal battalion plans.

The culminating event for the SOBC redesign is the FTX. The FTX is planned for six consecutive days. The first two days focus on tactics and teach signal security techniques. At a minimum the last four days force the lieutenant to recall information learned through the course and test the ability to build successful plans, identify requirements and react to stressful situations.

The key for a successful redesign is providing lieutenants with knowledge from training management and Army operations through an understanding of technical operations within the Signal Corps. The SOBC redesign concept should provide lieutenants enough information to become successful leaders and managers, armed with enough information to allow them to be an expert when arriving at their first unit.

The S6

Introduction

The Signal Corps is one of the most diverse organizations within the Army. Officers can hold many different positions which require various skills and knowledge. The brigade or battalion S6 is one of the most challenging positions that a Signal officer can hold. As the senior signal representative to a non-signal unit, S6s have a great burden on their shoulders to ensure that the Signal Regiment is represented well to our combat arms brethren.

This article discusses some doctrinal duties of the S6 and covers many of the challenges an S6 can encounter. Some solutions are offered for the S6 to consider.

Doctrine Summarized

In May 1997 the Army published a revamped version of *Field Manual 101-5*. This FM changed the role of the signal officer in non-signal units from a special staff officer to a primary staff officer and titled the position as G6 at corps and division and S6 at brigade and battalion. *FM 101-5* states that the G6/S6 "is the principal staff officer for all matters concerning signal operations, automation management, network management and information security ... at all echelons of command from battalion through corps."

Signal operations include managing and controlling information networks from the sustaining base to the foxhole. S6s must understand the capabilities, limitations and operations of their equipment from both the radio and automation side and must be able to define where the unit exists in the big picture. S6s also manage frequency allocations and provide spectrum management typically through working with the division G6.

To be successful, S6s must have a working knowledge of the principals of radio communications and spectrum so that they can make recommendations and identify issues. Additionally, recommending signal support priorities and ensuring redundant signal means will demand a great deal of attention. S6s must be involved in determining locations for command posts and determine placement based on consideration of communications and survivability.

All of these areas are key for the planning process. Other requirements include managing signal priorities with multi-national partners when conducting coalition operations, recommending information requirements in regards to signal assets, producing consolidated phone listings and performing distribution, message and document reproduction services.

Automation management includes managing the employment of automation by determining what hardware and software can best support the force in a tactical and garrison environment. In today's digital evolving force, S6s will

manage communications protocols on the tactical internet and deal with network issues for automation systems, the Army Battle Command Systems and other digital equipment.

Establishing systems administration for all of the assets in the unit will ensure that S6s meet the standards. There will be a focus on configuring data networks through wired or wireless technologies. In today's digital age good automation management will make S6s more effective.

Information security includes managing communications security, managing information systems security, establishing systems security and recommending command and control-protect priority information requirements. S6s have the lead for these areas and work closely with the S2. S6s must ensure their unit has an intensive information security posture to protect against the enemies of the digital age.

In combat environments, the commander and his staff must have the correct information at all times, and S6s must sustain, without loss, the information flow to and from the commander.

The effectiveness and quality of information depend on its reliability; thus, to make decisions, the commander must have accurate and complete information. If the commander is unable to make informed decisions due to unreliable networks, then full combat potential is not achieved.

Critical information must be available when and where it is needed with redundant means so duplicate and alternate paths are provided for information flow. S6s must ensure reliable communications even when command posts are dispersed. To accomplish this, S6s must have the ability to easily adapt to unforeseen communication requirements. This must be achieved without restricting force agility, initiative or synchronization, and S6s must ensure signal support is flexible, mobile and adaptable to all possible battlefield conditions.

Challenges and solutions

A commander relies on tactical communications for effective command and control of subordinate elements to include maneuver, fire support, air defense, intelligence and service support.

S6s assist the unit commander with implementing and planning communications. To do this, S6s must depend upon experience and research to accomplish this mission. Many times this is difficult, because inexperienced second lieutenants are assigned as a unit S6. These assignments have been occurring for more than 20 years, and even though it is not the preferred solution, it is a reality that must be accepted.

Although being an S6 is tough and can be trying at times, second lieutenants can be successful as an S6 and can benefit greatly from the experience gained in non-signal units, making them better officers down the road.

There are things signal leaders must do to ensure success for S6s, whether a second lieutenant or captain. Young company grade officers must be better trained and provided information needed for success. In the classroom, information needs to be provided to the officer whether written, on a CD or on the Internet for download. In the unit (from division to battalion and throughout the Signal community), the information needs to be provided in mentorship. The unit must take responsibility for molding the young signal officer.

Currently, the Signal Officer Basic Course and Signal Captains Career Course are undergoing redesigns to ensure that company grade officers receive the right training at the right time.

Additionally, the Signal School initiated a new S6 Course in June 2002. This course is designed to prepare officers for assignment to S6 positions. With the help of units in the field, the hope is to fill this course with officers destined for S6 positions.

Finally, a new S6 online website, www.gordon.army.mil/442sig/s6, has been established to provide an information sharing platform for all signal officers. The desire is that this site coupled with the 31U online website, www.gordon.army.mil/stt/31u, will provide an S6 staff section mountains of information to guarantee success.

Signal officers need to take responsibility for their own knowledge and take advantage of the wealth of information that is available on the internet and in reference books. The scope of signal operations is so broad that it is impossible to train it all in the limited time allowed.

Signal officers must go out and learn their craft by studying and conducting self-development. There are multitudes of books available that discuss basic radio communications. A valuable resource can be found at the Harris Corporation website, www.harris.com/support.html, under the RF Communications Download Center.

These books are basic in nature but can introduce the radio communications fundamentals to an officer that has a "soft" degree background and provide a good review to an officer with a "hard" degree.

Additionally, signal FMs provide valuable information. Signal doctrine can be found on the GEN Dennis J. Reimer Digital Library, www.adtdl.army.mil, and the signal doctrine website, www.doctrine.gordon.army.mil. Reading an FM is never painless, but can pay big dividends.

To be an effective S6, a signal officer must understand how the unit fights. S6s must not expect to be spoon fed information but instead must go find it; thus, S6s must be tactically proficient. This requires understanding the unit's mission. S6s must be a proactive planner and an aggressive participant of the battle staff's wargaming, synchronization, planning/matrixes and rehearsals. S6s track the battle closely so pre-determined triggers will initiate moving assets against forecasted enemy or friendly events. By tracking the battle, the S6 can anticipate the unit's changing

communications needs and position the command, control, communications, computer and information assets in the best places to support the maneuver.

S6s must be aggressive trainers of the signal assets within the unit by seeking to educate users at all echelons through development of simple and clear explanations that combat users can quickly grasp. Command post personnel from commanders to radio operators must be well trained and capable of making independent decisions.

To ensure the education of the unit, S6s must educate themselves by taking the time to read FMs that apply to the unit of assignment and develop an understanding of the tactics, techniques and procedures the unit uses to accomplish the mission. If S6s understand how the unit fights, then integration into the unit will be quick.

Another method that can help S6s understand how the unit fights is talking to the communications platoon sergeant or commo chief. These individuals can provide S6s with a wealth of understanding about the expectations and requirements of the unit. Also, S6s can ask questions of the signal officers in similar units, talk to platoon leaders, company executive officers, company commanders, company first sergeants, the battalion commander, the battalion executive officer, the battalion S3, the assistant S3, the S1, the S4 and anyone else who may seem useful. If S6s conduct some research and can talk the tactics, techniques and procedures of the unit, then the S6 will now be integrated with the staff and have a working knowledge of what the unit does in order to provide better support.

S6s must aggressively integrate into the staff through routine interaction. As an information management officer, S6s talk to all of the staff elements and push information through and around the staff. This will facilitate staff coordination, and planning will go more smoothly.

The S6 is not the only one with automation skills, 31Us are trained on automation tasks too. By helping them learn the automation tasks so that as the staff officer in charge of the command and control-battlefield operating system, the S6 can focus on planning command, control, computers and information.

Signal officers only receive familiarization with the equipment at the schoolhouse. Upon arrival at the unit, it is expected that S6s will take time to become an expert on organic equipment. S6s must be technically proficient with all communications equipment in the unit by learning as much as possible about the technical features that make the equipment work and considerations that can make it work better.

S6s must exercise troubleshooting skills and ensure the equipment is regularly checked and serviced when in garrison. Before deployment, S6s should direct a thorough communications rehearsal. On both the S6 and 31U online websites, there are links to multimedia tutorials that can help S6s develop operator skills on most radio systems. NCOs and soldiers are also willing to take the time to help S6s become an expert on the units' equipment.

S6s must understand the capabilities

Some questions for S6s to ask when developing a plan are:

- What is the maximum planning range?
- What happens when I locate 12 antennas side by side by side? Co-site interference?
- What are my power requirements?
- How many batteries should I plan? What is my battery re-supply plan? Do I have enough batteries for the mission? What happens if I don't have enough?
- What is a TEK vs. KEK?
- Who are my attachments? Can they talk?
- What does my radio distribution look like? Do I need to change it for this mission? Have I lost radios due to combat or maintenance?
- Will I need a RETRANS? Will it move prior to the main body crossing the LD? Will it be forward of the FEBA? Are my soldiers trained to over watch their site? What is the sequence that they will move?
- What are my support priorities - lower and higher?
- Where are the brigade assets?
- Where should the command and control locations be placed? TOC, TAC, CTCP, Field Trains CP, FLE, AXPs, other CPs? What is the sequence that they will move?
- Where is the battalion commander located during the battle? Who is next in command of the mission if something happens to the battalion commander?
- What are the triggers for changing to RETRANS frequencies?
- What are my signal assets available? # TACSAT, # IHFR, # SINCGARS, # MSRT, etc.
- Where are the Signal Battalion Nodes in my AO? RAU? SEN? FES? Node Center?
- What is my signal scheme of maneuver that will support the plan? How will my signal assets fight the fight?

and limitations of the organic communications equipment. This is probably more important initially than just knowing how to operate it. S6s must be able to plan communication networks, and to do this, S6s must understand the equipment's capabilities and limitations.

Conclusion

Unit signal officers stand alone in units with the duty to maintain communications wherever, whenever and however. They are often the first and only line of defense against communications system failure, and they are the standard by which the rest of the Army judges the Signal Corps.

Many times inexperienced second lieutenants have been placed in units as S6s. This is not the preference, but if this does happen, pay close attention to some of the points raised in this article.

Additionally, mentorship from the brigade S6 or division G6 and other signal officers must be sought. The Signal Regiment must ensure that the S6 is provided guidance and mentorship at all levels. This will force the development of intelligent, aggressive, arrogant and dedicated Signal officers, NCOs and soldiers.

Finally, if you are an S6, be a leader and force yourself into the mix. Make it happen and you will be rewarded not with glory, but with respect and that will mean more than anything in the end.

MAJ Long serves as S3 with 442d Signal Battalion. He formerly served as chief, S6 with the 442d Signal Battalion, LCIT, 2002 – 2003.

Prior to arriving at Fort Gordon, he served as the systems integration officer for G6, 101st Airborne Division (Air Assault) 2001-2002. He commanded B/501st Signal Battalion, 101st Airborne Division (Air Assault) 2000-2001 and served as brigade S6 for 2d Brigade, 101st Airborne Division (Air Assault) 1999-2000.

MAJ Morris serves as the senior small group leader for the Signal Captains Career Course with 442d Signal Battalion, LCIT, 2002-2003. She formerly served as a trainer advisor counselor officer for the Signal Officer Basic Course with the 442d Signal Battalion, LCIT, 2001–2002.

Prior to arriving at Fort Gordon, she commanded A/501st Signal Battalion, 101st Airborne Division (Air Assault) 2000-2001. She served as the Assistant S-3 for the 501st Signal Battalion 1998-2001 and served as the battalion S6 for 3-101 Aviation Regiment, 101st Airborne Division (Air Assault) 1996-1998.

Acronym QuickScan

ACUS – Area Common User System
AO – area of operations
AXP – auxiliary post
CISCO – Computer Information System Company
CCNA – CISCO Certified Network Association
COTS – commercial-off-the-shelf
CP – command post
CTCP – combat tactical command post
DGM – digital group multiplexing
FA – functional area
FES – force embedded servers
FLE – forward logistics element
FTX – field training exercise
IA – information assurance
IHFR – improved high frequency radio
KEK – key encryption key
LDD – leadership development division
MAPEX – map exercise
MDMP – military decision-making process
MSE – mobile subscriber equipment
MSRT – mobile subscriber radio terminal
NCOER – noncommissioned officer evaluation report
OER – officer evaluation report
RAU – radio access unit
S6 – signal staff officer
SCCC – Signal Captains Career Course
SEN – small extension node
SINCGARS – single-channel ground-to-air radio system
SLG – small group leader
SOBC — Signal Officers Basic Course
TAC — tactical
TACSAT — tactical satellite
TCP/IP – transmission control protocol/Internet protocol
TEK – transmission encryption key
TOC – tactical operations center
UCMJ – Uniformed Code of Military Justice

Unit of action NETWORK MAPEX:

Testing the network in a virtual warfight

by COL Joseph Yavorsky and Mike Hamilton

"The C4ISR (command, control, communications and computers, intelligence, surveillance, reconnaissance) Network is integrated across all of the Battlefield Functional Areas." – Future Combat System Operational Requirements Document, April 14, 2003

The Army's transformation campaign plan challenges the Army to develop a maneuver Unit of Action and field a FCS by 2015 that supports the Army transformation vision of being a responsive, deployable, agile, versatile, lethal, survivable and sustainable force in all situations from major combat operations to homeland defense. Accordingly, the U.S. Army Training and Doctrine Command has embarked on a mission to develop an analytical baseline to support the Army's development of the UA Operational and Organizational plan and FCS requirements.

The purpose of this article is twofold. First, it's to highlight the roles and involvement of the Battle Command Battle Lab at Fort Gordon in support of TRADOC's UA/FCS Concept Experimentation Program, and secondly to identify a number of insights gained during the execution of the MAPEX elaborating on how these insights might impact the development of the UA/FCS communications network.

Background

The U.S. Army's Objective Force will be composed of a "family of advanced, networked air- and ground based maneuver, maneuver support and sustainment systems that will include manned and unmanned platforms." [FCS ORD, April 14, 2003] The UA info-sphere is comprised of a series of networks interlinking communications, operations, sensors, battle command systems, distributed analysis, and manned and unmanned reconnaissance and surveillance capabilities to enable levels of situational understanding and synchronized operations that could not be achievable otherwise. [Appendix D: Unit of Action O&O plan] The UA communications network structure supports the planning and rapid operations of a UA while providing enhanced flexibility to the UA commander.

In order for the UA/FCS to achieve its operational goals of "see first, understand first, act first and finish decisively" [FCS ORD, April 14, 2003] it is entirely dependent on networked C4ISR communication systems. However, during the execution of various UA CEPs at other battle labs, the network was not played. Network communications were always assumed to be operational and fully supportive of the operational maneuver concept.

Figure 1. MAPEX briefing at Battle Command Battle Lab, Fort Gordon.

'The UA communications network structure supports the planning and rapid operations of a UA while providing enhanced flexibility to the UA commander.'

Figure 2. The Battle Command Battle Lab at Fort Gordon supports TRADOC's UA/FCS Concept Experimentation Program.

To mitigate risk in developing the UA / FCS operational concept, organizational design and operational architecture TRADOC and the BCBL (G) determined that a communications experiment was necessary to explore the network functions for the OFUA.

TRADOC focused its efforts on developing a study plan to provide input into the UA on O&O plan and FCS analysis of alternatives. The study plan is a MACOM-wide process of experimentation and research aimed at developing the analytical underpinnings for issues related to UA operational concepts, organizational design and the operational architectures.

By using TRADOC's CEP as the vehicle for executing the study plan, a common framework for analysis was established. The study plan identified three study issues of which the BCBL (G) Map Exercise only considered the first; "How does the UA successfully execute the operational concept? What are the key enabling subordinate concepts and how are these accomplished?" [Appendix D: UA O&O plan]. Essential Elements of Analysis were identified by TRADOC to provide a framework for developing insights that would become the analytical underpinnings into each issue. The BCBL (G) in turn, developed network communications Measures of Merit to focus the analysis of the EEA.

The three TRADOC EEA's considered by the BCBL (G) MAPEX were "How does C4ISR enable the UA?", "How should the smallest UA units be organized?" and "How do you employ available UA forces and assets on the battlefield to achieve the tactical operations outlined in the UA O&O plan?" [Appendix D: UA O&O Plan]. The BCBL (G) then developed MOMs to support the analysis of each EEA. For the EEA "How should the smallest UA units be organized?" the BCBL (G) developed the MOM "What is the signal skill set for soldiers / officers with the UA?" By developing insights with respect to this MOM during the MAPEX vignettes, this would help provide an analytical underpinning to the EEA. Another MOM under the same EEA was similar "What is the skill set for non-signal soldiers / officers within the UA?" In all there were 15 MOMs considered for analysis during the BCBL (G) MAPEX that provided the basis for the player insights and analytical underpinnings.

Three of the six vignettes under the approved fiscal year 2003 CEP TRADOC 2.0 Caspian Sea scenario were used for the BCBL (G) MAPEX. These vignettes provide a construct for employing an FCS equipped UA in tactical situations. The approved vignettes were early entry operations, combined operations for urban warfare and a mounted formation conducting a pursuit / exploitation operation.

The BCBL (G) main effort was to attack the network issue for the first time in the UA CEP process. The intent was clearly to provide initial insights to the core employment functions of the communications network supporting the UA commander and his staff.

Additionally, the experiment would provide insights regarding the Unit of Employment and Joint, Interagency and Multi-National interfaces relevant to UA and FCS communications networking. Objectives of the BCBL (G) MAPEX were fourfold:

(1) "Fight the network" to provide input to the UA O&O plan and FCS ORD.

(2) Provide input to the UA supporting documents with regard to communications networking.

(3) Identify issues for the upcoming UE design to include future Network CEPs.

(4) Provide supporting analysis to Signal Regimental doctrine, operations, organization, training, materiel, leadership and education, personnel and facilities efforts.

The Network MAPEX was an integrated Signal Center effort as the BCBL (G) invited SIGCEN subject matter experts from the Directorate of Combat Developments and the SIGCEN TRADOC Systems Managers. They were tasked to develop the communications "rules of engagement" or the assumptions for their communication systems, as they are programmed to exist in the year 2015.

To provide SME input from the other TRADOC battle labs, the Air Maneuver Battle Lab, Fort Rucker, Ala., the Unit of Action Maneuver Battle Lab, Fort Knox, Ky., Dismounted Battle Space Battle Lab, Fort Benning, Ga., the Depth and

Simultaneous Attack Battle Lab, Fort Sill, Okla., Battle Command Battle Lab, Fort Huachuca, Ariz., the Maneuver Support Battle Lab, Fort Leonard Wood, MO, the Combat Service Support Battle Lab, Fort Lee, Va., TRADOC Analysis Center, Fort Leavenworth, Kan., and the Battle Command C4/ISR Battle Lab, Fort Leavenworth, Kan., participated in the MAPEX. TRADOC also provided three personnel from Booz, Allen and Hamilton to act as Blue Force commanders. All of this "warfighter" presence and their expert input support provided operational maneuver consistency and valuable customer oversight of the communications scheme of maneuver within the experiment.

The exercise

The MAPEX began on April 15, 2003, and each vignette was "fought" to distill network communications insights. In the early entry operations vignette, the focus quickly turned to external communication requirements that were needed to set the conditions prior to a UA deploying into an airfield while being prepared to fight off the aircraft's ramp. The UA is assumed to be capable of 96 hours deployment from home station by C-130s. One of the enabling functions of the UA allowing this quick response is called the Common Operational Picture. "The COP is a single identical display of relevant information shared by more than one command. … the COP is a fused picture containing timely, relevant information about the enemy, the environment and friendly forces … facilitates collaborative planning and assists all echelons to achieve SU (situational understanding)." [TRADOC Pamphlet 525-3-90 O&O, Chapter1]. The COP is a battle command tool provided to all echelons of the UA facilitating planning and decision-making. As played in the first snapshot, the COP was provided to the deploying UA in the C-130s to the same level of detail as received by the home station and the Special Purpose Forces that were all ready in country shaping the forward battle space.

To assist the facilitators in running the MAPEX, a battle rhythm was established. First, the Blue Force commanders presented an operational maneuver brief. Next the other TRADOC Battle Lab SMEs provided their input as to how they would support or integrate with the Blue Force scenario. Finally, the SIGCEN SMEs provided their input as to how their respective communications system supported the composite Blue Force scenario. At this time all MAPEX participants and observers were given the opportunity to discuss the communications networking and support plans. COL Yavorsky and Mr. Hamilton facilitated this discussion focusing the group's efforts on providing insights into the issues stated as MOMs. The BCBL (G) staff data collectors captured all of the data collection efforts and the restated insights were compiled into a final Network MAPEX Insight report.

The early entry operations continued with the UA supported by UE aviation lift assets conducting an air assault operation to attack and secure a target in an urban environment. Simultaneously, UA ground forces from the early entry airfield would be moving toward the target to link up with the UA air assault forces. The communication issues in this snapshot stressed ground to air communications with the UA moving over air and land routes. Moreover, communication issues between the UA assault forces supported by the UE aviation detachment with UA Comanche's providing support was also a center of focus for communications issues.

The second vignette involved urban operations and the communications issues associated with fighting in built up area to include supporting subterranean combat actions. The exploitation vignette concerned pursuit and exploitation operations and Sustainment Replenishment Operations.

On Thursday afternoon all of the vignettes had been covered in an "inch deep and mile wide" detail and after an in-depth after action review and final collaboration of an insight review, the participants were released.

Key insights

The Network MAPEX generated more than fifty insights. However, the following initial insights were identified by the participants as having major impacts on the UA and FCS concepts and programs.

From the first event with its emphasis on being prepared to fight off the ramp, to the last event of pursuit and exploitation, the MAPEX highlighted the requirement for ultra-reliable Situational Awareness via the COP. The UA communications network is wholly dependent on JIM assets, external to the UA, for network robustness. In each vignette, access to external assets such as satellites or high-flying UAVs such as Global Hawk was required to extend the UA network beyond it own boundaries. A true and accurate COP could not be provided to the warfighter without this external network communications that would have to be managed and coordinated by Signal personnel.

The Signal Management

'The UA communications network is wholly dependent on JIM assets, external to the UA, for network robustness. In each vignette, access to external assets such as satellites or high-flying UAVs such as Global Hawk was required to extend the UA network beyond it own boundaries.'

Overhead required to provide a robust and accurate COP is significant. An overarching tenant to the success of the UA and its maneuver concept is the ability to provide a COP for the UA commander and his subordinates. For this to happen the communications network must be ultra-reliable and redundantly connected. However, in order to fulfill this mandate, the signal overhead required appeared to be more than the current assumptions allow. While the UA network may be assumed to be self-organizing and self-healing, it is not self-coordinating - especially at "the seams." The warfighter is dependent upon the ability of the signal soldier to coordinate communications assets within the UA, the UE and the JIM arena to provide network immediacy. This is especially true in the areas of COP accuracy and network fires. For example, in all the vignettes, satellites played a significant role in providing reliable, timely and robust communications. However, a satellite is not organic to the UA or UE but is a joint or commercial asset. The employment of a satellite constitutes a "network seam" that signal personnel must coordinate. In addition satellites have access and bandwidth limitations that will also need to be planned, coordinated and centrally managed. This level of signal management will be explored in depth in future experiments.

Next, dedicated communications relay platforms, whether they were incorporated into an unmanned aerial vehicle or and FCS platform such as an unmanned ground vehicle or multifunctional utility / logistics and equipment vehicle, are required at all echelons of the UA to provide network connectivity and insure network robustness. This insight was repeated in all vignettes.

In the early entry vignette, several UAV CRPs were required to insure network robustness for the air assault. Moreover, dedicated CRPs were required for keeping the air assault commander and the maneuver commander in touch with the UE headquarters and ground forces that were moving toward the objective location. In the urban fight vignette, a spectrally complex environment, a dedicated communications relay was identified as critical to provide the COP to subterranean Blue Forces. Subterranean communications relay packages presented particular issues with Blue Force tracking and precision engagements. The extended distances and rapid movement of the exploitation vignette demonstrated that both air and ground CRPs were required to keep pace with ground operations or to link remote resupply locations. The more mobile the UA became the more the need increased for dedicated communications relay packages.

Figure 3. Insights were identified during the execution of the MAPEX and how they might impact on the development of the UA/FCS communications network.

As indicated, UAV played a significant role. Given the operational tenant to minimize and conserve the number of UAVs flying operational missions at any given time, it was recommended that all UAV platforms be configured to provide communications relay capabilities while performing intelligence, surveillance and reconnaissance missions as required. The problem that was identified was a conflict of priorities between the ISR missions that would often take the UAV away from the area that required communications support.

The next major insight revolved around the skill sets required by both signal and non-signal soldiers in the UA. Since the communications network is an all-pervasive asset, all soldiers, especially non-signal soldiers, as well as commanders, will need to possess some level of communications networking skills. The possession of a networking skill set was especially critical in the urban operations vignette, where soldiers would be peering around and in buildings using remote sensors linked by line-of-sight communications that would be susceptible to multi-path interference from urban structures.

The individual soldier would have to have some rudimentary networking understanding to recognize his COP is being accurately updated or the information he is providing to the COP database is not impeded, inaccurate, or untimely. The signal soldier's skill sets while focusing on providing networked communications should also include aerial communications relay mission planning and UAV control operator skills due to the necessity of flying dedicated aerial communications relay profiles.

The final major insight was the need for a communications network planning and visualization tool which would allow for maintaining

the situational awareness of the network relative to the warfighter's COP. The network visibility should be available to all soldiers but especially to the signal soldiers responsible for planning, implementing, operating, and maintaining the network.

It is clear that the networked force relies on a significant infrastructure outside of its influence and control. In essence, the "network" is "echelonless" and to enable the UA to fulfill its absolute potential, many issues need to be resolved through experimentation to refine how the warfighter and their supporting elements address these network complexities.

The way ahead

This Network MAPEX was only the first network-focused experiment in the integrated Battle Command Experimentation Campaign Plan spearheaded by Fort Leavenworth and supported by Fort Huachuca and Fort Gordon. There were many issues not addressed during the MAPEX.

For example, bandwidth requirements, spectrum management, information assurance, communications reliability and network operations were not considered and were assumed to be available. The Battle Command Experimentation Campaign Plan will address some of these shortcomings during the rest of fiscal year 2003 or in fiscal year 2004.

The next MAPEX will be conducted in the last quarter of fiscal year 2003. It will consider network operations and focus on the employment of signal soldiers in the UA, particularly the Brigade Intelligence and Communications Company. In addition, a network planning simulator will begin to be integrated into the network play and will assist communications simulations by ultimately providing analysis on bandwidth, network utilization and network planning and visualization.

In fiscal year 2004 the focus will shift to the Unit of Employment, the UAs higher echelon. As a part of the Battle Command / C4ISR Campaign Plan, BCBL (G) will execute two of its own UE deployed command post MAPEXs, participate in other TRADOC MAPEXs, and continue to develop a communications realism model that will be able to simulate more nearly the complex nature of communications in a real world environment.

COL Yavorsky was the deputy director of the Battle Command Battle Lab, Fort Gordon, since August 2002, prior to his retirement July 31. His previous assignment was commander, Joint Spectrum Center, and Annapolis, Md. He has served twice before in the Signal Center Directorate of Combat Developments and commanded the 67th Signal Battalion, 11th Signal Brigade. He holds master's degrees from the Naval Postgraduate School and Command and General Staff College. He is a 1999 graduate of the U.S. Army War College.

Mr. Hamilton has recently joined the Battle Command Battle Lab, Fort Gordon. His previous assignment was as deputy division chief, Apache/Attack Helicopter Division, U.S. Army Aviation Technical Test Center, Fort Rucker, Ala. He is an Army Acquisition Corps member certified at Level III for test and evaluation. He holds a bachelor's degree in engineering from the United States Military Academy and masters degree in international studies from Troy State University. He is also a colonel in the U.S. Army Reserves.

ACRONYM QUICKSCAN

BC – Battle Command
BCBL – Battle Command Battle Lab
BIC – Brigade Intelligence and Communications Company
C4ISR – command, control, communications, and computers, intelligence, surveillance, reconnaissance
CEP – Concept Experimentation Plan
COP – Common Operational Picture
CRP – Communications Relay Platform
DCD – Directorate of Combat Developments
DOTMLPF – doctrine, organization, training, materiel, leadership and education, Personnel, and Facilities
EEA – Essential Elements of Analysis
FCS – Future Combat System
ISR - intelligence, surveillance, reconnaissance
JIM – Joint, Interagency, Multi-National
JTRS – Joint Tactical Radio System
MAPEX – Map Exercise
MOE – Measure of Effectiveness
MOP – Measure of Performance
MOM – Measures of Merit
MUM – Manned and Unmanned
OF – Objective Force
O&O – Operational and Organizational
ORD – Operational Requirements Document
SATCOM – Satellite Communications
SIGCEN – Signal Center
SME – Subject Matter Expert
SRO – Sustainment Replenishment Operations
SU – Situational Understanding
TRADOC- Training and Doctrine Command
TSM – TRADOC System Manager
UA – Unit of Action
UAV – Unmanned Aerial Vehicle
UE – Unit of Employment
WIN-T – Warfighter Integrated Network-Tactical

Poor man's digitization of the battlefield

by CPT Stephen Hamilton

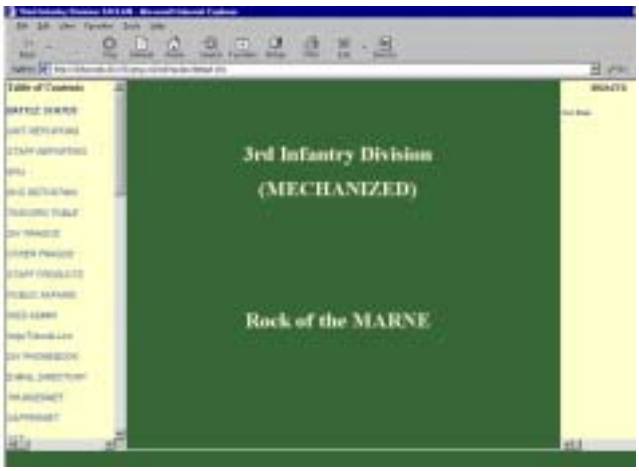
The 3d Infantry Division spends the majority of its time deploying and preparing for future missions, as opposed to testing software that digitizes the battlefield. Although the Army did not field the latest versions of the Army Tactical Command and Control Systems machines to the 3d ID, the commanding general and his staff emphasized the need to integrate all of their tactical systems regardless of their documented compliance levels for their Warfighter Exercise in 2002. Armed with command emphasis, the 3d ID G-6 began a quest to integrate the tactical systems and present a near real-time digital common operational picture of the battlefield. The 3d ID G-6 integrated its command and control computer systems including the Tactical Website, an Army developed command and control website, without an extensive number of contractors and costly software upgrades.

Web-based command and control

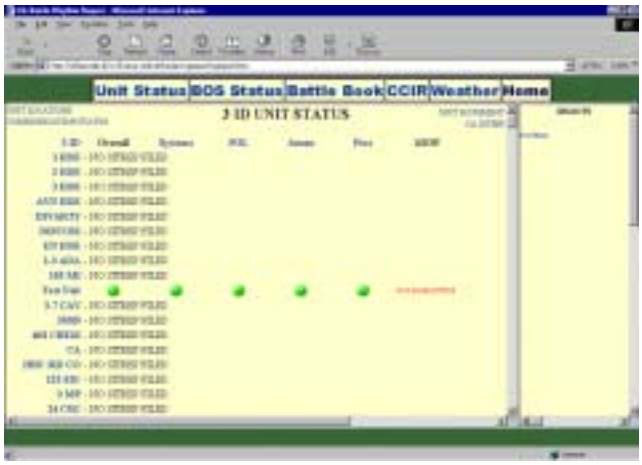
The 3d ID's TACWEB remains the commanding general and chief of staff's information dissemination system of choice. In 1997, the original creation of the TACWEB began at 2d ID in Korea based on MG Walter Sharp's vision. At this time, he was BG Sharp, and the 2d ID's ADC(M). He tasked 2d ID's G-6 to design a web-based system that could roll-up the division's reports to provide an overall view of the division's status. In addition, the system had to be easily modifiable in order to meet the commanding general's continually varying requirements. The TACWEB follows the concepts defined in the Army White Paper: *Concepts for the Objective Force*. The white paper states specifically:

Web based C2 systems enable commanders to reduce decision cycles within their organizations by engaging subordinate leaders and staffs in collaborative planning and decision making at all levels within units. Web-based C2 systems facilitate the rapid dissemination of orders to the lowest levels, thus maximizing time available for tactical units to prepare for, to synchronize and to initiate decisive action.

3d ID's TACWEB, based on the original 2d ID's TACWEB, consists of a very developed website that contains all major reports for units and staff elements. The software required to run the website is Microsoft Structural Query Language Server, Cold Fusion and Microsoft Internet Information Server. As reports are filed, they can be accessed through the battle status page. The most current reports are displayed, and past reports are archived. MG Sharp's primary concern dealt with the logistics situational reports in TACWEB. It did not make any sense to enter the same data in two different systems, which is why he determined CSSCS and TACWEB should share the data.



This is TACWEB's Main page.



TACWEB battle status page: This page shows the initial database with test unit reporting 100% status on everything. Once units begin reporting, the bubbles fill in with the unit's calculated status. Each ball when clicked, displays a detailed report.

The primary unit reports contained in TACWEB are the Sitrep, personnel data summary report, personnel requirements report, logistical Sitrep, communications status and various chemical reports. The units are required to report their status at specific time

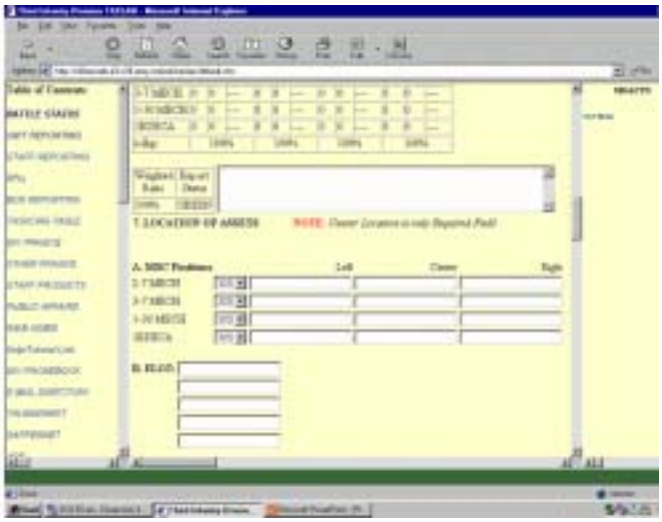
intervals. Once the units submit these reports, the data enters into the database immediately, and the roll-up reports automatically reflect the changes. This dynamic content gives all commanders instant access to updated combat status throughout the battle. In addition, it allows the division staff to spend more time projecting future requirements as opposed to crunching numbers and creating power-point slides.

The Sitrep provides the most important data to the commanders. The Sitrep contains unit location information, equipment status, current and future operations information, and overall unit status. The unit location section provides the units with the ability to enter a left, center and right military grid coordinate for the unit's subordinate unit positions. The initial integration effort began with taking these grid coordinates and plotting them on a digital map. The 3ID did not have a digital map plotting system, however it soon would acquire one to meet this need.

Initial integration

In April of 2001, 3d ID began evaluating a tactical system that hasn't quite been accepted as an ATCCS system in its own right, however 3d ID relied on it more during Warfighter than all other ATCCS systems combined: maneuver control system light. The major difference with MCS-L and its bigger ATCCS brothers remains the platform MCS-L runs on. All other ATCCS machines run on Sun workstations running Solaris, while MCS-L runs on any laptop with Windows 2000 and Office 2000. MCS-L can store data in different ways: as a standalone system, in a small-group shared environment, or with a central SQL database server on a database called the joint common database. The 3d ID used the latter for their Warfighter in 2002. The DAMO chose this option because it enabled the division to share data between TACWEB and MCS-L.

In July of 2001, code was added to the TACWEB that posted the unit locations from the Sitrep into the MCS-L JCDB as a graphic on an operational overlay. The most difficult part of this process turned out to be converting the grid coordinate from military to latitude and longitude. The JCDB's design allows many different systems to share data, and since the majority of other mapping systems use latitude and longitude, the JCDB does also.



This is the part of the unit Sitrep where location information is entered. Units enter grid coordinates for subordinate units in the center box. Once the user submits the Sitrep, the icons automatically update on the TACWEB overlay in MCS-L.

The formula for this conversion is not trivial. Fortunately, the MCS-L team provided our G-6 with a dynamic link library that contained the functions for many different coordinate conversions. After linking these functions into Cold Fusion, we could post unit icons onto MCS-L from TACWEB Sitreps. The G-6 demonstrated this feature to the CG and unit commanders and they accepted this as the 3d ID's primary "blue feed" to show friendly unit locations on a digital map. This integration began the building of our common operational picture on MCS-L.

Although this integration succeeded initially, the G-6 had a lot more work ahead for future integration. CSSCS integration ended once 3d ID upgraded to a version that allowed a Netscape browser to pull information off of the combat service sSupport control system. We integrated CSSCS into TACWEB by merely providing a link to one of the designated CSSCS boxes. The next systems that needed integration at this point were air missile defense workstation, advanced field artillery tactical data system and remote workstation.

Integration testing

In August of 2001, 1LT Robert Pitsko and I brought one of each ATCCS machines in the division to the battle simulation center for integration testing. After speaking with the contractors, we gathered enough information in order to make the systems communicate with each other using United States message text format messaging. The table below displays what each system uses to communicate, and which database they store their information.

After gathering data, we had to make the decision to try to use open database connectivity to the data-

System	Messaging Type	Database Type
AFATDS	USMTF 1993	Informix
AMDWS	USMTF 1993	Informix
MCS-L	JVMF	MS SQL/ACCESS/Informix
RWS	USMTF 1999	Oracle

base or their standard messaging. In the past, we made an ODBC connection from Cold Fusion to the Oracle database on RWS. However, this kind of connection required a different knowledge base from the contractors of the ATCCS machines. In addition, we didn't think the other contractors would be comfortable with a direct connection to their database.

USMTF messaging remains quite unique because it uses double addressing. The message itself relies on a simple e-mail template with typical e-mail addressing (i.e. AFATDS used fs@d3.c18.army.smil.mil). Within the e-mail body, there is an ATCCS alias (sometimes referred to as the OR name) consisting of a 32-character identifier for that machine. This addressing scheme adds complexity to the entire system. Defining the ATCCS alias can cause many problems because spaces at the end would commonly be truncated, which lead to undeliverable message failures. The e-mail address typically became the hardest part to set up when sending messages from the ATCCS box to the mail server (since we ignored the alias).

Initially we used Argosoft Mail server as the receiving machine for messages, and later used Microsoft Exchange Server 5.5. Since MCS-L clients only used JVMF, we decided to build a universal parser on the server in Cold Fusion that would accept messages from AFATDS, AMDWS and RWS. The end state for receiving messages was to accept operational graphics from AFATDS and AMDWS, and the enemy picture (Red Feed) from RWS. Although we wanted specific operational messages, we initially tried to receive a free text message from them first. This is where we ran into the problems that the rest of the ATCCS community faces: setting up the ATCCS address book.

Since we used such a light and configurable mail server, we quickly noticed the central problem: the e-mails from each machine were incorrectly addressed. Argosoft shows all connections, and logs all messages rejected, incoming or redirected. This log provided an invaluable source for information, in addition to our Ethernet sniffer we ran to view all transactions. After hours of frustration we digressed to the old Army standby and got out our butcher block. We wrote on a butcher-block board the Internet protocol addresses of each system, host names, user names and domain names for each system. With the previous confusion now neatly in order we began the initial part of the integration.

Anomalies develop

Although we initially defined our e-mail address as mcs@d3mcs.d3.c18.army.smil.mil, we started receiving messages to mcs@mcs, mcs@d3mcs, mcs@d3.c18.army.smil.mil, mvr@d3mcs.c18.army.smil.mil and mcs@[148.43.130.133]. Argosoft gave us an added benefit at this point; because it is possible to add in as many local domains as needed, which allowed us to correct addresses on the fly. The reason why there aren't problems like these on the Internet with standard e-mail is because Internet e-mail is transferred to different hosts by looking them up through a domain name system server. Instead of using an address book (which is always subject to errors), the remote mail server is looked up at the DNS based on the domain where the e-mail is destined. For example, if a message is destined to somebody@hotmail.com, the local mail server where the message is sent looks up the first mail server responsible for the hotmail.com domain. The DNS server returns the relevant server name, and that name will be looked up to find the IP address. Once that is found, the sending mail server makes a remote connection to the remote mail server on TCP/IP port 25, and the mail is sent using simple mail transport protocol commands. The Sun workstations powering the ATCCS community use a different process that looks up destination server information based on the local server's preprogrammed address book. Assuming this book contains correct entries, the systems listed should share their data.

Once freetext messages were received, we tried to send information that would be useful to MCS-L: operational graphics, contained in a USMTF S201, and enemy graphics, which we started with the S303. This is where we ran into yet another problem. We started with our system's address built into everyone's address book as an MCS system. The AFATDS quickly returned an error saying that it cannot send graphics to an MCS machine. The RWS said it couldn't send enemy units to an MCS machine. MCS-L is designed to show enemy units and operational graphics; however earlier releases of MCS did not have this capability. We quickly rectified the error by changing the AFATDS address book by changing our system type to RWS, and having RWS set up our system type to RWS. We didn't have the AFATDS set us up as an AFATDS, because AFATDS machines do not use USMTF to communicate with each other—they use proprietary user datagram protocol packet transmissions.

Integration successes

By the end of the week, we could receive operational graphics from AMDWS and AFATDS, and also S303s from the RWS. We built the parser in Cold Fusion since it provided a known (powers 3d ID TACWEB) method to interact with databases. Our Cold Fusion parser downloads the email using Post Office Protocol 3, and parses the message into the information needed to post graphics to the MCS-L JCDB. We also could take the freetext message sent to us, and reverse the "to" and "from" ATCCS alias in the message header, and send it back to the ATCCS machine. This verified the ability to send graphics and possibly the friendly picture to the other machines. The downfall with sending the friendly feed (done with S507L messages) remains task organization consistency. In order for the friendly feed to work, the

receiving machine must have a good task organization with all the unit identification code for all units that could possibly be sent. This is due to the message format—it only includes the military grid reference systems grid for each unit, and the unit's UIC. The other ATCCS machines typically did not have the 3d ID's task organization built into their system.

The following example shows two messages sent from AFATDS, and their result on MCS-Light:

Once we ironed out these details, we began our ramp-up exercises for Warfighter. At the final ramp-up exercise, another system that sent USMTF 507L messages appeared: the RTM. The RTM receives changes in the corps battle simulation and converts these to USMTF messages fed to every ATCCS machine at the lowest level (typically the battalion level). The purpose of the RTM feed remains in the elimination of the tedious work done at the battalion level, since the Warfighter evaluates the commanding general and staff — not how a battalion operates the ATCCS machines. Although a small controversy started over this process, we continued on our mission to accept the S507L messages from RTM, and parse these messages into the MCS-L JCDB. This process ran successfully during the ramp-up exercise, however the CBS link to RTM had some technical difficulties throughout the exercise, which resulted in stagnant units. Also during this exercise, we rewrote the header on the S507L messages, and sent them to XVIII Airborne Corps's GCCS-A machine (3d ID's higher headquarters). This integration requirement arose during the exercise, and we implemented the change at the beginning of the final ramp-up exercise.

We shared our integration efforts with the MCS-L team, and they built a stand-alone parser based on the same principles, but didn't require Cold Fusion to run. They created this parser in order to deploy it to other units, like 82d Airborne Division. The team programmed the parser in Visual Basic and used Microsoft Outlook for the mail client. This parser is currently capable of parsing S507Ls from RTM, and S309 messages from RWS. We initially used the S303 message; however it required the RWS operator to send it manually, which did not occur often enough. The S309 messages can be sent at timed intervals (typically 20 minutes), which leads to greater accuracy of the enemy picture.

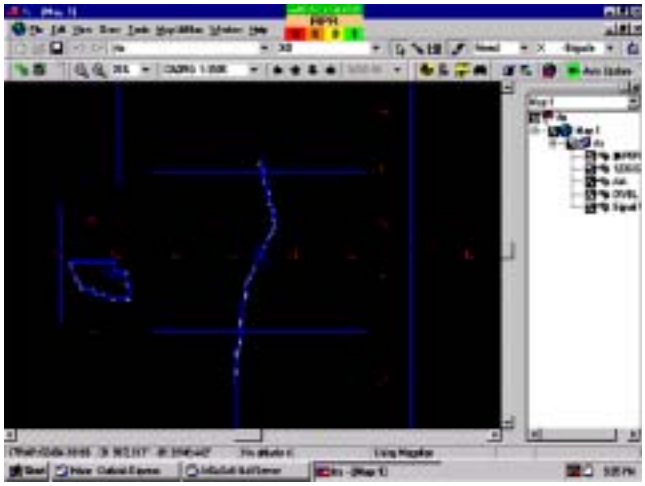
The MCS-L team provided an enhancement to MCS-L during one of our exercises. This new capability allows users to view combat power on friendly unit icons. Since TACWEB computes the combat power already, we wrote another query that updated the combat power along with the unit location on the TACWEB overlay. This example shows the need for changing command and control systems on the fly. During an exercise, the commander may realize he or she needs different views of the data in order to truly show combat effective-

Engagement area message:

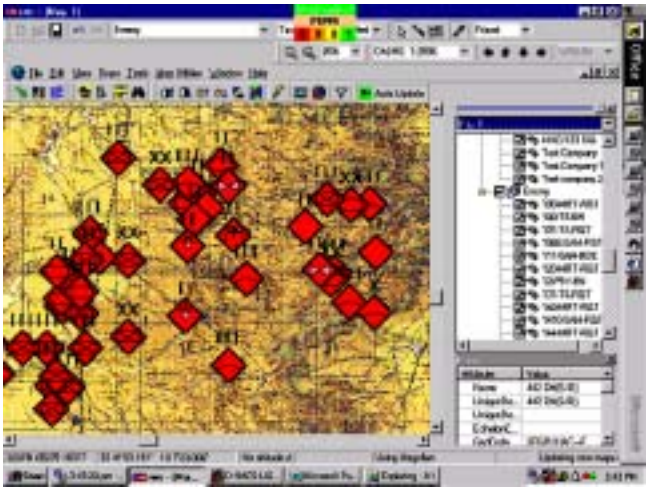
1121304S201 6gcakF011403ZAUG015 USDTAC FSE 3ID
USTOC DTAC ASAS 718091A10EXER/NOT GIVEN/-//
MSGID/GEOMETRY/USDTAC FSE 3ID/-//
OPTM/ADD//
KPERID/161506ZJUL01/161506ZJUL02/-//
KPLANORD/-//
BGEOMM/ENGAG/AIA/-/-//
PNT/ 1/41200/42700/ 2/49300/42700/ 3/49300/40900/ 4/51000/40900/ 5 /51900/35800/ 6/49400/36300/ 7/48900/35800/ 8/44900/37400/ 9/43600 /37500//
GZE/17SMR/17SMR/17SMR/17SMR/17RMR/17RMR/17RMR/17RMR/17RMR//
DECL/OADR//

Boundary line message:

1121304S201 6gdtBF011408ZAUG015 USDTAC FSE 3ID
USTOC DTAC ASAS 718091A10EXER/NOT GIVEN/-//
MSGID/GEOMETRY/USDTAC FSE 3ID/-//
OPTM/ADD//
KPERID/011300ZAUG01/021300ZAUG01/-//
KPLANORD/-//
BGEOMM/BDY/DIVBL/-/-//
PNT/ 1/74165/61919/ 2/76915/49651/ 3/71768/38229/ 4/69653/20179//
GZE/17SMR/17SMR/17RMR/17RMR//
DECL/OADR//



MCS-Light output after the above messages were sent. During the testing, maps were not loaded on MCS-L which results in the black background as shown.



This view of MCS-L shows an example of a multi-unit S303 message sent from RWS and parsed by the Cold Fusion parser.

ness. Command and control systems cannot wait for a requirement to pass through a program manager shop and sent to a contractor for further analysis.

These integration capabilities culminated at the 3d ID Warfighter in 2002. At the Division Main tactical operation center, the Solipsys system (an integrated battle command station) provided the primary view for the commanding general and primary staff, using five computer projection screens controlled by a video switch. Although the screen output configuration commonly changed, the primary views shown during the Warfighter were: TACWEB combat status, MCS-L common operational picture, AFATDS fire support overlay, UAV video feed and AMDWS overlays. The TACWEB combat status displayed a page that refreshes every five minutes that reflects the overall division equipment roll-up calculated from each of the units' Sitreps. The MCS-L common operational picture displayed the friendly units and enemy units, along with the division's operational graphics. The commanding general could choose between seeing the RTM friendly unit feed or the TACWEB friendly unit locations. The enemy feed came directly from the RWS S309 messages parsed at the MCS-L server. The AFATDS fire support overlay and AMDWS overlay showed a direct feed from the primary AFATDS machine in division main tactical operations center. The UAV feed came from a laptop using Microsoft Media Player to view streaming video from the DMAIN network. Microsoft Media Encoder provided the video stream for clients to view. This integrated system provided the commanding general and staff with a fully digitized view of the battlefield, and enabled them to make quick, decisive actions based on timely and accurate information.

Conclusion

Although 3d ID did not field Army Battle Command Systems 6.0 ATCCS machines, we did integrate the crucial command and control systems. CSSCS ran in stand-alone mode, however users could access it through Netscape with the addition of a thin-client. We integrated the other command and control systems in accordance with their design (USMTF messaging), and integrated our TACWEB system as a command and control tool that disseminates information to the lowest levels. The ATCCS systems may work much better together with expensive software upgrades and contractors like those at Fort Hood, however with command emphasis and a lot of technical coordination, we proved that integration could be done with any system that uses 1s and 0s to talk.

CPT Stephen Hamilton is currently assigned to the 57th Signal Battalion S3 and is developing a web-based soldier information system. While he was assigned to 3ID, he spent nine months in 3ID's G-6 Division Automation Management Office before deploying to Bosnia where he developed the peacekeeping version of TACWEB that is integrated with the Balkan Defense Initiative. Upon his return, the majority of his time was spent integrating TACWEB and command and control systems. Previously, he was assigned to 3ID's 123d Signal Battalion as a node center platoon leader. CPT Hamilton holds a B.S. in computer science from West Point.

Acronym QuickScan

ABCS - Army Battle Command Systems
ADC(M) - Assistant Division Commander (Maneuver)
AKO - Army Knowledge Online
AFATDS - Advanced Field Artillery Tactical Data System
ATCCS - Army Tactical Command and Control Systems
AMDWS - Air Missile Defense WorkStation
C2 - command and control
CBS - Corps Battle Simulation
CSSCS - Combat Service Support Control System
DAMO - Division Automation Management Office
DMAIN - Division Main Tactical Operations Center
DNS – Domain Name System
IP – Internet protocol
JCDB – Joint Common Database
JVMF – Joint Variable Message Format
MCS-L - Maneuver Control System (Light)
MGRS – Military Grid Reference Systems
ODBC – Open Database Connectivity
PM - program manager
POP3 - Post Office Protocol version 3
RTM - Run Time Manager
RWS - Remote WorkStation
SMTP - Simple Mail Transport Protocol
SQL - Structured Query Language
TACWEB - Tactical Website
TCP/IP - Transmission Control Protocol/Internet Protocol
TCRIT - Target Criteria
TIDAT - Target Intelligence Data
TOC - Tactical Operations Center
UAV - Unmanned Aerial Vehicle
UDP - User datagram Protocol
UIC - Unit Identification Code
USMTF - United States Message Text Format

Warfighter:

10th Mountain Division's winter training exercise

Blowing snow obscures the N83 site at division main.

by CPT Pam Newbern

Fort Drum is known for its cold weather and record snowfalls. The winter of 2003 brought not only extreme cold, but also heralded the arrival of the 10th Mountain Division's bi-annual Warfighter exercise.

Fighting the cold weather while meeting the networking requirements for the Warfighter provided a unique series of challenges to the members of the 10th Signal Battalion. The battalion provided communications support for the division, several National Guard and Reserve units from as far away as Idaho, members of the Battle Command Training Program from Fort Leavenworth, and the exercise evaluators from the XVIIIth Airborne Corps. The Warfighter is held every two years to evaluate the division's readiness status.

At the beginning of the exercise on Jan. 13, many of the soldiers in 10th Signal Battalion had difficulty just getting out to their sites on what is known as "Old Post" at Fort Drum. Blinding snowfall and whiteout conditions forced the post to shut its roads down for almost three hours that day, trapping some soldiers who had already gone out, while leaving others sitting in the motorpool. However, the soldiers in the field were able to maintain contact via FM with the 10th Signal Battalion Headquarters, and began setting up their sites, while waiting for the blizzard to blow itself out.

Once the road conditions were lifted from black to red in the mid-afternoon, the remainder of the battalion rolled to the field. Here, they encountered another problem as drifting snow made it difficult to reach their sites. Prior to the start of the exercise, the platoons had gone out with snowplows to clear the worst of the snow away. The division had already provided this service for its main, rear and TAC sites. However, the outlying node centers were required to re-dig their sites to allow for entrance. Soldiers using the battalion's snowplows and shovels cleared the sites enough to allow entrance.

As setup began, another problem presented itself as the soldiers began digging in their grounding rods. Frozen ground made it difficult to get the rods in, and the sub-freezing conditions ensured that more than one ground rod broke at the head. Soldiers from one small extension node found themselves trying to pound a ground rod into a blacktop, which had been concealed by more than two feet of snow. By steadily working away at the grounding rods, soldiers were eventually able to work almost all the rods into the ground. In the case of the blacktop, the SEN moved its grounding rods several feet away until it hit dirt and was able to work the grounds in. Salt was placed on top of the ground to allow for increased conductivity, and soldiers were instructed to constantly monitor the grounding sites to keep them from being concealed by repeated snowfalls.

Tent setup was also difficult. Plywood was initially used for some floors, while the inner lining of the tents also was hung up to eliminate the worst of the drafts. The battalion ordered interlocking floors for the node centers, which arrived partway through the exercise. As the snow continued to fall, snowplows were used to construct berms around the node centers and the systems control, creating a series of windbreaks.

Perhaps one of the toughest jobs belonged to the battalion's "aerial team." Composed mostly of its 31Ls, or cable dogs, the team was pulled from across the battalion under the direction of the senior 31L, SSG Peter Cyprian. The group began before the exercise to construct custom-built "aerials" which would

Plowed less than two hours before, snow has drifted across the access to one of the 10th Signal Battalion node centers. High winds and drifting snow were common in January.

be tall enough to raise the cables over the high snow drifts, while keeping them embedded in the earth and snow. Each aerial was composed of several 14-foot-long wooden boards, bolted together in the middle with a two-foot braces. The resulting "legs" allowed the cables to be raised up to 23 feet. It took the team seven hours to complete the first 30 legs, although it became increasingly proficient as the exercise progressed.

"We did the assembly portion in the field, because of the height," said SSG Cyprian, who designed the aerials himself. "I tied a piece of 550-cord to the end and was pulling on it as they raised it like an OE-254 cable."

Raising the aerials in the sub-zero weather was particularly difficult. "It was a challenge with the temperatures," Cyprian said. "Cold fingers don't tie knots very well."

One of the problems the team also encountered was having to re-lay cables or run new cables after the aerials had already been directed, as division command posts were established and the need for more cables was discovered. In addition, high winds knocked four of the aerials down in one night, forcing the team to be called out on a Saturday morning to rebuild the aerials. The team normally did not work at night, as the sub-zero conditions and biting winds made it dangerous for the soldiers to be out for more than a few minutes.

An ice storm on Feb. 22 left its mark on the cables, as well. Temperatures warmed up briefly for a day, and rain began falling. The temperature dropped that night, leaving a thick layer of ice on everything, including the cables. The aerials bowed under the weight of the ice, forcing the team to reset the aerial struts. The SYSCON directed the team to build additional struts to keep in reserve in case a new aerial was needed, or if existing aerials struts were broken.

Keeping soldiers safe and warm quickly became a primary focus for leaders, as temperatures dropped to as low as –38F. Windchill added to the severe conditions. The battalion command sergeant major regulated the uniform for each day, directing soldiers to wear the white vapor boots, known locally as the "mickey mouse boots" during the worst of the weather. Balaclavas, trigger-finger mittens, and gortex tops and bottoms were also required, along with kevlars and load bearing equipment. Leaders monitored the sites, and kept a close watch to correct soldiers who might nip out of a warm tent or shelter to quickly check the generator without bothering with items like hats or gloves.

With temperatures dipping down to –38F, shelters were put on minimum manning to reduce the chances for cold weather injuries. Vents in all the shelters were left open to avoid the danger of carbon monoxide buildup. Leaders checked the vents at regular intervals to ensure they were open, and instructed soldiers to do the same.

Performing maintenance under such trying conditions was also a challenge. Generators were prone to having water and fuel lines freeze, while the rapidly rising and lowering temperatures left tires soft or flat. The 10th Signal Battalion placed its maintenance crews on 12-hour shifts, and enabled them to work from the rear. Because of the proximity to the node center sites, mechanics could arrive on site within 20 minutes to assess and fix a problem. Among the most common problems on vehicles were glow plugs going out, and starters not working. Soldiers were

View of I10's site. This small extension node supported a National Guard unit from Idaho.

A close-up view of one of the aerials constructed by the 10th Signal Battalion's aerial team.

instructed to start vehicles regularly, and preventative maintenance checks and services procedures were constantly emphasized and enforced by key leaders. Vehicles were dispatched for up to a month, but the battalion's maintenance tech, CW2 Vangorder, spot-checked them on a daily basis. Soldiers were required to conduct the PMCSs at the start of their shifts, not at the end, so they could be sure the vehicles were operational at the time they came on. Maintenance crews worked during the day to fix vehicles on site, but at least two switches had to be "swung" from one vehicle to another after mechanics determined the original vehicle had to be evacuated to the rear for repair.

The extreme temperatures and high winds also posed special problems for MSE equipment. Because most of the sites were located so close to each other, many of the switches were cabled in. Keeping the cables from being run over or frozen into the ground was a constant battle for the soldiers. In addition to the efforts by the aerial teams, soldiers were instructed to dig the cables up and place them in some locations on tripods to keep them visible.

As snow continued to fall in January and February, the battalion was kept busy plowing access roads to the sites. The wind could blow the snow back across the road so quickly that one site was not even aware it was snowed in until its company commander waded in through knee-deep snow after her high mobility multipurpose wheeled vehicle had to stop to avoid getting stuck.

Keeping services up to date was particularly challenging during the exercise. Half of the battalion had been involved in back-to-back exercises at Junior Reserve Training Corps in October and December, and many of its services had become overdue, since the equipment had been left in Louisiana between the exercises. Because the division's Warfighter exercises also were almost back-to-back, (Jan. 13 – 31 , Feb. 7-13 and Feb. 27 - March 13), the Battalion Commander, LTC John B. Hildebrand, had designated that the battalion's switches would roll to the field on Jan. 13, and not come out until the end of the actual WFX on March 13. This was done to ensure the network systems remained in place, since the division and brigade tactical operation centers also

Mechanics and soldiers from B Company, 10th Signal Battalion, check a generator at one of the small extension node sites. Second from left, SGT Jorge Ramos. Far right, 1SGT Brian Warren.

SSG Anthony Matone, B Company, 10th Signal Battalion, directs a new vehicle into place as the company wrecker hoists N82. The vehicles had to be changed out when the original one developed problems with its starter and flywheel. Temperatures were well below zero, making it safer for mechanics to remove the vehicle and tow it to the maintenance bay out of the frigid air for repair.

remained in place. A gap between the second and third exercise, from Feb. 14 – Feb. 27, was sufficient to allow many of the switches to be moved back to the rear for quarterly and semi-annual services. In addition, the battalion put off deep cleaning any of its shelters until April. Companies pulled generators and trailers back from the field for regular services, while commanders coordinated through the S3 to shut down shelters for services at times when the division was not in the field. Thus, the companies were able to keep their services mostly current while continuing to support the division.

As the network solidified, soldiers began improving their respective sites. In addition, companies were able to conduct additional training, such as the requirement for four hours of Mission Oriented Potion Posture-4. Because of the cold weather, soldiers were actually happy to wear the MOPP suits, because they kept them warmer. Other events also were conducted, such as change of command inventories. One incoming commander had to count cables, antennas and basic initial issue in a blowing snowstorm.

Well into March, sub-zero temperatures continued to hit the area. The final WFX exercise ran from March 9-13. However, the Signal soldiers had returned to the field on Feb. 24 to ensure the network was up and running prior to the beginning of the final exercise. This enabled the battalion to pinpoint any problems with hardware or software, and also to continue site improvement.

Continual improvement was the signal battalion's hallmark throughout the series of exercises. From its beginning in a blinding snowstorm to its completion on March 13, the Warfighter taught the soldiers not only about mobile subscriber equipment operations, but also how to survive and thrive in the sub-arctic conditions which marked northern New York in the winter of 2003.

CPT Pam Newbern is the commander of B Company, 10th Signal Battalion, at Fort Drum. Her prior assignments at Fort Drum include G6 Plans Officer and Assistant S3. Previous assignments include Platoon Leader and Executive Officer, B Company, 122d Signal Battalion, Camp Casey, South Korea; S1, 125th Signal Battalion, and S6, 65th Engineer Battalion, Schofield Barracks, Hawaii. She holds an associate's degree in computer science from Hawaii Pacific University, and a bachelor's and master's degree in journalism from the University of Montana.

Acronym QuickScan

BCTP — Battle Command Training Program
BII – basic initial issue
CPs — command posts
DMAIN — Division Main
DREAR — Division Rear
DTAC — Division Tactical Actions Center
HUMVEE – high mobility multi-purposed wheeled vehicle
JRTC — Junior Reserve Training Corps
LBE – load bearing equipment
MOPP — Mission Oriented Protective Posture
MSE — mobile subscriber equipment
PMCS — preventive maintenance checks and services
SEN – small extension node
SYSCON — Systems Control
TAC — tactical
WFX — Warfighter Exercise

Can you hear me now?

40th Sig Bn keeps CJTF-HOA communications up and running

by CPL Paula M. Fitzgerald

CAMP LEMONIER, Djibouti — Since it was constituted in 1942, the Army's 40th Signal Battalion has played an integral role in numerous military operations. Keeping up that tradition for Combined Joint Task Force - Horn of Africa are the soldiers of A Company, 40th Signal Battalion from Fort Huachuca, Ariz.

To help the task force detect, disrupt and defeat transnational terrorist cells in the Horn of Africa region, the company is equipped with state-of-the-art communications equipment and soldiers with the know-how to operate and maintain that equipment.

"Our primary responsibility is to provide the commander the means to communicate with the people he needs in order to get the mission done. The second mission is to improve the morale of the troops by letting them talk to their families back home," said CPT Brent O. Skinner, A Company commander. "We do that by providing things like telephone connections, Internet and video teleconferencing."

Since August, the "Gators" of A Company have installed and maintained nearly 200 telephones and 750 computers throughout the camp.

Skinner, of Staten Island, N.Y., added, "Considering the limited amount of soldiers I have out here, the amount of work they have done so far is tremendous."

In order to provide quality service to the troops here, the company is divided into separate sections: data to run the servers; switch to maintain the telephones; tactical satellite; and cable and nodal operations to provide troubleshooting.

SPC Larry Ogdin, switch operator, A Company, 40th Signal Battalion, performs basic troubleshooting using the IGX Redcom Switch. The device is used to hook up telephone lines.

SSG Jose P. Garcia, tactical satellite communications, A Company, 40th Signal Battalion, ensures a tactical satellite is working properly. Garcia from Gatesville, Texas, is serving with Combined Joint Task Force to defeat terrorism.

To prepare for deployment, the soldiers train in the field three months of the year. The mission at home and the mission during a deployment are basically the same — to afford top-notch communication to troops.

The assignment to CJTF-HOA is providing these soldiers with experience in real-world operation with members from all armed services.

SPC Jose Garcia, a cable installer from Atlanta, said, "Back in Arizona, we inventory gear and get ready for missions. Now we're out here in Djibouti, Africa, doing our job for real."

As a cable installer, or "cabledawg," Garcia is responsible for anything telephone-related.

He said, "We run phone lines to connect the camp, and we do troubleshooting pretty much everyday for people who need our help."

The biggest challenge he said he's faced during this deployment has been working alongside the different services.

"The Marines, the Air Force and the Army all have their own ways of doing communications," explained Garcia. "It's sometimes hard trying to get things accomplished, but we talk to one another so we can all do things the same way."

According to Skinner, his company has been able to develop good, working relationships with each service.

"It's interesting learning from the other branches and seeing how they do certain things," said Skinner.

"When we get deployed, we don't have to rely on anyone for equipment. We are completely self-sufficient," explained Skinner. "We have soldiers who do maintenance, NBC training (nuclear, biological,

chemical) and supply.

"Everyone has come together during this deployment. As usual, safety has been our number one concern. One thing I always try to drill in my soldiers' heads is that the mission is not over until everyone is home safe."

NOTE: This article is reprinted with permission from the Marine Corps News web site. It is submitted by: Combined Joint Task Force - Horn of Africa.

ACRONYM QUICKSCAN

CJTF-HOA – Combined Joint Force-Horn of Africa
NBC – nuclear, biological, chemical

3rd Signal Brigade
Conquers voice, data and video

by 1LT Michael Leon Windon

The 57th Signal Battalion, 3d Signal Brigade whose motto is "We Conquer Space" was selected to be a key player in this year's TechNet International hosted by the Armed Forces Communications and Electronics Association. The 57th Signal Battalion working in conjunction with the Defense Information Systems Agency, the Signal Center's Battle Command Battle Labs, and the Joint Communications Support Element showcased the potential to support network centric communications using the convergence of voice, data, and video services over a single IP data network. This 3-day convention is one of DoD's largest industry focused events demonstrating their ability through innovation and initiative to meet the growing command, control, communications, computer and intelligence needs of our military. The focus of this year's TechNet was "Exploiting Emerging Technologies in Support of the Global War on Terrorism".

One such emerging technology that is essential to meet many of today's C4I requirements is based on the convergence of voice, data and video networks.

The 57th Signal Battalion not only demonstrated the potential of this convergence but "conquered space" by dynamically allocating bandwidth over its multiple satellite links to Fort Gordon, Fort Belvoir and Tampa, Fla. using this technology. These links included commercial Ku-band using an AN / USC-60 provided by L3 communications, a Defense Satellite Communications System X-Band using an AN / TSC-93B, and a military strategic, tactical and relay extremely high frequency link using secure mobile anti-jam reliable tactical terminals. An on-site Computer Information Systems Company wireless access point provided wireless connectivity to a tactical voice-enabled personal digital assistant and a mini video-enabled Sony notebook.

Users at Fort Hood were able to seamlessly participate in voice and video calls to Fort Gordon, Ga. and Tampa, Fla. The 57th Signal Battalion also utilized General Dynamic's Vantage node. The Vantage along with a CISCO call manager is a voice over Internet

Equipment used in the TechNet is shown above including the USC-60 (center) and voice over Internet protocol Vantage server (right). Right are 1LT Michael L. Windon and SSG Dwayne Lehnert, 57th Signal Battalion, standing next to the VoIP jump transit case.

protocol software private branch exchange that performs gatekeeper functions for VoIP telephones and also provides a gateway interface to our mobile subscriber equipment. In its current configuration the Vantage can support both plain old telephones (using CISCO VG-248s or commercial T1 channel banks) and VoIP phones over our existing local area networks. "The Vantage brings commercial office features such as voicemail, conference calling and call transferring to the field," says PFC Benjamin A. Naiper, a Vantage operator from D Company, 57th Signal Battalion.

LTC Barry Hensley, commander of the 57th Signal Battalion, also stated "This proof of concept was a major success as it clearly demonstrated the potential of network convergence in support of the warfigher. Everything over IP does have its challenges from configuration management to quality of service; however, we have the expertise and determination to conquer."

1LT Windon joined the National Guard in 1996 at the age of 17 under the split option program. He attended basic training during the summer of 1997, also his junior year in high school. After graduating as distinguish honor graduate from basic training on August 18, 1997; returned home to finish his senior year of high school in 1998 and entered college.

Windon joined the Reserve Officer Training Corps at Sam Houston State University, Huntsville, Texas in 1999. He gained experience working for the campus computer department which was a outsourced computer hardware and limited networking job. He later worked for the Texas Department of Criminal Justice Facilities Division as a network technician.

He is a gradate of Sam Houston State University where he received his ROTC commission as an United States Army Signal officer. Duty assignments include: the small extension node platoon leader, D Company, 57th Signal Battalion and assistant S3 for the 57th Signal Battalion.

ACRONYM QUICKSCAN

AFCEA – Armed Forces Communications and Electronics Association
BCBL – battle commands battle labs
C4I – command, control, communications, computers and intelligence
CISCO – Computer Information Systems Company
DCSC – defense satellite communication system
DISA – Defense Information Systems Agency
EHF – extremely high frequency
JCSE - Joint Communications Support Element
MILSTAR – military strategic, tactical and relay
MSE – mobile subscriber equipment
PBX – private branch exchange
PDA – personal digital assistant
SMART-T – secure mobile anti-jam reliable tactical terminals
VoIP – voice over Internet protocol

Joint Force C4I integration – *significant challenges ahead*

by John Saputo

Horizontal and vertical integration of command, control, communications, computers and intelligence capabilities within a United States joint military force is the key enabler necessary for commanders to be decisive in operations. Lack of timely understanding of national, local, state and military information across the total horizontal and vertical spectrum decreases the joint force commander's effectiveness. Joint integration leverages operational and tactical information for a maximum unified effect against the enemy. This is important not just for combat action, but all military operations.

A plethora of legislation, directives, visionary documents and initiatives such as the Goldwater-Nichols Act, the ambitious Joint Vision 2020 and global information grid, along with catchy terms such as "information superiority" and "common operational picture" are evidence of attempts to move towards improved joint integration. Despite these efforts, recent operations continue to reveal interoperability problems. Joint integration remains a constant and high, but elusive, Department of Defense priority.

And now in the wake of 9-11, Homeland Security goals make information interoperability between a joint military force and local, state and federal organizations an additional and even more challenging requirement. To achieve significant joint integration, improved management practices within the Defense Department are required.

This article traces the legislative history of the department and highlights key joint initiatives to provide a framework for current successes and failures of joint integration. It also outlines the realistic steps necessary to achieve an adequate integration end state.

The ability to have full C4I integration is unarguably the singular element needed to significantly improve tactical, operational and strategic effectiveness. As the tempo, lethality of warfare and automation of military operations increase, the need for C4I integration within a joint force increases proportionately. Because today's operations rely heavily on timely and accurate information from joint service (ground, maritime, air and space) and now local and state automated systems, a case can be made that joint C4I horizontal and vertical integration is the center of gravity of force operations.

> ***'Joint force C4I interoperability is the ability of combatant commander's and service's C4I systems to provide and accept capabilities and information (e.g., readiness, positional, targeting, intelligence, maneuver, support, transportation and medical) from other systems and processing the information effectively.'***

Winning quickly depends on the ability of a joint force commander to rapidly process and disseminate ground, sea, air and space information from different sources. Modern warfare is automated information warfare, which facilitates and complicates the integration problem. During the Cold War, large standing forces were available to counter the Soviet threat.

Today, a smaller and highly mobile joint force is assembled with minimal time for planning, coordination and training across service functional boundaries in ad hoc configurations for a wide assortment of diverse operational objectives. Yet, joint force C4I information is deconflicted rather than interoperable and integrated. Joint force success at the tactical and operational levels is predicated on being integrated to exchange information vertically and horizontally across multiple organizational levels.

But joint C4I integration remains difficult to define, implement and test. Integration is a complex principle rather than a definable and measurable attribute. Joint integration should be considered largely as the interactions between people, systems and information and firmly based on joint and not service doctrine.

Joint integration needs to be vigorously managed, acquired jointly using specific joint standards and trained periodically as a joint entity. Viewing integration from a purely technical aspect fails to properly frame the principle. Attempting to provide joint integration using only service and agency systems and technical approaches will result in continued deficiencies in joint force capabilities. Integrating disparate systems as an after thought is a technique prone for failure.

It is important to note that the terms "integration" and "interoperability" are related but not synonymous. Joint force C4I interoperability is the ability of

combatant commander's and service's C4I systems to provide and accept capabilities and information (e.g., readiness, positional, targeting, intelligence, maneuver, support, transportation and medical) from other systems, and processing the information effectively.

Joint interoperability is essentially about exchanging and processing multiple sources of information to generate timely effective decisions and actions. Joint integration is the next necessary step beyond interoperability and allows the joint force C4I "system of systems" to function independently. An integrated joint C4I capability must be interoperable but interoperable systems need not be integrated.

Today, combatant commanders frequently raise C4I integration as critical shortfall. Cursory analysis of past joint operations in Grenada, Somalia, Bosnia, Kosovo and Kuwait reveals that this is not a new problem. The joint force to Grenada lacked an integrated and interoperable communications system. The uncoordinated and incompatibility of radio frequencies caused a lack of tactical communications between the services that prevents force awareness and facilitates a dangerous situation between the Marines and Army Rangers. In one of the many interoperability problems during Desert Storm, the airborne warning and control system could not relay information to each service because of frequency dissemination procedures. In his after-action report of Desert Storm to Congress, the Secretary of Defense stated that greater attention must be paid for improved interoperability in future conflicts. Lessons learned from Operation Restore Hope in Somalia revealed that, "the continuing problem of aligning systems, procedures and standards in the joint environment."

Kicking the can down the road

Granted, joint interoperability and integration receive much more notoriety than in the past but a quick review of current operations, recent exercises and service funding plans reveals the real story—slow progress is being made but joint integration will remain limited at best. Why? Service attempts to prioritize joint interoperability requirements are unconvincing using affordability, sunk-costs and Title 10 as the key reasons to continue development of service-centric programs. Services operate in a bureaucratic, competitive and funding constrained environment.

The United States entered the second World War with an organizational structure that was incapable of coordinating land, sea and air activities across the two military departments. In 1942, President Franklin Roosevelt created the Joint Chiefs of Staff and the outcry over Pearl Harbor prompted the creation of European and Pacific unified theater commanders to wrestle with delivering a U.S. military response. The National Security Act created a "national military establishment" construct to be placed over the War Department. The act prescribed a secretary of defense with limited power and retains the service boards to govern the organization. The act gave legal acknowledgement to the JCS but the services continued the domination of the department with veto power and on issues of mutual interest, the services aligned in opposition to defeat any joint recommendations. The military's perceived poor performance in Vietnam and subsequent bungled operations in Iran, Lebanon and Grenada further revealed the critical need for improvements in joint operations and structure.

'Joint integration is the next necessary step beyond interoperability and allows the joint force C4I "system of systems" to function independently. An integrated joint C4I capability must be interoperable but interoperable systems need not be integrated.'

The almost five-year campaign to strengthen and improve capabilities of the Chairman of the Joint Chiefs of Staff and the unified commanders began in February 1982, when GEN David Jones, then chairman, appealed to the House Armed Services Committee for immediate reform. A senior study group recommended reforms within the department and reported that a certain amount of service independence was desirable but the current department balance always favored the parochial interests of the services. They claimed that the unification of commands and the state-of-the-art of the U.S. military fighting joint are more cosmetic than substantive. Indeed, in control of their own fiefdoms, the service chiefs had no intention of ceding even the slightest bit of control to the CJCS. Hard line legislation was needed.

The Goldwater-Nichols Act of 1986 caused major defense reorganization. Now, planning and operational authority are centralized through the CJCS as opposed to the service chiefs. The CJCS was designated as the principal military advisor to the President, National Security Council and Secretary of Defense. The act streamlined the operational chain of command from the President to the Secretary of Defense to the CJCS to the unified commanders. And the Goldwater-Nichols Act further mandated the CJCS to closely monitor the service interoperability attempts by reviewing requirements documentation and approving program milestones. On the surface, it appeared that joint integration was moving towards being a reality.

The joint strategic planning system is the formal means by which the chairman gives strategic plans and direction to the services. A major part of the JSPS is the joint

warfighting capability assessment process. The JWCA process is the CJCS vehicle for obtaining a systematic view of future joint warfighting capabilities. Assessments examine key relationships and interactions between joint capabilities, and identify opportunities for improving warfighting effectiveness. The continuous assessment process provides insight into issues involving interoperability, requirements, readiness and recommends plans for joint military capabilities. Findings are presented to the joint requirements oversight council. The final assessment products are intended to by used to influence service programming and budget guidance.

The JROC is the main the tool to assist the CJCS in the effort to force joint integration. The JROC's origins date back to the early efforts of the Ronald Reagan administration to develop more coherent defense programs and minimize service system duplications. The initial recommendation that a senior group be established to review and manage joint programs was proposed in a 1984 study by the defense science board.

In response, the CJCS established a joint requirements and management board consisting of the four service vice chiefs and interestingly not the unified commanders. The JRMB was renamed the JROC and agreement is based on consensus. The JROC has only recently requested an operational concept, and operational and tactical architectures for a joint force C4I.

Today responsibilities of joint forces command as the joint force provider continue to increase in an attempt to define joint strategy, doctrine and force structure. Not only does the JFCOM retain its responsibilities as the joint force trainer, integrator and force provider, it assumed new highly ambitious responsibilities of combining service and defense agency capabilities to enhance joint interoperability. JFCOM is to create new joint war-fighting concepts as well as design and prepare programs for joint war fighting and identify integrated systems that will optimize interoperability key performance parameters for the joint force. The services are keenly observing JFCOM's progress.

New or enhanced technological initiatives such as the net-centric enterprise services and the joint command and control systems promise better C4I integration for the combatant commanders and joint force. The NCES has been proposed to provide a common set of information capabilities across the DoD. The department's command and control system is scheduled to evolve from its current state of joint and service variants to a single joint C2 architecture and capabilities-based implementation comprised of joint mission capability packages and service applications.

'Today, commanders can get preliminary data almost immediately ... Commanders and analysts now can watch live video of a battle as it unfolds from a Predator drone. Pilots from the Navy and Air Force can talk and share computerized target data with each other and U.S. forces on the ground.'

JC2 is based on NCES infrastructure enabling shared access to service / agency / joint-provided data sources. As the DoD transforms the way it interacts with other elements of national power and with the international community, JC2 will extend its C2 interoperability to support information exchange with multinational and non-DoD partners.

For example, JC2 will enable the DoD to exchange information and work closely with key federal agencies and multinational partners to accomplish the strategic objectives of preventing terrorist attacks within the U.S. and reducing America's vulnerability to terrorism.

Integral to the DoD's efforts to strengthen joint operations and improve integration, JFCOM is developing the standing joint force headquarters. The deployable joint command and control will provide the materiel solution for the SJFHQ.

For all these technological, bureaucratic and resource intense efforts, providing significant C4I integration to the joint force remains slow.

However, some successes must be noted. Air tasking order dissemination across the service systems is a significant improvement from 1991. During the Gulf War, for example, commanders had to wait two or three days to get assessments of the damage caused by allied bombing run. Today, commanders can get preliminary data almost immediately - either from the planes that dropped the bombs, other aircraft or unmanned drones in the area. Commanders and analysts now can watch live video of a battle as it unfolds from a Predator drone. Pilots from the Navy and Air Force can talk and share computerized target data with each other and U.S. forces on the ground. Today commanders have new capabilities that allow full advantage of precision-guided munitions, flexible surveillance and reconnaissance assets, and real-time situational awareness that reaches across the full spectrum of service participants.

DoD is not organized for joint warfare

Fundamentally the joint interoperability challenge is deeply rooted in the broader issue of the distributed and horizontal structure of the DoD that promotes competitive relationships within the department between the military services and especially between the joint community and the services.

The National Security Act codifies into law the national military command structure that exists today. The legislation clearly

intends the services to retain much of their autonomy and promotes service core expertise (ground, sea, air) but indirectly creates a competitive environment between the services discouraging joint efforts. Because of decreasing funding appropriations, joint interoperability usually takes a back seat to service-centric initiatives.

The Goldwater-Nichols Act is the driver behind the shift in the focus of conventional warfare from a service centric operation to a joint operation. But the legislation directs a complete overhaul of the defense organization by increasing *some* authority of the chairman of the Joint Chiefs of Staff and the unified combatant commanders.

Specifically, the legislation focuses on improving the joint requirements or capabilities side of the department but does nothing to the business side of the department. While the Goldwater-Nichols Act realigns organizationally, the funding resource prioritization remains with the already funding constrained services.

The CJCS and the combatant commanders receive no funding resources for development or integration of joint C4I systems. That responsibility remains with the services. Under U.S. Title 10, services organize, supply, equip, train and mobilize forces for the operational requirements of the unified combatant commands. Today, the service departments remain centralized, hierarchical and highly autonomous, and none view the primacy of joint C4I interoperability as the principal mandate.

Regional combatant commanders wishfully expect joint C4I interoperability to be present in service and agency systems.

Operation Iraqi Freedom demonstrates the need for significant technological work-arounds and unique C4I configurations highly dependent on trained contractor support.

The way ahead

In the long run, improving joint force C4I integration is largely a matter of prioritization and management rather than of resolving technology issues.

While changes in doctrine, assessment, acquisition, standards and training are the underpinnings of achieving joint force C4I effectiveness, focused management with improved practices are the keys to reaching the required level of joint integration.

The current and anticipated defense budgets even with the business efficiencies achieved to date through downsizing, best practices and using commercial-off-the-shelf equipment and software are insufficient to fund current or future joint C4I integration requirements, therefore tradeoffs will need to be made based on the prioritizations of the combatant commanders. No redistribution of C4I program or integration funding from the services to JFCOM is forecasted therefore without specific guidance prior to the yearly POM submissions, the services will continue to dominate the resource allocation process with service-centric programs.

'Operation Iraqi Freedom demonstrates the need for significant technological work-arounds and unique C4I configurations highly dependent on trained contractor support.'

As an oversight measure, OSD should realign the business end of DoD with the intent to withhold service C4I procurement and research and development funding pending approval of a joint horizontal and vertical integration plan for all C4I systems. This measure mandates that a concise joint force C4I functional operational and tactical architecture exists.

Development of operational and tactical architectures covering the totality of the joint force's C4I requirement is not feasible today albeit progress is being made. The joint staff J6 along with JFCOM is developing operational and tactical C4ISR architectures for a future joint force founded on seven primary capabilities—decision making, flexible synchronization to achieve an intent, shared understanding, tailorable organization, dispersed command and control, operation integration, and simultaneous command and control processes. Each must have corresponding metrics.

The tactical and operational capabilities needed by the joint force commander must remain the primary driver of interoperability solutions and investments. These capabilities need to be defined at the operational level of command (e.g., the combatant commander, standing joint force headquarters and joint task force commander) and at the tactical level where the services systems exchange information to accomplish service-centric missions.

A continuing assessment process needs to be in place to measure the C4I capability of a joint force. The Secretary of Defense and the CJCS should establish processes to assess C4I interoperability and integration on a regular basis and establish reporting requirements of C4I operational and tactical integration readiness by the combatant commanders and the services.

The end state

The objective therefore is an integrated C4I joint force capability that exchanges accurate air, maritime, ground, space, pertinent national, local and state information vertically and horizontally in a required time period and functions as an independent system.

The joint force system must not be burdened with today's deconfliction approaches that are based on work-around technical solutions using middleware and translators which hinder performance and limit accuracy. Integrating legacy and "stand alone" service

and joint automated systems together into a makeshift joint system fails to provide the combatant commander and his force a reliable warfighting tool.

Joint force C4I integration must be acquired, integrated, tested, trained and managed from inception as a joint initiative.

As with all needed capabilities, joint force C4I integration must be balanced against other requirements to include system security, availability, flexibility, survivability and performance. While progress is being made, the vision of a defense-wide view of C4I articulated in Joint Vision 2020 remains highly ambitious.

While full joint force C4I is unachievable, a high degree of C4I integration is necessary. To achieve joint force C4I integration requires joint doctrine and definitive guidance and vigorous oversight. Joint C4I integration will provide a joint force the needed capabilities for a 21st century force.

Mr. Saputo works for the Army CIO/ G6. Supato has more than 25 years of experience primarily in command and control systems and has a degree in computer engineering from the George Mason University.

ACRONYM QUICKSCAN

C2 – command and control
COTS – commercial-off-the-shelf
DJC2 – deployable joint command and control
JC2 – joint command and control
JFCOM – Joint Forces Command
JROC – Joint Requirements Oversight council
JRMB – Joint Requirements and Management Board
JSPS – Joint Strategic Planning System
JWCA – Joint Warfighting Capability Assessment
NCES – Net-Centric Enterprise Services
SJFHQ – Standing Joint Force Headquarters

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'To achieve joint force C4I integration requires joint doctrine and definitive guidance and vigorous oversight.'

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Pulse

Commentaries and letters to the editor... to correct "the record" and express opinions

COMMENTARY: ARE YOU A TRANSFORMING MAMMAL, BUG OR DINOSAUR?

by Patrick Swan

WASHINGTON - Something happened a long time ago that led to change on our planet.

One popular theory is that a large meteor crashed into the Earth, dramatically altering the environment. As a result, we believe the dinosaurs perished, the bugs stubbornly survived and the mammals thrived.

A few years ago, another meteor slammed into the Earth, at least in a figurative sense. We call that meteor Army Knowledge Online, https://www.us.army.mil.

Since its inception in 1999, AKO has delivered the tools, information and services that best help the Army to serve the country at any time and from every station. AKO is the pivotal tool in transforming the Army into a knowledge-based organization. And, as the one stop for Army information, AKO is strategically changing the way the Army does business.

It enables greater knowledge sharing among Army communities, provides a career lifetime e-mail address, a customizable portal, online transaction-processing capabilities, and is accessible to its customers anywhere in the world. To face the many challenges of a changing future, AKO continuously enhances its capabilities as technology is developed and the needs of the Army demand.

And the thing is, AKO is not some abstract concept that is "coming soon" to a post, camp or station near you. It has already hit the Army — and hit the Army hard. How well soldiers and civilians adapt to AKO will determine whether they trot in the footsteps of the dinosaurs, bugs or mammals of our day.

Those soldiers who emulate dinosaurs are those who generally avoid computers. They still do things by hand (rather than by fingers on a keyboard). They fill out leave forms by hand. They plot their movements with grease pencil over acetate on hard-copy maps. They share information in person with only the first rung in their chain of command. These soldiers are dinosaurs in the network-centric, transformed Army of the 21st Century. They don't look for new ways of doing business.

Other soldiers will acknowledge AKO by dutifully, if not reluctantly, signing up for AKO accounts, as required by the 2001 joint memorandum from the secretary of the Army and chief of staff. But, that's as far as they'll go. Rather than exploring the benefits and resources offered on AKO, they'll shun what is new and innovative for what is known and tried. These soldiers will still use their unit or installation e-mail addresses — and have to change them each time they change duty stations. They will clog our limited bandwidth by e-mailing huge files to multiple accounts. They will save files to their local "shared drives." They will scurry like bugs on the outer edge of AKO, but are easily squashed by advances in technology.

The soldiers who will thrive in the AKO world, as the mammals did in olden times, are those who clearly embrace all the Army Portal offers. They'll send digitally encrypted e-mail to other us.army.mil addresses. They'll post large files to AKO's knowledge collaboration centers for comment, thereby saving huge swaths of bandwidth for war fighters to use. They'll share information through the collaboration centers, which they can access from any computer with an Internet connection — rather than only those with a local connection to a shared drive. These soldiers will make AKO an integrated part of how they operate.

For sure, some soldiers find transformational change to be difficult. And yet, as Army Chief of Staff Gen. Eric Shinseki has so aptly noted, irrelevance is even worse. Soldiers who allow themselves to become as relevant as the dinosaurs will surely go the way of the dinosaurs as well.

Soldiers who allow themselves to merely scurry around the edge of the Army are more bugs than key players.

But, the soldiers who embrace AKO and all it offers will find themselves integral to daily operations of this network-centric Army, just as the mammals are to life on Earth today.

The metaphor of mammals, bugs and dinosaurs is just a more colorful way of saying there are three types of people in the Army. Those who make things happen are the mammals. Those who watch those who make things happen are the bugs. And those who say, "what happened?" well, they are the dinosaurs.

Informed soldiers who use AKO as a routine part of their daily mission are the ones who are making it happen for the Army. On the fast-paced, highly lethal battlefields of the 21st century, these "wired" soldiers allow us to see first, understand first, act first and finish decisively.

The time is now for us all to become AKO mammals if we want to win and thrive in the Army of One.

Mr. Swan, is the public affairs officer for the Army's Chief Information Officer/G-6.

ACRONYM QUICKSCAN

AKO – Army Knowledge Online

Books

Book reviews of Signal-relevant published works

It was a dark and stormy night ...

59TH'S THOMAS PUBLISHES FOURTH MYSTERY BOOK

by Bill McPherson

ANCHORAGE -- In his off duty hours, S.E. Thomas, chief of the Administrative Services Division, 59th Signal Battalion, is an accomplished author who has written and published four crime-mystery novels to date, with his newest edition, *Dark Shaman*, hitting bookstore shelves and websites in April.

Since April, Thomas has promoted the book on several local television and radio shows and at autograph sessions at bookstores around the Anchorage area, giving him much more than the average individual's 15 minutes of fame.

All four books focus on Sergeant Robert Sable, an Alaska State Trooper -- a hero Thomas developed in 1991.

"Robert Sable is a man caught in conflict between two cultures -- white and Tlingit Indian, modern and ancient," Thomas said. "My character has developed fully over the four novels I've written."

"My inspirations have been both from the mysteries I've read and from Alaska itself, a land with many myths and mysteries," he explained. "*Dark Gold*, for example, came from a myth concerning Army quartermaster planes that had crashed during World War II on an Alaskan glacier carrying tons of gold.

"Back in the mid 1880s, I had a friend who wanted me to drop everything and go after the plane that had crashed with gold on it, you can bet that the Army would have recovered it by now. Even now, some of my fans ask if the story is based on fact.

"*Dark Shaman* comes from an Alaskan myth: to gain a shaman's power, you must drink from his skull," Thomas continued. "My stories are kind of 'what ifs.' If this happened, what would be the consequences? Currently I have over 48 plot lines for books mostly pertaining to Alaska. My favorite writer until recently was Dean R. Koontz, until his writing style changed -- his prose is now too flowery for my taste."

Thomas has enjoyed creative writing since high school. As an Army officer in missiles, lasers and in equal opportunity and then a civilian in the equal employment opportunity and records management arenas, he edited newsletter, technical articles and wrote articles for national publication.

He joined a local writer's group in 1990, initially writing science fiction stories. "From the comments in the writer's group, I knew I needed help writing; so I took several creative writing courses and criminal investigations courses at the University of Alaska," Thomas recalled. "These courses helped change and mold a new style of writing for me, especially one class, Writing for stage and screen, taught by Kim Rich, author of *Johnny's Girl*. It was then that I developed Robert Sable and wrote my first mystery book, *Dark Project*."

His other earlier published book is entitled *Dark Soul*. He has already begun writing his fifth Sable mystery, Dark Conspiracy, which concerns the attempted take over of Alaska by domestic terrorists. The working title for book six is *Dark Stalker*.

Thomas writes under the pen name Sean E. Thomas.

"My real name is S Elgin Thomas, with no period after the S -- just like Harry S Truman," he said. "After the number of approval process steps I had to go through in 1990 to get my article on copy machines published in a national magazine, I knew there had to be a better way.

"If one writes about the Army in any way even in fiction, he has to get approval from the Army. However under a pen name, you don't," Thomas explained. "Also, if you write under your name, the copyright is good for your lifetime plus 50; but if you write under a pen name, the copyright is good for a lifetime plus a 100 years. Also, I can autograph my books as S E. Thomas without adjusting my signature much."

Writing a book doesn't happen like magic Thomas pointed out.

"I usually work winter evenings and weekends on my laptop computer, spending two to three hours each night and 10 hours or more on the weekends, writing my books," Thomas noted. I usually try to hammer out 10 pages per week, sometimes less. When I hit a roadblock, I write a quick outline of the problem area and go on to the next scene. Sometimes, I move chapters and scenes around to improve the flow of the story," Thomas continued. "Normally, it takes about two years from start to finish on a book. I work with one or more writer's groups to help critique and improve on my work. I also have a friend who edits my work for grammar.

Finally, I turn my wife, Doris loose on the novel to proof it. Doris has a degree in journalism and English and works for the Air Force as an environmental public affairs specialist. She is very exacting and helps me make major modifications to my work to ensure it flows smoothly.

"During the summers I hardly have the chance or time to write. I'm usually involved in so many activities -- U.S. Coast Guard Auxiliary (a safety organization), boating, fishing, etc." Thomas explained. "I take a vacation from writing."

After a book is written, the work really begins, Thomas noted.

"I didn't realize that the promotion process was so involved: getting the word out -- TV and radio interviews, speaking at groups, visiting bookstores, letting them know your book is out and of course book signings, writer's conferences, etc.," he said. "Sometimes, it's fun and a lot of times it's not. The problem is that when I'm out doing all these things, it's hard to find time."

Thomas graduated from Alaska Methodist University with a bachelor of arts degree in chemistry and then attended the University of Idaho graduate school on a fellowship, studying organic chemistry. He served several years as an Army officer, before entering U.S. Civil Service in 1980.

Dark Shaman is available at several bookseller websites and the link to Thomas' computer site explaining further detail about his books is www.seanethomas.com.

About *Dark Shaman*

Children are being kidnapped and slaughtered in the Alaskan bush. Alaska State Trooper Robert Sable takes over the investigation from Nicholas Kelly, who has vanished without a trace. Sable has to deal with an elusive killer who is more cunning than all his previous adversaries. FBI Agent Annelle Carpenter joins Sable on the case to help track down the serial killer. Their hunt encompasses the town of Token, nearby Indian villages, and hundreds of miles of wilderness. As they interrogate local rapists, pedophiles and sexual deviants, the bodies of children keep turning up. Each clue and suspect leads to a dead end. A Tlingit village shaman, Dan-e-wåk, believes the killer is a powerful ancient evil shaman, Auktelchnik, resurrected. Though Sable and his partner scoff at the idea, the mounting evidence seems to validate the absurd theory. Working almost 24 hours a day, Sable realizes he needs a break to gain a new perspective on the case. He takes a weekend off to visit an archeological excavation with professor Lisa Ridell from the University of Fairbanks. At the dig, Sable finds ancient evidence of similar murders. Could this be coincidence or is someone imitating the ancient legend? Returning from his weekend, he discovers someone is killing off the suspects one by one. Is the new killer an irate parent or someone else? A long-time friend reports trapper missing and strange things are happening at one of his hunting cabins. While looking for the missing trapper, an encounter almost costs Sable his life. A SWAT team tries to capture the shaman is annihilated, making Sable realize the killer cannot be captured by any conventional means and that killer and the shaman Auktelchnik are one and the same. Sable, his friends, uncle, and Dan-e-wåk must unite to stop Auktelchnik.

Courtesy Sean E. Thomas website: www.seanethomas.com

Signals

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

Enlisted Division Update

by MSG John R. Plotts

The Gulf War served as a proving ground for weapons systems technology developed for the Cold War. The Gulf War also served as a starting point for a technological revolution within the Tactical Visual Information Community. For Desert Storm a Joint Combat Pictorial Detachment was formed to rapidly move images from the battlefield to the Joint Combat Camera Center at the Pentagon. The use of these images produced by tactical visual information assets proved to be such a force multiplier, it prompted the Chief of Staff of the Army to stand up a new Combat Camera (55 COMCAM) Company.

The primary mission of COMCAM is to provide the National Command Authority, the Chairman of the Joint Chiefs of Staff, The Military Departments, and the Unified Combatant Commands with a directed imagery capability support of operational and planning requirements during worldwide crises, contingencies, exercises, and wartime operations.

Since its inception the 55 COMCAM Company along with its USAR counterpart (982 COMCAM Company) has served in every peacekeeping and humanitarian role the Army has undertaken. In fact, the demand for battlefield visualization has grown to such a degree that COMCAM as structured could barely facilitate the demand for its services without going beyond the Personnel Tempo guidelines. In April 2002, a COMCAM restructure proposal was submitted and approved as part of a Force Design Update to meet the future demands of COMCAM assets.

Writers of VI doctrine – formerly Field Manual 24-40, Visual Information Operations, Dec 91 - now FM 6-02.40, Jan 2002, envisioned this emerging technology growing and becoming more common place on the battlefield. The authors not only laid out doctrine for COMCAM operations but also for Tactical Video Teleconferencing.

This vision of future operations came to fruition November 1997 as Ft Hood hosted the Division Advanced Warfighter Experiment. The purpose of this experiment was to evaluate which collaborative planning tools heighten the availability of information on the battlefield. During this experiment Battlefield Video Teleconferencing was proven to be a useful tool for commanders in their decision making process. BVTC was only one of numerous systems that made up the communications network. The digital communications network has been named the Warfighter Information Network- Tactical. The Army's COMCAM Companies made the complete move to digital several years ago. The challenge for Army architects of today will be to integrate our COMCAM assets into WIN-T to allow them to digitally move their imagery across the battlefield through WIN-T. The success of BVTC and COMCAM indicated the need for an increased number of Visual Information personnel on the Battlefield. These tactical operations presented unique opportunities for CMF 25 soldiers.

The domain of the Army's Visual Information soldiers has in the past predominately been the TDA world. Their mission requirements at the tactical level of operations assignments are a far cry from these more traditional assignments and have caused a number of management changes to occur to more accurately reflect their emerging role. This split between strategic and tactical job requirements has prompted the Army to add new Standard Duty Title Codes for the tactical positions within CMF 25. The names changes affecting MOS 25V included COMCAM Documentation Specialist for those 25Vs serving in a COMCAM Company and Tactical VI Specialist for those personnel working in the BVTC section of a Corps or Division G6. The title also changed for the 25Ms working in a COMCAM Company to Tactical Multimedia Specialist. The duty title for SSGs at COMCAM Companies, previously called team leader was changed to squad leader.

As compression technologies advance and bandwidth increases, more and more VI tools will be available to the warfighter of the XXI Century. The VI personnel of today, still predominantly working in the TDA environment, are trained and ready to assume their rightful place next to the warfighter in the "Army of the 21st century."

MSG Plotts is the future operations NCO with Office Chief of Signal Enlisted Section.

Acronym QuickScan

BVTC – Battlefield Video Teleconferencing
CJCS — Chairman of the Joint Chiefs of Staff
FDU – Force Design Update
FM — field manual
MILDERPS – military departments
NCA – National Command Authority
PERSTEMPO – Personnel Tempo
TDA – Table of Distribution and Allowances
VI – visual information
WIN-T – Warfighter Information Network-Tactical

TSM update

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

TSM-TACTICAL RADIO

TSM-TACTICAL RADIO ENHANCED POSITION LOCATION REPORTING SYSTEM

Customer cold-weather testing for the Enhanced Position Location Reporting System Net Control System, Model "A," Network Manager was successfully completed at the Cold Regional Test Center in February 2002. With the announcement of the 172nd Infantry Brigade in Alaska as the Third Stryker Brigade Combat Team, modifications needed to be made to make the configuration operational in this environment. In preparation for testing at the CRTC, a D5 engine heater and the D4 personnel heater were installed to help achieve optimal performance in cold weather. Both heaters, manufactured by ESPAR, have been used in cold climates on a variety of vehicles with an excellent performance history.

Figure 1. (NCS-A), AN/TSQ-158A

The winterized NCS-A vehicle is a High Mobility Multi-Wheeled Vehicle that has been modified with an insulated fiberglass hardtop to enclose the HMMWV. The ESPAR heaters will allow for pre-heating the vehicle and electronics before starting in temperatures below –20F and keep the electronics at an operational temperature. The major electronics components comprising the NCS-A system are an EPLRS RT, a Panasonic CF-28 toughbook laptop computer, cryptographic key generator, user readouts, printer and the power distribution system. During the testing there were several findings, none of which significantly affected the performance of the vehicle. Corrections are complete and final technical manual verification is ongoing. Training to support the first fielding to the 172nd is scheduled for the fourth quarter fiscal year 2003.

MULTIFUNCTIONAL INFORMATION DISTRIBUTION SYSTEM LOW VOLUME TERMINAL–2

The Department of Defense recently approved a decision to outfit select Short Range Air Defense units with Multifunctional Information Distribution System terminals. MIDS, a command, control, communications and intelligence program, is the next generation of Link-16 terminals and the Department of Defense's first successful international cooperative development of a major electronics system. A tactical, secure, jam-resistant, voice and data communications system, MIDS is fully interoperable with the earlier Link-16 system, the Joint Tactical Information Distribution System. Although some SHORAD units are equipped with JTIDS terminals, many have yet to be outfitted. Developed as a low-cost, functionally-interchangeable replacement for the JTIDS Class 2M terminals, the Army recently budgeted to purchase a total of 45 MIDS terminals to support fielding to remaining SHORAD units through fiscal year 2010. In support of the Clear Skies Deployment, an ongoing air defense exercise, the SHORAD host platform office purchased five MIDS terminals and has plans to purchase another three by the close of the year. Three MIDS terminals, originally destined for integration into Patriot Battery Command Post systems at Huntsville, Ala., were diverted to fill shortages in SHORAD units as part of DoD's homeland defense operations. The MIDS terminals will be used to support Air Defense Artillery engagements and operations by providing communications for the high-speed distribution of air picture data between joint service aircraft, ground-based sensors, and ADA command, control, communication and intelligence elements.

MIDS is a major Automated Computerized Axial Tomography ID acquisition program, and a true acquisition success story in its latter stage of procurement. In January 2003, PM MIDS requested that full-rate production decision be delegated from the Assistant Secretary of the Navy for Research, Development and Acquisition to the Navy's Program Executive Officer for Tactical Aircraft. However, Office

of the Assistant Secretary of Defense for Acquisition, Technology and Logistics policy precluded further delegation of the FRP procurement decision. The decision is planned for late July or early August, which will likely support contract award in August 2003.

NEAR TERM DIGITAL RADIO

The Program Manager for Tactical Radio Systems has received a waiver approval from Headquarters Department of the Army and the Assistant Secretary of Defense for command, control, communications and intelligence to procure additional Near Term Digital Radios to fill a void that was created when a decision was made not to field the BAE Step 2C radio. The NTDR system is a DA-directed, experimental, mobile packet data radio network that links Tactical Operations Centers in a brigade area. The NTDR provides a self-organizing, self-healing, network capability. Radio network management is provided by a Network Management Terminal. The primary purpose of the NTDR is to provide data transport for the Army Battle Command System automated systems to units at brigade and below. Lessons learned from this experimental fielding provide a portion of the technical baseline for radios being designed for future fielding (i.e., Joint Tactical Radio System). Brigades in the First Digitized Division (4th Inf Div) / First Digitized Corps (III Corps) use approximately 28 radios to form digital TOC-to-TOC networks. The Stryker Brigade Combat Teams will use approximately 48 radios to form their TOC-to-TOC networks. The NTDR has been fielded to two of three maneuver brigades of the 4th Infantry Division (Mechanized); two of three maneuver brigades of the 1st Cavalry Division; 3rd Brigade, 2nd Infantry Division; and 1st Brigade, 25th Infantry Division (Light) (SBCT-2). Fieldings planned during the next two years are the 3rd Brigade, 4th Infantry Division (Mechanized); 3rd Brigade, 1st Cavalry Division; and 172nd Infantry Brigade. Training for the NTDR is provided by new equipment training teams supported by the PM Tactical Radio Communication Systems as it is fielded to the units.

JOINT TACTICAL RADIO SYSTEM

The genesis of the Joint Tactical Radio Set program was to address the historical lack of interoperability among tactical radios. Current tactical radio families have evolved to meet specialized functionalities demanded by specialized users. The disparity in radio design results in major limitations to interoperability. The JTRS will feature a software communications architecture that provides a core framework for developing software applications that can operate effectively on every JTR Set. The JTRS will replace over 30 tactical radio families with a single family. Initially, JTRS waveforms will provide functionalities compatible with currently fielded radios and will introduce the new Wideband Networking Waveform as a common network with access for all JTR Sets. The JTRS family is sub-classified into "clusters" for acquisition purposes. The Cluster 1 program focuses on vehicular and rotary wing JTR Sets and is currently in the System Development and Demonstration Phase under the leadership of the U.S. Army Project Manager for Tactical Radio Communications Systems. Full-rate production is projected to start in fiscal year 2007. The U.S. Special Operations Command is leading Cluster 2 to modify the Thales Multiband Inter / Intra Team Radio for JTRS software communications architecture compliance, and will procure a limited number of these "JEM" (JTRS Enhanced MBITR) radios. The Navy is the lead agency for Cluster 3 procurement of maritime / fixed-site JTR Sets. The Air Force is the lead agency for Cluster 4 procurement of fixed-wing aircraft JTR Sets. The Army will lead the Cluster 5 procurement for embedded small form / fit, handheld, and manpack JTR sets. Although JTR Sets may differ in form and fit, all will be over-the-air interoperable using common waveforms. The true power of the JTRS is its networking capabilities that provide scaleable networking services for connected radio frequency networks, enabling simultaneous translation among multiple RF systems, and providing network bridges between terrestrial RF, fiber-optic cable and / or wire systems, and airborne or space-based telecommunications systems. This simultaneous, real-time access to multiple channels of information allows joint combatants to access maps and other visual data, communicate with a command post, coordinate with allies, and obtain information directly from sensors in a network centric warfare environment. This unprecedented access to information will support shorter decision cycles and provide the information superiority to enable the Joint Vision 2020 mandate of increased combat power.

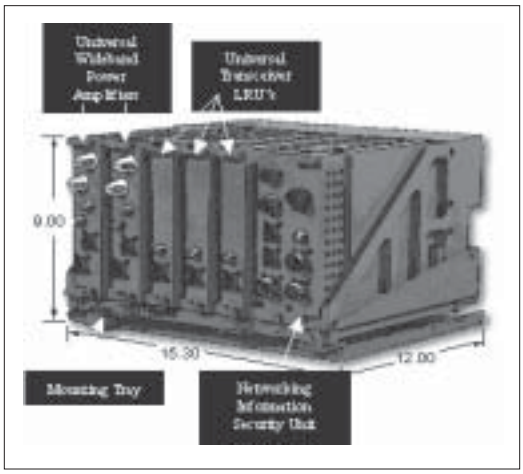


Figure 2. Boeing's Three-Channel Joint Tactical Radio

THE ASHES: PHOENIX RISING FROM NEW TRI-BAND TERMINAL CONTRACT AWARDED

by Debbie Linton

The Army tri-band satellite communications program has had its ups and downs over the past few years but it's definitely on the upswing now. Although great strides were made in developing requirements for the SHF Tri-band Advanced Range-extension Terminal, program difficulties necessitated the termination of that program. However, the requirements for a tri-band terminal remained. April 14, 2003, the Army officially awarded a new contract to L3 Communications System West based out of Salt Lake City, Utah, to design, test and produce a new tri-band terminal called the Phoenix. The Phoenix terminal is an interim solution for SHF tri-band requirements until the Multiband Integrated Satellite Terminal is fielded in the 2011-2012 timeframe. The Phoenix will replace AN/TSC-85/93 terminals in selected Signal units and will complement those AN/TSC-85/93 terminals that have had their "lives" extended via the Service Life Enhancement Program.

The Phoenix terminal package is contained on two M1113 Enhanced Capacity Vehicles.

DESCRIPTION AND MISSION OF THE PHOENIX

The Phoenix terminal will be a transportable tactical SATCOM terminal that operates in the SHF frequency range (C, X and Ku-band) with growth to Ka-band. The Phoenix terminal will consist of an integrated assemblage of non-developmental items, commercial off-the-shelf items, government furnished equipment, and other items adapted for Army use needed to meet the requirements. The Phoenix will be backward compatible with legacy GMF satellite terminals (to the second level multiplexer) and will support up to four full duplex links deployed in hub-spoke, hybrid mesh or point-to-point configurations.

The mission of the Phoenix terminal is to provide flexible, mobile, high capacity, extended range communications connectivity. The Phoenix will operate over military and commercial satellite space segments, and provide high capacity communications links to support voice and data. The Phoenix terminal may interface with other strategic networks via standardized tactical entry points or strategic assets. For commercial bands, the Phoenix terminal will use standard commercial gateways or DISA Quad-band teleports and/or access the DISN via leased lines.

TERMINAL CHARACTERISTICS

The entire Phoenix terminal "package" is contained on two M1113 Enhanced Capacity Vehicles. The first ECV contains the Phoenix terminal and the second ECV contains the mobile power unit. Both vehicles will have 400 amp kits to provide a secondary power source and the terminals can operate using commercial power. The MPU will contain one palletized MEP-803A, 10kW tactical quiet generator mounted on the ECV. The Phoenix terminal equipment will be designed for operation and transport on the ECV. The Phoenix terminal primary ECV and the ECV transporting the MPU will be configured to tow the external AS-4429/TSC antenna. The Phoenix terminal will also transport the crew and their personal equipment (A & B bags, rucksack, weapons, etc), camouflage, 5-gallon fuel and water cans, cable, wire, spares and other mission support equipment.

Every Phoenix terminal will be configured to support hub terminal operations and contain the equipment required to support a network consisting of up to four Enhanced Tactical Satellite Signal Processor multiplexed full duplex links, orderwire communications, and support beacon tracking for two antennas (but not simultaneously). The equipment will be configured for operation with either an integral 2.4-meter dish antenna or the external AS-4429/Lightweight High Gain X-band Antenna. The integral antenna shall operate at C, X and Ku-bands and the external LHGXA will operate at X-band. The Phoenix terminal will include baseband, intermediate frequency and radio frequency patching to enable the operator to configure systems equipment to meet mission requirements. The Phoenix terminal will interface with the TRI-TAC/MSE

family of switches, commercial switches and various baseband packages.

The Phoenix terminal will be operated and maintained by a crew of four MOS 31S soldiers. The set-up and tear-down time is 30 minutes or less under normal conditions. The Phoenix will be C-130 / C-141 / C-17 / C-5 roll-on / roll-off capable and can be single-point sling loaded by CH-47 rotary-wing aircraft.

CONTRACT SPECIFICS

The Phoenix terminal program was awarded as a "firm fixed price contract". It covers the initial tri-band effort and the integrated Ka-band upgrade. This contract provides for a "Block 1A" tri-band Phoenix terminal to be delivered nine months from the award date and a "Block 1B" Phoenix terminal in eighteen months. The difference between the Block 1A and 1B terminals is that the Block 1B terminal will have the integrated Ka-band upgrade in addition to the C-, X- and Ku-band. This will make the Phoenix terminal a true "Quad-band" satellite terminal.

Nine terminals will be bought in fiscal year 2003. All nine terminals will be used for initial developmental testing and logistics / maintenance demonstrations. At the end of the nine months (January / February 2004), six of these terminals (Block 1A) will be sent to the First Unit Equipped which currently is the 112th Signal Battalion at Fort Bragg to begin the operational test. The FUE will be used to conduct the Limited User Test which will take approximately two to three months.

The remaining three terminals will be used to conduct additional developmental testing for three to four months and then will be upgraded to Ka-band. Ka-band developmental testing will be conducted prior to a second Ka-band operational test at the end of the eighteen month delivery date (Oct. 4).

According to the current contract, the next order for terminals will deliver six more Block 1A terminals. All terminals thereafter will be Block 1B. All Block 1A terminals will be brought up to Block 1B standards.

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

Ms. Linton works with TSM-SATCOM.

MILSTAR

MILSTAR 6 SATELLITE SUCCESSFULLY LAUNCHED TO COMPLETE THE CONSTELLATION

"Milstar is literally the FedEx® of telecommunications. If you have to get a message through, Milstar is your choice".

—Christine Anderson, USAF Joint Program Office

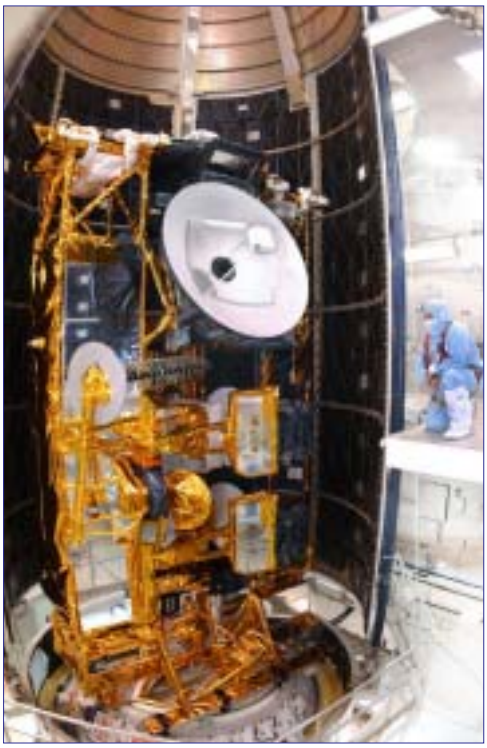
The loud roar heard from Florida's Cape Canaveral Complex 40 at 9:43 EST on April 8, 2003, could be attributed to more than the Titan 4B rocket that blasted the last Milstar satellite into space. It was also the cheers and applause from the many military customers, engineers, and aerospace professionals who designed, planned, constructed and worked for years to see the first worldwide, secure, anti-jam communications service for tactical users. Operating in the extremely high frequency range, the Milstar satellite system provides protected, interoperable communications among all services with Milstar ground terminals. Milstar 6 was successfully placed into a geostationary orbit about 22,300 miles above the earth. It joins four other Milstar satellites already in orbit to complete the constellation (one satellite suffered a malfunction at launch and was placed in a safe but unusable orbit).

Although the Milstar system was originally designed during the 1980s, it was restructured in 1991 in acknowledgement of the significant geopolitical changes in the world and to meet the communications needs of a modern military force. The first two Milstar satellites were launched in 1994 and 1995 and carried only a low data rRate payload. The last three Milstar satellites carry both the LDR and medium data rate payload which represents a 600 percent increase in communications capacity over the first two satellites. With the successful launch of Milstar 6, there are now five Milstar satellites encircling the Earth, linked together in a ring, and responding to the urgent communications needs of the military.

With the MDR payload, Milstar 6 is capable of processing data at speeds up to 1.5 megabits per second. With the LDR payload, the satellite can transmit voice and data at 75 to 2400 bits per second. After testing and systems evaluation, the $800 million Milstar 6 is expected to be fully operational within two months and will aid military forces worldwide by ensuring critical information reaches its destination quickly and securely. The Milstar 6 satellite is expected to last at least ten years.

Each Milstar satellite weighs about 10,000 pounds and can be described as a "switchboard" in space, directing the traffic it receives from terminal to terminal anywhere on Earth. Since each satellite has the capability to process the received signals on board and then "crosslink" with the other Milstar satellites, there is no need for ground controlled switching stations. Milstar satellites respond directly to service requests from users - establishing, maintaining, reconfiguring, and disassembling the required communications circuits as directed by the users on the ground.

Army users communicate using the Milstar satellites via two ground terminals – the single channel anti-jam manportable terminal and the secure mobile anti-



Milstar 6 is capable of processing data at speeds up to 1.5 megabits per second. With the LDR payload, the satellite can transmit voice and data at 75 to 2400 bits per second. Tested successfully in Operations Enduring Freedom and Iraqi Freedom, Milstar 6 is making a positive contribution towards the efficient synchronization of combat power.

jam reliable tactical Terminal. The SCAMP handles protected single channel communications and the SMART-T handles both single and multichannel protected communications thus enabling these two different terminals to "talk" to each other. This integration of single and multichannel communications provides a networking capability that was previously non-existent. The Air Force, Navy and Marines also use these terminals providing the interoperability required for joint operations.

The successful completion of the Milstar constellation is a extraordinary achievement and is the result of the best synergetic efforts between the military and industry. Already tested successfully in Operations Enduring Freedom and Iraqi Freedom, Milstar is working now and making a positive contribution towards the efficient synchronization of combat power. The Milstar constellation will provide protected, assured and responsive communications for deployed warfighters of all services for years to come.

NOTE: *Photos provided courtesy of Lockheed-Martin Space and Satellite Systems.*

ACRONYM QUICKSCAN

ABCS – Army Battle Command System
ACAT – Automated Computerized Axial Tomography
ADA — Air Defense Artillery
ASN(RD&A) – Assistant Secretary of the Navy for Research, Development and Acquisition
BCP – Battery Command Post
C3I – command, control, communications and intelligence
COTS – commercial-off-the-shelf
CRTC – Cold Regional Test Center
ECV – Enhanced Capacity Vehicles
EHF – Extremely High Frequency
EPLRS – Enhanced Position Location System
ENM – EPLRS Network Manager
ETSSP – Enhanced Tactical Satellite Signal Processor
FRP – full rate production
FUE – first unit equipped
GFE – government furnished equipment
HMMWV – High Mobility Multi-Wheeled Vehicle
IF – intermediate frequency
JEM – JTRS enhanced MBITR
JTRS – Joint Tactical Radio System
LDR – Low Data Rate
LHGXA – lightweight high gain X-band antenna
LUT – limited user test
MBITR – Multiband Inter/Intra Team Radio
MDR – Medium Data Rate
MIST – Multiband Integrated Satellite Terminals
MPU – mobile power unit
NET – new equipment training
NCS-A – Net Control System, Model "A"
NDI – non-developmental items
NTDR – Near Term Digital Radio
OASD(AT&L) – Office of the Assistant Secretary of Defense for Acquisition, Technology and Logistics
OW – orderwire
PEO(T) – Program Executive Officer for Tactical Aircraft
RF – radio frequency
TRCS – Tactical Radio Communications Systems
SATCOM – satellite communications
SBCT – Stryker Brigade Combat Teams
SCAMP — Single Channel Anti-jam Manportable
SHORAD – Short Range Air Defense
SLEP – Service Life Enhancement Program
SMART-T – Secure Mobile Anti-jam Reliable Tactical Terminal
SOCOM – Special Operations Command
STAR-T – SHF Tri-Band Advanced Range-extension Terminal
STEP – standardized tactical entry points
TQG – tactical quiet generator
TRCS – Tactical Radio Communications System
WNW – Wideband Networking Waveform

Circuit check

News and trends of interest to the Signal Regiment

NEWS

NEW BATTLE FOCUSED TRAINING FM AVAILABLE THIS SUMMER

TRADOC News Service

FORT MONROE, Va. — The new Field Manual 7-1, "Battle Focused Training," maintains the Army's philosophy of training the way you fight, and tells leaders at all levels how to do it.

The new manual replaces FM 25-101 with the same title. It is the Army's "how to" training manual, and is the second volume dealing with Army training. The first, FM 7-0, "Training the Force," replaced FM 25-100 as the Army's capstone doctrine on training and was fielded in October 2002.

"This FM creates training doctrine for both current and future operating environments that will endure for the Objective Force," said COL Bob Clapsaddle, chief of the Training Management Writing Team.

The drawback to FM 25-101, the colonel said, is that it was oriented to training for the Cold War. The new manual reflects the uncertain world of today and the future.

Writers also took a new approach to focus on companies as the lowest combat unit, rather than on battalions, as in the old manual.

"Some companies support unique outfits, and each has a mission essential task list," COL Clapsaddle said. "If they can't accomplish those tasks, they can't accomplish their missions.

"Division commanders have the responsibility for enforcing and disciplining the Army Training Management System," he said. "Our squad leaders can't train soldiers unless the division and brigade commanders protects their time to train from distractions.

In the 1990s Army units began to deploy more frequently for peacekeeping missions in other countries. Some pundits suggested that the Army create a separate "peacekeeping force," because soldiers in combat units weren't trained for that role.

"We realized that out soldiers trained for combat missions can adapt to peacekeeping roles," COL Clapsaddle said. "A unit can be trained for peacekeeping missions in a fairly short time when time is available."

Units designated for peacekeeping mission in Bosnia, for example, undergo training at the Joint Readiness Training Center, Fort Polk, La., before deployment.

Occasionally, a unit will be deployed for a mission for which no tasks and standards exist, such as in the 1990s when V Corps under GEN John N. Abrams, former TRADOC commander, deployed for the first peacekeeping mission in Bosnia.

"They had to do a lot of things which hadn't been identified as training tasks and, as such, had no standards," COL Clapsaddle said. "So they created the standards and they created lessons learned."

FM 7-1 tells how to develop tasks and create standards so the Department of the Army can approve them.

"It would be a tragedy if you had learned something or a technique for doing urban operations in Iraq and you fail to tell the follow-on unit as they roll in because you're going home," COL Clapsaddle said.

Feedback and after-action reports are also crucial to battle focused training.

The AAR method is an approach that no other service or army in the world uses, according to COL Clapsaddle.

"We look internally and dissect what happened for every training event," he said. "We look at what caused us not to achieve the standard, retrain and then execute to standard."

COL Clapsaddle explained that AARs are particularly valuable to units training at one of the Combat Training Centers. After a training mission, observer controllers and umpires help the unit's leaders to identify errors and find solutions, usually areas in which more training is needed.

"The nature of our business is inherently dangerous," he said, "but we have to minimize risks to soldiers to ensure they're not training casualties.

"Doing risk assessment is just like an operation. You have an enemy and you're constantly making assessments and then mitigating those threats against you. We're saying that you must operationalize safety in the same way.

"FM 7-1 is not a safety manual, but we owe it to the soldiers to train realistically so they are prepared to go into combat. We also owe it to them to minimize the chances they will be injured in training."

Manual writers gather input from battalion training officers and command sergeants major, as well as captains serving as company commanders. According to COL Clapsaddle, the writers asked their experts what they would cover in the manual.

The draft was reviewed by retired generals, active and reserve brigade and battalion commanders and command sergeants major, and current and recent company commanders.

"We specifically asked for captains," he said. "These are the guys who are going to read and use

the book, and we wanted it to be right."

A general officer steering committee reviewed the manual before it went to former Chief of Staff of the Army GEN Eric K. Shinseki, who was an ardent supporter of the manual.

"He was very adamant about maintaining battle focused training," COL Clapsaddle said. "Training is not mission-focused, not event-focused, not collective-focused, but battle focused."

The manual was approved for publication June 6.

FM 7-1 will available in late August through the Reimer Digital Library at http://www.adtdl.army.mil/.

(Right) LTG Peter M. Cuviello, Army chief information officer/G-6, and LTG James R. Helmly, chief of the Army Reserve, sign a memorandum of agreement that aligns all Army Reserve information management governance and security under the Army staff G6. The ceremony was held in Crystal City, Va., June 25.

AGREEMENT ALIGNS RESERVE IT FUNCTIONS WITH G6, NETCOM

by Joe Burlas

WASHINGTON — The Army just got a bit closer to truly being an Army of One — at least in the information management field.

LTG Peter M. Cuviello, Army chief information officer/G-6, and LTG James R. Helmly, chief of the Army Reserve, signed a memorandum of agreement that aligns all Army Reserve information management governance and security under the Army staff G6 and its subordinate Network Enterprise Command at a ceremony in Crystal City, Va., June 25.

Cuviello said the MOA signing was the next logical step in a process he started two years ago when the Army Reserve and National Guard assigned officers to his office. Those officers are fully integrated with their active-duty counterparts -– working Army issues, not Guard advisers working Guard issues or Reserve advisers working Reserve issues, he said.

While the Army National Guard is working toward fuller Army Knowledge Management integration, it is not part of the MOA as it has its own system that communicates within the National Guard Bureau that also contains the Air National Guard, Cuviello explained.

The G6's vision for the Army is an Army Knowledge Enterprise network for all components, with the same policies and procedures for all. The MOA is a major step toward achieving that goal, Cuviello said.

"We're breaking the culture paradigm –- if I don't own it, if I don't run it, I don't trust it," Cuviello said. "Look at the chief communicator in the Iraq theater -– he's a Reserve two-star; and in another place of interest in the world today, Korea, there is another Reserve two-star chief communicator. There is nothing the Army does today where you don't have active, Guard and Reserve soldiers working side by side."

Helmly said the MOA is about equal satisfactory services across all of the Army.

"It's a signal about putting your money where your mouth is –- (that) we are walking the walk — that we are moving along in transformation," Helmly said. "It's about increased efficiencies."

Both generals agreed the agreement will save money, but warned against anyone expecting to see a savings in the form of future smaller Army Knowledge Enterprise budgets.

"The fact is the information demands of the Army are so great and are growing significantly every year," Cuviello said. "The challenge is to get those efficiencies now. The demand just keeps going up."

Part of those efficiencies is including the purchase of all Reserve Army Knowledge needs – to include computer hardware and software, and phone, cell phone, handheld wireless e-mail devices and service contracts –- with those of the active Army. This economy of scale allows far greater purchase power in terms of getting more for a lesser-per-item cost than the former method of competing for the same needs with separate purchase orders or contracts, Cuviello explained.

While NETCOM will provide advice to what needs to be purchased and do the actual purchasing of Reserve Army Knowledge needs, the money for those purchases will still come out of the Army Reserve budget. By Congressional mandate, "the Army Reserve is still legally accountable for the control and disbursement of those funds," Helmly said.

And while the Army Reserve will follow the same information management rules the active Army follows, there are still some special Reserve needs that will be met, the G6 said.

"General Helmly knows that if there is ever a problem, all he has to do is pick up the phone and call," Cuviello said.

Mr. Burlas is a writer for Army News Service, Washington, D.C.

G-6 SAYS OIF VALIDATES IT TRANSFORMATION PATH

by Joe Burlas

WASHINGTON — While there still remain some bugs to tweak and a lot of work, Operation Iraqi Freedom has validated the Army Knowledge Management framework track for transforming the way soldiers of all ranks get and share information, both in peace and war, according to the Army's top Signal Corps officer.

LTG Gen. Peter Cuviello, the Army G-6/chief information officer, shared his vision of how future joint and netted Army command, control, communications and computers systems should operate over a global broadcast system. He explained his vision to more than 200 Information Technology military, government and industry officials who attended the third annual Army IT Day in McLean, Va., May 27.

"The Army today is at war and transforming at the same time," Cuviello said. "As we see senior leaders go, some may wonder what the future will bring. I believe we have reached a point of irreversible momentum.

"The real work is getting done in the field — that is where the fighting and transformation is getting done. As new senior leaders come, we will probably see some strategic changes, but the core work will continue."

Lessons learned from Army operations in Afghanistan and Iraq over the past year have validated many IT Transformation concepts, Cuviello said.

The Army has realized for some time that it needs better energy sources than batteries to power the majority of its IT systems, Cuviello said, and thus has been exploring fuel-cell technology — a mini/micro-powered generator powered by liquid fuel. The supply of batteries of units in Iraqi Freedom were hard pressed, he said, for two reasons: the high temperatures drained them more quickly than expected and the very mobile nature of the operation meant more reliance on batteries over the generators normally in use from fixed locations.

"Batteries are heavy items to carry around the battlefield — not only to keep them stocked and transported, but also the transportation requirements to dispose of them," Cuviello said. "That is why fuel-cell technology needs to be pushed very hard and fast."

Another lesson learned is a real requirement for a more mobile and smaller IT support footprint on the battlefield, Cuviello said. Antenna farms sprung up around major Army units in both Afghanistan and Iraq as different antennas were needed for each of six different satellite bands and four different types of radios in order to keep the communication links open between all service components and commanders in and out of theater. All those antennas sometimes caused co-site interference with each other, he said.

The science and technology community is researching multi-band antennas that may be shared with more than one radio or satellite link to alleviate that problem.

Cuviello said the Army got the right balance between military and commercial satellite use in Afghanistan. The commercial satellites used triple digital encryption to transmit mostly unclassified information, while the military satellites were used mostly for classified material, he said.

"With commercial satellites, you can turn it off or on as needed," Cuviello said. "You put up a military satellite with all the ground-based terminals and people that go with them — you have got to run it, maintain it."

Afghanistan and Iraq also validated that the Army has strong partners in private industry, the general said.

In one instance, the Army was having challenges in getting a radio transceiver-based system in place to track all friendly forces in a timely manner. Industry partners stepped in and within three months installed a satellite-based "Blue" force tracking system, Cuviello said.

In another instance, units earmarked for Iraq from the XVIII Airborne Corps, V Corps and III Corps, had different software versions of the Army Battle Command System, Cuviello said, as each were at different points of the system's materiel lifecycle. That was fine for sharing information within each corps, but it did not work for sharing across the theater. Industry again stepped in and quickly fixed the problem by integrating all to a common version, he said.

The general then asked the IT professionals present to become missionaries in working toward an information-dominant future force where:

Everyone in the Army, soldiers or civilians, in 20XX (xx being date to be determined) will be constantly plugged into one global Army net — each with their own handheld wireless computer, on and off the battlefield. That Army Knowledge Enterprise net should be used as a single virtual system for tactical and non-tactical use such as finance or travel, Cuviello said.

All fixed locations should be wired for that single network with fiber-optic cable. Military satellites will be laser-backbone with a relay of networked satellites for the tactical environment, he said.

All leaders must have a firm grasp of managing and using IT, Cuviello said.

Almost all meetings should be held online, he said. Seventy-five percent of the civilian workforce

may telecommute out of virtual home offices three days a week and 30 percent will work always from home.

All military and civilian recruiting will be done online, he said, to include digitally signed contracts or job offers to seal the deal.

Accessing military installations, workplaces and computer systems will be via a Department of Defense biometric capability, such as fingerprint, iris scan, voice recognition or facial recognition, he said.

"All these great ideas are only power-point (briefing slides) until we get them out there on the ground — not just to one or two units — but to every unit," Cuviello said.

Mr. Burlas is a writer with Army News Service, Washington, D.C.

NEW WEB SITE ONLINE FOR UNIT MANNING

by Joe Burlas

WASHINGTON - The Unit Manning Task Force now has a dedicated Web site that can be accessed via PERSCOM On-line and AKO.

The new site at https://www.unitmanning.army.mil provides unit manning information in five broad categories: overview, research / history, current events, products, and discussion / feedback.

The Unit Manning Task Force was chartered by Army Vice Chief of Staff Gen. John Keane on Oct. 18 to develop unit manning recommendations to reduce turbulence in the operational force, and enable unit commanders to build and sustain highly cohesive and well-trained teams.

The Army announced May 5 that it will use the 172nd Infantry Brigade (Separate) as the first unit to use unit manning personnel polices instead of the current personnel system of individual replacements. The 172nd, based at Fort Wainwright, Alaska, will use the Unit Manning Initiative as it becomes the third Army unit to transform into a Stryker Brigade Combat Team.

Under the Unit Manning Initiative, groups of soldiers will arrive together at a unit and train together day-to-day, through a standard 36-month tour, said Lt. Col. Paul Thornton, unit manning action officer. He said under the current individual replacement system, soldiers leave and come into units on a monthly basis.

The current system requires constant retraining of individual and collective tasks to get new soldiers up to speed, Thornton said.

Unit manning will support Personnel Transformation, enable unit rotations, and provide cohesive Army units that will excel in the uncertain environment faced today, personnel officials said.

There are many misconceptions about unit manning, according to members of the task force. They said the Web site will help clarify the issues.

"Unit manning is not COHORT," explained Lt. Col. Dave Goehring, a program manager on the task force, "this site will provide soldiers with the latest information on this Army initiative."

Task force members also encourage soldiers to check the Web site often and provide suggestions.

Mr. Burlas is a writer for Army News Service.

'DIGITAL BRIDGE' BRINGS TECHNOLOGY TO STRYKER BRIGADE AT NTC

by SPC Alfredo Jimenez

FORT IRWIN, Calif. — The first-ever Stryker Brigade Combat Team out of Fort Lewis, Wash., is not only demonstrating how rapidly it can deploy, it's showing the value of speedy digital information.

The "digital bridge," which was designed last year, provides SBCT units with information via satellites instead of the usual line-of-sight radios. With this system, vital information and pictures can be transmitted to units on the ground from anywhere in the world.

The SBCT participated in an exercise at the National Training Center, April 1-11, as the first phase of its Operational Evaluation, designed to certify the unit as combat ready. The OE culminated with an exercise at Fort Polk, La., May 17-27.

"The digital bridge complements the SBCT's extensive computerization, plus it allows the SBCT to connect to any system," said MAJ Brian Edholm, digital bridge executive officer.

"The digital bridge allows the 3rd Brigade, 2nd Infantry Division to see a real-time picture of the battlefield, and it's evolving still because the SBCT is still in a testing phase," said CWO Ronald Carrasquillo, 29th Signal Battalion network manager.

The system is made up of several central nodes, that transmit information into the main hub. The hub, in turn, transmits information digitally to the commanders on the battlefield and the tactical operation center.

"It's interesting because we're trying to use the old equipment with newer technology," said SGT Luis Robles, node center chief, 29th Signal Battalion.

The bridge gives these planners a few advantages, including showing the movement of friendly and enemy soldiers and allowing information to be transmitted between the commands very quickly.

"This SBCT exercise will allow us to use our mobility," SGT Robles said.

It will also mark the first time the digital bridge will test several pieces of equipment at the same time.

"Before, we've been able to test them one thing at a time," MAJ Edholm said.

MAJ Edholm added that soldiers involved with the digital bridge are very excited about their role in the first-ever SBCT exercise.

"They've been executing very well," MAJ Edholm said. "They are always training and have been waiting to perform out here."

"I'm happy to be here," SGT Robles said. "I enjoy this stuff

because it's all about combat."

SPC Jimenez is a member of the 28th Public Affairs Detachment.

TECHNICIANS ENHANCE PERSONAL SURVIVAL RADIO FOR WARFIGHTERS

by Michele Yeager

TOBYHANNA ARMY DEPOT, Pa.—Tobyhanna is part of a teaming effort that will produce a new generation of high-quality performance personal survival radios.

Communications Systems Directorate employees received training last month to install upgrade kits in the AN / PRC-112 personal survival radio.

"This is a very critical mission because the radio is proven to save lives," said George Bellas, director. "The radio, previously used only by airmen, is now being used by special forces."

Representatives of Engineering and Professional Services provided Tactical Radio Division personnel classroom and hands-on training in January.

Tobyhanna, a subcontractor of EPS, is responsible for the installation and final testing of the upgraded kits.

"Delivery of the improved product will enhance mission reliability for the warfighter," Bellas said. "The teaming venture we are committed to will assure the AN / PRC-112 is ready, as needed."

"The radios they trained on are actual production units and will be shipped to the users," Bellas added. "We foresee a requirement to produce thousands more in the future for the Army and the Air Force and will be able to do so at a cost substantially less than any other contractor capable of building the product."

EPS is the prime contractor responsible for program management. They oversee the design and development of the PRC-112 upgrade for the Army, which will convert it into a search and rescue radio that will be more reliable and easily maintainable.

Ed Wood, an electronics mechanic in Tobyhanna Army Depot's Communications Systems Directorate receives hands-on training to assemble an AN/PRC-112D personal survival radio with an upgrade kit. Tobyhanna foresees a requirement to produce thousands of PRC-112Ds in the future for the Army and Air Force.

The conversion combines beacon, radio, and transponder capabilities, in addition to new erase and sleep-mode features and three-color LED battery status indicator with a built-in tester.

The enhanced radio will be designated AN / PRC-112D and will include provisions for rechargeable battery kits.

New battery cases, an adapter to allow the new cases to be used with the PRC-90 radios and a charger controller were developed.

"They designed two different battery cases, one for non-rechargeable batteries and one for rechargeable batteries," Bellas said. "Now airmen and soldiers can use standard AA battery cells, available commercially. We'll be shipping the batteries from Tobyhanna, as well."

EPS also oversees manufacturing services in support of the PRC-112 upgrade mission.

"They oversee the hardware components and module as well as the assembly of the circuit card upgrade kits," Bellas said.

The teaming venture began on July 12, 2001, with the AN / PRC-112 Modernization / Improvement Program Review, according to Dave Baron, an electronics engineer in the Production Engineering Directorate.

"All relevant contractors were involved, as well as representatives of CECOM [U.S. Army Communications-Electronics Command]," he said. "Continuing efforts included various visits to the depot by EPS representatives to test prototypes and provide training to our technicians. Tobyhanna's offer to provide facility space and test equipment here is resulting in additional cost savings and minimal schedule impacts."

Ms. Yeager is a writer with the Tobyhanna Public Affairs Office.

TRC-170S SUPPORTED BY TOBYHANNA KEY TO COMMUNICATION FOR TROOPS

by Michele Yeager

Three depot technicians provided communications support to Marines in Kuwait just days before Operation Iraqi Freedom began on March 18.

Gene Collarini, Ken Aten and Shannon Falls work in the depot's Wideband Communications Division and volunteered for the overseas assignment.

"Our mission was to help troops of the 1st Marine Expeditionary Force by evaluating and preparing their TRC-170 systems for use," said Collarini, team leader. "Their systems needed realignments and adjustments to meet specifications for mission readiness."

The AN / TRC-170 is a troposcatter wideband communications system that links voice and critical war data by providing transmission and reception of radio

frequency signals.

"The Marines use it to maintain communications among their locations at various camps," said Falls, an electronics mechanic. "We worked closely with members of the 9th Communications Signal Battalion. They were a great bunch of young Marines to work with and were eager to learn more about the TRC-170s."

After preparing their systems, the team also set up class schedules and provided field-level training on how to calibrate and test them. The Marines learned quickly and said the training received from depot technicians was very beneficial, Falls said.

Additionally, the depot team addressed issues about obtaining needed parts, such as circuit cards, diodes and cables. Because of the sand, the equipment also needed extensive cleaning.

The men arrived in Kuwait on Feb. 25 and completed their mission by March 1. However, when a call came into the depot requesting additional support on other systems that just arrived in country, the three technicians stayed 10 more days to complete that mission, too.

"This time we worked with the whole Expeditionary Force, instead of just one battalion, training a small group of Marines at a time," Collarini said. "It was brutal working 12- to 16-hour days, seven days a week in an area with such a high terrorist alert status, but these Marines have been there since October. "We certainly respect them and sympathize with their situation."

"On one occasion, shots were fired by terrorists very close to our camp," Falls added, "and the sand storms were the worst. There was no recreational activity, and the food was pretty bad. The Marines don't have cooks like the Army does, but they hired caterers. They tried to make American food, but everything seemed to have too much curry powder in it. The MREs [meals ready-to-eat] were actually better than expected."

Of course, no one wanted to see the war begin, but the Marines, knowing it would be inevitable, seemed anxious to get things started and finished as quickly as possible, Collarini said. "They ask no questions, but they're ready to come home."

Ken Aten, an electronics mechanic in the Wideband Communications Division at Tobyhanna Army Depot, monitors the reflective power on the high-powered amplifier of an AN/TRC-170 troposcatter wideband communications system. He and three other division employees performed similar work for Marines in Kuwait in February.

When asked if they would volunteer for a similar assignment again, depot team members said they understand the risks involved and the concerns of families and friends. "But if our troops need us, Tobyhanna will be there," Collarini said.

"We participated in many air raid drills during our stay," Falls said. "You just never knew when a drill would take place. As soon as we would hear the warning sirens, we would put on our gas masks, report to our bunkers and wait for the 'all clear' signal. We knew they were drills, but sometimes we just weren't sure."

The war began shortly after they departed Kuwait. Collarini said the first Iraqi missile fired landed only 100 yards away from the camp at which they were stationed just a few days earlier.

Ms. Yeager is the assistant editor, Tobyhanna Reporter, Tobyhanna Army Depot Public Affairs Office.

BACK TO KUWAIT: TEAM RETURNS TO DESERT TO PROVIDE RADIO SUPPORT

by Anthony Ricchiazzi

TOBYHANNA ARMY DEPOT, Pa.—After completing a mission in Kuwait in December, employees didn't expect to be back there just a month later.

Four employees from the Communications Systems Directorate spent January assisting Army units to prepare radios for operations in Iraq.

Ted Fravel and Ron Saar, telecommunications mechanics, Digital Group Multiplexers Division; Glen Hill, electronics technician, Field Service Division; and Electronics Mechanic John Wasko, Tactical Communications Facilities Division; were in Kuwait testing mounting kits for the Single Channel Ground and Airborne Radio System.

"We [Saar and Fravel] had just finished repairing and testing eight DGM shelters in the field," Fravel said. "When we returned, we were told we were needed for a SINCGARS mission. "We trained on SINCGARS at the [High Tech Regional Training Site-Maintenance], then left for Kuwait in January. Our mission was to install and test the radios to get them operational."

SINCGARS provides highly reliable, secure, easily maintained combat net radio service with voice and data handling capability. The radio supports command and control operations.

A contractor was setting up vehicles with the SINCGARS mounting kit and antenna. Their mission changed from checking

radios to checking the mounts and antennas.

"We made sure that the mounts, antennas and any modifications were done correctly," Saar said. "The mounts were installed in Humvees, Bradleys [fighting vehicles], APCs [armored personnel carriers], trucks and Abrams tanks. All vehicles there were being set up for a SINCGARS."

Saar and Fravel said the mission went smoothly with only minor problems.

"The soldiers would check everything in the vehicles prior to going to another location for the radios," Saar said. "When they were done, they would load them with whatever was needed – food, water, weapons, ammunition."

"Soldiers were very happy with our work," Fravel added. "We worked with personnel from AMC [Army Materiel Command headquarters] and one of them told us we put them at ease because we made sure there were no major problems with the mounting kits."

The DGM system is composed of AN/TRC-173B/175B Radio Terminal Sets, AN/TRC-174B/138C Radio Repeatersand antennas. The systems are used to send and receive several secure radio messages simultaneously.

"We worked 12 and 14 hour days extensively testing each component," Saar said. They realigned the shelters, setting all components so they would work on the same frequencies, and returned on Dec. 19.

Both said that when they were there to test the DGM shelters, the soldiers were anxious, but ready to go. "When we returned for the SINCGARS mission, we could tell they were nervous, but morale was high," Saar said. "You could sense the camaraderie."

Saar and Fravel said they are available if needed to deploy to Kuwait again.

Ted Fravel, a telecommunications mechanic in Tobyhanna Army Depot's Communications Systems Directorate, checks the installation of the Single Channel Ground and Airborne Radio System mounting kit on a Humvee in Kuwait.

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 3,200 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 the Tobyhanna Public Affairs Office.

TROOPS PHONE HOME COURTESY OF 40TH SIGNAL TEAM

by SPC M. William Petersen

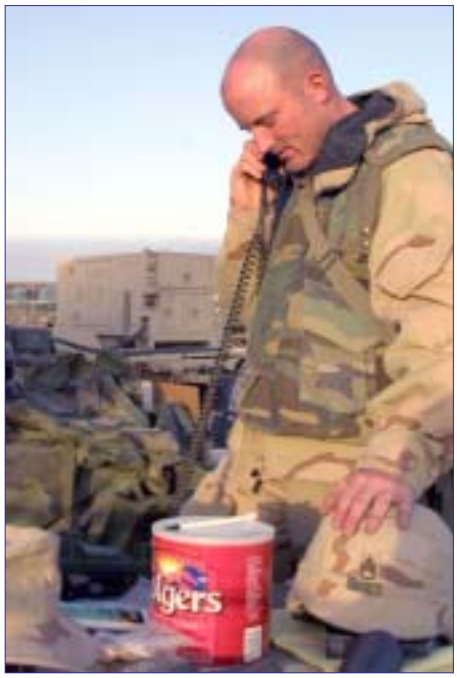
KUWAIT — At Combat Support Center-Kuwait, less than a mile from the Iraqi border, Staff Sgt. Chris Mize, a squad leader for 594th Transportation Company, 106th Transportation Battalion, was making an important call.

"That's good, sweetie," he said. "Now put your mom on the phone."

The call was to Fort Campbell, Ky., where his wife and two children are living. Mize has been deployed more than two months, and his occasional phone calls to the United States have made his deployment bearable.

"I don't know how to put in words the fact that there's a lifeline where you can call your family," Mize said.

SGT. Ivan Alicea-Lopez, SPC Shane Fligor and SPC Keith Kilpatrick are a team of signal soldiers from Company B, 40th Signal Battalion, 11th Signal Brigade here. Their primary mission is to provide telecommunications for CSC-Kuwait. As a voluntary second mission, Lopez and his team provide morale phones for the soldiers to call their families in the United States.



SSG Chris Mize, a squad leader with 594th Transportation Company, makes a call to his family in the States from within a stone's throw of Iraq. Morale phones at Combat Support Center-Kuwait are provided voluntarily by a three-person team of B Company, 40th Signal Battalion soldiers.

While the military police units and transportation units at the camp accomplish their missions of securing the checkpoint and keeping things rolling, respectively, the soldiers from these units see the 40th Signal Battalion team as their favorite troops in town.

"I've been here for about a week," said SGT Judson Moore, a military police officer at CSC-Kuwait. "These guys are one good thing about being here because they let us use their phones but [they] don't have to."

Moore makes a weekly call to his wife in Texas.

Lopez and his team have been at CSC-Kuwait for only two weeks, but have been deployed for more than four months. While at the support center, the soldiers from Company B, 40th Signal Battalion support a variety of units operating there, including 106th Transportation Battalion, and Military Police Companies 302nd, 504th and 220th. The signal soldiers also support multinational troops at the checkpoint including British soldiers.

"All of these people have their phone services provided by us," Lopez said. "And they have an outstanding service."

While the soldiers lack a post exchange in which to shop, have limited laundry facilities and as of yet, no plane tickets home, they seem pleased with their temporary home.

"It's not bad at all here," said Fligor, a native of Greenfield, Ohio, " but it's nice to be able to provide phones, especially for morale calls. We're not required to do this. We volunteered to."

The morale phones have a limited availability for the troops, however. The 40th Signal Battalion team only offers the phones for 19 hours per day.

As for the reactions of the soldiers using the phones, Fligor said, "They're ecstatic. A lot of them haven't been able to call home for months."

While Fligor admitted he was initially nervous being so close to the border, he puts his trust in the MPs and the equipment they brought.

For the troops at CSC-Kuwait, the phone calls home are a real privilege.

"I try to make a call once a week," Mize said. "This is like a treasure chest of gold when you can put your hands on it."

SPC Petersen is a writer with the 11th Signal Brigade Public Affairs, Fort Huachuca, Ariz.

TEAMWORK STARTS MISSIONS, IMPROVES HANDBOOK

TOBYHANNA ARMY DEPOT, Pa—Innovation, dedication and plain hard work have earned several employee teams here Teamwork Awards.

Satellite Communications Systems Directorate teams tasked with standing up the MILSTAR and Air Force SATCOM missions conducted repair and research to restore several automated test systems, including:

• The Antenna Pedestal Assembly Test Station had to be moved due to workload requirements.

Employees disassembled, moved, reassembled and tested the station.

• Modular Automated Test Equipment Stations was in an inoperable condition.

A team spent the next 18 months restoring the station to full operational ability. Work included fabricating new cables and restoring software and hardware. Tobyhanna is the only military depot with depot-level MATES systems.

• The Teradyne L-393 test system was also in an inoperable condition. Employees conducted extensive research to restore the tester's hardware and software.

• A team repaired the circuit cards and modules of the Interconti-

Members of Tobyhanna Army Depot's Maverick Missile Guidance and Control Systems Section, Communications Security and Tactical Missile Systems Directorate, were presented with a Teamwork Award by depot commander Col. Patricia E. McQuistion and American Federation of Government Employees Local 1647 President Richard Joyce (a resident of Clarks Summit) for their efforts to set up repair of Maverick GCSs. Kneeling, from the left: John Shulenski, Tom Aleski, Gary Gardsy and Dennis Pace. Standing: Rick Switzer, Steve Janiga, John Miles, Wayne Watkin, McQuistion, Joyce, Mike Basta and Chuck Gorey. Missing: Jim Foley, Dave Lynn and Kathleen Mooney. Several teams were presented with the awards on Feb. 21 for their efforts to improve work processes and efficiency.

nental Ballistic Missile Super High Frequency Satellite Terminal Test Bed.

They developed and validated test procedures.

They also worked with the Production Engineering Directorate and a contractor to develop and validate the test procedures for the Enhanced Link Simulator.

• Employees in the Maverick Missile Guidance and Control Systems Section, Communications Security and Tactical Missile Systems Directorate, made the transition of this workload from Letterkenny Army Depot seamless to the customer.

They prepared and began the mission in a short amount of time.

They also assisted in eliminating a multi-year backlog of GCSs while undergoing on-the-job training at Letterkenny Army Depot.

On their own initiative, the employees cross-trained on several different test consoles, many earning certificates in numerous areas of the repair process.

This benefited Tobyhanna in several ways, including providing valuable flexibility once production began and increasing the number of certified operators who could train more personnel.

Because of their outstanding accomplishments, the Air Force Maverick Program Office has committed to enhancing Tobyhanna's Maverick repair capability.

In addition, other customers have indicated a desire to transfer their related workload to Tobyhanna.

• A Secretarial Employee Initiative Team assisted administrative personnel in the development of a Secretarial Handbook.

The team reviewed processes used to administer and control all administrative aspects of correspondence. They also reviewed current correspondence regulations and contacted employees to identify areas for improvement and clarification of guidance. The handbook they developed includes information, instructions and samples for easy reference.

The EIT conducted research to ensure all information is current and in accordance with related regulations. The handbook is formatted for easier addition of updates.

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11 SOLDIERS FIRST TO GRADUATE FROM ARMY DEPOT'S 35E COURSE

by Michele Yeager

TOBYHANNA ARMY DEPOT, Pa. — Tobyhanna Army Depot, one of only two military facilities accredited to conduct radio / communications security repairer training, held a ceremony to recognize its first graduating class. The course is part of the 35E Military Occupational Skill Qualification.

Eleven soldiers completed the 35E course at Tobyhanna's High Tech Regional Training Site-Maintenance.

Each received a Certificate of Training and the U.S. Ordnance Corps Certificate of Regimental Affiliation from depot commander COL Patricia E. McQuistion during the ceremony, held April 11.

McQuistion, who previously met with each of the students individually, said she is particularly proud of this accomplishment and specifically asked to be part of the celebration. "I'm extremely proud of this inaugural class that was not without pain and perseverance," she said during her remarks. "This may be a premiere course for Tobyhanna because of our basis as a COMSEC depot."

Because of Tobyhanna's COMSEC facility, the installation is qualified to conduct MOSQ training and repair COMSEC equipment for the 35E MOS. Fort Gordon, Ga., is the only other facility with similar capabilities. Both are accredited by the U.S. Army Training and Doctrine Command.

"If not for the expertise and assistance of Tobyhanna's COMSEC personnel, we could not have completed this training," said MAJ Randy Riedy, HTRTS-M commandant. "They went above and beyond the call of duty to assist us by sharing their skills and knowledge, and providing equipment and storage space."

Recognition and gratitude also goes to the HTRTS-M staff and instructors, added CWO James Maness, technical coordinator. "It took three years to get this program off the ground," he said during the ceremony. "It was a long, hard road and you all did an excellent job."

After the conversion of the 29E radio repairer MOS to 35E radio / COMSEC repairer, there wasn't a Program of Instruction for the new MOS, Maness explained. The POI took three years to develop.

The ceremony concluded with the announcement of the distinguished honor graduate, SGT. Paul A. Pavlich, of Detachment 3, 397th Maintenance Company (Direct Support), Franfort, Ky., and honor graduate SGT Timothy D. Winters, 298th Combat Support Company, Detachment 1, Punxsutawney, Pa.

The HTRTS-M believes in continuing improvements, said the instructors, so they encouraged comments and critiques from the soldiers who completed this first course. In the future, the training

site plans to include depot civilian employees in its 35E courses.

Ms. Yeager is assistant editor with the Tobyhanna Army Depot Public Affairs Office.

NEW SWITCH BEEFS UP DISN-E BACKBONE

by Pat Connell and Doug Rasmussen

MANNHEIM, GERMANY - The U.S. Army cut a new telephone switch into service at Campbell Barracks, Heidelberg, Germany on Feb. 7, 2003, marking a major milestone in the Defense Information System Network-Europe switch modernization project.

The Heidelberg Campbell switch is one of three major U.S. military switches in Europe and one of the seven switches that make up the DISN-E switching backbone, the successor to the 1980's-era European Telephone System.

According to LTC Simon Holzman, the Army's product manager, Defense Communications Systems - Europe, the DISN-E digital switches - state-of-the-art Siemens switches, produced by Siemens AG - not only incorporate the latest technological advances, but are also capable of being certified for Defense Services Network interoperability by the Defense Information Systems Agency Joint Interoperability Test Command.

"The switching platform incorporates both European and North American features and standards," said Holzman, "allowing interoperability with the European Integrated Services Digital Network for commercial services. It also can incorporate Signaling Systems 7, which is the cornerstone signaling system of the evolving DISN-E network."

The DISN-E contract was competitively awarded to Siemens AG on March 4, 1999. Interoperability certification testing of the Siemens switch began in October 1999 on the initial software load. Subsequent software loads were tested by the JITC, leading to full certification of the current software release in October 2002.

Holzman said the Army cutover the first DISN-E switch at Mannheim Funari in August 2000, and since then has cutover 17 more Siemens switches into the DISN-E network, in locations throughout Germany and the Benelux countries, including the large multifunction switch serving HQ USEUCOM at Patch Barracks, Stuttgart, Germany. "The installation of the Heidelberg Campbell switch was two years in the making and was successfully accomplished by a true teaming effort by PM DCS-E, 43rd Signal Battalion, 5th Signal Command and Siemens," said Holzman.

GREATLY EXTENDS DISN-E SWITCH NETWORK

The cutover of the Heidelberg switch – which provides service to 7th Army Headquarters, Headquarters U.S. Army Europe and North Atlantic Treaty Organization forces stationed in the Heidelberg area – greatly extends the span of the DISN-E, said Tom Courtney, PM DCS-E Site Manager for Heidelberg Campbell. "The Heidelberg switch also provides service to the Stabilization Force in Bosnia and Herzegovina and the Kosovo Force," said Courtney. He added that the switch is equipped to serve 5,000 analog subscribers and 2,000 ISDN subscribers and can be greatly expanded in the future; serves as a gateway to switches throughout Europe and CONUS, including the Defense Red Switch Network, NATO and tactical network gateways; and serves as the host switch for four remote switching units located in the Heidelberg area – which, in turn, collectively serve more than 3,900 analog subscribers and 900 ISDN subscribers in the Heidelberg area.

Courtney maintains that the PM DCS-E switch installation effort - combined with the efforts of 5th Signal Command to upgrade the supporting telecommunications infrastructure at Heidelberg - provides a "world class" switching and telecommunications network for the commander, USAREUR/7th Army. "Previously, three separate switching systems were required to serve the Campbell Barracks community," said Courtney, "while the new EWSD installation combines these services into a single platform - with expansion capabilities far beyond anything previously available." As proof, Courtney ticked off implementation details, including a new main distribution frame equipped for 23,000 cable pairs and capable of terminating over 33,000 cable pairs; a new Deutsche Telekom point of presence, with upgraded fiberoptic equipment and Synchronous Digital Hierarchy technology; and a completely upgraded government owned transmission infrastructure, with new fiberoptic and Asynchronous Transfer Mode switching equipment. The modern infrastructure includes new ATM switches at Heidelberg Campbell, Heidelberg Patton, Heidelberg Hammond, Schwetzingen, Germersheim and Heidelberg Hospital.

In addition to the switch work at Heidelberg Campbell, Courtney said PM DCS-E provided 12 new consoles to upgrade and update the telephone attendant capabilities at Heidelberg, one of the major centers for attendant service in Europe. PM DCS-E also upgraded the 5th Signal Command Remote Operations and Maintenance Center at Heidelberg with workstations connected to the Switching Control Center Network Management System, which provides management oversight and control of the installed base of EWSD switches in Europe. The Heidelberg EWSD switch interfaces with the DISA Network Management system, allowing DISA network oversight.

PM DCS-E reports to the Project Manager, Defense Communications and Army Switched Systems, located at Fort Monmouth, N.J., which has the mission to provide the backbone infrastructure for voice, data and video at Army posts camps and stations around the world. PM DCASS is part of the Fort Belvoir, Va.-headquartered Program Executive Office for Enterprise Information Systems.

Mr. Connell and Mr. Rasmussen are writers with the Program Executive Office Enterprise Information Systems,Defense Information System Network-Europe.

CAISI COME TO BAT FOR COALITION WARFIGHTERS IN IRAQ

by Stephen Larsen

FORT MONMOUTH, N.J. - When you have forces conducting 21st century mobile warfare, with supply chains stretching hundreds of miles as warfighters thunder forward – as is now happening in Iraq – how do you keep the warfighters supplied with everything they need, from bullets to butter?

One way is with CAISI, the Combat Service Support Automated Information Systems Interface, a secure, wireless local area network that provides "last-mile" connectivity between combat service support computers and their logistics base networks. CAISI, with 11Mb wireless line of sight transmission, encryption on all wireless LAN links and 2Mb Digital Subscriber Line backup capability for non-LOS requirements within a four mile distance, extends tactical connectivity capability from the Theater level to the Brigade Support Area, and is providing traditionally-lacking communications for combat service support missions such as supply chain management, maintenance and business systems.

In support of Operation Iraqi Freedom in Southwest Asia, CAISI is connecting logisticians at a remote ammunition outpost to their base two miles away, allowing them basic Internet access and to automatically download critical information back to the base - helping ensure that troops get ammunition when they need it.

Before CAISI? According to Jose Ilarraza, a logistics management specialist from the Combined Arms Support Command, Fort Lee, Va., who is deployed in Southwest Asia as part of the Automated Logistics Assistance Team, previously the remote ammunition outpost had to rely on "sneaker net" - saving the data on a disk and then walking or driving to hand-deliver the disk to the required location on base. Now, they can do it with a few keystrokes and use the power of the net to ensure they have the latest, updated information.

Helping keep Warfighters driving towards Baghdad supplied with everything from bullets to butter is CAISI (foreground), the Combat Service Support Automated Information Systems Interface, a secure, wireless local area network that provides "last-mile" connectivity between combat service support computers and their logistics base networks. Shown here with CAISI is MAJ Sal Fiorella, assistant project manager CAISI, whose team accelerated fielding of the system.

In another location, CAISI allowed coalition forces to wirelessly connect logisticians to a facility 3.5 miles away, according to MAJ Forrest Burke, chief, logistics automation with the Coalition Forces Land Component Command in Kuwait, saving four weeks installation time, $40,000 in installation costs and the need to obtain host nation property clearances.

"CAISI is a tremendous value, in terms of less labor, reduced environmental impact of digging in wire and cost of lost wire," said MAJ Burke. "Plus, CAISI is allowing us to be much more flexible in where we position units, both in tactical and garrison facilities."

Accelerated fielding

According to MAJ Sal Fiorella, assistant project manager, CAISI with the Project Manager Defense Communications and Army Transmission Systems here, his team got the call from CFLCC in October, 2002, to provide a wireless CAISI solution for coalition forces in Southwest Asia. He said they coordinated with units that had priority due to deployment schedules to provide new equipment training, then started fielding in December, completing the fielding in mid-March.

"I have a great team," said MAJ Fiorella. "My team was able to adjust fire and be responsive to the customer. We're not only meeting the requirements of the Coalition Forces Land Component Command, but we're working with the Automated Logistics Assistance Team to ensure connectivity for all standard Army management information systems in Theater."

MAJ Burke echoed that thought. "Connectivity issues here are the same as we went through in the Balkans and before," said MAJ Burke. "A distinct network for STAMIS is necessary."

COL Lee Price, the Project Manager Defense Communications and Army Transmission Systems, is proud of the way MAJ Fiorella and his team have fielded CAISI. "Combat service support people traditionally haven't gotten much in the way of communications when a battle is ongoing because they don't move fast and they have a big footprint," said MAJ Price.

"Now they have a tool."

Next, said MAJ Price, will be satellite connectivity for CAISI, which is right in line with the April 3 decision of Kevin Carroll, the program executive officer for Enterprise Information Systems, to make PM DCATS responsible for the acquisition of the proof of concept and end-state satellite

communications for all future PEO EIS system satellite connectivity requirements. "We believe this is the beginning of the synergies LTG (Peter) Cuviello (Army Chief Information Officer / G-6) aims to achieve by placing the emerging satellite requirements with PM DCATS," said Price.

The field is equally excited, according to MAJ Burke. "Division Support Commands and Corps Support Commands are clamoring for CAISI-SAT and are excited about what it will do for their customers in reduced customer wait time and flexibility in the battle space," said MAJ Burke.

"It's coming," said MAJ Fiorella. "It is next on our agenda."

Mr. Larsen is a Public Affairs Officer, with Program Executive Office, Enterprise Information Systems at Fort Monmouth, N.J.

The U.S. Army Materiel Command has honored the AN/GSC-52 Modernization Program - a partnership of the Program Executive Office, Enterprise Information Systems' Project Manager for Defense Communications and Army Transmission Systems, Harris Corporation and the U.S. Army Communications-Electronics Command - with its 2003 AMC Partnering Success Award. Under the program, PM DCATS is upgrading 39 AN/GSC-52 medium terminals (foreground of photo) and also modernizing operator consoles for 21 AN/GSC-39 medium terminals and 22 AN/FSC-78 heavy terminals (background of photo).

SATELLITE TERMINAL PROGRAM EARNS AMC PARTNERING SUCCESS AWARD

by Stephen Larsen

FORT MONMOUTH, N.J. - The U.S. Army Materiel Command has honored the AN / GSC-52 Modernization Program - a partnership of the Program Executive Office, Enterprise Information Systems' Project Manager for Defense Communications and Army Transmission Systems, Harris Corporation and the U.S. Army Communications-Electronics Command - with its 2003 AMC Partnering Success Award.

GEN Paul J. Kern, commanding general of AMC, presented the award on April 29 to Vic Ferlise, deputy to the commanding general, CECOM, LTC Arthur Earl, product manager, Defense Satellite Communications System Terminals and Triscia Conti and Chris Buck of Harris Corporation at the National Defense Industrial Association's Atlanta XXIX conference, which was co-sponsored by AMC and the Army Acquisition Executive.

According to Earl, the AN / GSC-52 Modernization Program is extending the life of medium terminals - with 38-foot diameter dish antennas - and heavy satellite terminals - with 60-foot diameter dish antennas - for 15 to 20 years.

"Despite its name," Earl said, "under the program we're modernizing 39 AN / GSC-52 medium terminals and also modernizing operator consoles for 21 AN / GSC-39 medium terminals and 22 AN / FSC-78 heavy terminals." He added that the team has modernized 20 terminals to date, at sites including Bahrain and MacDill Air Force Base, Tampa, Fla., home of the U.S. States Central Command, which is the combatant commander for Operation Iraqi Freedom.

"The main purpose of the AN / FSC-52 Modernization is to provide the warfighter reach back to communicate with the sustaining base during war or contingency operations," said Earl. "I'm proud that our team provided this support for our troops fighting in Iraq."

COL Lee Price, project manager for Defense Communications and Army Transmission Systems echoed that thought. "Strategic reachback is the most important thing we do," said Price, who added that a great deal of credit should go to Gerald Cristophe, PM DCATS' project leader for the program.

Christophe, an engineer with the Space & Terrestrial Communications Directorate of CECOM's Research, Development and Engineering Center who is "embedded" within PM DCATS, said the credit should go to the members of the partnership for their "trust and integrity in working towards common goals." He cited Ted Kordower, contracting officer with CECOM's

Acquisition Center; Bob Riley, Triscia Conti, Chris Buck and Trudi Lannon of Harris Corporation; Vernon Haney of Computer Sciences Corporation; and integrated process team leaders Michael Jackson of CECOM's Logistics and Readiness Center, Ken Buergin of CECOM's Software Engineering center, Chu Lai of S&TCD and Joe Shields of PM DCATS.

"Thanks to their efforts, we met all program milestones and completed all five separate first article tests on schedule," said Cristophe. He added that their partnering helped to develop and deliver "superior quality" software and interactive electronic technical manuals and user-friendly operator interfaces.

"More important for the warfighter," Christophe said, "the contractor delivered virtually every system ahead of schedule. The partnering parties responded to rapidly-changing world events by adjusting schedules and reacting quickly."

Mr. Larsen is a Public Affairs Officer, with Program Executive Office, Enterprise Information Systems at Fort Monmouth, N.J.

DEPLOYABLE COMMUNICATIONS SYSTEM UNSNARLS PORT CARGO SNAFUS

by Bob Fowler and Stephen Larsen

FORT MONMOUTH, N.J. – According to retired Army LTG William G. "Gus" Pagonis, who masterminded logistics during the Gulf War, the easiest part of going to war is getting soldiers to the battlefield; the hardest part is getting logistics support to soldiers. But thanks to new deployable command, control and computer systems, the task of moving military cargo through ports and sending it the right place – the mission of the Military Traffic and Management Command - is becoming more manageable.

These C4 systems, known as the Multi-Media Communications System are the heart of Mobile Port Operation Centers, which include tactical vehicles and support small scale, short-duration contingency operations at secondary ports, and shelterized versions called Deployable Port Operations Centers, used for major or regional conflicts.

Pictured above is a Mobile Port Operation Center – which includes a High Mobility Multipurpose Wheeled Vehicle (HMMWV) and tent housing the Multi-Media Communications System (inset). The MPOC and MMCS help the Military Traffic Management Command keep track of cargo moving through ports via the same information technology capabilities MTMC personnel have at their home stations.

MPOCs and DPOCs provide the C4 systems MTMC requires to control cargo moving through ports - to identify it and report it to the various intransit visibility systems in Department of Defense - according to Corrina Panduri, project leader with the Product Manager, Defense Wide Transmission Systems. PM DWTS, which reports to the Project Manager Defense Communications and Army Transmission Systems and is part of the Program Executive Office, Enterprise Information Systems, is providing the commercial-off-the-shelf MMCS suite to MTMC.

Panduri said MPOCs and DPOCs are basically "mobile MTMC offices" that provide the same information technology capabilities MTMC personnel have at their home stations – the Worldwide Port System; the Integrated Computerized Deployment System; an Exchange Server with e-mail and internet access; and the MMCS communications module, which provides satellite access (via INMARSAT, the International Marine / Maritime Satellite, for MPOC and FTSAT, the Flyaway Triband Satellite Terminal, for DPOC) so they can tap into NIPRNET (Unclassified but Sensitive Internet Protocol Router Network) and SIPRNET (Secret Internet Protocol Router Network)and provide cargo status reports.

WHY MMCS?

During Operation Desert Storm, the United States moved more than 40,000 containers to the theater of operations. You don't have to be a logistician to realize that, with a paper-based supply system and that many containers in theater, the biggest bottleneck in the logistics pipeline was right where the supplies came off the ships – in the ports.

"More than half of the cargo containers in theater were filled with "mystery" items," said Panduri. "Nobody knew where theses items - including more than $2.7 billion

dollars in spares - were supposed to go."

Add to that the fact that the communications infrastructure in some ports is lacking and you get a sense that finding items in the maze of pallets and containers could be like searching for the proverbial needle in the haystack.

Now, thanks to MPOCs, DPOCs and MMCS, along with new technological advances, such as handheld scanners and radio frequency identification tags – fielded by PEO EIS' Product Manager, Automatic Identification Technology - on every air pallet and cargo container, logisticians can keep track of cargo every step of the way.

"With MMCS, we can provide immediate information on the location and status of the containers and their contents," said Panduri. "This Web-based tracking system allows personnel working at the MPOC, as well as unit supply personnel, to determine exactly where a given shipment is located and accurately predict a delivery date."

The goal is total asset visibility – "and no more mystery containers," said Panduri.

Mr. Fowler and Mr. Larsen work with the Program Executive Office, Enterprise Information Systems.

MARS GRAMS SEND MESSAGES TO DEPLOYED SOLDIERS

by Denise Allen

FORT GORDON, Ga. — While the Internet and email have gained in popularity as means of communications, Edwin Dodson has a love for an older technology.

"I'm retired Army. My father was a radio amateur, and I grew up in it," said Dodson, a Johnson Controls employee who is a volunteer radio operator with the Army Military Affiliate Radio System or MARS.

When Dodson was in the Army during the Vietnam War, MARS was vital to getting messages through to deployed service members.

"In 1969 in Vietnam, we didn't have phones," he said.

MARS grams, like telegrams, were relayed via the radio from family members to service members.

MARS grams are still available; however, with email communication and widely available phone cards that service members have, MARS grams aren't used as much as they once were.

"A lot of the older folks who had heard of MARS are surprised we are still here," said Ed Butovjac, another Johnson Controls employee and MARS volunteer operator. "We've just turned down a different road."

Today one of MARS' focuses is on the homeland, said Dodson.

In the event of a natural disaster such as a flood or tornado, communication lines might be lost. MARS operators could fill the communication gap between hospitals and emergency management agencies.

MARS operators have established relationships with the Federal Emergency Management Agency and the Georgia Emergency Management Agency. They've also been included in the last three Signal Corps Grecian Firebolt exercises.

There are about 5,000 volunteer MARS operators in the Army MARS program. The Navy and Marines have a combined MARS program and the Air Force has its own MARS program. MARS is a Department of Defense sponsored program and is headquartered at Fort Huachuca, Ariz.

To find out more about MARS or to send a MARS gram, visit the organization's website at www.gamars.org.

Ms. Allen is a staff writer for Fort Gordon's The Signal *newspaper.*

LEADER TRANSITIONS

5TH SIGNAL COMMAND GENERAL PINS ON SECOND STAR

by Danny M. Johnson

MANNHEIM, Germany – Another milestone in the history of the U.S. Army Signal Corps was achieved when BG Marilyn Quagliotti became the first female signal soldier to pin on the rank of major general.

GEN B.B. Bell, commander U.S. Army Europe and Seventh Army and BG Quagliotti's husband, Gregory, pinned on her second star in a ceremony held Feb. 6. Her date of rank was Feb. 1.

"This is a festive moment," said Bell after promoting BG Quagliotti. "She is at the top of her profession. It's all about achieving this most special place."

MG Quagliotti now serves as the deputy director for operations (D3) for Defense Information Systems Agency in Washington, D.C.

"There has been a fundamental shift in 5th Signal Command in the last three to four years," said GEN

GEN B.B. Bell, commander U.S. Army Europe and Seventh Army and BG Quagliotti's husband, Gregory, pinned on MG Quagliotti's second star.

Bell in his introductory remarks. "The Balkans was disconnected. The information sphere has improved there."

Speaking about how important information is in the military, GEN Bell said, "Information is an element of combat power as a tank and an artillery round are," said GEN Bell on the importance of information in the military.

Network Operations, known as NETOPS, in the field has become a model for use in the Armed Forces thanks to MG Quagliotti said GEN Bell. She has made a difference in her unit and the community.

When asked to sum up her feelings on the new promotion MG

Quagliotti said, "I am here today because of all the people I have served with and met in the Army over the years. I learned something from all of them. It's been an honor and privilege to serve with them."

BG Carroll F. Pollett replaced MG Quagliotti as the commander of 5th Signal Command.

Mr. Johnson is the chief of Public Affairs, Headquarters, 5th Signal Command.

CIO'S CAREER SPANS THE DRAFT, ALL-VOLUNTEER ARMY

By Joe Burlas

WASHINGTON — The biggest difference between the Army LTG Peter Cuviello joined as a second lieutenant in 1969 and the Army he left is the quality and professionalism of its people, Cuviello said.

Cuviello retired from active service July 3 in the top Signal Regiment position in the Army as the Army chief information officer / G6.

"When I joined the Army, there was no choice (about military service) — either you joined or you were drafted; I joined," Cuviello said. "When you were in the Army back then, you were in with a lot of people who just didn't want to be there. If you tried to talk about teamwork, commitment or something like Army values, it just didn't work.

"Today we have a volunteer force with people who want to succeed and who truly live the Army values in all that they do everyday."

Another significant difference, Cuviello noted, is that today's Army has the backing of the American people, compared to the low regard many Americans held for those in uniform during the Vietnam War.

Looking back over the past 34 years, Cuviello said he never planned to make the Army a career, but there always seemed to be one more interesting opportunity just on the horizon. And while he said he would love to stay in uniform, the

LTG Peter Cuviello, retired from active service July 3.

G6 also said to do so would be a disservice to a chain of people who are ready to move up to positions of increased responsibility.

And people, Cuviello said, specifically the soldiers and Department of the Army civilians that have worked for him, will be the legacy he leaves the Army.

"I spent my time in the Army trying to be a people-oriented type of leader," Cuviello said. "Managing is important in the information technology field, but you lead people -– ensuring the right people, with the right skills and the right attitudes, are there to get the job done. I hope that everyone who follows in my footsteps, and I don't mean just the next G6, but those who pass through the ranks, lead.

"If everyone does that at each level, and they pass that people-oriented leadership mantle on to those who work for them, the Army will be in great shape."

Cuviello has held leadership positions from platoon to brigade and served as the chief signal officer and commanding general for the Army Signal Center prior to his final assignment as CIO / G6 of the Army.

During his last week on active duty, the general gave advice for success for those starting a career in the Army:

—Focus on being competent in the job you have; don't immediately plan for a career with the goal of becoming the sergeant major or chief of staff of the Army.

—Seek leadership positions.

—Seek jobs that lead toward your goals –- some of those jobs may be tough, be prepared to work hard.

—Don't depend on others to manage your career –- you are your best career manager.

—Once you meet a goal, don't rest in place –- keep on trucking.

—Take care of yourself physically, mentally, spiritually and morally.

—Take care of your people when in leadership positions.

—Enjoy what you do.

LTG Steven Boutelle, formerly G6 director of Information Operations, Space and Networks is the new CIO / G6 of the Army since Cuviello's retirement.

Mr. Burlas is a writer with the Army News Service, Washington, D.C.

GERSTEIN MADE IMPACT ON 93D SIGNAL BRIGADE

FORT GORDON, Ga. – After two outstanding years, COL Dan Gerstein relinquished command of 93rd Sig. Bde., Fort Gordon, Ga., on July 25, 2003. Gerstein also stepped down from his roles as the U.S. Army South's G6 (information officer) in Puerto Rico and the Army Signal Activity's Director of Information Management, located in Miami.

Prior to taking command of the 93d, Gerstein was the Army's deputy director for Army Transformation in the G-3 Directorate.

"When I found out I was going to the 93d, I was very excited," said Gerstein. "The 93rd had a great reputation and very few signal officers get a chance to command a tactical signal brigade.

"I wanted to focus on the war fighting aspects of our jobs and the individual soldiering skills," said Gerstein. "So, we developed and

implemented a command vision based on tough, realistic training; taking care of soldiers and families, and building esprit. The idea was to train hard so that we could save lives in a real world situation, which resulted in the Situational Training Exercise."

LTC Stephen Jurinko, former 93d Signal Brigade, deputy commander, arrived in September 2000, making him one of the few soldiers to have seen, firsthand, how Gerstein transformed the brigade by implementing his training philosophy of tough, realistic training.

COL Dan Gerstein (left), 93rd Signal Brigade, brigade commander, discusses field site layout issues with CPT Brian Tidwell, former commander of B Company, 67th Signal Battalion, during a situational training exercise.

"Before he came on board, we both sat down and talked, and he asked what I felt the brigade needed to work on," said Jurinko. "We were both of the same mindset—we (the brigade) were a tactical unit that wasn't tactical enough. We both agreed that we had a huge responsibility to prepare our soldiers to go to war.

"It's easier to be tough and have the soldiers go out there and find out that the real thing is easier than it was during training," said Jurinko. "We have a responsibility to make sure that they come home to their families. The only way to do that is to recreate the scenarios during the Situational Training Exercises that they would experience in combat."

CSM Paul E. Scandrick, former command sergeant major of the 93d Signal Brigade, arrived in December 2000. When Gerstein arrived, they discussed how to build the "will to win" in the brigade's soldiers. Gerstein and Scandrick both believed that an effective brigade depended on the squads, sections and teams having the motivation and training to achieve a combat ready state. Both believed that it was crucial to place trust in the NCO leadership to train their soldiers, at the lowest level; provide tough standards, and then to assess the training to ensure compliance.

LTC Steven Ingwersen, the 93d Signal Brigade security officer, also arrived just after Gerstein and before Sept. 11.

"COL Gerstein has a great training philosophy—it has been proven time and again, and when our soldiers were deployed to support the war on terrorism after the attacks on Sept. 11," Ingwersen said. "He's very demanding, but his demands are within reason. When you listen to what he says and understand the intent, then you can attain great things."

Besides training, one of the areas where Gerstein has had the most impact is in relations with allies in the Latin America and Caribbean areas of operation. Gerstein has played a crucial role in structuring the Latin American-Caribbean Conference that has been held annually at Fort Gordon and improving interoperability and cross-border communications between the United States and countries throughout the region.

Along with MG Luis Alberto Pozzi, director of Communications and Information Systems (G-6), Argentine Army, Gerstein pioneered a major command, control, communications and computers interoperability initiative between the two countries. Through this initiative, the two armies conducted an exercise in which the 93d Signal Brigade provided Defense Service Network, commercialized Internet service provider, and video teleconferencing directly to Argentina using an Argentine Army satellite terminals linked to the brigade's Theater Network Operations Security Control Center.

"We have been very successful interfacing with the Argentine Army," said Mike Roman, operations chief. "We have it down now to where we can do it as a routine operation from our TNOSC, and more importantly, we have demonstrated a capability to provide C4 (command, control, cmmunications and computer Support) services to the coalition armies."

Likewise, the Andean Ridge C4 Conference, which Gerstein co-hosted with his Colombian counterpart, COL Alvaro Viveros, facilitated cross-border communications between the countries of the Andean Ridge, to include Colombia, Peru, Panama, Bolivia and Ecuador. This initiative resulted directly in C4 cooperation at the strategic, operational and tactical levels. Armies of the region now can communicate in real time based on the work done during this conference. In addition, the methodology that was developed has been broadened to include cooperation in other key areas, including logistics.

Gerstein has also played a vital role in advancing the technological capabilities of the 93d Signal Brigade.

"This brigade has made tremendous progress in acquiring and assimilating cutting-edge technology into its operations," said LTC Paul LaDue, battalion commander, 67th Signal Battalion. "He has been the driving force behind the technological achievements, which run the gamut from International Mobile Satellite Organization phones to the data packages, and

the commercial satellite service to Colombia, LaDue said.

"This brigade has become relevant on the battlefield today because of the investments made in technology. In addition to procuring new, commercial off-the-shelf equipment, like the Promina multiplexors, we have also upgraded our existing military equipment to include installing the enhanced tactical satellite signal processors in every brigade multichannel TACSAT (tactical satellite) to double the number of links that we can install."

Finally, Gerstein's concern for soldiers is embodied in the numerous garrison improvements made during his command. There have been several improvements to the brigade's billets, dining facility, an improved Lightning University facility, and many enhancements to the brigade's Gym 3.

Current renovation projects have improved quality of life and the overall work environment including an old dining facility which was renovated and now houses 56th Signal Battalion headquarters and 63d and 67th Signal Battalion operations.

COL Gerstein relinquished command of the 93rd to COL Nathaniel Smith.

OF INTEREST

SIGNAL CENTER WELCOMES NEW MUSEUM DIRECTOR

by Steve Brady and Bob Anzuoni

FORT GORDON, Ga. – The Signal Corps Museum commemorated the D-Day Invasion June 6 with a display of different communication devices used by the corps during World War II.

Bob Anzuoni, the new museum director, said he wanted the display to show the Signal perspective during the time.

There were many different types of communication devices

Bob Anzuoni, (right to left) museum director, shows LTC Ronald Tilly, French liaison officer, and MAJ Bob Adamczyk, Canadian liaison officer, examples of old Signal equipment Friday. Anzuoni was dressed in an M-1942 paratrooper uniform like the ones used during the Normandy invasion. June 6 marked the 59th anniversary of D-Day.

including whistles that could be heard above the gunfire, the 'cricket' clicking device and others, he said. Wired and wireless telephones, lights, flags and other devices were also part of the display marking the 59th anniversary of D-Day.

"I wanted to recognize the anniversary of the Normandy invasion," he said. "It was a large operation and a lot of people lost their lives. I wanted something that would reflect the sacrifice of those troops. And since I am new here, it gave me the opportunity to have a small event I could organize fairly quickly."

Robert Anzuoni arrived to fill the position that had been vacant for six months. He has already begun to take the museum in a new direction.

The mission of the museum is to preserve the history and material culture of the Signal Corps, and to educate the soldiers and leaders about those traditions.

The director serves as the coordinator for all the museum activities, such as collections management and exhibits, to ensure they are conducive to soldier training.

"As the director, I provide the command with a historical training facility. Even though Signal is a high-tech field now, history can be relevant for training today's Signal soldiers. The museum provides an atmosphere in which the soldier can reflect on the humble beginnings of the Signal Corps and see the technological progression of Army communication from flags and torches to computers and satellites. More significantly, the soldiers see the sacrifices made by those who went before them."

Anzuoni said he plans to update and restructure the exhibit galleries to create a classroom and improve the storyline flow. The classroom will be a Regimental room in the center of the exhibit space. The room will serve both as a place of instruction for advanced individual training students and a tool to build esprit-de-corps among Signal soldiers. The new exhibit arrangement will serve better to guide soldiers and visitors through the rich history of the Signal Corps. Side

galleries will tell the story of units which trained at Fort Gordon during WWII.

Anzuoni also said he wants to improve outreach and volunteer programs. Outreach programs can bring the Signal story to more than would normally visit the museum.

Making use of volunteers allows more programs and offers members of the community, military and civilian, to participate in something they enjoy doing. He would also like to see more donations from Signal soldiers who have participated in recent operations. "Today's missions are tomorrow's history," he said.

"We have to collect headgear, uniforms, footgear, and other items used by our soldiers today, before it is too late."

A former paratrooper with the 505th Parachute Infantry Regiment, 82nd Airborne Division, Anzuoni comes to Fort Gordon after ten years at the 82nd Airborne Division Museum. He has served as a member of the U.S. Army Center of Military History Certification Inspection Team. He also served as adjunct faculty for a community college and a contributing editor to Airbourne Magazine.

Anzuoni holds a B.A. in American Studies from Stonehill College and an M.A. in History and Archival Methods from the University of Massachusetts at Boston.

If you would like to volunteer to be a museum docent, living history interpreter, greeter, or do other volunteer work, or if you have items to donate, please contact the director by telephone at (706) 791-4793 or by e-mail at anzuonir@gordon.army.mil.

Mr. Brady is the editor of The Signal *newspaper at Fort Gordon, Ga.*

WHITE HONORS THOSE KEEPING THE FORCE MANNED

by Joe Burlas

WASHINGTON — To a man, this year's top recruiters, career counselors and retention noncommissioned officers agreed that while they were honored and humbled to be selected as the best in their fields, they are only representative of today's superb workforce that keeps the Army fully manned.

Secretary of the Army ThomasE. White recognized six members of that workforce during a Pentagon awards ceremony April 3.

Honorees were: SFC Shane Wentz, active-Army career counselor of the year; SFC Mark Gearing, Army Reserve career counselor of the year; SFC Thomas Downs, active-Army recruiter of the year; SSG Calvin Lamont, Army Reserve recruiter of the year; SSG Terance Anderson, Army Reserve retention NCO of the year; and SFC Barry Bond, Army National Guard recruiting and retention NCO of the year.

SFC Wentz, a member of the Network Enterprise Technology Command/9th Army Signal Command, has been stationed in Kuwait for six months, and returned to the Central Command area of operations April 5.

"I had real mixed emotions about coming back for the ceremony," SFC Wentz said. "Of course it is nice to see my wife, but I need to be there supporting the troops and what is going on over there."

The other sergeants echoed SFC Wentz's remarks, saying their thoughts and prayers were with those actively engaged in Operation Iraqi Freedom and "The real heroes are over there, not us sitting here in this room."

"What we have done to get here pales in comparison to what our troops are doing over in Iraq," said SSG Anderson, 89th Regional Support Command, Wichita, Kan.

SFC Gearing, working with soldiers leaving active duty from Eighth Army, Korea, said his biggest challenge in getting them to consider the Army Reserve was a sense of burnout.

"Soldiers work hard and when their tours are up, they want to return home and relax," SFC Gearing said. "They see how much the reserve component is used around the world. But, people want to be a part of something bigger than themselves and to make a difference. The reserves can give them that."

The three recruiters of the year said the biggest challenges they faced were getting their foot in the door and clearly demonstrating the many opportunities the Army offers as something real and attainable.

SFC Downs, working out of the Jacksonville, Fla. Recruiting Battalion, said a big part of his success has been persistence. He spoke about the year he spent keeping in contact with Justin Molotzak as the young man drifted between part-time jobs. Molotzak is now out of military police training and assigned to Eighth Army. He will attend the U.S. Military Preparatory School, Fort Monmouth, N.J., next school year.

For SFC Lamont, from the Dallas Recruiting Battalion, Denton, Texas, success in recruiting means finding out what potential recruits want in life and then showing them exactly how the Army can help achieve their goals. Some want a college education; others job skills; and some, travel opportunities, SFC Lamont said.

All of the honorees agreed honesty was critical in establishing and maintaining relationships with recruits, soldiers and their families.

Another point of agreement was each of their successes could not have been possible without a supportive and understanding wife.

"I spend a lot of hours at night getting the job done because that is often the only time potential recruits and their parents can meet with me," SFC Downs said. "My wife runs the household — taking care of the kids, watching over the finances and cooking the meals. I would not be where I am today without her support."

Mr. Burlas is a writer with the Army News Service.

NETCOM TRANSITION TEAM WINS AWARD

FORT HUACHUCA, Ariz. -- Army Transformation is not just about new weapons systems; it's

about restructuring how the Army does business. A team of 19 Department of the Army civilians knows first hand how much work restructuring can be.

Known as the NETCOM Transition team, they are all employees of the newly created Network Enterprise Technology Command at Fort Huachuca, Ariz. They will receive the American Society of Military Comptroller's Meritorious Team Achievement Award at the ASMC Professional Development Institute in New Orleans, May 30. This award is presented annually to a Department of Defense team brought together temporarily to perform a specific task.

Nominated by NETCOM's assistant chief of staff, G8 (resource management), the NETCOM Transition Team is being honored for developing the organizational constructs for the headquarters, Army Signal Command, portion of the secretary of the Army's directive to restructure information management. NETCOM, the Army's first Direct Reporting Unit, was created from elements of the Army Signal Command, elements of the Chief Information Office / G6 (command, control, communications, and computer systems staff office) and additional manpower resources identified for transfer from other information technology organizations throughout the Army.

"It was December 2001 before we got to sit down and get started with the very tedious and very detailed work of analyzing manpower spreadsheets, identifying authorizations and dollars to create the new enterprise-level command," said Debbie Pool, a team member.

"A lot was accomplished in a little bit of time. The operation was originally scheduled to begin in September 2001," said John Gonzalez, who was part of the National Capital Region team element. "This would have given the members of the team a whole year to complete the daunting task of identifying IT manpower authorizations and associated dollars Armywide. It would have allowed more time for negotiating with the appropriate major commands to transfer these authorizations to NETCOM and it would have made the whole process of documenting and receiving approval on these actions from DA less stressful."

Team members include: Larry McKenzie(G8) -lead, Elizabeth Patten (G3), Steve Saway (G8), Michael Stephany (G3), Neil Hains (G3), Joe Griego (G8), Cheryl Griego (G8), Debbie Pool (G8), Tom Skinner (G8), Linda Guinter (G8), Mary Holte (G8), Hanna Hooper (G8), Marybeth Slauenwhite (G3), Marie Hayward (G3), Linda Buetow (G3), Linda Howard (G3), John Gonzalez (G8), Belinda Stoll (G8), and Victoria Kiser (G8).

"It would have also benefited the Fort Huachuca based team members who were developing comprehensive concept plans. The scope of the task was very broad and required a lot of networking, said Cheryl Griego, another team member. "It included the transformation of the Army Signal Command headquarters and reorganization of one of its major subordinate commands, U.S. Army Networks Engineering and Technology Activity. We were tasked with using these assets to create a superstructure that met the dictates of the secretary of the Army's reorganization guidance," she added.

"Other operational missions took priority after 9-11," said Elizabeth Patten, who was also a member of the team. "We were intensely involved in fighting the war on terrorism in the fall of 2001 so we ended up with only about 10 months to actually make everything happen. Normally changes like this spend years in the planning phases. We took the senior leadership's vision for NETCOM and with input from the entire staff, and lots of hard work by the team, we designed the new organization."

"Regional offices were planned in the continental U.S. to collocate with the Army's new installation management regional directors. Staffing documents for all major Army commands were reviewed to identify the spaces needed to staff these new regional information offices," said Mike Stephany, another team member.

"Every authorization in the ASC headquarters was reviewed and evaluated. We reassigned office space and people. We formed a new subcommand called the Enterprise Systems Technology Activity," said team leader, Larry McKenzie. "The new NETCOM began emerging from all this analysis and planning. It was crafted from the core organizations of the Army Signal Command, the IT authorizations garnered from other major Army commands and the operational directorates transferred from the CIO / G6."

"It really started coming together last summer," McKenzie said. "We had enough authorizations and funding to begin implementing the plan. The mounds of forms and information papers the

NETCOM transition committee generated and pushed to headquarters DA were getting approved. We saw light at the end of the tunnel. Then, Aug. 13, 2002, a general order was signed creating NETCOM. The team had done its job. We were official."

"Hours were long and it was quite different for me," said team member Marie Hayward. 'It was the first time I worked at that echelon. It was a great time to learn about teamwork and be able to do something for the Army."

"I've been here thirteen years," said team member Linda Howard. "The information technology arena has been in transformation the whole time. For me, this mission was just another 'new pair of tap shoes.' I expect I will see more changes before I retire."

Team member Cheryl Griego summed it up this way: "Last October, during the official ceremony redesignating Army Signal Command as the core organization of NETCOM, I felt some deep emotion. I knew it meant something very different to me than it would have if I had not been a member of this team. I knew what kind of teamwork - what kind of effort - had gone into the creation of this new command. It was a good feeling."

"We owe a debt of gratitude to every employee who worked on this transition, said MG James C. Hylton, NETCOM's commander. I am thrilled that this transition team is being honored for the outstanding contribution they made to this effort."

JWID LEADS THE WAY TO INTEROPERABILITY

by Michael A. Brown Sr.

HAMPTON, Va. (NNS) — Coalition interoperability is a vital capability in today's worldwide operations, according to officials at the Joint Staff and at the Defense Information Systems Agency.

That's why the annual Joint Warrior Interoperability Demonstration and its focus on command and control, communications and computer (C4) solutions is especially important in 2003.

Rear Adm. Nancy E. Brown, vice director of Command, Control, Communications and Computer Systems Joint Staff, said interoperability is absolutely essential to allow information superiority to evolve and grow.

"We must continue to field systems that are conceived and born interoperable," she said. "The military services are providing funding to allow warfighters to assess the technologies. Our combined operations in Afghanistan and other worldwide locations will be using JWID developed products, like the defense collaboration tool suite."

JWID focuses on "Coalition Interoperability, the 21st Century Warfighter's Environment." The challenge is to define solutions to interoperability issues; ensure those solutions can be applied to the operational community; and enable a standard solution for information sharing between coalition partners.

In addition, JWID will feature information exchange across multiple domains, a critical capability in the global war on terrorism.

The U.S. Pacific Command, Camp Smith, Hawaii, is the host, and DISA, in Arlington, Va., is the lead agency for the event.

Additional U.S. sites include the Naval Surface Warfare Center, Dahlgren, Va.; SPAWAR Systems Center, San Diego; and Electronic Systems Center, Hanscom Air Force Base, Mass.

"One of our key operating principles is that interoperability should be built in, not bolted on," said Brig. Gen. Carroll F. Pollett, DISA principal director for operations and commander, DISA global operations. "JWID will lead the way to more effective operations, like a road map. We all need a road map, because interoperability should not be an afterthought, ...something we try to incorporate after a system is fielded."

This annual Chairman of the Joint Chiefs of Staff event enables U.S. combatant commands and the international community to investigate C4 solutions that focus on selected core objectives.

The demonstration is conducted over the Combined Federated Battle Laboratories Network and features assessment of more than 46 coalition interoperability trials at operating sites around the world. Coalition partners conduct their own interoperability trials and assessments.

JWID is conducted in a simulated operational environment to provide context for warfighter validation of C4 solutions. Each CIT will receive a comprehensive assessment. Depending on the CIT, the assessment may include a warfighter, technical and / or a security assessment.

JWID is conducted over a worldwide secure research and development network. A key objective of JWID 2003 is to investigate how to provide multiple levels of security on the network as outlined in specified objective areas.

Six core objectives cover multiple levels of security, logistics, language translation tools, situational awareness, coalition network vulnerability assessment capability and core network services.

"Each objective is a refinement or restatement of an underlying U.S. combatant command, Combined Communications Electronics Board nation or NATO nation requirement," according to Brown. "The CITs seek to demonstrate a capability to improve or even establish a capability in support of one or more of the objectives."

Mr. Brown works with the Defense Information Systems Agency.

SEMINAR DEVELOPS JOINT OPERATING ENVIRONMENT

by Jim Caldwell

FORT MONROE, Va. The first actions to develop a shared vision of the world's future military environment for the United States armed forces were taken at a first annual Joint Operational Environment seminar in Williamsburg cohosted by

the Joint Forces Command and the U.S. Army Training and Doctrine Command June 3-5.

"We've been studying the OE now for the past four years, which describes the future out to 2020," said Lt. Col. Tony Huggar, Future Concepts Division chief for the TRADOC Deputy Chief of Staff for Intelligence.

"What we were invited to do at Joint Forces Command was to partner with them so that a document that was previously somewhat Army-centric would be now relevant to all the services, as well as to a joint warfighter," said Navy CPT Dennis Fengya, JFCOM Director of Intelligence.

The JOE provides to the services and to joint forces commanders a picture of global trends from the present out to 2020 and beyond. The JOE assessment is based on a variety of factors, including economics, politics, geography and technology. They are possible "friction points," according to Fengya.

There is a strategic and an operational JOE for actual combat operations throughout all stages. Joint forces currently engaged in Iraq and Afghanistan present two different operational environments.

"At Joint Forces Command, when we look at the operational environment we talk about the variety of factors,' Fengya said. "They would be very different for Iraq than they would be for Afghanistan. At the operational level you're talking about how you orchestrate all of the things the nation can bring to bear inside a country under the control of a joint forces commander."

The strategic JOE tracks developments that might turn into hotspots that could involve American military forces. That look at trends and factors extends more than 15 years into the future.

"The kind of Joint Operational Environment that we think we're producing is one that will allow us to look at major trends in the world so that we can identify the friction points and the root causes of war and what might be the general operating conditions for our forces somewhere in the world.

"We can inform our experimentation and exercises and ask ourselves some really tough questions, such as do we have the right doctrine?"

"This will have to be updated at least annually, so if we're successful in getting the Joint Operational Environment rolling the way we'd like to, we anticipate we'll be doing this again next year and years to come."

COL Bob Johnson, the Future Warfare Director for TRADOC's Deputy Chief of Staff for Doctrine, Concepts and Strategy, is one of the interested customers.

"One of the emerging insights coming out of Iraqi Freedom is that the work that DCSINT has already done on the operational environment is right on the mark," Johnson said. "Their description of the environment was that the enemy will not want to stand and fight you in the conventional sense. What he will want to do is attack you in those places where you are vulnerable."

The TRADOC OE said that Iraqi opposition would attack the long supply line supporting the 3d Infantry Division's rapid advance toward Baghdad.

"That part of the environment was right," Johnson said.

The JOE serves as the basis for which training and experimentation for current and future environments is conducted. Johnson pointed out that the training goals and scenarios at the National Training Center, Fort Irwin, Calif. and the Joint Readiness Training Center, Fort Polk, La., were the result of the DCSINT operational environment. The JOE will soon become the important document for those activities.

The DCSINT operational environment was key to creating scenario for Unified Quest 03, a wargame at Carlisle Barracks, Pa., in which TRADOC and JFCom were codirectors this spring. It was the first time an Army wargame took on a joint aspect. Johnson is responsible for staging the game.

Unified Quest 04 is scheduled for May 2-7, 2004. By that time, the JOE will allow all the services' operational environment products to reflect a shared view of the future.

To develop the JOE, JFCOM and TRADOC officials invited to the seminar active and retired military personnel and noted individuals in various fields of study and application.

Some of the individuals had preconceived thoughts about what may happen.

"The seriousness with which the Army has undertaken this effort to make this joint was sort of unexpected for us," said retired Rear Adm. Eric McVadon, an independent consultant on East Asia security affairs.

"What will our combat forces face in the future? There are no easy, glib answers to that. So this is truly a serious effort for the Army and the Joint Forces Command to step back and take a look at that whole situation."

Dennis Bushnell, chief scientist at the National Air and Space Administration Langley Research Center, noted the depth of the seminar investigations.

"We're in the midst of a very rapid global technological set of revolutions in IT (information technology), bio (biological) and nano (nanotechnology) and these will change the operational environment tremendously. This study is, in fact, looking into these changes."

Robert Engelman, vice president of research for Population Action International, said that based on his experience he initially thought the working groups were too large to be effective. At the end he had changed his mind.

"It's been a very impressive process," he said. "I think we're going to have a pretty good consensus of what the key trends are in each of these areas to present to the customers of this process. I think it's been very impressive."

Mr. Caldwell is a writer for the Training and Doctrine Command News Service at Fort Monroe, Va.

ACRONYM QUICKSCAN

AAR – after action report
ADIMSS – DISA Network Management system
AKO – Army Knowledge Online
ALAT – Automated Logistics Assistance Team
AFSC — Automated Flight Control System
AMC – Army Materiel Command
AMP CAISI – assistant project manager
APC – armored personnel carrier
ASMC – American Society of Military Comptrollers
ATM – Asynchronous Transfer Modes
BFT – Blue Force Tracking
BDI/KDI – Balkans/Kosovo Digitization
CAISI – Combat Service Support Automated Information Systems Interface
CAT – category
C3 – command, control and computer system
C4 – command, control, communications and computers
CECOM – Communications Electronics Command
CFLCC – Coalition Forces Land Component Command
CIO – Chief Information Officer
CITs — coalition interoperability trials
COTS – commercial-off-the-shelf
CSS – Combat Service Support
COMSEC – communications security
DA – Department of the Army
DCATS – Defense Communications and Army Transmission Systems
DCS-E – Defense Communications Systems-Europe
DDTP – Defense Distribution Depot Tobyhanna
DCSINT -- Deputy Chief of Staff for Intelligence
DGM – Digital Group Multipliers
DISA – Defense Information Systems Agency
DISN – Defense Information Systems Network
DISN-E – Defense Information Systems Network-Europe
DPOC – Deployable Port Operations Center
DSCS – Defense Satellite Communications System
DSL – Digital Subscriber Line
DSN – Defense Services Network
DSOY – drill sergeant of the year
DWTS – Defense Wide Transmission Systems
EPS – Engineering and Professional Services
ETS – European Telephone System
FBCB2 – Force XXI Battle Command Battalion/Brigade and Below
FM – field manual
FTSAT – Flyaway Triband Satellite Terminal
GCS – Guidance and Control Systems
HEPA – high efficiency particulate air filter
HQ USAREUR – Headquarters U.S. Army Europe
HTRTS – High Tech Regional Training Site-Maintenance
ISDN – Integrated Services Digital Network
ICODES – Integrated Computerized Deployment System
INMARSAT – International Marine/ Maritime Satellite
ISDN – Integrated Services Digital Network
IT – Information Technology
IPT – integrated process team
JFCOM – Joint Forces Command
JITC – Joint Interoperability Test Command
JOE -- Joint Operational Environment
JWID – Joint Warrior Interoperability Demonstration
KFOR – Kosovo Force
LAN – local area network
LED – light emitting diode
LOS – line of sight
MARS – Military Affiliate Radio System
MATES – Modular Automated Test Equipment Stations
METL – mission essential task list
MDM – Mobile Depot Maintenance
MIDAS – Multiplexer Integration and Digital Communications Satellite Subsystem Automation Systems
MILSTAR – military strategic, tactical and relay
MIT – Massachusetts Institute of Technology
MMCS – Multi-Media Communications Systems
MOA – memorandum of agreement
MOSQ – Military Occupational Skill Qualification
MP – military police
MPOC — Mobile Port Operation Center
MTMC – Military Traffic and Management Command
NATO – National Treaty Organization
NCO – noncommissioned officer
NET – new equipment training
NETCOM – Network Command
NETOPS – network operations
NIPERNET – Unclassified but Sensitive Internet Protocol Router Network
PBC – printed circuit board
PMD – Production Management Directorate
PEO EIS – Program Executive Office for Enterprise Information Systems
PM – project manager
PM DCASS – Project manager, Defense Communications and Army Switched Systems
PM DCATS – Project Manager, Defense Communications and Army Transmission Systems
PM DCS-E – Defense Communications Systems- Europe
PM DWTS – Product Manager, Defense Wide Transmission Systems
POI – program of instruction
PRN – Protocol Router Network
RDEC – Research, Development and Engineering Center
RFID – radio frequency identification
ROMC – Remote Operations Maintenance Center
SAS1 – Analog Stability Augmentation System
SAS2 – Digital Analog Stability Augmentation
SAS – Stability Augmentation System
SATCOM – satellite communications
S&TCD – Space and Terrestrial Communications Directorate
SBCT – Stryker Brigade Combat Team
SCCNMS – Switching Control Center Network Management Center
SDH – Synchronous Digital Hierarchy
SFOR – Stabilization Force
SINCGARS – single channel ground and airborne radio system
SIPERNET – Secret Internet Protocol Router Network
SPAWAR – Space and Naval Warfare
S&TCD – Space and Terrestrial Communications Directorate
STAMIS – standard Army management information systems
STEP – Standardized Tactical Entry Point
TDD – Technical Development Division
TDY – temporary duty
TNOSC – Theater Network Operations Security Control Center
WPS – Worldwide Port System

In memoriam:
LTG Douglas D. Buchholz, 1946-2003

Retired LTG Douglas D. Buchholz, Distinguished Member of the Regiment, served as the 26th Chief of Signal from 1994-1996.

by James Hudgins

With the passing of retired LTG Douglas D. Buchholz, the Signal Regiment and the U.S. Army lost an enlightened leader, visionary, scholar and dedicated advocate. As the Army's 26th Chief of Signal and in his final assignment as the Joint Staff's J-6 he left a legacy of distinguished service, commitment to duty and an unwavering concern for fellow soldiers and their families.

After more than 30 years of uniformed service, Buchholz had returned to Augusta, Ga., to reside with his wife, Muriel, and devoted the same diligence that he displayed as an officer and soldier to issues and causes of his adopted home as a community leader, volunteer and highly respected consultant.

He will be remembered as a leading light in the enhancement of the relationship between Fort Gordon and the Central Savannah River Area, and his tireless work for the Fort Discovery and the National Science Center.

Buchholz served as the Joint Staff's J-6 before retiring.

During his Army career, Buchholz served two tours in Germany as well as a tour in Vietnam, duty which placed him in the special ranks of those veterans who served during combat.

In 1993, he was assigned to the position of deputy commanding general of the Signal Center and Fort Gordon. The next year and the following two years he was Chief of Signal and commanding general.

After a long battle with leukemia, he died peacefully April 26. His funeral services were held on Fort Gordon with burial at Arlington National Cemetery.

He is survived by his wife, Muriel, and his son, Russell, who resides in San Francisco.

For those who had the privilege and pleasure of knowing or working with Buchholz, he will be truly missed.

Mr. Hudgins, Fort Gordon public affairs officer, served under Buchholz's leadership.

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