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# ARMY COMMUNICATOR

Voice of the Signal Regiment PB 11-10-1 2010 Vol. 35 No. 1

CW3 LOUIS T. NASH  
Leader College of  
Information Technology

## REPURPOSING THE SIGNAL WARRANT OFFICER

*Keeping Pace with Technology and Army Transformation*

NASH

PLUS:

*The Signal Corps begins a year-long celebration of  
150 years of Excellence*





# Chief of Signal

Greetings all Signaleers,

The year 2010 will be quite a year for all of us as we will celebrate the U.S. Army Signal Corps' 150th anniversary. It was on 21 June, 1860 that Congress approved the creation of our Signal Corps and appointed MAJ Albert J. Myer as our first Signal officer. He was, in fact, the only Soldier assigned to our Corps at that time. We've come a long way since then. Now our Corps is 60,000 Soldiers strong and providing unprecedented communications support to our Army throughout the world, including installations to the deserts of Iraq and mountain tops of Afghanistan.

We are planning a number of events here at your Regimental home to celebrate the birthday of our Corps; and I know many of you will be involved in similar events around the globe. The next edition of the Army Communicator will be our special anniversary edition which will be delivered to you in June. We have a website covering planned events for this year and lots more information on our history. Go to [www.signal.army.mil/signal/Signal150/index.html](http://www.signal.army.mil/signal/Signal150/index.html).

Another significant event took place in January as we bid farewell to CW5 Andy Barr, our second Regimental Chief Warrant Officer. CW5 Barr retired after serving in this position for five years and under three different Chiefs of Signal. His contributions were unprecedented and will have a lasting impact on our Army and Regiment. He led the transformation of our warrant officer corps to the Modular Army structure – a monumental task. Chief Barr, on behalf of the Regiment, I thank you for your 40 years of service to your nation and the Signal Corps.

I now welcome CW5 Todd Boudreau as our newest Regimental Chief Warrant Officer. Chief Boudreau comes to us with impressive credentials and will continue doing outstanding work on behalf of all of our Signal

warrants and our Corps. You'll read more of Chief Boudreau in future editions.

Finally, I direct your attention to the article we have included in this edition on the members of our Regiment that we have appointed as Distinguished Members of the Regiment in 2009. These stories are both amazing and inspirational about a very select few of our finest Signaleers.

I know, and the Army leadership recognizes, how totally engaged our Signal Regiment is today. The Signal leadership continues to receive nothing but positive comments about the work you are doing and the service you are providing. As we continue with the longest military engagement in our nation's history, your nation will continue to call on you for service. I remain so very proud of each and every Signal Soldier and all of our families. Keep up the outstanding work.



COMMAND

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BG Jeffrey W. Foley

Regimental Command Sergeant Major  
CSM Thomas J. Clark

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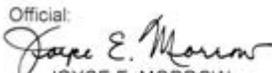
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## Voice of the Signal Regiment

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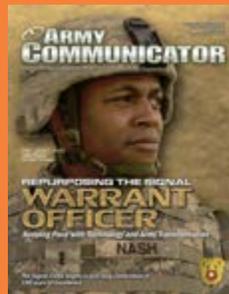
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Cover by Billy Cheney

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# Command Sergeant Major

## We can do something about suicide

First Line Leaders,

Suicide is a real and relevant issue that has affected our Soldiers and military families for years. As leaders, it is imperative that we stay vigilant in our efforts to eliminate the stigmas associated with seeking and receiving help for mental anxiety. We must increase our efforts to improve readiness through the development and enhancement of the Army's Suicide Prevention Program policies; as well as, our local organizational policies. NCOs are the backbone of the Army. This means that our strength, leadership and experiences are needed to combat the personal enemy plaguing the minds of our Soldiers.

As leaders, we must get back to basics and truly get to know our Soldiers. We need to remember that we vowed to always place their needs above our own. This can only be accomplished by providing one-on-one interaction with our troops. We must recommit ourselves to taking time to "Troop the Lines" by checking the barracks more often, walking around in our Soldier's work areas, finding out something new about them so that we can get a "feel" for who they are.

Our Soldiers are the reasons why we are successful. They need to hear from us, that we value their inputs and contributions to our organization. They need to understand that they are precious assets to our teams, and without them our "Band of Brothers and Sisters" would not be as strong as it is today.

*Shoulder to Shoulder....No  
Soldier Stands Alone. It is our  
responsibility to stand by our  
fellow Soldiers.*

My name is Clark and I'm a Soldier.

*Thomas J. Clark*



# New exhibit heralds Signal Corps celebration

By Charmain Z. Brackett

BG Jeffrey Foley has made a special designation for 2010.

"2010 is the year of the Signal Corps," said Foley, Fort Gordon commanding general and Chief of Signal at the Distinguished Member of the Regiment Banquet on Dec. 2, 2009 at the Gordon Club.

The Signal Corps will mark its 150th anniversary in June, and there will be several events planned to celebrate it, he said.

BG Foley kicked off the "year of the Signal Corps" in December by unveiling "A Brief History of the Signal Corps," a nine-panel display highlighting the Signal Corps' history on the first floor of Signal Towers.

Created by Christopher Duerk, visual communications designer in Washington, D.C., it was originally part of the office of the Chief Information Officer G6 at the Pentagon.

"We started this beginning in August 2006. It was completed in January 2009," said Duerk. "The panels were progressively installed. They didn't all go up at once."

Command historian Steven Rauch helped supply many of the images Duerk used in the exhibit.

Rauch said Foley was looking for something to give a brief visual history of the Signal Corps to visitors to Fort Gordon.

"I thought 'let's not reinvent the wheel,'" said Rauch, who suggested Duerk's panels.

Although it is titled "A Brief History of the Signal Corps," there is a lot of information on the panels, making such an exhibit difficult to put together, according to Robert Anzuoni, the Signal Corps Museum director, who helped provide information for it.

"They were probably overwhelmed. The whole history of the Signal Corps from 1860, there is so much, and it's so diverse," he said.

"Communications is the main mission, but the meteorological service, aviation, film and photog-



Participants in the December 3, 2009 opening ceremony at Fort Gordon cut the ribbon officially opening a multi-panel display in Signal Towers covering the history of the U.S. Army Signal Corps. Participants (left to right) included BG Jeffrey Foley, Fort Gordon commanding general and Chief of Signal; Billy Cheney, special projects officer; Rebecca Raines, Force Structure Unit History Branch chief, U. S. Army Center of Military History; Chris Duerk, graphic artist; Robert 'Bob' Anzuoni, Signal Corps Museum director; Dan Brown and Steven Rauch Signal Branch historians; and LTG Jeffrey A. Sorenson, U.S. Army Chief Information Officer/G-6. Also present for the opening are (back row, left to right) Tommy Russell and Robert Strength from the Directorate of Public Works. Raines developed the timeline. Duerk was the graphic artist. Brown, Anzuoni and Rauch supplied historical photos and other content. Cheney modified the panels to show recent operations at the Signal Center of Excellence. Directorate of Public Works personnel framed and erected the panels.

raphy are all missions under it."

Each one highlights a different aspect of the Signal Corps' history. One features the birth of the Signal Corps through MAJ Albert J. Myer, who later became a brigadier general, and his wig-wag flags.

The "stormy years" focuses on the Signal Corps' role in establishing and operating the nation's weather system in the 19th century. Another one features the Signal Corps' role in radios and telecommunications during World War I and World War II.

Whereas the last panels focused on the office of the CIO-G6 in Washington, the Fort Gordon exhibit highlights the recent achievements of the Signal Corps and alludes to the future. Billy Cheney, special projects officer, updated the project. The final panel includes events such as the activation of the 7th Signal Command (Theater) in March 2009.

Mrs. Brackett is a contributing writer for the Signal Newspaper at Fort Gordon, Ga.

# Distinguished Members recognized

By Charmain Z. Brackett

MG (RET) Robert Nabors compared his induction into the Distinguished Members of the Regiment Dec. 2 to the American flag.

For some, the nation's colors are no more than a piece of fabric which could be cut up and worn; however, to those who've served to protect it and the ideals it represents, words cannot express how precious the flag is, he said.

His award, he said, might mean nothing to others, but "because of what the Signal Regiment stands for, it brings with it the respect of peers." He said he was honored and humbled to be chosen for such an award.

Nabors, who spent 34 years on active duty including as commander of Communications and Electronic Command at Fort Monmouth, N.J., was one of seven inducted into the Distinguished Members of the Regiment at a banquet during the annual Signal Conference at the Gordon Club.

Other inductees included retired CSM (RET) McKinley Curtis III, CW4 (RET) Jack Wilson, CW5 (RET) Bernard "Sonny" Milloy, LTC (RET) Edward Carnes, MG (RET) Thomas Wessels and MG (RET) Gerd Grombacher.

Curtis' military career began in 1974 as a radio teletypewriter operator. He spent 30 years in the Army with his last active duty assignment as commandant of the Regimental Non-commissioned Officers Academy here.

Curtis thanked many in the audience. Through the support of others, Curtis said he'd found "autonomy" in his career.

Wilson joined the Army in 1956 and first served at Camp Gordon. He spent 30 years in the Army and helped the Republic of Vietnam by designing and implementing its communications system.

"How do you get to a place where you are lucky enough to be honored like this? You get to a place like this because of people," Wilson said.

Wilson said it's been the people in his career who've made it worthwhile. "I get more joy out of helping them," he said. "I'm very happy to be in a position to help people."

Milloy joined the Army in 1959 as a missile tracking radar operator and was accepted into the warrant officer flight program in 1968. He retired from active duty in 1999.

Carnes joined the Army in 1965 and was commissioned in 1968. He spent 23 years in the Army, and his last assignment was as the assistant project manager for the integration of mobile subscriber equipment. In 1999, Fort Jackson, S.C., named its basic training facility in Carnes' honor.

In receiving his award, Carnes talked about his community involvement and his fundraising efforts for the Fisher House. He encouraged others to participate in such activities especially ones which impacted Soldiers.

Wessels spent 35 years in the Signal Corps beginning his career at Fort Gordon as the executive officer in F Company, 3rd Battalion, Student Brigade.

Wessels said he always wanted to be an officer. When he went through the Officer Candidate School at Fort Benning, Ga., he wanted to go Airborne, but he was commissioned into the Signal Corps instead. He's glad to have had that choice made for him.

A German immigrant, Grombacher spoke no English when he arrived in America in 1935 when he was 12 years old. He enlisted in the Army in 1943 and was a master sergeant within the military intelligence ranks within two years. During World War II, he crossed German lines unarmed to negotiate the surrender of 800 German soldiers. Soon after, he received a battlefield commission.

He moved from military intelligence to signal in 1957 and retired in 1982. He died in May 2004. His widow, Ellen, received his award.

*Mrs. Brackett is a contributing writer for the Signal Newspaper at Fort Gordon, Ga.*



**BG Jeffrey Foley, Fort Gordon commanding general and Chief of Signal, honors retired CW4 (RET) Jack Wilson as a Distinguished Member of the Regiment during a Dec. 2, 2009 ceremony at the Gordon Club.**

# *Facts about the new Distinguished Members of the Signal Regiment*

Upon Regimental activation in 1986 the Signal Corps instituted a program for recognition of personnel who have made a special contribution and distinguished themselves in their service to the Regiment.

The distinguished member selections are designed to not only recognize the individuals who are most notable but to promote and enhance the history of the Regiment and foster cohesion among its members.

## **CSM (RET) McKinley Curtis**

The military career of retired CSM McKinley Curtis III started in 1974 when he enlisted in the Army as a radio teletypewriter operator. He spent the next 30 years in all levels of enlisted leadership to include team chief, drill sergeant and senior drill sergeant, first sergeant, sergeant major advisor to the New York Army National Guard, command sergeant major for both battalion and brigade level units, and culminated his active duty service as commandant of the Signal Regimental Noncommissioned Officer Academy, the largest NCO academy in the Army. He held this position for 40 consecutive months and ensured all Soldiers coming through the academy, both continued their military educa-



**CSM (RET) McKinley Curtis III**

tion and were actively engaged in volunteer efforts.

He was selected by the sergeant major of the Army to be the senior mentor of his fellow command sergeants major. He taught the command sergeants major designee course to the present command sergeant major of the Signal Regiment, CSM Thomas Clark.

Following his retirement, CSM Curtis continued serving the Signal Corps. He began his civilian service as chief, operations division in the Directorate of Training. Presently he is the lead development analyst for the Leader College of Information Technology, where he oversees \$20 million worth of contracts and continuously works to secure additional resources for LCIT in order to provide the best possible training to its students. He continues mentoring Signal leaders, especially sergeants major. He is an active member of the Sergeants Major Association and has been a key proponent in providing scholarships to outstanding young scholars. He is a mentor to one of the local Cub Scout packs in Augusta, serving as cub master for Pack 417.

For a career of commitment to Signal Soldiers, families and his community, CSM Curtis was recognized as a Distinguished Member of the Regiment.

## **CW4 (RET) Jack C. Wilson**

Retired CW4 Jack C. Wilson began his military career in 1956 when he came to Camp Gordon, Ga. for telecommunications and cryptography training. His first assignment sent him to Kyoto, Japan. Then he worked at the Joint Staff Special Security Office until his warrant appointment in 1963. Following his appointment, Chief Wilson went to work for the Criticomm Relay Station in Saigon, the TUSLOG Detachment in Turkey, the National Security Agency, and spent a second tour in southeast Asia designing and implementing the communications systems for the Army of the Republic of Vietnam's special security technical branch. Following his retirement in 1986, he went to work as a contractor



**CW4 (RET) Jack Wilson**

on the Trojan Program and deployed with the first Trojan Spirit Systems to Desert Shield and Desert Storm. He also deployed to Somalia, Bosnia and Kosovo to provide training and operational support for satellite communication systems.

Presently, he is the leader of the Trojan Division of the INSCOM CIO/G6, responsible for 647 Trojan or Trojan-enabled systems supporting the Army, Marine Corps, Homeland Defense, and allied systems throughout the world.

For over 50 years of dedication to the development of Signal systems throughout the world, Chief Wilson was recognized as a Distinguished Member of the Signal Regiment.

## **CW5 (RET) Bernard Milloy**

CW5 (RET) Bernard "Sonny" Milloy enlisted in the Army in May 1959, receiving training as a missile tracking radar operator. In 1965, Chief Milloy was sent to Vietnam where he was the noncommissioned officer in charge of a depot maintenance repair facility where he reduced the equipment downtime by 70%, a feat not lost on leaders and Soldiers.

Chief Milloy was accepted into the warrant officer flight program in 1968. Following graduation, he was

assigned to the 504th Military Intelligence Group as a communications officer. From this point forward, he was the premier technician, advisor to his commanders and mentor to Signal warrant officers continuing to support the Signal Regiment. Additional assignments took Chief Milloy around the world training Soldiers and officers on various subjects to include navigation and radio systems, ground radar operations, COM-SEC and aviation safety. In June of 1991, Chief Milloy was assigned as the communications security officer, V Corps. In this assignment, he was responsible for the turn-in of over 5,000 nuclear keys under the non-proliferation treaty which was accomplished without incident and resulted in laudatory comments from the command.

Chief Milloy retired in 1999 after over 38 years of active duty service and continues to support the Signal Regiment with his work for the Joint Interoperability Test Command. For his extensive tactical and technical expertise significantly impacting the Soldier, Airman, Sailor and Marine in the field, Chief Milloy was recognized as a Distinguished Member of the Regiment.

### **LTC (RET) Edward Carnes**

LTC (RET) Edward Carnes joined the Army in 1965 and was com-



**LTC (RET) Edward Carnes**

missioned through Officer Candidate School in 1968. During his 23 years of service, he served in numerous command and staff assignments throughout the United States, Vietnam, Korea and Germany. Making a brilliant career change, he requested a branch transfer from aviation to Signal in 1972 and quickly went to work adding his mark to the Regiment by fulfilling roles as the communications officer in the 1-13th Tank Battalion and later as an assistant division Signal officer.

LTC Carnes' final active duty assignment was as the assistant project manager for the integration of mobile subscriber equipment. He had the tremendous responsibility for the deployment, force modernization, fielding and training of MSE to active duty, Reserve and National Guard Signal units.

He retired from active duty in 1988. He later joined General Dynamics and opened their field office in Fort Monmouth, N.J. His involvement in this community is marked by service. He was actively involved in the reactivation of the LTG Alfred J. Mallette Chapter of the Signal Corps Regimental Association where he still holds the treasurer position and is a recipient of the association's highest award, the Silver Order of Mercury. He has served on the Fort Monmouth Chapter of the Association of the United States Army board of directors for the past five years and has helped raise over \$1.5 million in the community for scholarships and other charities. In 1999, for his valorous actions in Vietnam, Fort Jackson named their basic training facility in his honor. For his lasting legacy to the Signal Corps and the U.S. Army LTC Carnes was recognized as a Distinguished Member of the Regiment.

### **MG (RET) Thomas A. Wessels**

MG (RET) Thomas A. Wessels provided over 35 years of commissioned service in the U.S. Army Signal Corps. His career began as an executive officer in F Company, 3rd Battalion, student brigade at Fort Gordon. He was also assigned as a communications officer, instructor, assistant G-2, plans



**MG (RET) Thomas A. Wessels**

officer, inspector general, school commandant, and has commanded at all levels concluding with his active duty command of the 335th Signal Command (Theater) in East Point, Ga. During this last assignment, MG Wessels' command was called upon to develop deployment communications packages to support USARCENT and the 3rd Army. Following the attacks on Sept. 11, 2001, he immediately began to determine appropriate size, structure and equipment needed for rapid deployment of Signal Forces. He closely supervised the development of policies, plans, and procedures that would be needed as the 335th Signal Command assumed the posture of senior Signal organization in Southwest Asia during Operation Enduring Freedom.

He provided unique strategic guidance and operational foresight which played a vital role in the redesign of echelons above Corps theater Signal structure. He worked tirelessly to ensure that Army Reserve Signal Soldiers received the most relevant training and equipment critical to the wartime mission. As a result, the Army Reserve Signal Corps is now more agile, mobile and better equipped, serving as a model for the entire Army to follow.

For his significant accomplishments and contributions the Signal Regiment MG Wessels was recognized as a Distinguished Member of the Regiment.



**MG (RET) Robert L. Nabors**

### **MG (RET) Robert L. Nabors**

MG (RET) Robert L. Nabors had an active duty career spanning over 34 years, serving in various communications positions throughout the world to include Vietnam, Korea, Italy, Germany and the United States.

His career began as a platoon leader in the 67th Signal Battalion at Fort Riley, Kan. He went on to command the 509th Signal Battalion and served as the deputy commander of White House Communications Agency and commander of the 5th Signal Command.

He directed the operations of the communications infrastructure to deliver the full array of information technology services to a combined U.S. military, Department of State and NATO customer base of more than 100,000 personnel. He was named director of the Pentagon information technology services and took charge of the Pentagon's \$890 million IT modernization.

His last assignment was a commander, communications and electronics command at Fort Monmouth, N.J., where he oversaw a multi-million dollar operation dedicated to sustaining joint war fighters throughout the world.

For his endeavors, MG Nabors earned 38 military awards and

decorations throughout his career. After retirement, his service to the Regiment and the country continued when he joined E.D.S. and took the lead of their Homeland Security Program oversight programs for national, state and local governments.

Throughout his career, MG Nabors was a true leader of Soldiers of all ranks and always mindful of the people who served with and for him—a true champion of humanitarianism. He will always be remembered as one of the most passionate leaders, gifted speakers, and one who led efforts to create professional opportunities for all employees.

For his years of selfless service MG Nabors was recognized as a Distinguished Member of the Regiment.

### **MG (RET) Gerd Grombacher**

One appointee to the role of distinguished members of the Regiment received his award posthumously.

MG Gerd Grombacher did not speak a word of English when he arrived in the United States from Germany in 1935 at the age of 12. After leaving him with relatives in Chicago, his parents returned to Germany promising to come back to him and his sister "when this Hitler thing is over."

Unfortunately, both parents and 30 other family members were victims of the Holocaust. He began his Army career as an enlisted Soldier in 1943 in the field of military intelligence. Less than two years later, he achieved the rank of master sergeant.

Less than 10 years after he became a refugee from Nazi Germany, MSG Grombacher crossed unarmed into German lines to negotiate the surrender of 800 German soldiers from a heavily fortified position blocking 3rd Army's advance. Soon after he was awarded a field commission as second lieutenant. In 1957, he made a tremendous career move and transferred from military intelligence to the Signal Corps, a transition as seamless as it was remarkable.

In the 3rd Infantry Division,

MG Grombacher served at all levels of leadership from platoon leader to battalion commander. From there he went on to command at every operational and technical level of the Signal Corps to include Signal Service Group 4-USSTRATCOM-Europe operating the Army's command and administration network in Europe.

He also commanded the Army's Safeguard Communications Agency which provided secure communications for the Army's ballistic missile defense system into one single coordinated system. Next he commanded the U.S. Army Communications Systems Agency, the Communications Electronics Engineering and Installation Agency, and the U. S. Army Communications Command. MG Grombacher retired in 1982 after 39 years of faithful service to the Army and his adopted nation.

For his faithful service MG Grombacher was recognized as a Distinguished Member of the Regiment.



**MG (RET) Gerd Grombacher**

# Think you know your wig-wag from your semaphore system

By Daniel A. Brown and Steven J. Rauch

*It is appropriate to provide in this first edition of 2010, the 150th anniversary year of the U.S. Army Signal Corps, an historical article covering a topic from the beginning of our branch.*

This article clears up a common misconception about the wig-wag and semaphore systems of communications.

Over the past several years, encounters with Signal Soldiers have revealed persistent confusion about the names and application of these two very different visual signaling methods employed by the Signal Corps in the late 19th and early 20th centuries. To a casual or inattentive observer, the systems appear to be very similar, but in fact the only similarity is that they both employ hand held flags. Beyond that fact, they differ in almost every detail.

## Wig-wag

The oldest flag system associated with the U.S. Army Signal Corps is called wig-wag. The name reflects the concept of back and forth movement as a means of signaling through motion.

Often this system has been misidentified as "wig-wam." (A wig-wam is a temporary arched framework structure overlaid with bark or hides to provide shelter used by Native Americans of the Algonquian language group.)

Wig-wag is the signaling system developed for military field operations by Army surgeon Albert J. Myer prior to the Civil War. He developed this system based on a two element "tap-code" he created for the deaf. Myer's wig-wag system uses one flag for signaling. The position of the flags, left, right, front, represent the numerals 1,

2, 3 respectively and combinations of these numerals are used to convey the message.

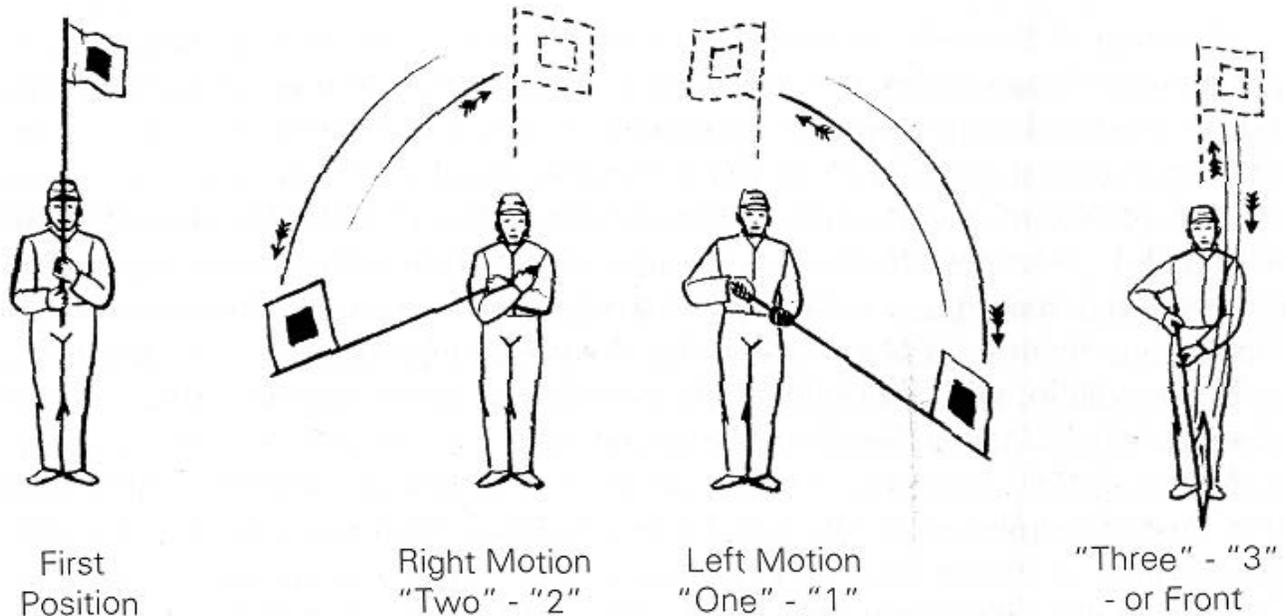
This method enabled a transmission rate of about three words per minute. (See Illustration #1)

The one-flag wig-wag system used a cotton flag of two, four, or six feet square. The larger the flag, the greater distance it could be seen. The flag pole could be extended to a length of 16 feet using 4-foot segments joined with brass fittings.

It took a strong Soldier to wave a 16 foot pole with a 6-foot square flag on it for an hour or more, especially in wind, heat and probably under enemy fire. During night operations, the flag was replaced with a specially designed kerosene fueled torch, but employed exactly as the flag would be during daytime.

During daytime operations, dif-

## FLAG POSITIONS OF MYER'S ORIGINAL TWO-ELEMENT CODE\*



**Illustration #1** - Showing the positions of the wig-wag flag during operation. Sources: David L. Woods, *A History of Tactical Communication Techniques* (Orlando, Fla.: Martin-Marietta Corp., 1965)

ferent sizes and colors of flags were employed based upon atmospheric conditions, such as clouds, haze, blue sky, etc.

The Signal Soldiers had these varieties of flags as part of their kit, but at any one time, only one flag or torch was used for signaling. (See illustration #2)

Confusion about the one flag wig-wag probably stems from casual observation of the branch insignia

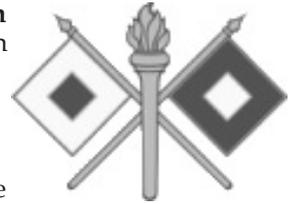
worn by Signal Soldiers which reflects Myer's wig-wag system in the permutations described.

The insignia illustrates the versatile nature of the wig-wag system to be employed in all weather and light conditions. Thus the torch and two different color flags are included. (See illustration #3)

The Myer wig-wag system and associated codes were used by both Union and Confederate

**Illustration #3** - Branch insignia of the U.S. Army Signal Corps.

Source: The Institute of Heraldry, <http://www.tioh.hqda.pentagon.mil/Branches/Signal.htm>



armies during the Civil War. The Union Navy also employed this system and it served as the first Joint Signal Code between the Army and Navy until the end of the 19th century.

### Semaphore

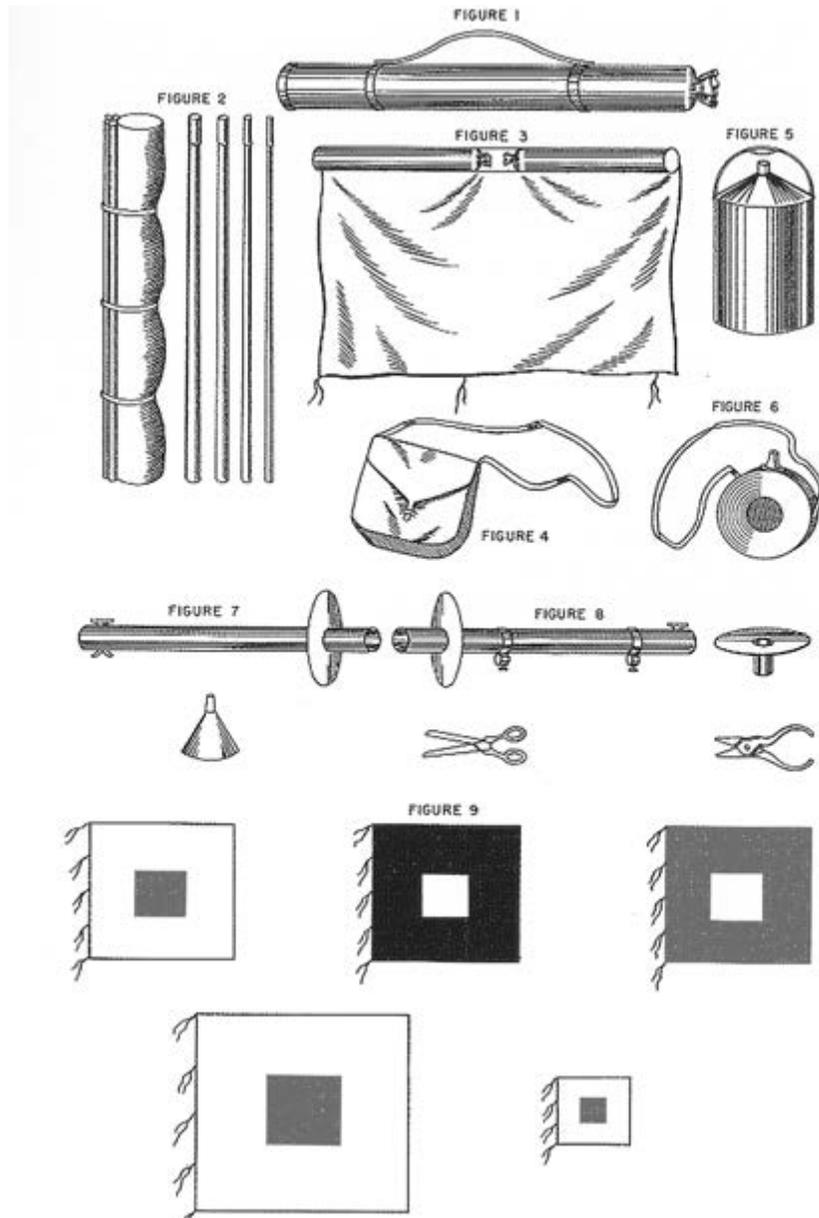
This system of signaling was developed by the Royal Navy for use during the Napoleonic wars. The word "semaphore" is derived from the Greek words sema, "a sign," and phero, "to bear or to carry." A semaphore is any visual system of signaling with an apparatus such as flags, lights, or mechanically moving arms, such as those used to regulate railroads. For our purposes, the semaphore system uses flags at various designated positions of a person's arms. The flag semaphore system of visual communication was not introduced to the U.S. Army Signal Corps until 1914. The

semaphore method was deemed faster and simpler than wig-wag and had been used successfully by the U.S. Navy and the Field Artillery branch.

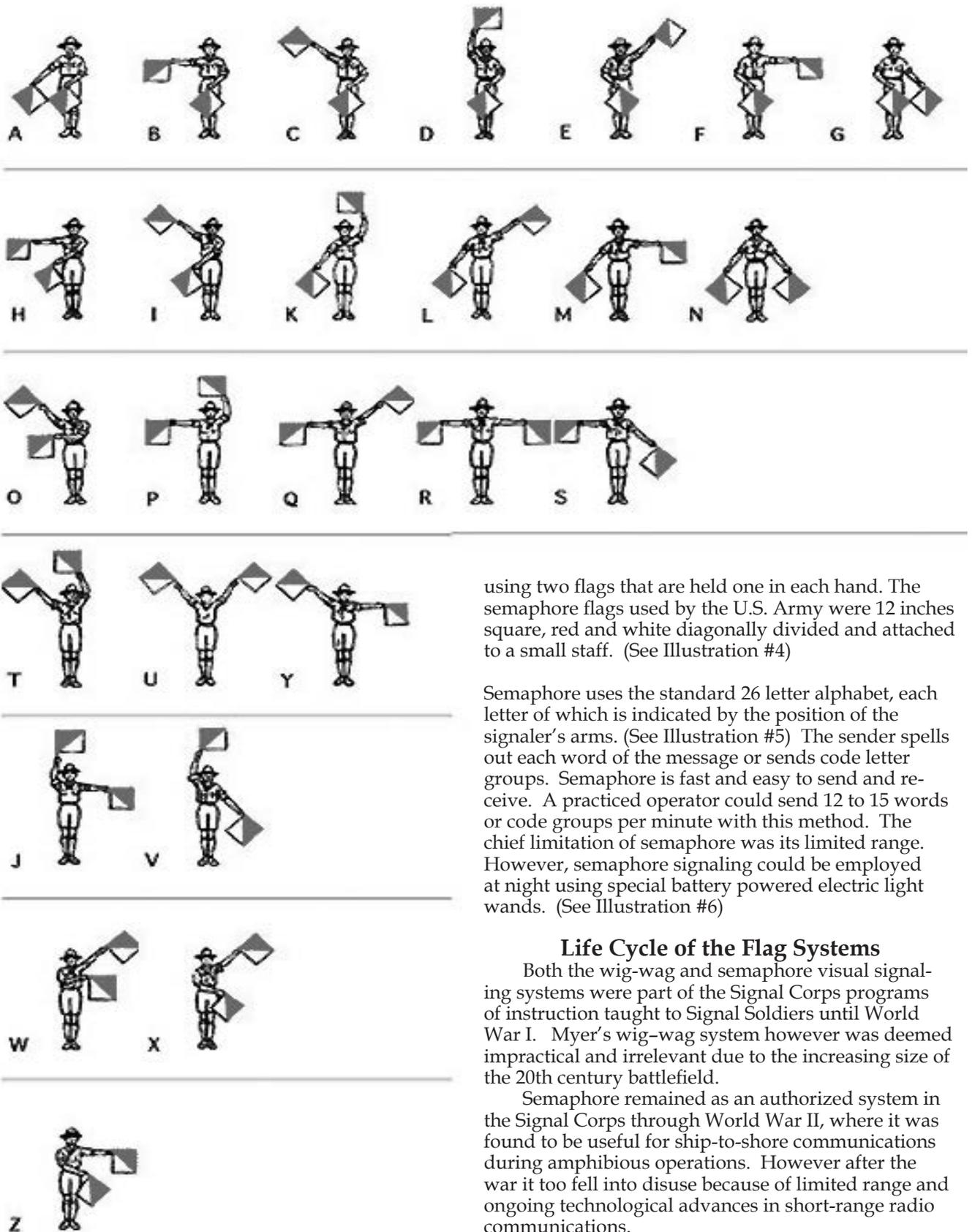
Semaphore is a visual system for sending messages employed by one person



**Illustration #4** - U.S. Army semaphore flags. Source: U.S. Army Signal Center of Excellence Historical Collection, Fort Gordon, Ga.



**Illustration #2** - Wig-wag kit with various sizes and colors of flags and torch components. Source: Albert J. Myer, A Manual of Signals: For use of Signal officers in the field (Washington, D.C.: Government Printing Office, 1877).



using two flags that are held one in each hand. The semaphore flags used by the U.S. Army were 12 inches square, red and white diagonally divided and attached to a small staff. (See Illustration #4)

Semaphore uses the standard 26 letter alphabet, each letter of which is indicated by the position of the signaler's arms. (See Illustration #5) The sender spells out each word of the message or sends code letter groups. Semaphore is fast and easy to send and receive. A practiced operator could send 12 to 15 words or code groups per minute with this method. The chief limitation of semaphore was its limited range. However, semaphore signaling could be employed at night using special battery powered electric light wands. (See Illustration #6)

### Life Cycle of the Flag Systems

Both the wig-wag and semaphore visual signaling systems were part of the Signal Corps programs of instruction taught to Signal Soldiers until World War I. Myer's wig-wag system however was deemed impractical and irrelevant due to the increasing size of the 20th century battlefield.

Semaphore remained as an authorized system in the Signal Corps through World War II, where it was found to be useful for ship-to-shore communications during amphibious operations. However after the war it too fell into disuse because of limited range and ongoing technological advances in short-range radio communications.

As a final emphasis, the photo at right shows distinctly the difference of the two systems in operation.

Illustration #5 - The semaphore alphabet

(See illustration #7) The Soldiers on the outside of the formation are employing the one-flag wig-wag system, and the Soldiers in the middle of the formation are employing the two-flag semaphore system. It is hoped this short explanation of the two systems will clear up any confusion and promote informed discussion on this topic.

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*Mr. Daniel A. Brown came to the Signal Corps Command History Office as archivist/historian in 2005. He was a military historian with the National Park Service for 22 years. Mr. Brown holds a Bachelor of Arts Degree in History from Armstrong-Atlantic University and a Master of Divinity Degree from the School of Theology, University of the South.*



**Illustration #6** -Battery powered semaphore electric light wands, circa 1900. Source: U.S. Army Signal Center of Excellence Historical Collection, Fort Gordon, Georgia.



**Illustration #7** - Signal Corps Soldiers practicing wig-wag (*outside*) and semaphore (*inside*) flag techniques, circa 1916. Source: U.S. Army Signal Center of Excellence Historical Collection, Fort Gordon, Ga.

# An insider view of Signal transformation

By MSG John E. Reinburg IV

Here is an insider view of how a battalion Signal company transforms to operate within a Stryker Brigade Combat Team.

In addition to outlining the timeline and training of the Soldiers and noncommissioned officers to meet the standards and professional knowledge in preparation for a 15 month deployment in support of Operation Iraqi Freedom, this article provides a review of lessons learned in the crucible of daily operational challenges in theater.

On 14 July 2005, I assumed the duties as the first sergeant of B Company, 125th Signal Battalion for a tour that lasted four years until 01 June 2009. During this four-year period, I worked with and supported three commanders.

Shortly after taking responsibility, the Signal Company departed to Fort Gordon, Ga., to attend Cohesion and Operational Training. The four-month long COHORT training was the foundation for the company's transformation. B Company, 125th Signal Battalion had deactivated and become known as 556 Signal Company. The new company was now a part of the 2nd Brigade Combat Team (Stryker), 25th Infantry Division. The company was composed of personnel from B Company who had volunteered to become members of the Stryker Brigade. Upon activation 556 Signal Company became the Wild Boars.

While at Fort Gordon the company trained on the Joint Network Node, a hands-on experience that included computer based training and 3D computer simulations. Other training included the Battalion Command Post Communication package; Ku Band satellite; and Beyond Line of Sight. All of the training was hands-on and Internet protocol based, which is the new generation of voice and data communication.

This was the Army's transformation into a quicker and a more reliable communication package. All aspects of the training were important. It

enabled the company leadership to begin the team building process with all members of the company. Additionally, Fort Gordon offered the latest IP-based training.

The Signal company would provide all voice, data and video support to the brigade commander's C2. The Signal company would establish the Wide Area Network which allowed the brigade commander and staff to control and monitor the battlefield. Within the Operational Environment the commander would be able to see all portions of the battlefield that fell under the commander's direct responsibility.

After Fort Gordon, we returned to Schofield Barracks, where the Signal company became part of the 225th Brigade Support Battalion. The brigade managed our mission set. We officially had an Administrative Control relationship to the 225th Brigade Support Battalion. This was a unique organizational structure. We were a brigade asset that installed, operated and maintained the brigade's tactical signal infrastructure. Due to the lack of direct guidance from the higher headquarters to the BSB, the lines of responsibility were often blurred as to what role the BSB played in management of the Signal company.

Our mission set was split into six phases over my tenure as the first sergeant: transformation from B/125 Signal Battalion to 556 Signal Company; transformation from a light infantry to a Stryker brigade combat team; COHORT training; brigade warfighter exercise; our preparation for OIF 07-09; deployment to OIF 07-09; and redeployment and reset.

The common theme throughout was modularity and the ability to provide C2 combat assets in a dynamic environment. The transformation from a battalion signal company to a brigade Signal company, along with all associated equipment (JNTC-S fielding), challenged us with a heavier responsibility as the sole proprietors of the brigade's entire signal assets. COHORT training prepared our Soldiers and leaders to install, operate

and maintain the latest version of the Army's JNTC-S fielding. In preparation for OIF 07-09 we went through two distinct phases of preparation as a result of different commanders with divergent emphasis. The first commander focused on the basics, down to the level of Soldiers' common tasks. All personnel spent countless hours in the field preparing for combat. We trained on close quarter marksmanship, close quarter battle and basic combat skills and many other areas.

The succeeding commander emphasized the company's training on technical expertise on all assigned signal equipment, while transitioning through training phases at Pohakuloa Training Area and the National Training Center.

Both commanders, while distinctively different in leadership style and approach, focused on the development of the individual Soldier as well as the company's combat skills. All actions were geared toward preparing the Signal Company for a successful deployment in support of OIF.

Prior to NTC, the brigade held a five-month digital exercise. The exercise began with 556 Signal sustaining a 2Mb satellite link with the Wahiawa Standardized Tactical Entry Point site. This complex exercise allowed us to experience the whole spectrum of COMSEC changeovers and sustain 24-hour communications support to the brigade tactical operations center. During the last month, 556 Signal Company members provided Internet services and phone services to the brigade staff and command group, according to the brigade directive that the entire brigade staff would conduct all administrative and training operations out of the brigade TOC. In the final 10 days we conducted a warfighter DIGEX with all of the brigade and battalion digital systems. We interfaced with 1st Armored Division in Germany as our higher headquarters. A contracted agency injected our Army Battle Command Systems with digital feeds simulating enemy activity. The entire exercise confirmed the interoperability of all our digital systems, our

ability to run a brigade domain and e-mail server, while sustaining long-term communications support.

On 4 December 2007, 556 Signal Company deployed to Iraq in support of Operation Iraqi Freedom. The Wild Boars were unique for two reasons. Not only were they the first Signal company in the Army to deploy with organic Stryker's (five of them), they also were the first Signal company to field and deploy the Harris RF-7800w Line of Sight radio system. Through 556 personnel efforts, high bandwidth communication support was provided to the brigade down to the company level at 15 combat outposts, across a 1,300 square mile operational environment.

Their tactical network, managed by the Network Operations Center section, equaled closely the size of the network managed by the G6 of Multi-National Division Baghdad. NETOPS was an integral part of Headquarters and was responsible for the monitoring and troubleshooting of the entire 2nd Brigade network architecture and was able to assist all battalions in maintaining their network portion as well. NETOPS tracked all links associated to the 2nd Brigade and report any issues to 4ID in its daily reports. The communications security custodians were well trained Soldiers and NCOs that ensured that all crypto material was available to the battalions at all times. The headquarters platoon provided the life support systems for the Company ensuring all supplies were readily available at all times. This included Class I, arms room and morale, welfare and recreation events within the company. Through their efforts, Soldiers of 556 Signal Company were able to receive much needed supplies, Army Direct Order and mail services. Headquarters platoon was also responsible for the maintenance and repair of all controlled cryptographic items, and electronic equipment used in the company as well as equipment from other signal assets. They also provided all administrative support.

The Soldiers of 556 Signal Company adapted to every situation and obstacle that came their way. They fielded a HARRIS RF-7800W LOS radio with no prior training and deployed it to 15 combat outposts across a 1,300 square mile OE. They quickly developed training classes to gain competency on all equipment and formed teams. The NETOPS cell, where all the planning took place, was able to design the network architecture and create portable connectivity packages that disseminated Secret Internet Protocol Router Network and Non-Secure Internet Protocol Router Network down to the company level.

During OIF 07-09, 556 Signal Company ran a diverse and a complicated set of missions. We received the HARRIS RF-7800W LOS radios late in the cycle. This forced us to figure out how to implement its functionality down to the company level in theater rather in a training environment. We set up retransmission sites across the brigade's OE and eventually built a 150' platform on a 500' tower in order to provide better FM and Enhanced Position Location Reporting System coverage to the brigade. Rather than sitting on a hilltop with radios, Soldiers on the RETRANS team found themselves as an integral part of the brigade commander's personal security detachment. During the Signal company's operations out of Camp Taji, 2nd Platoon augmented the brigade commander's personal security detachment. Over a period of 15 months, they provided secu-

rity for the commander and signal support for the Mounted Battle Command on the Move and FM communication systems. They covered the entire battle space, mounting over 50,000 miles on various routes. On several occasions when their convoys were hit by IEDs and small arms fire, the Soldiers and NCOs distinguished themselves from their peers by their professionalism under fire. Four Soldiers and NCOs received the Combat Action Badge for their efforts while engaged in direct contact with the enemy.

Overall, the company was successful in adapting to the operational needs of the brigade and providing reliable voice and data communications down to the maneuver company level--the first time a Signal company has accomplished this task. Finally, redeployment and reset operations brought the company, its personnel and its equipment back to Schofield Barracks, Hawaii without any loss of life or equipment. Reset operations focused on family/personal time and the reset of all equipment to a Fully Mission Capable state.

Tactically, our NCOs quickly gained technical competence on Commercial off the Shelf equipment and on the new JNN. Once the tactical network stabilized the primary means of communication flowed over COTS equipment.

Operationally, Soldiers and NCOs took the lead in implementing this communications support down to the company level, while, doctrinally, signal companies are supposed to provide connectivity to the battalion level. This change in itself represented an operational shift to maneuver units, being more decentralized and independent, and a corresponding change in the Signal company's concept of support.

Strategically, there has been impact within our OE by providing more intelligence to circulate from the companies to the Battalion and Brigade and vice versa. Company Commanders were sending email, making VOIP calls, sending BATS/ HIDES data, watching streaming UAV feeds and JLENS feeds. Such data intensive applications and information would not have been able to flow across the OE without the installation of the COTS HARRIS RF-7800W radio systems. Ultimately, commanders at all levels had more intelligence at their disposal, more C2 over subordinate units, and a more robust Common Operating Picture. The capability of SIPRNET and NIPRNET down to the Company level did fundamentally change how the Brigade Combat Teams conducted operations. The ability to provide such large bandwidth provided commanders down to the company level with all the mentioned benefits, resulting in having strategic level affects within the OE.

Several Soldiers and NCOs of the 556 Signal Company were experts on certain pieces of equipment, while others lacked the necessary knowledge and expertise to troubleshoot a situation in their absence. This issue led to having challenges in having the right person on the job, which became a problem when doing 24 hour operations for 15 months. Inoperability of equipment was typically not an issue. The robustness of the network, the redundancy, caused routing loops and other networking issues that prevented us from reaching a stable state for months. While in theater, we developed a mission essential task list based on current operations. From this METL we were able to develop a set of classes over the course of several months of

refinement. These classes were condensed into PowerPoint slides, which in conjunction with hands-on training were used by Soldiers and NCOs of different MOS's to teach in a round robin fashion. We trained and developed our junior Soldiers and NCOs and helped them gain competency on different systems. Based on the success of this training system and the positive feedback from the Soldiers and NCOs, we developed our continuity books for the succeeding company, the 656 Signal Company.

The lack of cross-training of the different MOS's hurt us during shift work and prevented some Soldiers and NCOs from developing certain core competencies, such as the ASIP radio operation or RETRANS missions. The NCOs filled the traditional role of training, mentoring, developing and managing the people and resources assigned to them. Their most common trait was enthusiasm. They were motivated learners and showed a positive attitude with the commitment to improving and exceeding.

We accomplished our mission of providing reliable communications, voice and data, down to the Battalion level using organic Joint Network Transport Capability-Spiral equipment. We surpassed expectations and provided those same capabilities to the company level with greater bandwidth.

First platoon became part of the brigade's tactical reserve, responsible for detaining enemy combatants designated as high value targets and providing security to the Brigade's embedded provincial reconstruction teams. Throughout the deployment they detained over 50 high value targets and provided security to ePRTs on countless occasions. Their efforts helped stabilize the operational environment by removing harmful elements and enabling ePRTs to do their job.

Completing successful Soldier tasks at all levels must consist of four basic components: a specialized body of knowledge, consistent excellent performance, mentorship/guidance and a certain ethical code (Army Values). As professionals we need to be willing to develop ourselves and each other on a continued basis. Soldiers and NCOs need to take more initiative in training, especially with civilian field support representatives. Reading and un-

derstanding Field Manuals and any other publication for specialized equipment in use, is ultimately the necessary stepping stone to mastering the challenge in becoming this highly professional asset. Reading technical manuals is a key component of understanding the functionality of the equipment. With the transition of the signal systems to an IP-based architecture, computer networking should be a core competency that needs to receive much attention during the early phases of training. The AIT phrase of, "You'll learn this at your unit," should never be uttered again. The advancement of personnel in leadership positions is occurring at a rapid pace, often too rapid for them to develop the leadership skills required to lead and manage their subordinates successfully. Many are not adapting to the rapid change seen in communications equipment due to a deficiency of knowledge or a loss of motivation. Platoon sergeants should be more assertive providing junior officers with the guidance that they need to be successful. This can result in a bad impression of the NCO corps. Both platoon leaders and platoon sergeants especially, need to know what "right looks like" as they quickly advance into higher levels of responsibility. They must address this requirement to think, train and respond to the challenges.

The 556 Signal Company received the Meritorious Unit Commendation for its outstanding support during Operation Iraqi Freedom. The unit excelled in a challenging and complex environment while supporting combat operations in Multi-National Division-Baghdad's Operation Environment.

*MSG John E. Reinburg IV earned an Associate and a Bachelors degree from the University of Hawaii at Manoa and is currently pursuing a Masters degree from the University of Texas at El Paso. In addition to a number of personal awards, his unit awards include the Joint Meritorious Unit Award (4 OLC); Army Meritorious Unit Commendation (1 OLC) and the Army Superior Unit Award. His foreign awards include the Australian, Israeli and German Parachute Badges. He is also the recipient of the Bronze Order of Mercury given by the Signal Corps Regimental Association for his outstanding contributions to the Signal Corps. He is married and has two children.*

## ACRONYM QuickScan

**ABCS** - Army Battle Command Systems  
**ADCON** - Administrative Control  
**ADO** - Army Direct Order  
**AIT** - Advanced Individual Training  
**ASIP** - Advanced SINGARS Improvement Program  
**BATS/HIDES** feeds - Biometric Automated Toolset (BAT) and Handheld Interagency Identity Detection Equipment (HIIDE)  
**BSB** - Brigade Support Battalion  
**C2** - Command and Control  
**CCI** - Controlled Cryptographic Items  
**COHORT** - Cohesion and Operational Training  
**COMSEC** - Communications Security  
**COP** - Common Operating Picture  
**COTS** - Commercial off the Shelf  
**CQB** - Close Quarter Battle  
**CQM** - Close Quarter Marksmanship  
**DIGEX** - Digital Exercise

**EPLRS** - Enhanced Position Location Reporting System  
**ePRT** - embedded Provincial Reconstruction Teams  
**FM** - Frequency Modulation  
**FMC** - Fully Mission Capable  
**FSR** - Field Support Representative  
**ID** - Infantry Division  
**IED** - Improvised Explosive Device  
**JLENS** - Joint Land Attack Cruise Missile Defense Elevated Netted Sensor  
**JNN** - Joint Network Node  
**JNTC-S** Joint Network Transport Capability-Spiral  
**Ku** - Frequency band directly below the K-band  
**LOS** - Line of Sight  
**Mb** - Megabyte  
**MBCOTM** - Mounted Battle Command on the Move  
**METL** - Mission Essential Task List  
**MWR** - Morale, Welfare, and Recreation

(Continued on page 17)

# Next generation intercom system work begins

By Stephen Larsen

On Oct 16, 2009 the U.S. Government Accountability Office dismissed a protest by an unsuccessful offeror, allowing work to proceed in providing the next generation of vehicular intercom systems under the estimated \$2.4 billion Vehicular Intercom Systems-Extended contract, which the Army awarded on June 25, 2009 to Northrop Grumman Cobham Intercoms LLC.

The indefinite delivery indefinite quantity contract is for five years with options for five additional years, with the VIS-X program to be managed by the Vehicular Intercom Systems assistant project manager in the Defense Communications and Army Transmission Systems Project Office.

According to COL Jeff Mockensturm, DCATS project manager, the current VIC-3 VIS has been an extremely well-received piece of equipment for Soldiers in Iraq and Afghanistan. The system not only serves as a communications tool utilizing both active and passive noise reduction technology, but also as a safety device that protects Soldiers' hearing from high-decibel intra-vehicle noise and from improvised explosive device blasts. "VIS-X will offer all the capabilities and safety features of the VIC-3 and more," said COL Mockensturm.

MAJ Mark Henderson, the APM VIS, noted that the 'extended' version of VIS-X will meet an immediate requirement to provide a vehicular intercom system for larger vehicles with up to 18 crew members and up to eight or more radios, such as Mine Resistant Ambush Protected vehicles, Stryker armored vehicles and Abrams tanks.

In addition to the extended version for larger vehicles, Henderson added, there will also be a basic version of VIS-X for smaller vehicles with crews of two-to-four members and only one or two radios, such as humvees and two-man trucks.

"I want to stress that high up on the list of what we're trying to accomplish with VIS-X is to further protect Soldier's hearing," said Henderson, pointing out that, according to the U.S. Department of Veterans Affairs' National

Center for Rehabilitative Auditory Research, auditory disabilities affect veterans of all ages and represent the most prevalent individual service-connected disability among veterans. "Total compensation to veterans for hearing loss and tinnitus disabilities exceeds a billion dollars a year, and that figure increases every year," said Henderson. "Most importantly, hearing loss and tinnitus can have a life-long negative impact on communication and quality of life for Soldiers."

Next-generation of vehicular intercom features

According to Arnold McBean, deputy APM VIS, VIS-X will provide multiple interfaces to electronic devices – such as alarms and digitized voice prompt systems and will employ a human-machine interface that retains the tactile features of a classic radio, with knobs and switches that are easy to handle.

"When Soldiers are in vehicles, crossing terrain at high rates of speed, they want to be able to reach down and operate the intercom system without having to look at a touch screen and navigate through nested menus," said McBean. MAJ Henderson concurs. "Having served throughout theater, I can appreciate a system that lets you keep your eyes and focus your concentration downrange where it is most needed," MAJ Henderson said.

McBean said VIS-X will support VoIP communications, and that because VIS-X takes an open standards approach, a variety of equipment can connect to VIS-X – such as the vehicle-mounted Gunslinger anti-sniper system, that tells crew members the azimuth and elevation of incoming sniper fire.

According to MAJ Henderson the timeline for the transition from VIC-3 to VIS-X is about a year. "The exact demand and schedule for lifecycle upgrades and reset to VIS-X will depend on the requirements of individual vehicle PMs," Henderson said, adding that the Army expects the first VIS-X production units to come off the assembly line in about 12 to 14 months.

*Mr. Stephen Larsen is the public relations officer for the Defense Communications & Army Transmission Systems.*

## ACRONYM QuickScan

(Continued from Page 16)

**MOS** - Military Occupational Skill  
**NCO** - Non-Commissioned Officer  
**NETOPS** - Network Operations Center  
**NIPRNET** - Non-Secure Internet Protocol Router Network  
**NTC** - National Training Center  
**OE** - Operational Environment  
**OIF** - Operation Iraqi Freedom  
**PTA** - Pohakuloa Training Area  
**PSD** - Personal Security Detachment  
**RETRANS** - Retransmission  
**SIPRNET** - Secret Internet Protocol Router Network  
**STEP** - Standardized Tactical Entry Point  
**TOC** - Tactical Operations Center  
**UAV** - Unmanned Aerial Vehicle  
**VoIP** - Voice over Internet Protocol

## ACRONYM QuickScan

**APM VIS** - Assistant Project Manager, Vehicular Intercom Systems  
**DCATS** - Defense Communications and Army Transmission Systems  
**GAO** - U.S. Government Accountability Office  
**IED** - Improvised explosive device  
**IDIQ** - indefinite delivery indefinite quantity  
**LLC** - Limited Liability Corporation  
**MRAP** - Mine Resistant Ambush Protected  
**NCRAR** - National Center for Rehabilitative Auditory Research  
**PEO EIS** - Program Executive Office, Enterprise Information Systems  
**PM** - Project managers  
**VoIP** - Voice over Internet Protocol  
**VIS-X** - Vehicular Intercom Systems-Extended

# 18th Signal Battalion adapts

By CW4 Ricardo Piña Sr.

The transformation of the Army into a 'lighter, faster and modular' force has driven a complete overhaul of the Signal Regiment over the last few years. It only takes a cursory scan of a deployed division's task organization today to see the assortment of patches and the flexibility of modularity.

No longer do we deploy as entire divisions, but rather as Brigade Combat Teams, division headquarters and corps headquarters; with the overall focus remaining on the BCT. The original requirement levied upon the Signal Regiment, in 2004, was to equip BCTs with the communications assets required to enable them to deploy anywhere in the world, into an austere environment, with relatively short notice and with the capability to fight upon arrival. While the work is not yet done, we have definitely made significant progress toward making this a reality. The communications network in Iraq today is a reflection of the swift and significant changes made under Army transformation.

This article discusses how Army requirements have driven the transformation of our network architecture, how the XVIII Airborne Corps Signal team adapted to mission requirements during their current Operation Iraqi Freedom rotation, and how Signaleers in general are adapting to the meet the challenges of the rapidly changing Signal environment.

## MSE vs. JNTC

The Mobile Subscriber Equipment network was a gridded network that provided communications in an area of up to 15,000 square miles. The network was installed behind the Forward Line Of Troops and the assumption was that friendly forces owned the battle space. As the FLOT moved forward, the network moved with it. However, today we face an unconventional enemy and our doctrine has evolved along with the threat. Today's network is no longer gridded and no longer related to the FLOT. With Joint Network Transport Capability equipment, our units can operate in "pockets" of the battle space; keeping their Signal assets protected "behind the wire." The requirement to operate in battle space that is not contiguous is what drove the Signal Regiment to a satellite-based architecture.

Although the JNTC architecture is primarily satellite-based, it does provide a Line-of-Sight capability. The original assumption was that after initial entry high intensity conflict operations the Signal team supporting an operation would be able to install LOS links and migrate off of satellite links as primary paths. At the time of this article we were seven years into OIF and unfortunately, because of distance, terrain, mission requirements and the lack of a terrestrial (fiber) communications infrastructure, we were not yet able to employ a robust LOS network and reduce our satellite dependency.

Furthermore, the requirement to provide SIPRNet connectivity to the company – and in many cases, below the company – and to non-traditional command posts like those of joint security stations, military transition teams, border transition teams, points of entry, and combat out posts has drastically increased the satellite requirement. The network in Iraq today is a "satellite dependent" network.

## The XVIII Airborne Corps Experience

XVIII Airborne Corps, operating as the Multi-National Corps-Iraq, was the first Corps to deploy with an embedded network operations capability in the corps C6. This posed somewhat of a dilemma. Traditionally, a corps had an organic Signal brigade that performed the NETOPS functions for the corps. Under modularity, the corps Signal brigades were deactivated.

The 3rd Signal Brigade was the last unit to deploy as a Corps signal brigade and they were replaced by the 11th Theater Tactical Signal Brigade. Due to the speed with which changes were made under modularity, the new corps Signal doctrine had not yet been written. Without formal doctrine to guide them, the XVIII Airborne Corps C6 and the 11th TTSB leadership decided to combine their NETOPS entities to form the corps network operations and security center. The combined CNOSC engineered, monitored, managed and had responsibility for the entire corps tactical network. The effort was an overwhelming success.

Later into the rotation, in an attempt to further streamline the communications oversight in Iraq, the MNF-I CJ6 and the MNC-I C6 decided to merge their respective NETOPS centers. MNF-I CJ6's NETOPS center – the Joint Network Operations Control Center – Iraq – was responsible for the overall strategic network. The day-to-day operations and maintenance of the strategic network was performed by the operational base Signal battalion. During this rotation the operational base Signal battalion was initially the 40th Expeditionary Signal Battalion and towards the end of the rotation it was the 50th ESB. These ESBs were OPCON to the 160th Signal Brigade and TACON to MNF-I. The 40th/50th managed their portion of the network through their Regional NOSC. The merger enveloped the CNOSC and the RNOSC into the JNCC-I; thereby giving Corps personnel the added visibility of, and in large part responsibility for the strategic network.

The operational base Signal battalion mission was somewhat unique. These were tactical Signaleers performing a strategic mission, which they performed superbly; operating and maintaining technical control facilities, deployable Ku Earth band terminals, and administering strategic servers. Signal Soldiers of the future will continue to be called upon to perform both strategic and tactical missions. The lines between the strategic and tactical continue to blur.

The combined circuits and transmissions section within the JNCC-I's engineering branch had oversight of the requirements for over 400 satellite terminals, operating on both military and commercial satellites. This mission

# architecture to transformation

was performed by Signal Soldiers and officers without formal training. This would have been challenging enough without any anomalies, but the JNCC-I faced the additional challenge of dealing with a faulty satellite that experienced several “hard outages.” Our Soldiers and officers had to coordinate with the commercial satellite Network Operations Center, TNC CENT, and the individual satellite operators on a routine basis. As we move forward and continue to use commercial satellites, we must formalize satellite access procedures, NETOPS reporting, troubleshooting, and the like, across the Signal Regiment.

## The Changing Regiment

A few years ago an Army division had less than 10 satellite terminals within its organic division Signal battalion. The operators of the satellite terminals were almost always satellite communications systems operator-maintainers (MOS 25S).

These Soldiers were school-trained with an understanding of satellite theory, proper access procedures, the role of the satellite controllers, and the danger of manipulating transmit power without approval. Today, a deployed division has over 50 (in some closer to 100) satellite terminals within their communications footprint and only a small percentage of the operators are school trained 25Ss. In Iraq, the mission requirement dictated a need to place deployable satellite terminals down to the lowest levels.

In many cases, the deployable satellite terminals were issued to and operated by maneuver forces who received just a few days of training. This placed a tremendous burden on the hub operators, who had to operate, in many cases, as pseudo-controllers. Five JNTC hubs supported the Iraq network: three division tactical hub nodes, the Arifjan Regional Hub Node, and the Corps hub, referred to as the Victory Hub Node. The VHN operators came from ESBs and were also not school trained. They were quick learners and tireless workers

who provided excellent communications for a critical mission.

Since we had MSE for so long, the training was mature and our Signal vocabulary was set. For example, most Signal Soldiers and officers knew what a “6-1-6 loopback” was. We all spoke the same language and for the most part, were all trained on the same set of core competencies.

Today, however, the paradigm has shifted and the vocabulary has morphed. Present-day Signaleers must understand transmit power, EBNO readings, peak and pol procedures, boot files, megabits, megahertz, mega symbols and much, much more.

In closing, we can and should be proud of the job our Soldiers are performing on a daily basis. The requirement has expanded, the network has changed, and the vocabulary has morphed. But the outcome Signaleers are producing remains the same: a rapid, robust and responsive communications network over which the warfighter can prosecute the fight. The Regiment has never provided more capability, to lower levels, or in greater numbers than we are today. The future will bring more of the same.

MSE provided a BCT headquarters with two small extension nodes and the area mobile coverage of a radio access unit. Increment one of WIN-T has extended our coverage down to the battalion level.

Through urgent needs requirements we are providing SIPRNet connectivity down to the company; and in many cases to the platoon/squad. Future increments of WIN-T will provide it all the way to the Soldier. The nature of our business – the information technology field – is ever changing.

As Signaleers we must remain adaptable and teachable if we are to remain relevant. If the last five years are any indication, the Signal Regiment must prepare – with updated training, relevant doctrine and a joint focus – for the next five years and beyond.

*CW4 Ricardo Piña Sr., currently serves as the senior warrant officer in the Joint Network Operations Control Center – Iraq, as part of the Multi-National Corps – Iraq C6. He previously served as the Officer-In-Charge of the Network Service Center – Training, at Fort Gordon, Ga.*

## ACRONYM QuickScan

**ARHN** - Arifjan Regional Hub Node  
**BCT** - Brigade Combat Team  
**BiTT** - Border Transition Team  
**CNOSC** - Corps Network Operations and Security Center  
**COP** - Combat Out Post  
**CP** - Command Post  
**DKET** - Deployable Ku Earth band Terminal  
**ESB** - Expeditionary Signal Battalion  
**FLOT** - Forward Line Of Troops  
**HIC** - High Intensity Conflict  
**IT** - Information Technology  
**JNCC-I** - Joint Network Operations Control Center – Iraq  
**JNTC** - Joint Network Transport Capability  
**JSS** - Joint Security Station  
**LOS** - Line-of-Sight  
**MiTT** - Military Transition Team  
**MNC-I** - Multi-National Corps-Iraq  
**MNF-I** - Multi-National Force-Iraq  
**MSE** - Mobile Subscriber Equipment  
**NETOPS** - Network Operations  
**NOC** - Network Operations Center  
**NOSC** - Network Operations and Security Center  
**O&M** - Operations and Maintenance  
**OIF** - Operation Iraq Freedom  
**POE** - Points of Entry  
**RAU** - Radio Access Unit  
**RNOSC** - Regional Network Operations and Security Center  
**SEN** - Small Extension Node  
**TCF** - Technical Control Facility  
**THN** - Tactical Hub Node  
**TTSB** - Theater Tactical Signal Brigade  
**VHN** - Victory Hub Node

# Repurposing Signal warrant officers

By CW5 Todd M. Boudreau

Every successful Soldier in the Signal Corps must be technically adaptive to remain relevant in a field that changes rapidly with constantly emerging new technology. As premier technology leaders, Signal warrant officers have always assimilated new systems to earn and maintain the technical expert status. The Signal Corps warrant officer MOS has changed numerous times over the past few decades to keep pace with the technological and doctrinal iterations.

Recently, a Military Occupational Classification Specialty action was developed to address several shortfalls within the current Signal warrant officer MOS structure to include the current Average Grade Distribution Matrix and the gaps within the current duties and responsibilities of each MOS. The MOCS action called for the repurposing of the Signal warrant officer MOS into two accession (i.e., W1) through W4 MOS—one to cover Network Management core competency and one to cover Content Management core competency, along with an MOS (W3 through W4 only) to cover Network Defense core competency. The current W5 capper MOS remains unaltered.

This MOCS action was approved and work has already started to use the new MOS structure across the authorization and requirements documents. Basically, positions coded with MOS 250N will be recoded to 255N. Positions coded with MOS 251A or 254A will be recoded to 255A. A select number of positions will be coded 255S. The effective date for these documents will be 1 October 2012. The recoding process will ensure proper grading is completed to provide a viable pool for promotion while not creating a situation that negatively affect later promotion potential.

Concurrently, the DOT has submitted updated documentation to adjust all Signal warrant officer basic and advance courses. These requests were approved and will expedite Signal warrant officer training changes to meet current force needs.

MOS reclassification actions began October 2009 and run through June 2012 with WOBC and WOAC students who will be reclassified into the new MOS upon their graduation. All others will be reclassified June through September 2012. For personnel utilization and unit readiness reporting, MOS 255A will be substitutable for MOS 251A and 254A and MOS 255N will be substitutable for MOS 250N until the completion of this action, not later than 30 September 2013.

This realignment will provide commanders, G6s, S6s and other IT senior leaders with a powerful team of well-trained, seasoned Signal warrant officers who are essential to successful network-enabled warfighting operations. The proposed MOSs are 255A-Information Services Technician (IDM/CS focus), 255N-Network Management Technician (NM/ESM focus), and 255S-Information Protection Technician (IA/CND focus). The 255Z capper MOS which is renamed Senior Network Operations Technician is retained. Additionally The 255A will provide oversight of Visual

“The warrant officer of the Future Force is a self aware and adaptive technical expert, combat leader, trainer, and advisor. Through progressive levels of expertise in assignments, training, and education, the warrant officer administers, manages, maintains, operates, and integrates Army systems and equipment across the full range of Army operations. Warrant officers are innovative integrators of emerging technologies, dynamic teachers, confident warfighters, and developers of specialized teams of Soldiers. They support a wide range of Army missions throughout their career.”

*Department of the Army Pamphlet 600-3*

Information (VI) operations, while the 255S will provide oversight of Electromagnetic Spectrum Operations (EMSO).

Network management has been the primary function of warrant officers. The new 255N will continue this tradition but with increased responsibility for all networks. Additionally, the realignment will mitigate some long-standing capability gaps. The 255A will provide enhanced capabilities for integrating Army Battle Command Systems (ABCS) and information services with communication and information networks. The 255S will provide enhanced capabilities for conducting information assurance including COMSEC and computer network defense. These MOSs will also be closely aligned with the joint doctrine functions of global network management, content management and network defense.

The intent is to expedite the action for full implementation in FY12. The process is well underway. Digital tactical operations center (DTOC) and systems of systems (SOS) experiential training is up and running as the focus of the 255A. In addition, civilian industry partners have been tasked to implement an intense, high-end cyber security (IA/CND) qualification course for 255S within a year. The 255S will ultimately access out of 255A and 255N at CW3. This MOS will build on a huge base of NCO training and experience, plus about six years development in either of the two WO feeder MOSs. A more in-depth explanation of each MOS follows below.

## **255A-Information Services Technician**

W1 accession level MOS 255A (Information Services Technician) will serve as the Army's premier information systems and services technician establishing and maintaining the ability to collect, process, store, secure, search for and discover, retrieve, and disseminate information utilizing the application layer environment of the Army's portion of the cyberspace domain; they will enable Information Dissemination Management/Content Staging (IDM/CS) in order to perform the required information management/

# *Keeping pace with technology, Army transformation*

knowledge management functions supporting combat information superiority and decision dominance. MOS 255A will begin at WO1 and conclude at CW4.

MOS 255A will subsume MOS 251A and 254A. MOS 251A originated over 20 years ago from the Data Processing System Repair Technician. The MOS has served the Regiment well and only because of changes and advancements in technology and the affects of modularization does it need to be adjusted. MOS 251A has suffered from military-to-civilian adjustments as well as initial bill-paying to form MOS 254A. MOS 254A is not employed today as it was planned in its inception. A decade ago the decision was made to create a Signal warrant officer MOS to fill the requirement for a technical expert in non-Signal units. Modularization of the force has forced MOS 254A to more than double in size. Additionally, the area of responsibility for MOS 254A has transformed from a radio-centric environment into one that is server-centric. MOS 255A will merge these two MOS into one that leverages the best of the two and create a warrant officer who is the true technical expert in information systems and services. Assignments for MOS 255A will begin at W2 (there are no active duty W1 positions) in the S6 of Brigade Combat Teams and progress through Division (W3) and Corps (W4) to ASCC and Joint (W4) positions.

## **255N-Network Management Technician**

W1 accession MOS 255N (Network Management Technician) will serve as the Army's premier network transport technicians for voice, video, and data networks establishing and maintaining the transport layer environment of Army's portion of the cyberspace domain through Network Management/Enterprise Systems Man-

agement (NM/ESM) functions to include fault management, configuration management, auditing and accountability measures, maintaining performance standards, and implementing security measures at all levels in support of combat information superiority and command and control. MOS 255N will begin at WO1 and conclude at CW4.

MOS 255N will subsume MOS 250N. The lifetime of MOS 250N falls in between MOS 251A and 254A having its roots in MOS 250B and a few MOS 256A personnel and positions. While MOS 250N will see fewer changes than MOS 251A and 254A, we felt it prudent to include this MOS in the same Area-of-Concentration (AOC) as all the other Signal MOS (i.e., AOC 255, Network Operations). MOS 255N will broaden to include several skills taken from MOS 251A and 254A and create a warrant officer who is the true technical expert in networked transport systems. Assignments for MOS 255N will begin at W2 in the S6 of Brigade Combat Teams and progress through Division (W3) and Corps (W4) to ASCC and Joint (W4) positions.

## **255S-Information Protection Technician**

MOS 255S (Information Protection Technician) will serve as the Army's premier defenders of the Army's portion of the cyberspace domain; they will perform Information Assurance/Computer Network Defense (IA/CND) measures to include the protection, detection, and reaction functions at all levels in support of combat information superiority; they will supervise and manage information assurance efforts, associated sub-elements (e.g., computer network defense), non-lethal electronic protection efforts, and associated personnel within the standards, transport, services, and applications layers of the network in

order to achieve confidentiality, integrity, and availability of information, as well as the authentication and non-repudiation of users. MOS 255S will begin at CW3 and nominally access from MOS 255A and 255N.

MOS 255S is the first Signal warrant officer MOS, other than the 255Z capper MOS, that is a branch off another Signal warrant officer specialty; this is a part of the progressive nature of this new specialty. Cradle to grave management of this premier network defense MOS is important to ensure these officers are not only technically savvy, but tactically savvy as well.

Enlisted Soldiers who demonstrate potential in Information Technology (IT) and meet the prerequisites for accession into the warrant officer ranks average 9 years Time in Service (TIS). Those who are ultimately accessed receive another 24-32 weeks of specific IT training in either Network Management (255N) or Information Services (255A) and are then placed into Army formations. Those who meet the specific prerequisites for accession into MOS 255S after another 5-6 years of experience as a warrant officer overseeing the planning, engineering, maintaining, and operating the Army's portion of Cyberspace are boarded; those selected receive another 24-32 weeks of specific computer and network security.

Newly qualified 255S are assigned at lower network echelons and continue to hone their skills through overseeing the planning and implementation of intrusion prevention and detection systems, performing analysis of vulnerability and attack monitoring systems, and coordinating specific response actions. As this Information Protection Technician matures in these skills, assignments to higher echelons to include joint and inter-

(continued on page 24)

agency locations ensure full utilization of this highly trained and highly capable Soldier.

As this new MOS matures, the Signal Regiment will meet its information and network protection requirements, close the gaps in our defenses, and provide a highly trained and highly competent Cyber-Warrior adaptable for both cyber-defense and cyber-offense. Assignments for MOS 255S will begin at W3 in the S6 of Brigade Combat Teams (which will also place a senior warrant officer into the Brigade S6 to mentor and further train the junior warrant officers) and progress through Division (W4) and Corps (W4) to ASCC and Joint (W4) positions.

### **255Z-Senior Network Operations Technician**

MOS 255Z (re-titled Senior Network Operations Technician) will remain as the Signal warrant officer capper MOS, serve exclusively at the grade of CW5, and function as the technical and tactical advisors for full spectrum network operations at any echelon of command or support activity of the U.S. Army or Joint staff sections assigned to Theater Combatant Commanders or allied armies. These officers provide leadership, guidance, technical input, and direction to subordinate elements, staff agencies, and field commanders up to and including theater Army level.

### **Conclusion**

MOS 255S will provide expert protectors and defenders for all the Army's cyberspace assets. These professionals will be trained in cyber-security, cyber-defense, cyber-hacking techniques, cyber-incident handling practices, cyber-penetration techniques, cyber-forensics techniques and communications security practices. This stand-alone MOCS action will place a 255S in divisions, corps and various EAC organizations.

In a separate action, the U.S. Army Signal Center of Excellence is preparing a Force Design Update submission requesting additional billets to place this new capability into brigade level organizations, especially BCTs. Following normative procedures, MOS 255S will become a viable asset in three to five years. Early implementation and required resources are being sought to expedite this deployment.

MOS 255S is not an enlisted accessions MOS but is only available for reclassification from MOS 255A and 255N at the rank of CW3. Further prerequisites include a current certification under either IAT Level III or IAM Level II IAW DOD 8570.01M, successful performance for a minimum of four years at the CW2 level in either feeder MOS, possession of a security clearance of top secret with eligibility for access to sensitive compartmented information, and successful completion of the Information Protection Technician Warrant Officer Advance Course which is also the

only MOS 255S producing course. These prerequisites ensure adequate knowledge of information networks and services and enables coordination with intelligence professionals at the compartmented levels. The 255S's holding of a TS-SCI clearance will facilitate intelligence support (especially at the corps and below) by building the foundation to establish enduring partnerships with intelligence entities in order to share information regarding critical incidents and other data to better understand how the OE may impact the network.

*CW5 Todd M. Boudreau serves as the third Signal Regimental Chief Warrant Officer. He recently served as the Signal warrant officer proponent manager, Office Chief of Signal, U.S. Army Signal Center of Excellence and Fort Gordon, Ga.*

## **ACRONYM QuickScan**

**ABCS** – Army Battle Command Systems  
**ACOM** – Army Command  
**AGDM** – Average Grade Distribution Matrix  
**AIS** – Automation Information Systems  
**AOC** – Area of Concentration  
**ASCC** – Army Service Component Command  
**BCT** – Brigade Combat Team  
**CM** – Content Management  
**COMSEC** – Communications Security  
**Cryptonet** – Cryptographic Network  
**DOT** – Directorate of Training  
**DRU** – Direct Reporting Unit  
**DTOC** – Digital Tactical Operations Center  
**EAC** – Echelon Above Corps  
**EMSO** – Electromagnetic Spectrum Operations  
**IAM Level** – Information Assurance Management Level  
**IAT Level** – Information Assurance Technical Level  
**IA/CND** – Information Assurance/Computer Network Defense  
**IDM/CS** – Information Dissemination Management and Content Staging  
**MOCS** – Military Occupational Classification Specialty  
**ND** – Network Defense  
**NM** – Network Management  
**NM/ESM** – Network Management/ Enterprise Systems Management  
**OE** – Operational Environment  
**SCI** – Sensitive Compartmented Information  
**SOS** – Systems of Systems  
**TIS** – Time in Service  
**TS-SCI** – Top Secret – Sensitive Compartmented Information  
**VI** – Visual Information  
**WOAC** – Warrant Officer Advanced Course  
**WOBC** – Warrant Officer Basic Course

(See the graphic "WO Realignment Approved 18 NOV 09", page 25)

# Signal warrant officer education and training undergoing changes

By Leader College for Information Technology staff

The Signal warrant officer structure and training are undergoing radical transformations to meet new and emerging requirements.

Beginning in October 2009, the Leader College for Information Technology at the Signal Center of Excellence at Fort Gordon, Ga., began implementing plans for major changes to Signal warrant officer education and training.

The transformation plans operate in concert with the larger Signal warrant officer MOS transformation. Working in coordination with the proponenty office at the Office, Chief of Signal and the Directorate of Training, LCIT trainers and developers applied several overarching objectives to guide the training transformation. Achieving the objectives will ensure that the quality of WO training is maximized to best equip Signal warrant officers and meet mission requirements.

The first objective focused on the need to train younger warrant officers in a broader spectrum of skills necessary for effective performance at their

first duty assignment. To meet this requirement, the Warrant Officer Basic Course lengths were increased while Warrant Officer Advance Course lengths were decreased slightly.

The second objective seeks to begin training transformation across the board for the new Signal Warrant MOS requirements that have emerged due to the challenges of a modular, BCT focused Army. To meet these challenges, MOS 251A and 254A Programs of Instruction were merged into one complete POI, while the 250N POI was updated.

The third objective addressed the necessity to establish a WOAC 255S POI as soon as possible to meet the growing need for a cyber defense technician within the Signal Regiment. Normally, a POI takes years to develop properly for a new MOS like 255S (Information Protection Technician).

However, the cyber defense requirement is great and the Regiment needs a new cyber defense WO in the field today. Therefore, LCIT, DOT and OCOS developed a course map to quickly establish the 255S warrant training and education program. Due to the complexity and nature of this new WO MOS, 255S

warrant officers will not be accessed until they reach the CW2/CW3 level. The course map in Figure 5 is only for WOAC. There will be no 255S WOBC.

This course map has been vetted throughout the Regiment, many computer network defense communities and interagency subject matter experts to ensure that both the near and long term cyber defense needs are met.

While more phases of change are anticipated, these POIs are on track with an anticipated result of continued training of the best prepared Signal warrant officers. These changes will ensure that Signal warrant officers continue to be the Army's premier information and cyber technicians. The next set of changes will begin within FY10 as the old MOS titles are removed and new MOS titles added for classes beginning in FY13. This change will ensure

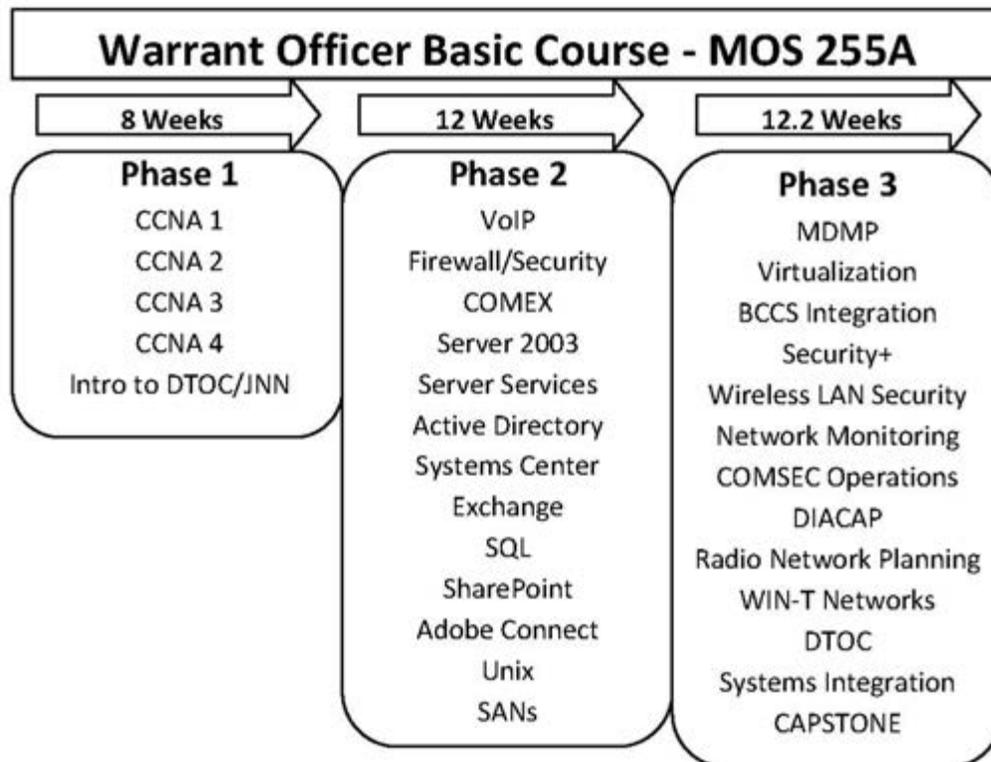


Figure 1. WOBC for 255A

that the Army Training Requirements and Resources System reflects the new courses prior to the Structure Man-

ning Decision Review discussions in November 2010.

After adequate implementation of this transformation, LCIT and DOT leaders will conduct Critical Task/Site Selection Boards to make final course corrections and ensure our training reflects the latest field requirements

### FY10 Signal Warrant Officer Training

Figure 1 on the previous page and Figure 2 at right indicate the Signal warrant officer training for WOBC 255A (formerly 251A and 254A) and 255N (formerly 250N) in FY10.

There will be no WOBC for the new 255S MOS. LCIT leaders expanded both WOBC courses and enhanced the emphasis of each on their respective core Network Operations areas: Global Information Grid Enterprise Management for 255N and GIG Information Dissemination Management/Content Staging for 255A. Both 255A and 255N's course maps will touch upon all aspects of NetOps, to include GIG Network Defense, the third area under the NetOps construct.

The actual course listings in ATRRS are still shown under the legacy MOS (i.e., 250N, 251A, and 254A); however, all FY10 course graduates will be MOS-qualified under the new MOS titles (i.e., 255A and 255N). Also, both the WOBC courses and WOAC courses maintain their phases. LCIT leaders designed this phasing strategy to its courses in 2006 to better accommodate the ARNG and USAR warrant officers. These Reserve Component officers can take the phases all at once or in separate TDY trips to Fort Gordon. However, Active Component warrant officers must take all three phases consecutively.

The WOACs for 255A and 255N are shown at right in Figures 3 and 4. Both courses are shorter but better reflect the training needs of the Armed Forces. These WOACs are also more progressive and sequential when compared to their respective WOBC courses than they were in previous years. This will produce better senior WOs in the WOAC and place more responsibility on the warrant officers attending WOAC who

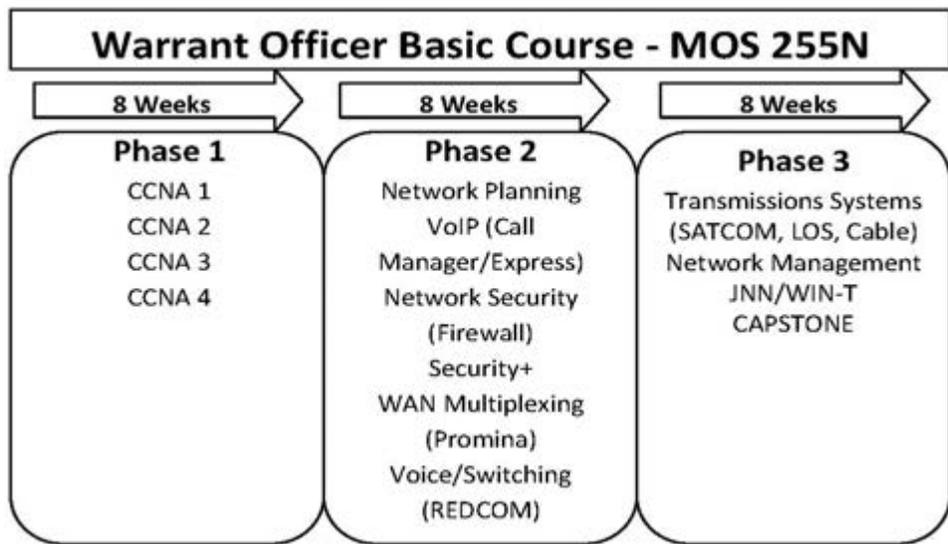


Figure 2. WOBC for 255N

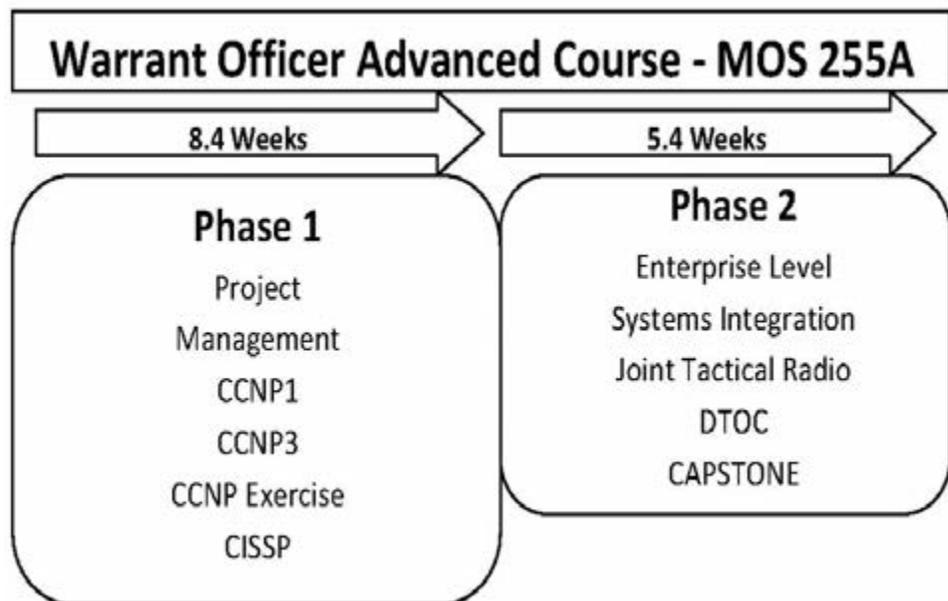


Figure 3. WOAC for 255A

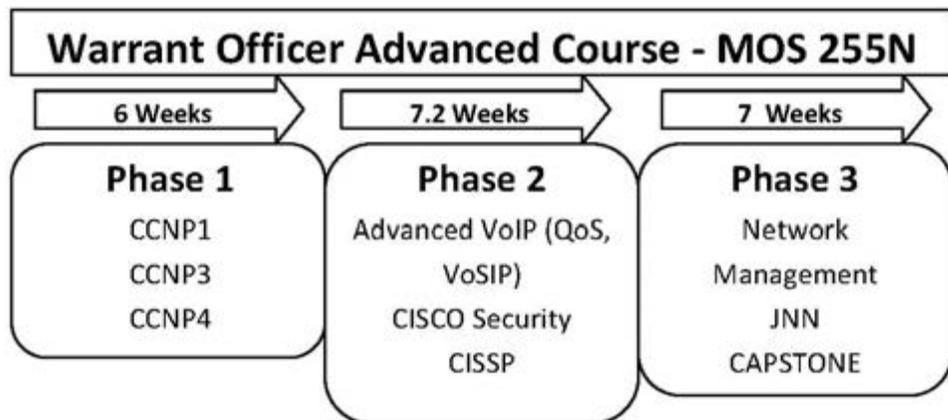


Figure 4. WOAC for 255N

will have enhanced training on NetOps fundamentals.

There will be no MOS 255S courses taught in FY10. However, LCIT is currently educating eight Signal warrant officers in advanced cyber defense subjects, using many of the SANS Institute courseware which will serve as the cornerstone of the future MOS 255S WOAC. Four of the eight warrant officers will remain at Fort Gordon as the first 255S instructors, while the other four warrant officers will return to specific assignments, utilizing their new cyber defense skills to the maximum benefit of U.S. Armed Forces. The course map for the 255S WOAC is listed below in Figure 5.

### The Future

The future is bright for the Signal warrant officer. As the military continues to be more dependent upon information systems and networks, the Signal warrant officer will be at the nexus of the operations, maintenance and defense of these systems and networks worldwide.

To meet these challenges, the SIGCOE has developed a world-class suite of education and training for all of the Regiment's warrants for FY10 and beyond. These new WOBC and WOAC courses will continue to educate warrants in the latest technologies and protection procedures while ensuring that they are better prepared for new, emerging challenges in the future.

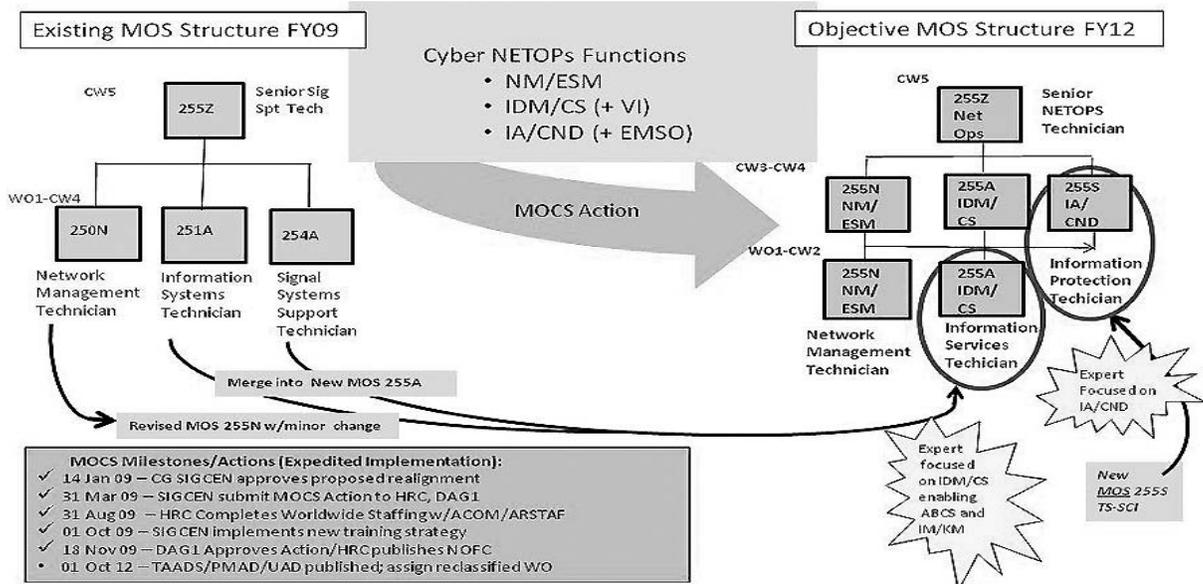
### ACRONYM QuickScan

- AC – Active Component
- ATTRS – Army Training Requirements and Resources System
- BCT – Brigade Combat Team
- CT/SSB – Critical Task/Site Selection Boards
- DOT – Directorate of Training
- GEM – Global Information Grid Enterprise Management
- GIG – Global Information Grid
- GND – Global Information Grid Network Defense
- IDM/CS – Information Dissemination Management and Content Staging
- LCIT – Leader College for Information Technology
- NetOps – Network Operations
- OCOS – Office Chief of Signal
- POI – Programs of Instruction
- RC – Reserve Component
- SANS – Systems Administrator, Audit, Network, Security
- SIGCOE – Signal Center of Excellence
- SMDR – Structure Manning Decision Review
- SME – Subject Matter Expert
- WO – Warrant Officer
- WOAC – Warrant Officer Advanced Course
- WOBC – Warrant Officer Basic Course



Figure 5. WOAC for 255S

### Signal WO Realignment approved 18 Nov 09



# C2 suffers in the name of modularity

By CW2 Richard M. Gilbert

It appears the quest for modularity may be severing the Army's ability to effectively control the Brigade Combat Team network.

Field Manual 6-0, Mission Command: Command and Control of Army Forces, indicates that "without command, control would not exist."

Within a BCT, the Signal assets have been permanently assigned down to the user level, with exception to the brigade's Signal assets residing in the network support company. While we have increased the power and capabilities available to the BCT commander and the battalion commanders, we have subtly usurped the Signal chain of command. In addition the task of managing and controlling the network is exacerbated by the fact that the brigade network operations and security center operates from a staff section to conduct network operations.

If we do not solve these problems our customers will suffer through degraded communications.

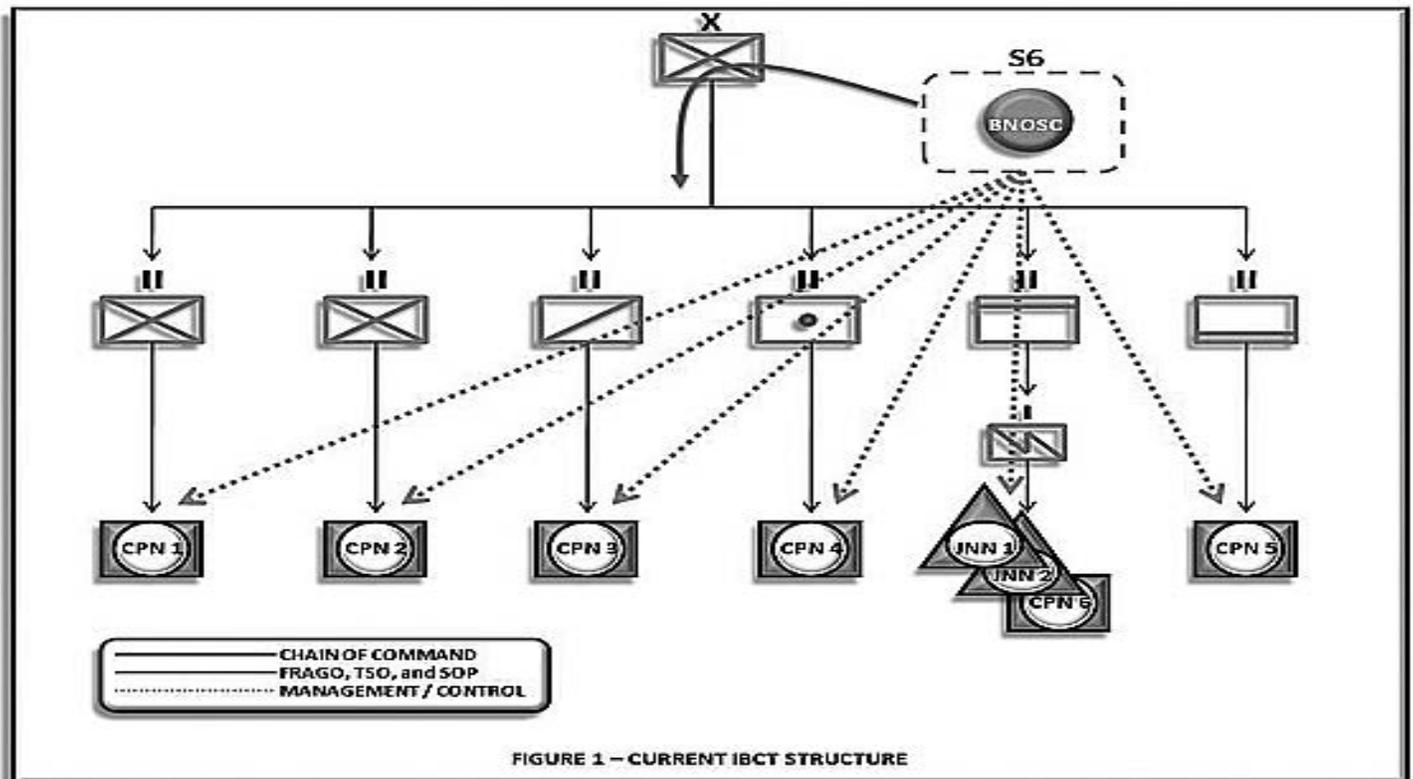
There is much discussion within the Signal community about the best place in a BCT to assign the NETOPS paragraph. By current MTOE, the NETOPS paragraph is located in the NSC (now brigade Signal company), which falls under the BSTB command. It has been said that NETOPS will eventually be moved to the BCT S-6 section.

Many BCT S-6s have noticed that they do not have direct authority over the important role that NETOPS plays in the BCT Signal environment with the current MTOE and have made the move to attach NETOPS in their section already. With no other changes made to the Signal

structure within a BCT, this is the best move possible. But it isn't enough.

Staff officers are not in command of anything outside their section. Therefore, even though the BCT S-6 may have the NETOPS personnel under direct control, the joint network nodes and command post nodes are not. Furthermore, the other important roles of NETOPS--information assurance/computer network defense and information dissemination management-content staging--are left without the proper infrastructure to enforce the necessary and valuable policies down to the user level. When the user is in command of the network, priorities of the communicator become rearranged and there is no way to train to one standard across the entire BCT. This can cause much difficulty for Signal leaders when attempting to provide the best communication possible for their users. With the CPN and its operators under the command of its organic battalion commander, directives coming from the BCT S-6 via NETOPS must come through the chain of command from the BCT commander to have validity.

The BCT S-6 does not have command over a CPN. Therefore the BCT S-6 cannot control a CPN. The battalion commander has command and control over that CPN. The power of FRAGOs, TSOs, and SOPs must be utilized to exert some control over the BCT network. While this approach may work for many situations, real-time network management and control will eventually suffer. When a directive coming from the BNOSC is issued the same time a directive comes from a CPN's chain of command, we all know that the NETOPS directive will be secondary (figure 1).



FMI 6-02.71 NETWORK OPERATIONS states the following about the BN S-6:

“The battalion performs limited NETOPS functions and relies heavily on the support of the BCT S-6 for the reception of core common services, directory services, WAN accessibility, and IA. The S-6 staff performs all the planning and operations associated with the main and tactical command posts at higher headquarters. The S-6 holds the primary responsibility in developing the battalion Annex K input, LAN management, and connectivity coordination with the BCT and adjacent units.”

## Whose network is it--BCT or Battalion?

The BN S-6 relies on the BCT S-6 for services and WAN connectivity. The BCT S-6 is tasked to provide effective network management and information assurance across all organic networks and organic networks in a BCT definitely includes the battalion networks. This relationship between the BCT S-6 and BN S-6 is very similar to the relationship between the DIV G-6 and BCT S-6, and so on. The difference is that the BN S-6 is not given the expertise, tool, and knowledge to effectively manage their network. The result is more intense focus from the BCT S-6 down to the BN S-6.

So moving NETOPS to the BCT S-6 did not really solve anything with respect to effective network management and control. While it did give the BCT S-6 the tools needed to make the best possible decisions the authority to enforce those decisions still lack command. In a network that relies on the enclave to reside at the division tactical hub node, network management and control has to be enforced at the BCT S-6. As long as there are nodes and operators outside one's command reach, control will never exist. That is doctrine, not Signal doctrine, but Army doctrine.

This structure not only effects the execution phase of our task in the command and control of the BCT communications, we as a Signal family are declining in our abilities across the board due to lack of training. Signal training in a BCT is next to impossible to conduct because of the competing

priorities that come along with our current structure that separates our Signal Soldiers inside a BCT. Many lessons learned and best practices were forgotten and lost when the Signal battalions were sliced up for modularity even though they are very relevant to today's networking with JNNs and CPNs. Teams are no longer trained to one standard, if training on their equipment actually happens (rare at best). The team concept seems totally lost as well. Many times, a battalion CPN team is non-existent and the equipment is treated as just another system in the BN S-6 section. With the BN S-6 position typically being filled with an officer straight out of training, the enormous responsibility of training their nodal team is not understood and that officer may not be able to convey that importance to their superior (non-Signal) officer. The result is a lack of Signal training because its importance is left off the training schedule due to not being able to compete with other training events that the BN commander deems more important.

Furthermore, it is becoming more obvious that our Signal officers have also lost a lot of needed knowledge that existed before the Signal battalions were stood down. The knowledge and lessons learned by the Signal officers as they ascended through the jobs in a Signal battalion from a young lieutenant to a seasoned major are now deficient.

We did not expect that young lieutenant to be an expert when they showed up at their first duty assignment in one of the Signal battalions. There was direct mentorship provided

by their leader, the Signal company commander, who understood the job the lieutenant was to perform because they had experienced it.

The captain commanding the Signal company was being mentored by the battalion commander and the battalion S-3. There was one standard applied across the entire battalion that provided standard support throughout the entire division. In today's environment, the Signal lieutenant is left on an island to figure it out as a SIGO. The BCT S-6 can provide some Signal mentorship, but it doesn't negate the fact that the BN S-6's priorities are set by a non-Signal officer.

While mentorship is given to that Signal officer, it isn't Signal specific. This posture has facilitated a lack of training and mentorship that has trickled down to our Soldiers. We have become increasingly dependent on contractor support and the ease in our current equipment's operation. If we don't check our azimuth, we may not be able to "operate our own network without augmentation from higher headquarters" or outside agencies (FM 6-02.71 Network Operations, E-1).

## So where should we go from here?

New technology commands a central position in future strategies. There isn't a lot of change being made to the placement of Signal Soldiers within the BCT, other than the move of the NETOPS from BSTB to BCT S-6. WIN-T is already here although we will not truly see its real change until later increments. I suggest that we need to look at our organizational structure now. The longer we delay it becomes exponentially more difficult to fix.

First and foremost, I believe it is imperative to move the CPNs and the Soldiers responsible for operating the CPN to the NSC (figure 2). The biggest obstacle in doing this will be the voice from the BN S-6 to have a 25B while in garrison. I think this sells the 25U short, but we can position one 25B in the BN while moving the other (with the 2x25Q) with the equipment to the NSC. Of all the things we can possibly do, I think this is where we as a Signal community will get the most return. This will allow for train-

ing opportunities every single day without having to place an impact on the BNs through the OPORD. It also allows for one standard to be applied across every CPN team which can only improve our ability to provide quality communications to our users. Finally, it reinstates a "Signal" chain of command that extends to every node in the BCT, which effectively gives authority back to the Signal community to really effectively manage and control the network. Without command, control does not exist.

Second, to provide a foundation for our Signal leaders, have the NSC commander fill the role as deputy BCT S-6 when deployed. Make it doctrine for that role to be filled and clear up the confusion that is always present with respect to the BSTB commander, BCT S-6, and the NSC commander. This will allow for the BCT S-6 to focus on the staff functions and coordination while the NSC commander can direct the network management. A possible track for the Signal officer could be from JNN PLDR, to BN S-6, to NSC commander, then BCT S-6, resulting in a solid foundation for our future BCT S-6s. This could build a good working knowledge of the equipment we employ and expose our leaders to the situations needed to eventually be able to lead our BCTs in effectively manage and control the network. And mentorship of Signal leaders from Signal leaders will again be a very important part of our future success.

Finally, let's leave the NETOPS in the NSC (figure 3). Let the Signal company commanders be responsible for providing communications in the

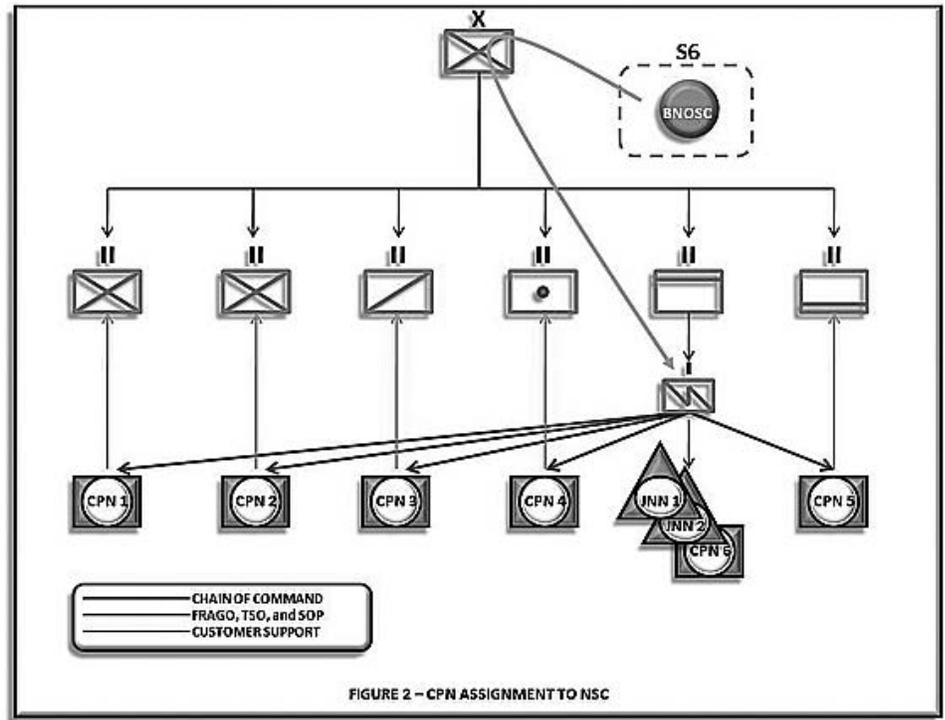


FIGURE 2 - CPN ASSIGNMENT TO NSC

same way they were before the JNTC era. Through consolidation of our Signal assets, leaders, and Soldiers, we can dictate the priorities through the chain of command again, thus allowing true management and control to exist, resulting in better communications for our BCTs.

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*network management technician from November 05 to April 08. He deployed with 2/10MTN to Operation Iraqi Freedom from August 06 to November 07. Currently, he is the Joint Readiness Training Centers network management technician observer/controller.*

## ACRONYM QuickScan

- BCT** - Brigade Combat Team
- BN** - Battalion
- BNOSC** - Brigade Network Operations and Security Center
- BSTB** - Brigade Special Troops Battalion
- CDR** - Commander
- CPN** - Command Post Node
- FRAGO** - Fragmentary Order
- IA** - Information Assurance
- JNN** - Joint Network Node
- JNTC** - Joint Network Transport Capability
- LAN** - Local Area Network
- MTOE** - Modified Table of Organization and Equipment
- NETOPS** - Network Operations
- NSC** - Network Support Company
- OPORD** - Operations Order
- PLDR** - Platoon Leader
- SOP** - Standing Operating Procedures
- THN** - Tactical Hub Node
- TSO** - Technical Service Order
- WAN** - Wide Area Network

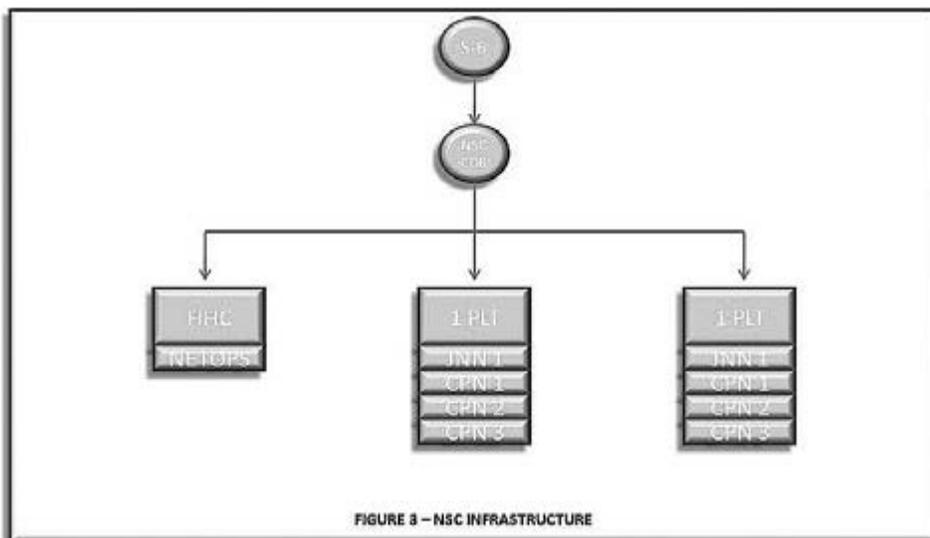


FIGURE 3 - NSC INFRASTRUCTURE

# Stryker BCT utilizing unique domain

By MAJ Anne Wiersgalla

The Stryker Brigade Combat Team advances the war effort with every technological nuance available.

A unit unique Lightweight Directory Access Protocol Database Interchange Format is a key element employed out of the suite of Army Battle Command Systems that ensures digital information reliability and superiority.

The LDIF is a database or address book that allows the ABCS to communicate via command and control messages and provide the exchange of Situational Awareness data. The LDIF is built using IP addresses and the unique Secure Internet Protocol Router Network domain name assigned by Network Enterprise and Technology Command.

Each ABCS has a unique IP address, role name and unit reference number. The unit domain is part of each ABCS LDIF assigned role name. Without the domain, the role name and thus the ABCS becomes non-functional resulting in total loss of C2 messaging capability.

Additionally, Stryker Brigades are Enhanced Position Location Reporting Systems units, which use Force XXI Battle Command Brigade and below to communicate C2 and SA across the battlefield. Each FBCB2 is assigned a unique role name as well, which again has the domain as a part of that role name. Without the domain name, the FBCB2 database loses functionality due to the loss of connection between the SBCT's lower Tactical Internet EPLRS-based FBCB2 network to the upper Tactical Internet.

The bridge between the Lower TI and Upper TI is the unit's ABCS Inter-communications Computer which is also configured for the unit's domain. Without the domain, the AIC will not pass the EPLRS data through the Near Real Time Server to the Publish and Subscribe Services Server for injection into the units Maneuver Control System. Additionally the AIC will not pass the EPLRS data to the Blue Force Tracker Network Operations Center. Thus, the EPLRS network becomes a lower TI only stovepipe system.

The BFT roles built into the OC-16 database for Stryker units include the domain name. These BFT roles need to communicate with the battalion and brigade AICs in order to maintain accurate and timely SA for the unit Common Operating Picture. Without the use of the unit domain name, issues may arise in the link between the unit's AIC and the BFT NOC resulting in inaccurate SA data passing throughout the organization.

Without the use of the unit domain, as fielded, the unit would be required to rebuild the brigade's battle command and control servers, which contain the brigade's core services (domain controller, exchange server, and battle command server). The SBCT also must be able to control patches and updates that are applied to unit systems, as there are instances where patches or updates have rendered ABCS systems inoperable and have required re-imaging without the patch. By placing the SBCT's systems on a different domain, the unit loses the ability to control the distribution of patches and updates. An inadvertent update could render the ABCS non-functional, impacting the ability to conduct combat operations.

The SBCT must be configured to use the fielded systems and data products as designed so that the systems will function in the same manner as the unit trains to conduct combat operations. The inability to use the unique domain and tie in the full functionality of the ABCS results in the segregation of the lower TI and the upper TI. Without the tie-in to the domain, this segregation results in two isolated stove-pipe networks with multiple stand-alone systems on the upper TI, the upper TI fielded systems being nothing more than standard office workstations, diminishing the significant advantages of information superiority.

Furthermore, combat operations would be disrupted, as the unit would be forced to regress to the legacy methods of command and control.

SBCTs train to conduct combat operations with ABCS integrated into every aspect of the fight, a networked system of systems, from the Team Leader's Land Warrior Ensemble to reporting and battle tracking via Command Post of the Future. The SBCT's digital network is an integral framework in which the SBCT fights.

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## ACRONYM QuickScan

**AIC** - ABCS Inter-communications Computer  
**ABCS** - Army Battle Command Systems  
**BCCS** - Brigades Battle Command and Control Servers  
**BFT** - Blue Force Tracker  
**C2** - Command and Control  
**COP** - Common Operating Picture  
**CPOF** - Command Post of the Future  
**EPLRS** - Enhanced Position Location Reporting Systems  
**FBCB2** - Force XXI Battle Command Brigade and Below  
**LDAP** - Lightweight Directory Access Protocol  
**LDIF** - Lightweight Directory Access Protocol Database Interchange Format  
**MCS** - Maneuver Control System  
**NETCOM** - Network Enterprise and Technology Command  
**NOC** - Network Operations Center  
**NRTS** - Near Real Time Server  
**PASS** - Publish and Subscribe Services Server  
**SA** - Situational Awareness  
**SBCT** - Stryker Brigade Combat Team  
**SIPRNET** - Secure Internet Protocol Router Network  
**TI** - Tactical Internet  
**URN** - Unit Reference Number

# Modular command post planning for an expeditionary Army

By MAJ William R. Reeves

Modern expeditionary Army experiences have revealed some critical planning elements applicable to every modular command post operating across the spectrum of warfare. The Army's modular CP is more than just the display screens and computers you find whenever you visit or work in a CP. Today's modular CP is an intricate and delicately balanced combination of critical personnel and systems delivering services that must be planned out in advance, managed well and fully sustained in order for the CP to effectively serve the commander and staff.

Designing the CP is the easy part since the task is simply identify what warfighting functions are needed in the CP, what kind of operations the CP will control (decisive, shaping or sustaining) and where it will be located.

CP planning is the hard part. This is where you list exactly who the personnel are, what specific equipment is needed and how the CP moves, sets up and sustains continuous operations.

Doctrinal manuals such as FMI 3-0.1 (The Modular Force), FMI 5-0.1 (The Operations Process), and FM 6-0 (Mission Command) broadly describe aspects of CP design such as organization, function and some administration duties. However, they don't provide the detailed TTPs on how to plan and run the CPs. An appendix to any of the above manuals, or a separate FM or technical bulletin is needed now that explains all the essential details and TTPs not only for CP design but also the hard nuts and bolts of CP planning.

## Staffing

Most will agree that personnel are the most important part of the CP. Selecting the right personnel for the right positions is the first step in building an effective team. Staffing is generally divided into two groups--personnel who

mainly work inside the CP and those who work outside the CP. Inside personnel are the warfighting function staff sections and their leaders who conduct the daily C2 of subordinate units via the COP and C4I systems. Outside personnel are the signal, maintenance, mess, medical, transportation, and other support personnel from the various companies of the special troops battalion. The STB and the chief of staff need to battle roster these personnel against the tactical command post and the main command post through periodic IPRs that account for personnel changes and rotations.

Inside personnel need to be trained on their relevant C4I systems and how their systems all interoperate with each other. Day and night shift OICs and NCOICs need to be cross trained on all relevant duties and responsibilities as well as the SOPs unique to their CP. NCOs need to attend the Battle Staff NCO Course and officers need to brush up on their combined arms and services knowledge.

Outside personnel need to be trained on how to install, operate and maintain the various support equipment such as generators, shelter support systems and other associated equipment in order to facilitate CP setup and sustained operations. All personnel need to be proficient in their basic Soldier skills and field craft such as operating vehicles, radios, weapons, CBRN equipment, and combat lifesaver/first aid to ensure they can survive and contribute to the CP with their specific skills, knowledge, and abilities.

## Equipment

For general expeditionary operations modular CPs will deploy with shelters/tents and support equipment. Buildings are great when available but in an expeditionary environment they may not always be available and the shelter is a mandatory piece of gear until hard buildings can be acquired. The Army's Standardized Integrated Command Post System is the most

common and modern system that provides rapidly deployable shelters, communications systems, and command post systems in a total package to facilitate modular CP design and planning. Project Manager Command Posts, [http://peoc3t.monmouth.army.mil/cp/cpsi\\_sicps.html](http://peoc3t.monmouth.army.mil/cp/cpsi_sicps.html), has done a fantastic job at providing a standardized CP for the Army. Today's leaders need to know the SICPS and its components just as well as they know their own warfighting function's systems. The most common shelter in use today is the DRASH shelter J and M series that have been fielded to most units for years and are now beginning an Army-wide reset.

Whatever shelter is chosen, there must be a robust maintenance system in place to keep the shelters in top condition (including contractor support and spares/tools) and all CP personnel need to be kept current on the proper setup/teardown and maintenance of the shelter equipment. The shelter is essential since it must keep the weather out, provide a low-distraction work environment, and support the CP's internal operations and interaction of the commander and staff.

## Power

Ignore power planning at your own peril. Power is the most critical factor in the modern CP simply because of the huge growth in C4I systems, lighting, projector systems, climate control, printers, audio/speaker systems, coffee pots, and the ever growing list of new electronic gadgets that the Army continues to buy and field to modular CPs. Power planning is perhaps the most arcane part of CP design to all but those trained in its use (usually maintenance and Signal personnel).

Army Communicator magazine has a terrific article that describes the basics of power, grounding, and power distribution planning, see <http://www.gordon.army.mil/ocos/ac/Edition,%20Fall/Fall%2007.pdf>,

page 24. CP power can be divided into two elements: power generation and power distribution.

Power generation systems are the Army's family of tactical quiet generators. These generally come in sizes of 3, 5, 10, 15, 30, and 60 kilowatts and can be skid or trailer mounted. Modular CPs require power plants (two TQGs cabled to a central switch box) to ensure a 24/7 uninterrupted power source.

Project Manager Mobile Electric Power has a detailed website, <http://www.pm-mep.army.mil/technicaldata/index.htm>, that shows all the power generation and distribution systems available today with supporting technical information. This website shows the difference between a skid mounted generator, a power unit and a power plant. Leaders need to know the total kilowatt power needs of their CPs at all times and what TQGs they need to bring with the CP to meet these needs. Generators need an electrical "load" of at least 50-80% or else they will begin wet stacking and eventually fail.

Power distribution systems are the collection of feeder boxes, distribution boxes, outlets, lights and all the interconnecting cables required to run the power from the generators to the various parts of the CP in the right voltages and phases of power to supply the systems. Without power distribution systems there is no effective way to tap into the full amount of power available from a modern TQG. The most effective distribution for modular CPs is the Power Distribution Illumination Systems, Electrical. See <http://www.pm-mep.army.mil/technicaldata/pdise.htm> for information on PDISE. PDISE allows effective distribution of power throughout the modular CP in a tactical environment and can withstand rugged use and handling under field conditions.

Power planning using generators and PDISE can be a difficult thing to learn, but leaders need to have a basic working knowledge of volts, amps and single or three phase power systems. The best source of expert knowledge is the Communications and Electronic Command Logistics Assistance Representative found in your local Army Field Support Brigade. CECOM LARs know the power equipment and how to best configure it to support your particular modular CP design and planning.

Leaders also need to be aware that as METT-TC drives a change in CP design it will trigger a change in the CP's power generation and distribution requirements. Having knowledge and experience in power planning will enable modular CPs to adapt to changing situations during expeditionary operations without a loss in power planning efficiency.

Today the Army has a much smarter program for modular CP power generation and distribution (called the Command Post Central Power Solution) that provides the right combination of power plants, PDISE, and the support infrastructure needed to build and sustain any combination of power generation and distribution systems for a modular command post of any size. See <http://peoc3t.monmouth.army.mil/mep/MEP.html?homeX=1400&thisX=1400&diffX=0&moveX=0> for information on the Command Post Central Power Solution.

Fielding is already underway and promises to greatly ease and enhance power needs for modular CPs in any expeditionary environment. The Special Troops Battalion S1 needs to ensure there are enough MOS 52D (Power-Generation Equipment Repairer) Soldiers assigned to each CP to install, operate and maintain the central power system for the duration of a deployment.

### HVAC

Most leaders haven't even considered heating, ventilation and air conditioning for a command post until the size and complexity of CPs have reached the point they are today. The sheer volume of computers and network equipment absolutely necessitates the need for climate control in the CPs to keep the equipment within operating temperatures. Ignore cooling modern C4I systems and network equipment during extreme heat and they will fail. In opposite extremes many computers, processors and screens won't even turn on if they get too cold.

Environmental control units are the tool for HVAC in CPs and the SICPS/DRASH systems provide sufficient ones for both heating and cooling tasks. ECUs also control the climate in network shelters that are mounted on trucks or positioned on the ground at the CP site. They also consume a

healthy amount of power. The most important ECU in the modular CP is likely mounted on one of the communication section's vans crammed full of network equipment. If that ECU goes down on a day of extreme temperatures then the network equipment goes down and with it all the C2 capabilities of the CP. S1s again need to carefully track another vital Soldier, MOS 52C (Utilities Equipment Repairer) to ensure ECUs can be maintained and repaired in an austere expeditionary environment.

### Communications

Some modular CP staff members have begun using VOIP and chat systems for their primary means of communicating. The main problem with this idea is that both of these systems work over the computer network and when the network goes down you lose these vital links. Modular CPs cannot forget to use radio systems such as FM, HF and TACSAT. These nets serve as a backup to failed network connectivity and also enhance communications with subordinate units.

To remote a wide variety of radio systems into the modular CP, the SICPS system includes the command post platform. The CPP is a HMMWV with a shelter mounted network and radio system that can be accessed and controlled via the TOCNET system. CPPs also enhance the setup and teardown times for CPs that rapidly displace during long movements or rapid mission changes.

### Special Troops Battalion

The STB cannot forget that it exists to support the manning, equipping and sustainment of modular CPs. Soldier and equipment readiness must be the highest priority at all times or else the STB is not accomplishing its mission. New modular CP equipment fielding, requisitioning and assigning critical MOS shortages, and maintenance support to vital CP systems and equipment must be the primary focus of the STB's training and operations schedules.

Modular CP leaders must also communicate with the STB leadership to identify emerging requirements, future operations and support for relocating the CP. Security, supplies and position improvement needs

(Continued on page 33)

# Knowledge management versus mitigation

By Andrew J. Mason

The prospect of what to do with information or knowledge that accumulates over time is a daunting concern for society as well as the military.

A classic approach is to follow the library model. This model is predicated around storage. A repository is established and initiates a cycle of putting items in the repository forever. Individuals who need something can then delve into the repository for information. This model works pretty well for historians but has less appeal to those who are focused on current events.

The activist perspective in today's hyperlinked society is that I want it now. The information or knowledge needs to be fresh and relevant to what I am working with. I want my information/knowledge vetted in the here and now. A key word that I don't want you to overlook is "vetted." This is a radical change for those operating in the library model.

Those resistant to change will automatically react with the hue and cry "you can't do that." This brings us to the need to expand the box regarding approaches for managing information and knowledge.

The scuffle between different schools of thought is at the heart of the knowledge management versus knowledge mitigation quandary. For the sake of discussion, let's refer to the proponents of the two major approaches as the "old schoolers" and the "new schoolers."

New schoolers embrace the tools available now while old schoolers hold on to the methodology of the past even if returns are debatable. Being a new schooler or old schooler is not age related but approach related.

Ultimately the scuffle is about awareness of new technology capabilities. Since a large number of the old schoolers are in the upper levels of management, it can be inferred that trying to extend management to information and knowledge using conventional management principles is a natural process. This staid approach is counter-productive when leadership stresses that it wants to support process and performance improvement.

Engagement is a critical factor in getting to the object state of knowledge mitigation. Social networking plays a major role in making knowledge mitigation a reality. This means that we must connect with the innovators and synthesizers. These are individuals who have apparently made the decision that they were going to do something about the conditions and challenges facing them rather than waiting. We must also provide an avenue for the sporadically inspired individuals who have a bright idea and want to make a radical recommendation but the suggestion box cannot be found. The barriers to knowledge mitigation are many and varied. Some factors stopping knowledge mitigation are:

- No one wants to deal with the issue
- Perceived cost
- Only a few people recognize the problem
- The affected party is in a remote location

- Politics
- The embarrassment created by the fact that the organization is facing the challenge
- Engaging communication is not occurring in organizations

The first step needed to embark on knowledge mitigation is to share information horizontally and vertically. This process embraces the use of e-mail, portals and other collaborative gateways that are available 24/7. Sharing information and knowledge means distributing slide presentations, trip reports, etc. in a manner consistent with the dictates of proper security practices.

Information and knowledge sharing must encompass the good, the bad and the ugly. Sharing the bad and the ugly is often by-passed to keep the organization from looking inept. We all know about the bad and the ugly in spite of the lack of openness. It has always made good grist for the rumor mill. An information and knowledge sharing organization is an adaptive organization. This enables the full range of intellectual capital to be brought to bear on any challenge. This step is not cost prohibitive. It requires commitment.

Taking knowledge mitigation to another level is tied to the use of valid needs assessment. The use of information and knowledge must be targeted to an issue that confronts the organization. Implementing a needs assessment adds efficiency to the process of identifying issues and challenges.

It is counterproductive to have an unbalanced solution that is created without a needs assessment. The needs assessment provides a framework to acquire knowledge and information to solve problems. It helps prioritize and focus the application of intellectual capital and materiel. Even in the library model, occasionally old books are discarded.

A needs assessment provides a strategic direction for knowledge management and knowledge mitigation. More detailed insight can be acquired by getting the entire organization involved.

Knowledge mitigation is taken to another level with the melding of our e-mail assets and forums. This is a radical departure from the static employment of forums that center on building the forums and hoping individuals will come.

A more effective approach initially engages the target audience by sending e-mail and detailing the issue at hand. Individuals are then directed to the forum to deliver input asynchronously or they can engage in a synchronous exchange with a facilitator. This allows access to intellectual capital based on current needs and urgency. It allows focused interaction on any topic or issue. A number of variations can evolve from this theme.

1. The e-mail can generate feedback without the forum.
2. The user can be directed to respond to the issue on the forum. The feedback can be responded to asynchronously by the facilitator.
3. The user can be directed to respond to the issue on the forum. Others visiting the forum can respond at will. The

feedback can be responded to synchronously by the facilitator.

4. E-mail to individuals can be used to broaden the scope of discussion ongoing at a forum.

The crux of this matter is that we can no longer wait for a static forum to provide returns. More importantly, we can make more innovative use of resources we have on-hand. Value to participants must be established.

The institutional training base should be more actively engaging all learners. The first tier of learners is the initial priority. This encompasses those who look to that training base as their primary source for training. This engagement can run the gamut from marketing new training materials to conducting needs assessments on a routine basis. The institutional training base must harness the involvement of everyone to improve processes and procedures. The vitality of suggestion programs must be re-established. The links to subject matter experts need to be solidified. For example, we can establish and publish an on-line directory of subject matter experts. Intellectual capital must be identified and a responsive system set up to provide timely responses to issues and challenges. Digital publications must move to the forefront in promoting accessibility.

Knowledge mitigation must become a mainstay of the knowledge management process. Mitigation has to be applied to get more active participation in the develop-

ment of solutions for issues we face every day. A key ingredient is the open sharing of information and knowledge.

The adage that "knowledge is power" must be replaced with one that espouses that "shared knowledge and information are empowering" for the organization. Harnessing the collective energy of individuals is "not a nice to have" but a "must have." This runs the gamut from collecting the successes and failures of innovators to acquiring the input of those watching from the sidelines.

Recently when I presented a point of view in a meeting someone commented, "I have not heard of anything like that in all my years of doing training development." This reaction comes automatically when one offers new information. Yet we need to plow ahead into new ways of operating and thinking.

It is time that all perspectives receive exposure and examination. The ability of the future force to reach its full capability is dependent on cognitive retooling. Renowned physicist and innovator Albert Einstein said, "The significant problems we face cannot be solved at the same level of thinking we were at when we created them."

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(Continued from page 31)

should be coordinated daily between CPs and the STB TOC. One essential technique is for key STB leadership to imbibe themselves in the CP locations for situational awareness and to help anticipate future CP requirements.

### Conclusion

The Army needs to capture, document and continually refine the detailed TTPs for how to best conduct modular CP planning so that new headquarters and staffs don't have to struggle to find solutions when building their CPs. Modular CPs need detailed planning and supervision to ensure they function efficiently for the commander and his staff and a good reference document will go a long way in helping commanders and staffs to accomplish this. Force designers need to find ways to make modular CPs smaller, more robust and more mobile so they will be better suited to future expeditionary environments. With the modern combination of SICPS, central power solutions and multiple communications packages the modular CP will serve the

Army well in future expeditionary operations across the spectrum of conflict.

*MAJ William R. Reeves is a*

*maneuver, fires and effects officer who has served for the past year as officer in charge and later executive officer of the 2nd Infantry Division's Tactical Command Post stationed in the Republic of Korea.*

## ACRONYM QuickScan

**C2** - Command and Control  
**C4I** - Command, Control, Communications, Computers, and Intelligence  
**CBRN** - Chemical, Biological, Radiological, and Nuclear  
**CECOM** - Communications and Electronics Command  
**COP** - Common Operational Picture  
**CP** - Command Posts  
**CPP** - Command Post Platform  
**DRASH** - Deployable Rapid Assembly Shelter  
**ECU** - Environment Control Unit  
**FM** - Field Manual  
**HF** - High Frequency (Radio)  
**HMMWV** - High Mobility Multipurpose Wheeled Vehicle  
**HVAC** - Heating, Ventilation, and Air Conditioning  
**IPR** - In Progress Review  
**LAR** - Logistics Assistance

Representative  
**MAIN CP** - Main Command Post  
**METT-TC** - Mission, Enemy, Terrain and weather, Troops and support available - Time available, Civilians  
**MOS** - Military Occupational Specialty  
**PDISE** - Power Distribution Illumination System, Electrical  
**SICPS** - Standardized Integrated Command Post System SINCGARS  
**STB** - Special Troops Battalion  
**TAC CP** - Tactical Command Post  
**TACSAT** - Tactical Satellite (Radio)  
**TQG** - Tactical Quiet Generator  
**TOC** - Tactical Operations Center  
**TOCNET** - Tactical Operations Center Intercommunications System  
**TTP** - Tactics, Techniques, and Procedures  
**VOIP** - Voice Over Internet Protocol

# Leveraging Web 2.0 for the 21st century

BY CPT Jonathan Pan

Web 2.0 has already redefined business, politics and society. Consider Google, Iran's elections and Facebook. National security is next according to James Jay Carafano, who wrote "Social Networking and National Security: How to Harness Web 2.0 to Protect the Country," in *Background*, No. 2273 (2009)

Wikipedia defines Web 2.0 as "a second generation of web development and design that facilitates communication, secures information sharing, interoperability, and collaboration on the World Wide Web." I call it people connecting with people. This article reveals the steps that my unit, 5th Brigade, 2nd Infantry Division, Stryker Brigade Combat Team (5/2 ID), has already taken in this emerging environment and the outcomes of Web 2.0 in a garrison environment.

Finally, I will introduce you to combat collaboration, the term that describes the use of Web 2.0 in combat.

During National Training Center rotation 09-04, 5/2 ID's electronic think tank officer in charge sent me a request for information about getting an accurate assessment of wage levels in southern Afghanistan. The ETT is a reach back cell that 5/2 ID uses to answer RFIs from the battalions with the help of many subject matter experts in our database. Within 48 hours, I obtained information that was briefed within the same time frame to the secretary of defense. This demonstrates the speed and accuracy achievable through Web 2.0.

In the first 24 hours of my search, I passed off the RFI to the Stryker's warfighter forum at Fort Lewis, searched for wages on Google and also looked on the State Department's Provincial Reconstruction Team SharePoint. Most of the results I obtained were data from the 1990's. Dissatisfied with this information, I searched my own personal network of experts that I've been building for the ETT while I've been studying Entrepreneurship at the University of Washington. One name – Barnett Rubin, surfaced in almost every query. I sent an e-mail message and found that he had a 1459 person group on Yahoo. I passed off the RFI to him and his Yahoo group. Within 24 hours, I received too much information to keep up with.

Other recent notable examples include MG Michael Oate's blog entry at <http://www.taskforcemountain.com/mountain-sound-off>, which asked, "What is the stupidest rule or policy you have seen in the Army?"

Whether or not any of these rules or policies is affected isn't the issue. I believe that the pure act of venting frustrations or even having the option to do so to their commander, a division commander at that, opened another channel of communication that senior leaders didn't have at their hands 10 years ago. There are only so many Soldiers you can talk to and only so much time to spare as a senior leader, but with one sentence and a click of a button he received 93 responses.

I want to caution these examples with a trend that I've been noticing. On April 17, 2009, Ashton Kutcher, a 31-year-old actor, beat CNN in garnering one million followers first. See the Web site <http://www.cnn.com/2009/TECH/04/17/ashton.cnn.twitter.battle/index.html>.

Every major news network has a Twitter and a Facebook site, not to mention the U.S. Central Command. Although it's been great that everyone has been willing to adopt Web 2.0, I believe that we haven't been fully utilizing it correctly. I have yet to see an active and collaborative SharePoint at the Brigade Combat Team or higher level. I find the same level of activity on the State Department's PRT SharePoint as well. James J. Carafano of the Heritage Foundation writes in "Social Networking and National Security: How to Harness Web 2.0 to Protect the Country," *Background*, No. 2273 (2009):

A 21st-century government must be able to adapt 21st-century instruments to keep the nation safe, free, and prosperous. Concerning Web 2.0, Washington's best efforts are lagging. Steps are needed now to make the government a leader, rather than a follower, in using these new technologies to both strengthen and safeguard American society. Although my efforts fall far short of strengthening and safeguarding American society, I would like to share them because they serve as a starting point of how to manipulate and exploit Web 2.0.

The greatest success we've had so far is with the eArmy Family Messaging System. The eAFMS is an alert system which works just like Twitter but in my opinion it better serves the needs of a BCT. The Brigade Special Troops Battalion of 5/2 ID did a test run during our NTC rotation. Before the battalion left for Ft. Irwin, I collected names of family members who wanted to be contacted with updates through their cell phones or emails. During the first week of NTC, the Department of Defense announced a mission change for 5/2 ID from Operation Iraqi Freedom to Operation Enduring Freedom. My battalion commander sent me a message he'd like for the families to see and we send that message out via Short Message Service text message, email, and text-to-speech phone call. Within minutes I had a graph that showed me how many recipients received the message directly (Human: 22), how many recipients did not receive the message at all (Unreachable: 3), etc.

The reason we used the eAFMS over Twitter was because of the administrative difficulties in teaching family members how to sign up for Twitter, follow our battalion account, and activate text messaging. With eAFMS, we collect alpha rosters of willing participants and upload the database or input the participants manually.

Future uses for eAFMS that I would like to see include post-wide emergency alert rosters. In the winter of 2008, I Corps of Fort Lewis determined that there were days that roads would be too icy to drive on and that only mission essential Soldiers should drive to work. However, the dissemination of that message would rarely reach every soldier in the traditional manner: phone alert rosters. Imagine that every Major Subordinate Command under I Corps had eAFMS setup and had their alpha rosters loaded in, every Soldier would be immediately alerted should the Post Commander or Commanding General decide that the roads posed a substantial safety issue. All they would have to do is click a button.

Another success story is our Virtual Family Readiness Group website (vFRG). The key to a successful vFRG or website is having active information. Both my brigade family readiness support assistant and my battalion commander

are great at keeping up with updates to keep the site from going stale. I've augmented the vFRG with three key outside components: surveys, PhotoBucket, and online forms. For surveys, I used WebQ, which is part of the Catalyst Web Tools of the University of Washington. You can use SurveyMonkey or any other free survey site listed on Google. Surveys are a powerful assessment tool for commanders. In the near future, I would like to see command climate surveys conducted online on the BCT's website instead of transporting companies or battalions to designated areas.

As for PhotoBucket, the reason I used that instead of the vFRG's own data storage is because of the ease and data capacity of PhotoBucket over vFRG. I recommend every BCT open a free account on PhotoBucket, Flickr, or any other similar site, because of the large nature of media files these days. Online forms are nothing new but I wanted to mention how we are using them. We created "Spouse Leave Forms" which spouses can fill out online and they are automatically forwarded to the Rear-Detachment commander, first sergeant, and brigade family readiness support assistant. This way, the rear-detachment can keep their database up to date and contact spouses in case of emergencies.

Utilizing Web 2.0 in garrison has been a success but I'd like to match that success in combat. Combat Collaboration exists in one form or another but I would like to see it in the form of Company Command or Platoon Leader. Both of these sites run off of Tomoye Ecco and it would be a boon to have a Company Command on the unclassified or classified network. Imagine having company commanders, or even team leaders, collaborate for a few brief minutes after every patrol and the amount of data that would be generated if that became part of their standard operating procedures. Now imagine collaborating with the Marines, the Brits, the Canadians, and all other elements of Regional Command South on building Tactics, Techniques, and Procedures free from the bureaucratic channels in each of their units. This would truly be connecting with the right minds on the right issues at the right time.

The measure of power in warfare or business today is connectedness. This is a common feature in every application or website that has been mentioned thus far: gathering wage levels in southern Afghanistan with 5/2 ID's Electronic Think Tank and Barnett Rubin's Yahoo Group, the 10th Mountain Division Commander's blogs, Twitter, alerting families with eAFMS, timely updates on the unit with vFRG, Catalyst Tools, PhotoBucket, Flickr, and Combat Collaboration with Tomoye Ecco (Company Command). Anne-Marie Slaughter writes in "America's Edge" Foreign Affairs, Vol. 88, No.1 (2009).

Consider the experience of Li and Fung, the world's largest and most successful export sourcing company. Its clients are retailers of virtually every kind of product known to man, or at least made by man. The job of Li and Fung is to identify suppliers from over 40 countries around the world and connect them in order to fill specific orders. The resulting networks must be fast, flexible, and able to work to a common high standard. According to William and Victor Fung, two of the current owners of the family business, the secret of sourcing is 'orchestrating networks.' It is the managerial equivalent of creating a system in which one can select a destination on a Paris metro map and see a possible route light up with a connecting web of differently colored lines -- except, of course, that riders at each station might have their own ideas about how best to travel.

The Defense Advanced Research Projects Agency made the Internet. It is only right that the Department of Defense should be the first to properly exploit it. Let's apply to national security the lessons learned from Web 2.0's effect on business and politics. It's a different kind of fight but we are up to the undertaking. West Point recently had a cyberwar games that was detailed in an article by Corey Kilgannon and Noam Cohen "Cadets Trade the Trenches for Firewalls" New York Times, May 11th 2009. In the exercise cadets defended their network from hackers from the National Security Agency. The secretary of defense recently ordered the creation of a cyber command. I challenge leaders from the platoon to the BCT level to understand, engage and leverage Web 2.0.

Update from the Field

This article was originally written in April 2009. Nine months later, I've actually had the pleasure of seeing Web 2.0 used both in the rear-detachment as well as in combat. In the rear, every battalion family readiness support assistant has done a wonderful job of updating battalion vFRG sites. The biggest success has been the eAFMS which has over 3,000 registered users (over 60% of the Brigade) and 150 messages sent since its inception.

As far as combat collaboration, the Battle Command Knowledge System has since implemented Tomoye Ecco on both the unclassified and classified networks. 5/2 ID is currently implementing a February Collaboration Session on the classified side. LTC Patrick Gaydon, Brigade Special Troops Battalion commander, writes: "Task Force Stryker (5/2 ID) is a thinking, learning, and adapting organization. After operating for over six months in combat in southern Afghanistan, Soldiers of TF Stryker have gained a tremendous level of experience. Soldiers know which tactics, techniques, and procedures work, which do not work, and have ideas about TTPs that might work. For the entire month of February 2010, Task Force Stryker will conduct an online collaboration session to develop innovative TTPs. Based on available resources, some of the resulting innovative TTPs generated during the Jam session will be implemented across the formation during the second half of our deployment."

Soldiers want to voice their concerns and this is an opportunity to voice their concerns directly to the Brigade Commander, who has directed that every idea will be explored regardless of perceived possibility.

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## ACRONYM QuickScan

**5/2 ID** - Brigade, 2nd Infantry Division, Stryker Brigade Combat Team

**eAFMS** - eArmy Family Messaging System

**BCT** - Brigade Combat Team

**ETT** - Electronic Think Tank

**NTC** - National Training Center

**PRT** - Provincial Reconstruction Team

**RFI** - Request for Information

**TTP** - Tactics, Techniques and Procedures

**vFRG** - Virtual Family Readiness Group

# Brigade S6—the Army's

By MAJ Val Aquino

This is how a typical day goes for the brigade combat team Signal officer in theater.

The brigade commander enters the tactical operations center and sits in front of his command post of the future machine to get a situation report on the in-direct fire attack on the forward operating base. He sees the map, points at the IDF icon to read specifics about the five rounds that just impacted the FOB. He is furious about the attack and looks up at the Aerostat live feed and tells the S2 representative to scan the area. The air defense air management cell immediately informs the commander that they have located the point of origin site. He looks at the Shadow live feed and tells the S2 operator to go to the POO grid.

The S2 operator sends an internet relay chat message to the Shadow unmanned aerial vehicle operator, the Shadow operator acknowledges, and the Shadow moves to the POO location. The commander sees two people running to a truck and two rocket rails sitting in the open. The commander places the crew access unit headset on his head and uses the frequency modulation radio to contact the adjacent battalion to send a quick reaction force to identify and engage the enemy. The enemy is located and neutralized. The battalion commander calls the brigade commander on the SIPR voice over Internet protocol phone to tell him that one truck and two enemy combatants were destroyed. The brigade commander bangs his desks with a hooah of pleasure and types up a SIPR e-mail to the division commander about what just occurred. He tells everyone in the TOC that they were instrumental in the neutralization of two enemy combatants and praises the TOC for a job well done while the communications section is in another room monitoring the network. The brigade commander communicated effectively and decisively due to the communications systems that were setup by the brigade communications section.

The brigade S6 section combines an automations, network operations, combat net radio, and communications security section under one consolidated communications shop and under one major—the brigade S6. The brigade combat team S6 job is the most challenging major position in the Signal branch, but it is the most rewarding Signal job because the communications services that are provided are so critical that no one in a Brigade TOC can conduct their duties without the services and technical expertise that is provided from the Brigade S6 shop.

The brigade Signal S6 job deals with almost every Signal asset found in a division and a corps but with a third of the people. The brigade S6 must be able to manage a team of communications specialties without the in-depth knowledge of each section. This leader must know enough about the capabilities and constraints of each section and be able to integrate them to accomplish the assigned task. The following topics breakdown what each section in the Brigade S6 shop does and provides some insights on how to manage each section.

## NETOPS

Network Operations or NETOPS is a sore subject for many brigade S6s. Each division, brigade, and brigade special troops battalion manages them differently. They are assigned by modified table of organization & equipment in an infantry brigade combat team to the C Company BSTB; the Signal company. They are manned with 10 personnel from C company BSTB; five for the NETOPS, two for COMSEC, and three for information assurance. The NETOPS is managed by a 250N warrant officer. The focus of the section is to ensure wide area network connectivity. The section manages the installation, operation, and maintenance of the joint network nodes, command post nodes and any other line of sight or satellite assemblages within the BCT. In Multi-National Division-Baghdad we had AN-50s, Harris 7800s, high capacity line of sight, and HCLOS V6 radios. In other MNDs in Iraq they ran mainly on satellite systems and few LOS assemblages.

This NETOPS section needs to know all movements regarding the WAN and be able to troubleshoot all WAN issues. All issues are solved at the lowest level. In MND-B, we had SIPR and NIPR down to the company level. Company communications specialists would try to fix the issue first and report statuses to the battalion. Battalions would run a program called simple network management protocol to track all assemblages under their control. The brigade calls the battalions after a shot is down for more than 15 minutes and asks for a status and provides assistance as necessary. If the NETOPS NCO cannot fix the issue, the warrant officer will step assist. If the warrant officer cannot fix the issue, the General Dynamics representative that is embedded in the BCT will assist. We used the portal to track outages and reasons for outages in order to see trends in the network.

This section also has an E-7 25E battlefield spectrum manager. This NCO is the NCOIC of the NETOPS section but specifically works frequencies within the brigade. This manager works with NET IDs, single channel frequencies, communications cards and driver maps. Communications cards have challenge and passwords as well as call signs for each unit or individual. The driver map is a one page PowerPoint slide that shows how to talk to the land owner when you are in the operating environment. We placed the NET ID, call sign, blue force tracker role name, and secure voice over Internet protocol phone numbers on the drivers' maps to ensure visitors know how to contact the land owning unit in case of emergency.

Managing the NETOPS section is difficult due to the section having two control authorities. The warrant officer is the network technician for the brigade WAN but is rated by the Signal company commander. During deployments or field time the warrant officer works for the brigade S6 ensuring the network is operational. At times, there are conflicting priorities from BSTB versus brigade but you must be able to establish a good working relationship between the Signal company and the brigade S6. There are

# most demanding major job

disagreements, but one priority is always on the top of the list—ensuring the brigade can communicate. This means doing whatever is necessary to get them talking.

## Signal Company

The Signal company has two JNN platoons and a headquarters platoon. The JNN platoons' job is to provide the WAN backbone, ensure the shelters are operational, and run the call manager. The JNN platoons also took on the role as VTC operators. JNN platoons come with battlefield video teleconferences that are hardly ever used. While deployed the JNN platoons were split to provide connectivity to the brigade TOC and tactical command post. Each JNN platoon was the hub for three separate battalions. The outlying JNN platoon also monitored all links. They were like a small NETOPS section. The NETOPS section is part of the C company headquarters platoon. C company would focus its efforts on checking CPNs and WAN assemblages and pushing equipment and FSR support to battalion locations. The company executive officer coordinates the logistics moves but asks for assistance from brigade S6 if items could not be moved in time. The Signal company also conducted site visits to ensure equipment was properly grounded and fitted with adequate cooling mechanisms. They visited other Signal paratroopers and provided them site improvement recommendations. Key trends were briefed during the weekly S6 breeze sessions. One week was devoted to NETOPS where Signal company members would highlight issues such as systems overheating, support requests or procedures for reporting to NETOPS.

To ensure that the Signal company knew what was going on in the brigade, I had daily meetings each with all the S6 sections as well as C company where we would discuss the latest relief in place or moves throughout the network. The Signal company would always know what was going on and be able to plan without waiting for official orders from brigade. We had so many RIPS that waiting on the order would mean they would only have a few days to execute. It is imperative to have a good working relationship with the Signal company. Although the brigade S6 does not rate any Soldiers in C company, the Signal company executes all communications missions as dictated by the brigade S6. Because all the missions and RIPS were jointly planned by NETOPS, the Signal company commander, and the brigade S6, everyone participated in facilitating a solution.

## Automations Section

The brigade automations section is in charge of the local area network, help desk operations, information assurance, and all the servers. The automations section is assigned four paratroopers to run the servers and the help desk. The IA section comes from C company BSTB and consists of two Soldiers and one NCO. The functional area

53 captain (Automations Officer) runs this section.

The servers are the heart of the automations section. We ran 35 servers which included a domain name server, domain, exchange, Windows server update services, Symantec anti-virus, Adobe Breeze, print, and CPOF mid-tier servers. We ran these servers on the SIPR network and also had DNS, domain, exchange, WSUS, and SAV servers on the NIPR network. We had a main TOC package which included the portal or Microsoft Office SharePoint Services and a TAC package with a NIPR and SIPR DNS, domain, and exchange server. This TAC package was split with the other JNN. Since the outlying JNN was like a hub, putting the servers at this central location alleviated the congestion of traffic going to the main TOC. The inter-nodal connection between the JNNs was up to 16MB to ensure servers could replicate with each other.

Every customer used these servers on a daily basis so the servers had to be in pristine condition. The server architecture is handled by the automations officer. This officer is trained to build and run these servers. The AO provides guidance on the best way to run the architecture. My AO built clusters for e-mail that allowed the e-mail exchange to automatically failover to the exchange 2 if there were issues. The AO built virtual servers that allowed multiple servers to run off one machine. The AO also took on the task of replicating the portal for redundancy at two different locations.

Another key section in Automations that is often overlooked is the IA section. The IA section provides defense for the network. This is one of the brigade S6 battles. Just like an infantryman builds fighting positions in depth, the IA section does the same thing in the virtual realm. There is a Corps wall called "Bluecoat" that restricts users from accessing specific sites. Division installs firewalls to prevent outside users from accessing the network. The brigade IA section manages the individual user computer and ensures patches and anti-virus updates are pushed to every computer in the network. The BCT handles over 1000 machines and conducting remediation on each machine is time consuming. The IA section uses LANguard and WSUS to assist in pushing out patches. The IA section must also ensure every single user has an updated IA certificate and a valid user agreement. These items give the user a "license" to be on the network.

The other key portion of the automations job is help desk operations. This team provides courteous, professional service directly to individual users. As the BCT sets up communications, the help desk team assists in reimaging computers, setting up e-mail and user accounts, and conducting IA remediation. The IA team members usually assist with help desk operations when IA remediation is low. We used the portal for user trouble ticket input. This allowed all users to track service requests status and it ensured no request was misplaced. Computer and server issues were handled by the help desk, while SVOIP phone

issues were handled by the JNN. Since the JNN platoon controlled the call manager or the trivial file transfer protocol server, they fully controlled all phone numbers. The automations NCOIC was responsible for all help desk operations and ensured all users were receiving service promptly. If phone or computer lines needed to be run, the NCOIC would coordinate with the Signal company to borrow the 25L or "Cable Dawgs" to assist in running lines.

### **COMSEC**

Communications security handles all encryption keys within the brigade. This also includes the top secret keys needed by B company BSTB which is the Military Intelligence company. This section is run by an E-7 and an E-6 but is supervised by the 254 warrant officer. It is important for the COMSEC account to be TS and the Soldiers to have a TS clearance to be able to pull all required keys for the brigade. A brigade should be self sufficient and should be able to run all communications independently. The COMSEC account owns a local COMSEC management software workstation that allows the Brigade to pull COMSEC keys directly from the communications security logistics agency. Although the authorized MOS is a 25B, we have found that 25Us make the best COMSEC custodians. COMSEC deals with FM keys, TACLANE keys, load sets, and simple key loaders. Management of these items are familiar to many 25Us where as 25Bs hardly ever deal with these items.

### **Combat Net Radio**

The combat net radio section is not an authorized section for the brigade. We pulled the authorized 25U slots in the command and the S3 section to create the CNR section. Without these additional troopers, the brigade would only have the brigade S6 NCOIC and an E-5 to handle Blue Force Tracker issues, FM radios issues, COMSEC changeovers, retransmission oversight, tactical operations center intercommunications system issues, single channel tactical satellite setup, high frequency setup, as well as conducting communications checks for the command group personal security detachment teams. It would be an extremely difficult job for one E-5. The CNR section also took on the responsibility of the global rapid

response information packages. Since many 25Us end up needing to learn 25B skills, this was one way to ensure their 25B skills stayed sharp. These systems were purchased for the company fusion teams but were not heavily used due to companies already having LOS assemblages down to the company level. Instead we used them for temporary missions such as a small deployment TAC. This GRRIP system provides SIPR capability anywhere using broadband global area network technology. It is located in a small suitcase weighing only 27 pounds and for a light airborne infantry BCT, it is well suited for use in an airborne jump. This CNR team managed the public address system. We conducted multiple high visibility transfer of authority ceremonies, Iraqi ceremonies, commander's conferences, and historic FOB closure ceremonies.

### **Brigade S6 Job**

The job of the brigade S6 is to integrate the Signal company, NETOPS, automations, COMSEC, and CNR sections to support the brigade with communications. The brigade is self sufficient and can run as a standalone entity without the division. This means the brigade has every communications asset a division has. While deployed the division usually moves into a pre-established foundation of servers, CAT-5 lines, antennas, phones, and computers. The BCT usually sets it all up from scratch. A plan, in conjunction with the S3 SGM, must be made where everyone in the TOC works. The automations section and cable dogs wire up a TOC from scratch using approximately 20 boxes of CAT-5 cable including RJ-45s on every single end. The servers must be registered in theatre so everyone in the world knows where the BCT portal is. All computers are base lined and setup to use the BCT domain and policies. Anti-virus protocols are set to comply with IA. Every JNN and CPN must be setup to provide service to the HQ. All routers and switches must be configured. VOIP phones must be setup in the call manager and dialing patterns must be established. FM and RETRANS must be setup throughout the operating environment. These tasks are easy to discuss but everything must be synchronized by the brigade S6 to get this to work. With tasks directives from eight field grade officers in division G6 and requests from six battalion S6s, this a monumental responsibility.

As the BCT S6 there is little glory in

the job. As long as all communications are working everyone is happy. As soon as something breaks, your commander, staff, and other users will rain down complaints on the S6 section. You must trust and train your sections to operate with little guidance and keep your focus on the bigger overarching picture of the brigade. Your mission is to keep communications up and to support the Warfighter. Be cautious to never over-promise. You must consider the limitations in the WAN and LAN.

The planner for the S6 shop is the srigade S6. No one in the S6 shop has as much planning experience so the burden falls to the brigade S6. The brigade S6 attends all military decision making process sessions and develops communications plans as necessary. When planning you must rely on your 250N and 254 warrant officers, 53 captain, and E-8 NCOIC to give you advice on how to handle the situation. The 254 warrant officer is a technical expert on 25U tasks as well as a technical expert on automations tasks. Due to the shortage in 53 CPTs we used the 254 as our server manager. The 254 warrant officer stood up all the servers and ensured they were ready for JRTC and deployment. The E-8 is a 25U and knows the intricate details on tactical communications such as FM, TACSAT, RETRANS, and BFT. WAN questions are moved to the 250N to ensure the plans are feasible. During one of my morning meetings with all the key S6 sections and C company we discussed future plans. Armed with this information, the brigade commander's intent, and the mission, the brigade S6 can create the master communications plan for that event.

As the brigade S6 you are also the operations officer for the S6 shop. You will prioritize what needs to be done and ensure the sections are meeting goals. As the paratroopers learn their jobs and what is expected, they will not need as much prodding and pushing to get the mission done. We co-located the automations, NETOPS, COMSEC, and IA sections in one big room in order to force crosstalk. Everyone knows their daily duties but I periodically checked the section throughout the day to ensure things were on track and they were focusing on the right priorities. I also used this time to get an overall assessment of the shop and see how things could be improved. During day-to-day operations an S6 will encounter many communications issues that will go beyond your knowledge. About 80% of the job is fixing communi-

cations issues. During my morning briefs we would discuss specific communications issues that were taking longer than usual to fix. You will find that the brigade LAN and WAN specialists tend to blame each other for issues. We had an issue with Breeze running on our network that took us two months to fix. It started off with the NETOPS section indicating it was a Breeze server issue and the automations section saying it was a WAN issue. Individuals from both sections reported that they believed the other section was handling the issue. It took weeks of troubleshooting, visits, and bringing each section together to narrow down the cause of the problem. It turned out that Corps had a firewall that was blocking a specific port to our servers. By understanding the division and BCT WAN architecture and the Breeze server functionality, it assisted in solving the problem. The brigade S6 must have an intimate knowledge of the WAN and LAN to be effective at problem solving.

### **Building the Team**

Integrating the brigade S6 section was not an easy task with only one year before the next deployment. Upon redeployment all equipment will be turned in for reset. This includes servers, JNNs/CPNs, radios, COMSEC and Army Battle Command Systems computers. Without the equipment to train on we focused on individual training and scheduled several classes for the paratroopers. For the automations section we scheduled two months of Microsoft block training and additional automations classes such as MOSS 2007, SharePoint Designer 2007, and Server 2008. We also sent 25Bs to CPOF, CPOF Admin, and Maneuver Control System training. Although they did not get all the appropriate training we would have also liked to train on Breeze, virtual server, active directory, and information assurance. For the Combat Net Radio 25U personnel we sent them to digital master training for BFT, unit level maintenance for BFT, user training for BFT, Harris radio training, GBS, Tier 2 TOCNET, deployable rapid assembly shelter /command post platform training, and TMSS training. All this training helped the paratroopers hone their individual skills.

After individual training we moved to crew or team/section training. At this time reset equipment began arriving. There were internal hands-on training on building servers, testing on CPPs, and even a Signal communications exercise to test out the JNN and CPN specialist. We

received air time from the Fort Gordon hub and while the joint network transport capability assets were up we stood up the servers through the JNN in order to register them with Defense Information Systems Agency. We then conducted collective training and executed digital exercises, tactical operations center exercises, and a mission readiness exercise at the Joint Readiness Training Center with the BCT in order to validate all communications equipment and ensure they were all talking to each other. These BCT exercises tested the skills of the S6 section and provided us the opportunity to create better techniques tactics and procedures and standard operating procedures that were used during deployment to Iraq.

### **Best Brigade S6 Practices**

There were numerous challenges that we went through. We developed TTPs and SOPs through trial and error while under fire. These are some of the key TTPs.

1. Throughout your time as the S6 you will find that no one in the BCT knows your job better than you. As the senior Signal officer you must be able to convey what you are doing to the brigade commander who is an O-6 infantry officer. The commander may not easily grasp routing issues or solar conjunctions or that all communications will not be up in one day. We went through some difficult RIPS, e-mail crashes, and portal rebuilds that hindered operations. On another note, this unneeded attention does make your commander realize the importance of your job. To be able to explain the situation you must really understand digital flow. You must know the theory behind the technology and know the problem flow that stretches through the WAN and LAN including IA and COMSEC. Spend time really learning exactly what each section in the S6 does, how they do it, and why they do it that way.

2. NCO and officer transfers should be recommended by the brigade S6 section. The brigade S6 will be the most senior communications officer in the BCT and the brigade S6 NCOIC will be the most senior communications NCO in the BCT. Signal enlisted moves should span throughout the battalions, brigade and C company. The brigade S6 NCOIC must look at the MOS, time in the position, PCS moves, future development, and impact to the unit. One recommendation is to rotate the Signal

Soldiers throughout the brigade in order to understand how the brigade operates and to gain maximum knowledge from numerous NCOs. As an example, 25Bs at the Signal company learn about routers, 25Bs at the brigade learn about IA and computers, and 25B at battalions learn both jobs. As for officer moves, 2LTs in the Signal field will learn the most out of a battalion S6 job as long as the NCOIC is sharp. This NCOIC will train the 2LT on all aspects of communications and will make the young officer well-rounded in Signal.

3. During JRTC the pace of operations and plans was so intense that the Brigade S6 was constantly lagging behind current operations and plans. One tactic we used to help meet the overwhelming pace was to make the lieutenants in the JNN platoons battle CPTs in the NETOPS. These lieutenants received priorities from the brigade S6, track them, and ensure the sections were working each task. This helped focus each section while also broadening the officers' knowledge about communications.

4. Knowledge Management is a buzz word from all commanders but it is often misunderstood. It is displaying information so that everyone will know and understand how to get it. Knowledge management is built on a triad of people, process and technology. The people are managed by the knowledge manager. The brigade S6 is not the knowledge manager. This is usually someone from the brigade S3 section who has tasking authority over everyone else. The knowledge manager will tell the users where and when to place information. The process is figuring out how people will post the information. This requires building a flow chart of how the information will move. The process must be outlined before the technology is brought into the scheme. The technology is where the S6 comes into play. The S6 53 automations officer will provide the MOSS server. MOSS provides a tremendous technological platform in which users can manage their own content and the organization can draw knowledge from it. The S6 automations officer assists in developing special web parts for each section in order to better showcase their products. We only use a fraction of what MOSS capabilities. Collaborating in a virtual environment is the wave of the future.

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5. We used the portal to track trouble tickets and outages. Tracking all trouble tickets on the portal allows users to quickly bring up issues and ensure no tasks are overlooked. We added phones, BFT, and ABCS/contractor trouble tickets on the trouble ticket tracker to ensure all issues are handled. As outages occur, the NETOPS personnel place the outage time and reason for outage of the assemblage. As troubleshooting continues, it is updated and closed once the outage subsides. I use the Alert Me feature that sends me an e-mail whenever there is an outage.

6. While deployed the brigade S6 sections must consider who will remain upon redeployment. Many troopers go into a permanent change of station as soon as they get back from a deployment. Since the S6 field is so technical, it is imperative that the brigade S6 assess who will be left behind and what type of training the Soldier/NCO needs. You cannot expect someone to come in with as much experience from another

unit so you must train the people that will stay. We looked at continuing education while deployed. We used the Kuwait Coalition Forces Land Component Command Signal University and the Victory Base Camp Signal University run by Corps to get additional training for Soldiers. The brigade S6 NCOIC was the POC for this and ensured there was still coverage for the shop. This training was also extended to the Signal company and battalions. Once the network is operational you must look at preparing the next team.

7. Automations training was difficult back in garrison. Many NECs run all servers and only allow the S6 automation section to put in trouble tickets. Resetting accounts, running CAT-5 cable, and setting up switches were not done on a daily basis but only during field exercises. Some posts allow units to setup tactical networks on the garrison SIPR. Some even allow BCTs to stand up their BCT servers. This is highly recommended because it allows the automations Soldiers to still

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## Joint basing coming to you

By LTC Frederick R. Carlson

Don't be surprised if in the not too distant future you go to your IT provider on an Army garrison and find that they work for the Air Force or the Navy in a joint basing arrangement.

Joint basing is a term you will hear more about as the Department of Defense realigns garrison structures to meet Base Realignment and Closure mandates.

The BRAC law assigns one service as the lead agency for a group of joint bases. Some of the joint bases will be led by the Army, some by the Air Force and others by the Navy. The BRAC law mandates that the DoD will manage bases jointly by FY11. The DoD is planning a more aggressive implementation. OSD plans to implement this earlier than 2011 in order to capture the cost savings earlier. Managers in the DoD indicate that joint basing will create efficiency and eliminate redundancy between military posts.

The functions rolled up under joint basing include command support operations like safety and public affairs, and natural and built environment functions such as public works and housing.

Other functions aligning under the joint base will include community services and morale programs, such as police, fire, chapel, youth activities, lodging and dining facilities, and

resource functions like supply, transportation, finance and information technology.

The communication services provided by our NECs are just one part of the joint basing effort. All support operations are consolidated under this construct.

This effort has significant implications to affect how we provision and support communications to garrison activities. Some Air Force bases won't hand over everything to the Army. Officials are weighing the best practices for each issue and deciding whether the Army or Air Force should take the lead.

The implications to communications support are difficult to measure, given that the final decisions for the execution of this realignment are awaiting approval at the Pentagon. It seems clear that joint basing will have to be planned very carefully and integrated with the Army Single NEC Action Plan.

The 7th Signal Command is looking at three of these joint basing efforts in significant detail: Texas installations Fort Sam Houston, and its merger with Lackland, Kelly and Randolph Air Force bases; Washington installations, Fort Lewis and its merger with McChord AFB; and a massive effort in the Virginia Tidewater area between Fort Story, Fort Eustis, Langley AFB and Norfolk Naval Base. The other joint basing efforts of interest to the command are the McGuire AFB, Fort

Dix and Naval Air Station Lakehurst merger in New Jersey.

Each one of these efforts is unique and very much in flux as to how the divisions of responsibilities will play out. This makes for a complex dynamic, particularly when you correlate the joint basing criteria with ongoing Army efforts like SDAP and the building of the Global Network Enterprise Construct. The scope of the impact of these efforts is still ongoing and will become clearer when the final guidance comes from the DoD.

Officials at all of these locations were waiting on guidance from the Pentagon on whether they would be part of Phase 1, which was set to be complete by October 2009, or Phase 2, which has a completion date of October 2010.

*LTC Frederick J. Carlson is chief of plans and engineering at 7th Signal Command headquarters at Fort Gordon, Ga.*

### ACRONYM QuickScan

**DoD** – Department of Defense  
**GNEC** - Global Network Enterprise Construct  
**IT** – Information Technology  
**OSD** – Office of the Security of Defense  
**NEC** – Network Enterprise Center  
**SDAP** - Single DOIM Action Plan

manage their servers. It allows them hands-on time as well as IA time. Because it is the BCT network, the BCT will have to ensure it meets all IA compliance standards.

### Conclusion

The brigade S6 job requires majors with technical, tactical and personal skills. It is a job that demands mastery of a WAN, LAN and tactical communications. You must fully understand the job of the NETOPS, Signal company, automations, COMSEC, and CNR sections and know how to integrate them all. This position calls for a balance between great customer service orientation and knowing the network limitations. Adaptability is critical since communications technology is constantly evolving. You will often have new servers, new operating systems, new radios, and new compact SIPR systems to integrate into your network. It is an awesome responsibility to know that every phone call, e-mail, and keyboard punched is because a brigade Signal Soldier has setup that communications system. Although there is little glory in the job, without your communications section no one in a TOC

could function. Any major willing to take this job on will be immersed in all aspects of Signal communications. I believe it is the most demanding Signal major job in the Army. It tests any communicator's skills. I challenge all Signal majors to take this job opportunity to really experience how warfighters communicate.

*MAJ Val Aquino is currently the brigade S6 for 3rd Brigade Combat Team, 82nd Airborne Division "Panthers" and is deployed to Multi-National Division Baghdad in Iraq. He commanded with a strategic Signal battalion Head Quarters & Headquarters Detachment, 69th Signal Battalion and worked as the G6 planner at 1st Infantry Division. He was the G6 planner, Signal officer for the division TAC, and the G6 NETOPS battle captain at 2nd Infantry Division in Korea from May 04 to May 06. He also served as the G6 C4 support officer and the rear detachment G6 for 82nd Airborne Division from June 06 to May 07. He deployed to Iraq with the Panthers for six months, redeployed with the unit, conducted train-up and deployed again after 12 months at Fort Bragg, N.C. He can be reached at [valero.aquino@us.army.mil](mailto:valero.aquino@us.army.mil).*

## ACRONYM QuickScan

**2LT** - Second Lieutenant  
**ABCS** - Army Battle Command Systems  
**ADAM** - Air Defense Air Management  
**BCT** - Brigade Combat Team  
**BFT** - Blue Force Tracker  
**BGAN** - Broadband Global Area Network  
**BSTB** - Brigade Special Troops Battalion  
**CAU** - Crew Access Unit  
**CFLCC** - Coalition Forces Land Component Command  
**COMMEX** - Communications Exercise  
**COMSEC** - Communications Security  
**CPN** - Command Post Node  
**CPOF** - Command Post of the Future  
**CPP** - Command Post Platform  
**CSLA** - Communications Security Logistics Agency  
**DNS** - Domain Name Server  
**DISA** - Defense Information Systems Agency  
**DRASH** - Deployable Rapid Assembly Shelter  
**FM** - Frequency Modulation  
**FOB** - Forward Operating Base  
**GBS** - Global Broadcasting System  
**GRRIPS** - Global Rapid Response Information Package  
**HCLOS** - High Capacity Line of Sight  
**HF** - High Frequency  
**IA** - Information Assurance  
**IDF** - Indirect Fire  
**JNN** - Joint Network Node  
**JNTC** - Joint Network Transport Capability  
**JRTC** - Joint Readiness Training Center  
**KM** - Knowledge Management  
**LAN** - Local Area Network  
**LCMS** - Local COMSEC Management Software  
**LOS** - Line of Sight  
**MCS** - Maneuver Control System  
**MDMP** - Military Decision Making Process  
**mIRC** - Internet Relay Chat  
**MND-B** - Multi-National Division Baghdad

**MOS** - Military Occupational Specialty  
**MOSS** - Microsoft Office SharePoint Services  
**MRE** - Mission Readiness Exercise  
**MTOE** - Modified Table of Organization & Equipment  
**NEC** - Network Enterprise Center  
**NCOIC** - Noncommissioned Officer in Charge  
**NETOPS** - Network Operations  
**NIPR** - Non-secure Internet Protocol  
**PA** - Public Address  
**POO** - Point of Origin  
**PSD** - Personal Security Detachment  
**RIP** - Relief In Place  
**QRF** - Quick Reaction Force  
**RETRANS** - Retransmission  
**SAV** - Symantec Anti Virus  
**SCTACSAT** - Single Channel Tactical Satellite  
**SIPR** - Secure Internet Protocol  
**SITREP** - Situation Report  
**SKL** - Simple Key Loader  
**SNMP** - Simple Network Management Protocol  
**SOP** - Standard Operating Procedure  
**SVOIP** - SIPR Voice over Internet Protocol  
**TAC** - Tactical Command Post  
**TACSAT** - Tactical Satellite  
**TFTP** - Trivial File Transfer Protocol  
**TMSS** - Trailer Mounted Support System  
**TOA** - Transfer of Authority  
**TOC** - Tactical Operations Center  
**TOCEX** - Tactical Operations Center Exercise  
**TOCNET** - Tactical Operations Center Intercommunications System  
**TS** - Top Secret  
**TTP** - Techniques Tactics and Procedures  
**UAV** - Unmanned Aerial Vehicle  
**VBC** - Victory Base Camp  
**WAN** - Wide Area Network  
**WSUS** - Windows Server Update Services

# Making relevant training available worldwide

By Directorate of Training staff

The Signal Center of Excellence Directorate of Training staff have made great strides in making relevant, cutting edge training available to the entire Army worldwide.

The LandWarNet eUniversity has expanded its sphere of influence in the area of on-line training.

A local platform now exists where resident course students receive superior Battle Command training. Now the level of Battle Command training currently conducted at the SigCOE is similar to training of-

ferred exclusively by CAC-T facilities.

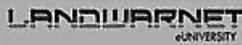
## LandWarNet eUniversity

LandWarNet-eUniversity is the Signal Regiment's on-line training capability that supports the training for Soldiers anytime, anywhere. LandWarNet eUniversity supports the professional development of not only Army personnel but Joint, Interagency, and Multinational students as well. The LandWarNet portal serves as the starting point for many uses. It is the on-line training portal for Soldiers and leaders to access training, training support

materials, simulations, reference material, forums, news and information. The eLearning blackboard delivery platform provides MOS producing and unit sustainment training via interactive courseware. The extension campus provides the on-line presence and staff that support Signal training taking place beyond the school house campus of Fort Gordon. The extension campus encompasses unit universities, RC MOS-T Training, MTT and NET training support.

## eUniversity Portal

The LANDWarNet eUniversity Portal



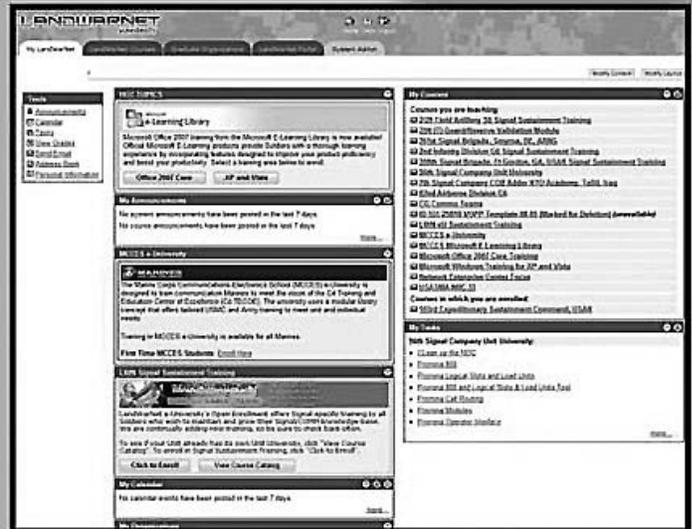
## LandWarNet eUniversity Overview



[lwn.army.mil](http://lwn.army.mil)



LandWarNet Portal  
"Main site"



LWNeU Blackboard  
"Courses"

# LandWarNet eUniversity Portal



Training News



Downloads



Technical Forums



Training Tools

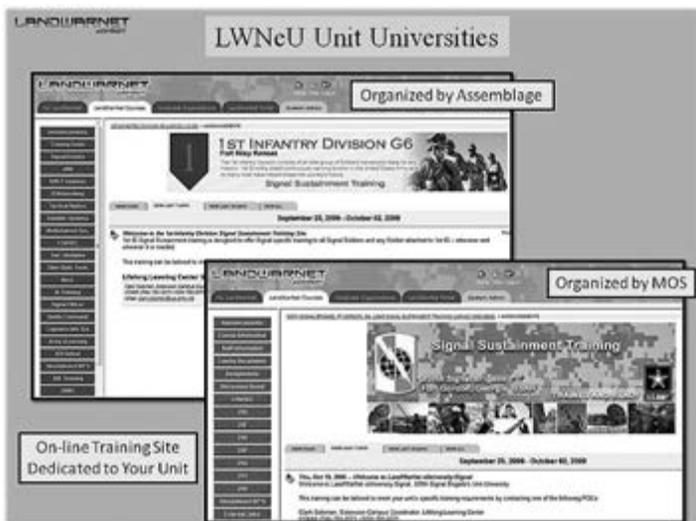
serves as the entry point for many services including:

- Is the central home for the Army to access Signal training.
- Provides information and links to what's new in Signal digitized training.

- Provides access to downloadable training materials.
  - Provides access to Technical Forums for collaborative discussion with peers and subject matter experts.
- The Download Repository is part of the LWNeU portal and provides storage and delivery of standardized proponent training products and technical content, including training SIMs and CBTs. The repository hosts over 650 downloadable products including 26 high-end simulators and over 100 computer-based training products. The download repository also provides the Regiment with a capability to upload training products and information produced by individual Soldiers and units.

## LWNeU Unit University

The unit universities are created and administered by LLC personnel at Fort Gordon. Unit universities are uniquely designed for each unit with unit requested training. Universities are branded with unit graphics and/or logos. Unit universities contain training products and courses tailored to each unit's training requirements; providing sustainment training on Signal MOSs, information technology and communications equipment. Incorporated into every unit university are tools for leaders to manage and monitor the progress of the unit's training down to the



individual Soldier level. Unit universities are loaded with the most up-to-date training available. Each unit university is different and organized according to the commander's training intent and the unit's training requirements. Unit training staff members have full control over what content is loaded to their university. This allows the training staff or commander to focus training on specific tasks or missions during the ARFORGEN.

**Relevant Content**

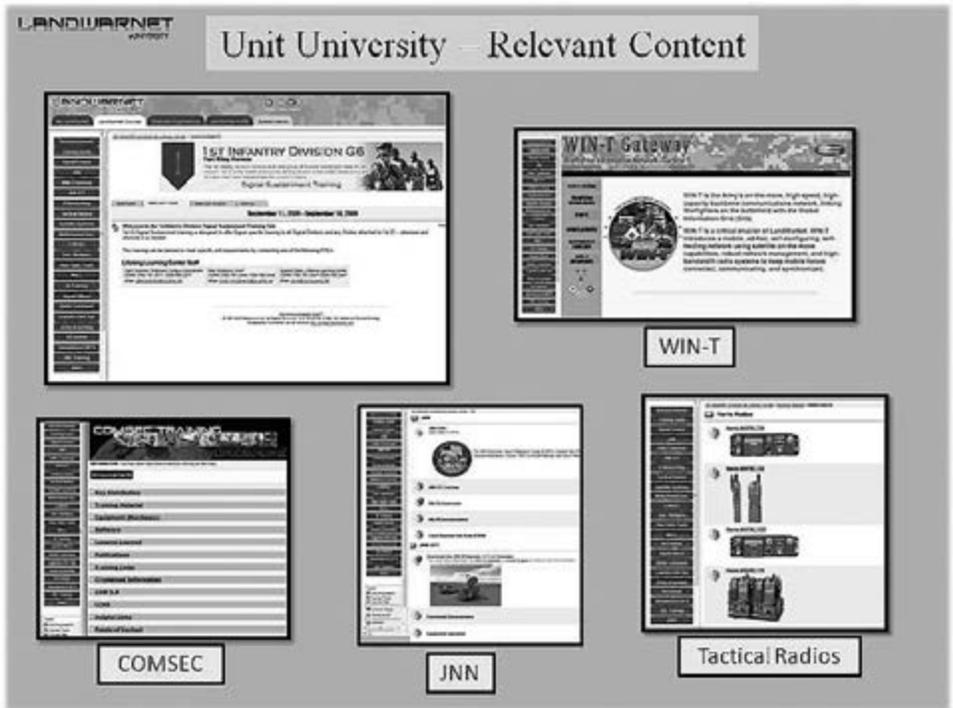
Unit Universities provide:

- Training Support to Units in Theaters of Operation.
- Immediate training response to Units for ARFORGEN training requirements
- Support to Mobile Training Teams
- Live training (Ft. Gordon to Iraq/ Kuwait/ Afghanistan) using on-line collaboration tools
- Support to the USAR and ARNG providing MOSQ training to their soldiers via their Regional High-Tech centers

It takes only two working days for the LLC to create a Unit University and populate with training.

**Improved training Content**

New training content is loaded on



LWNeU every day. LWNeU training content is now PDF based. This format significantly reduces download times for Soldiers using tactical networks. These PDF based training lessons include integrated schoolhouse instructor voice-overs and are keyword searchable or slide information

searchable. They also include checks on learning. All LWNeU training content can be either used on-line from within blackboard platform or downloaded and used at a separate location. Features include:

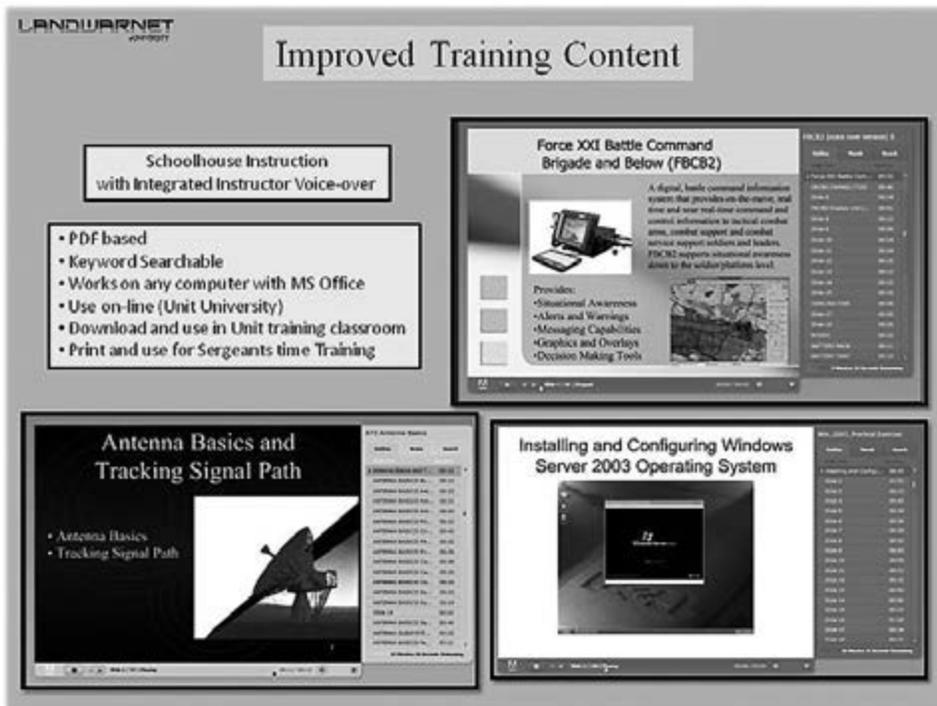
- Plays on any computer
- Download and use in Unit training classroom
- Print and use for Sergeants time Training

**Simulators to Reinforce**

The unit university sites provide access to the latest training, CBT and simulator products available for download via LandWarNet eUniversity. Virtual simulation training provides crews, leaders and units with realistic training experiences using sophisticated simulators. An individual university is linked to the LWNeU-Signal training downloads area which contains 26 high-end simulators and over 100 computer-based training products.

Incorporate simulator/CBT training:

- At the end of an on-line course to reinforce the training lesson.
- As part of a NET event where the actual equipment is not available.
- During missions and for tasks that cannot be trained because the equipment is in use supporting the unit's mission.

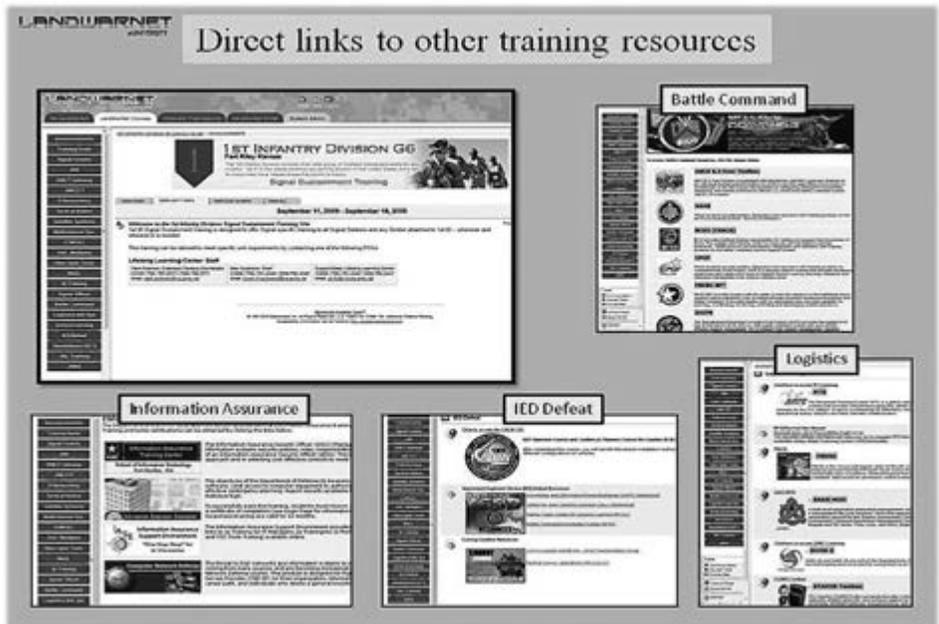


**Direct Link to Training Resources**  
 LWNeU also provides the capability from within the unit university for Soldiers to access training resources from other locations on the web. This keeps Soldiers on the training site and focused on what they have to learn. It saves time for Soldiers from having to "hunt for training" on the Internet. Using the Unit University Unit Soldiers can access their unit university training from any computer that has access to the Internet.

- Collective Training
- Commander's Training
- Unique Unit Training
- Sergeant's Time Training
- Sustainment Training
- Deployed Training
- Address training gaps

**Student Tracking**

Instructors, commanders and training staff can assess their unit's



training using blackboard's grade book. Units training staff members have full control over their university grade book to create quizzes and

tests. Staff can also monitor the overall training progress for the unit with resolution all the way down to an individual Soldier's test answers. The grade book can be used to track non-

**LANDUARNET UNIVERSITY**

## Simulators to Reinforce










1. JNN-N Upgrade v2 (Spiral 5-7)
2. STT Upgrades (JNN-N v2) (Spiral 5-7)
3. CPN Upgrades (JNN-N v2) (Spiral 5-7)
4. Baseband Upgrades (Spiral 5-7)
5. SATCOM Hub Upgrades (Spiral 5-7)
6. JNTC-S-INC 2
7. SS (v3)
8. LAN/WAN
9. CPN Upgrades Lot 9 (Spiral 8)
10. JNN-N v3 Baseband Upgrades Lot 9 (Spiral 8)
11. JNN-N v3 Baseband Upgrades Lot 9 (Spiral 8)
12. AN/TSC-85/93
13. Phoenix (Version A)
14. Phoenix Upgrades (Version A)
15. Phoenix Upgrades (Version B)
16. JNTC-S-INC 1, DISC 1\*
17. JNTC-S-INC 1, DISC 2\*
18. JNTC-S-INC 1, DISC 3\*
- \*No longer available via download, but can be mailed upon request
19. DTOC
20. TMS (ISYSCON)
21. HCLOS
22. GSC-52
23. BSN
24. FBCB2
25. TRC-173
26. WIN-TINC 2
27. S6 Staff Simulation
28. WIN-TINC 2
29. SSS (v3) Transit Cases

**Future Simulators:**

1. TMS IMI (March 2010)
2. COMSEC/EKD (September 2010)
3. Nodal Network Simulation (October 2010)

testable training.

### Battle Command Training Capability

Only two short years ago, battle command enabling capabilities were thought to fall under CAC-T pro-penency. It was felt that this was someone else's responsibility to train. However, currently the Signal Corps is in the process of gaining propenency for Battle Command Common Services. The Regiment has embraced the battle command enabling technologies such as BCCS, FBCB2, MCS and CPOF. This is evident by the establishment of multiple training facilities, a signal training network to connect various training locations; Digital Tactical Operations Centers with associated Battle Command Systems and the addition of Army Battle Command Systems training in many Signal MOS POIs.

Recently established Battle Command Training Capabilities include a mature System of Systems facility with ABCS capability that emulate 3 Brigade TOCs and 4 Battalion TOCs. The Officers are training most of their courses at TA-10 which has adapted a virtual training environment to train multiple ABCS in one classroom along with go to war systems such as Com-

**Using Your Unit University**

Enhance Your Unit's  
Training and Operational  
Mission




- Collective Training
- Commander's Training
- Unique Unit Training
- Sergeant's Time Training
- Sustainment Training
- Deployed Training






mand Post Platforms and the Standardized Integrated Command Post System. Four DTOC labs in Moran Hall round out the training received by warrant officers and senior enlisted Soldiers that work through an MDMP process, system architecture and the connectivity of the ABCS in the establishment of a Brigade TOC.

A full Battle Command Article in future issues of the Army Communicator will provide a full update on Battle Command Training conducted

### ACRONYM QuickScan

- ABCS** - Army Battle Command System
- ARNG** - Army National Guard
- BSN** - Brigade Subscriber Node
- CAC-T** - Combined Arms Center - Training
- CBT** - Computer-based training
- COMSEC** - Communications Security
- CPN** - Command Post Node
- DTOC** - Division Tactical Operations Center
- FBCB2** - Force XXI Battle Command, Brigade-and-Below
- GSC** - Ground Station Control
- HCLOS** - High Capacity Line of Site
- JNN** - Joint Network Node
- JNN-N** - Joint Network Node-Network
- JNTC-S** - Joint Network Transport Capability Spiral
- LAN/WAN** - Local Area Network/Wide Area Network
- LLC** - Lifelong Learning Center
- LWN-eU** - LandWarNet-eUniversity
- MDMP** - Military Decision Making Process
- MOSQ** - Military Occupational Skill Qualification
- MTT** - Mobile Training Team
- NET** - New Equipment Training
- MOS-T** - Military Occupational Skill Training
- RC** - Reserve Component
- SATCOM Hub** - Satellite Communications Hub
- SIM** - Simulator
- SSS** - Single Shelter Switch
- STT** - Satellite Transportable Terminal
- TIMS (ISYSCON)** - Tactical Internet Management System
- TRC** - Tactical Radio Communications
- USAR** - U.S. Army Reserve
- WIN-T** - Warfighter Information Network-Tactical

**LWNeU Support Staff**

**LWNeU Staff:**

- Manned Support Desk 0600-2200 M-F
- LWNeU technical support to end users
- Train users, instructors & course developers
- Gather training, manages requests for training
- Extension Campus coordination
- Ship training products



For more information on LandWarNet-eUniversity contact:

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# New higher speed, longer range equipment ready for future deployments

By Stephen Larsen

The next time the Thunderbirds, the Soldiers of the 11th Signal Brigade, deploy they will be equipped with new Combat Service Support Automated Information Systems Interface systems and re-set Combat Service Support Very Small Aperture Terminal systems, thanks to the Product Manager, Defense Wide Transmission Systems.

On Oct. 27, 2009, LTC Johnnie Edmonds, CSS Communications for PM DWTS director – who oversees the CAISI and CSS VSAT programs – presented an officer professional development training session to the officers of the 11th Signal Brigade, giving a broad overview of the CAISI 2.0 and CSS VSAT systems. The session included hands-on demonstrations of the systems by Robert Schmalig, a field support representative with PM DWTS, Rod Harp, a senior systems engineer with the Information Systems Engineering Command, Peter Nesby, CAISI for PM DWTS assistant product manager and Brian Paden, CAISI support operations manager with PM DWTS. Paden later presented a new materiel introductory briefing to the 11th Signal Brigade's CSS automation management officers, to whom PM DWTS was scheduled to field CAISI 2.0 systems in December 2009. PM DWTS is part of the Defense Communications and Army Transmission Systems Project Office of the Program Executive Office, Enterprise Information Systems.

"We're a Signal battalion. We provide communications to the customer. What's the difference between these systems and what we do?" LTC Frank Gonzales, 86th Signal Battalion commander, asked LTC Edmonds.

"These systems are designed for the transport of logistics data," said LTC Edmonds, explaining that CAISI 2.0 connects a brigade's logistics systems in a deployable wireless LAN. LTC Edmonds added that CAISI 2.0 is the Army's only certified wireless tactical LAN, meeting WIFI protected access security standards, assuring secure wireless transmissions.

CAISI 2.0 systems, LTC Edmonds said, are deployed down to the company level and are tied into CSS VSATs at the battalion or brigade level for NIPRNET satellite connectivity to transmit their STAMIS transactions. "The use of CSS SATCOM – which includes CAISI and CSS VSAT – saves Soldiers' lives by eliminating 'Sneaker Net' – the need for Soldiers to get in convoys and go in harm's way to place requisitions or deliver other logistics data," said LTC Edmonds. "Now Soldiers can stay inside the wire and securely transmit requisitions and logistics data." CW2 Jeffrey Collins, CSS automation management officer for the 86th Signal Battalion, vouched for CAISI 2.0's availability and effectiveness. "You turn CAISI 2.0 on and it's there. It's like you're part of the network. It's great," said CW2 Collins.

Both LTC Edmonds and Paden told of vast improvements PM DWTS included in CAISI 2.0 compared to the previous version, CAISI 1.1, such as an increase in range of almost twenty times; an increase in the data rate of seven times; a smaller logistics footprint, with fewer modules and two radios combined in one module; and easier setup, with the configuration pushed out by the root radio to all subordinate radios, automatically configuring them with passwords, encryption keys, and all of the information they need to communicate in that CAISI network.

CW2 Collins related his experiences after he received CAISI 2.0 training. He said he had his Soldiers manually reconfigure their CAISI 2.0. "They really appreciate the difference. They were glad that CAISI 2.0 makes configuration so easy," said CW2 Collins.

"That's where we worked the hardest, getting the setup and tear-down and establishment of the network to happen most effectively and easily for Soldiers," said LTC Edmonds.

"When we're in garrison, is it better to use our CAISI network 24/7 as if we were deployed?" asked LTC Geoffrey Mangelsdorf, outgoing 11th Signal Brigade deputy commander.

"Yes – in fact, the Army G-4 [deputy chief of staff, logistics] has issued a memorandum authorizing the use of CAISI and CSS VSATs in garrison by logisticians to conduct their day-to-day logistics business," said LTC Edmonds.

"We set up CAISI and CSS VSAT here at Fort Huachuca in garrison. We use them in garrison and we maintain them in garrison," added Harp.

"Good," said LTC Mangelsdorf. "I want our Soldiers to use these systems 24/7, so when they deploy it's second nature to them."

LTC Gonzales and LTC Mangelsdorf thanked LTC Edmonds and his team for coming to Fort Huachuca to present the training session, which was the first such OPD presentation that PM DWTS personnel had given to a Signal brigade. "This is a great opportunity to learn about what have become really great systems for the Army," said LTC Mangelsdorf.

*Mr. Stephen Larsen is the public relations officer for the Defense Communications & Army Transmission Systems.*

## ACRONYM QuickScan

**CAISI 2.0** - Combat Service Support Automated Information Systems Interface  
**CSS VSAT** - Combat Service Support Very Small Aperture Terminals  
**CSSAMO** - Combat Service Support Automation Management Officer  
**DCATS** - Defense Communications and Army Transmission Systems  
**ISEC** - Information Systems Engineering Command  
**LAN** - Local area network  
**NIPRNET** - Nonsecure Internet Protocol Router Network  
**OPD** - Officer Professional Development  
**PEO EIS** - Project Office of the Program Executive Office, Enterprise Information Systems  
**PM DWTS** - Product Manager, Defense Wide Transmission Systems  
**SATCOM** - Satellite communications  
**STAMIS** - Standard Army Management Information System  
**WIFI** - Wireless fidelity

# Communications course challenges senior officers

By MAJ Pam Newbern

A new course at the U.S. Army Command and General Staff College is offering leaders of all branches a chance to understand some of the complexities of the communications field.

The program entitled, "Sharing Our Story with the Nation, Media Engagement and Community Outreach," implements the Combined Arms Center Commander's guidance for students to share their stories with the public.

All U.S. students currently attending the Intermediate Level Education course, which began in August 2008, were required to complete four communications engagements/activities: blogging, public speaking, writing for publication, and being interviewed by the media. About 30 Signal officers attended the course and graduated in June 2009.

As a result of the new program, students began turning up at schools, parades, and meetings of groups as diverse as the Daughters of the American Revolution and the local Rotary Club.

"I think for me, since the last time I did something with the media was in 2004 as a company commander. It was very good to get back into that," said MAJ Mike Hall, a military police officer who graduated in June 2009. "As a staff officer, I am not up front, and you forget how to express your views without all the [military] jargon. With today's 24-hour media, there are always opportunities to not only be forced into situations, but also to take the opportunity to get your point across."

Ensuring that students know how to get the point across is the reason for the new program.

"It is the Combined Arms Center Commander's intent that every U.S. military student attending CGSC at Fort Leavenworth share with the public his or her story as an officer in the US Armed Forces," said Janet Wray, Outreach Program Coordinator at CGSC. "The goal of the CGSC Media Engagement and Community Outreach program is that students conduct engagements that can include,

but aren't limited to, participating in an interview with a recognized media outlet, addressing a community group, writing an article or opinion piece for publication, and participating in a recognized blog."

Students were told of the program during their ILE orientation in August. Several were initially skeptical, including MAJ Nathaniel Edwards, a Field Artillery officer who has since participated in a Veteran's Day parade and given a talk at his daughter's school in partial fulfillment of the requirement.

"When I first did this, I thought it was another burden," he said. Afterwards he said he now believes that the experience he has gained in the class will help him explain to junior officers how to deal with the media. "For me, it's a reinforcement of the PAO training I had in Bosnia. I had to learn how to deal with the media, but a lot of guys don't get that (training). Through this training, I'll figure out how to relate that to our soldiers."

Other officers say they would like to concentrate more on the speaking requirement. MAJ Ken Holmstrom, Special Forces, noted that the course already requires students to do a large amount of writing.

"I'd make it a speaking requirement," he said. "I think that would develop self confidence and more people skills."

The program also applies to the members of the Air Force, Marines and Navy, as well as the civilians who are attending the school. For Lieutenant Commander James Venckus, a Navy logistician, the requirement meant putting on his dress uniform and giving a tour of the Fort Leavenworth Museum and answering questions about his military service.

"I got to tie in the history of the United States and what the military is doing," he said. "My next job will be with SeaBees (Construction Battalions, or CB's) either doing naval construction or building schools in a host nation. It all contributes to the Global War on Terrorism, and it's imperative to get out the word of the diverse and multiple things that the military is capable of doing."

MAJ Brady Caldwell, a C-17 pilot with the U.S. Air Force, took part in

a "Parade of Heroes" at a shopping center near Leavenworth. He said he thinks the outreach program is particularly useful because it provides training for military members and "takes them out of their comfort zone."

Many of the ILE class members are able to create their own speaking engagements. Others receive offers through the school for speaking engagements. During Veteran's Day, more than 20 ILE officers marched in the parade in downtown Leavenworth, while others spoke at communities throughout the area.

On Nov. 11 2008, half a dozen students attended a dinner in honor of veterans at Winchester, Kansas, and spoke briefly about their experiences. Veterans from World War II, Korea and Vietnam, as well as their families, attended the dinner.

Some students enjoyed the media requirement so much that they have done more than one interview. One is MAJ Christian Meko, M.D. In addition to attending the dinner in Winchester, he also spent two hours in December talking about his experiences in Iraq for a new project supported by the Combined Arms Center.

"The Combat Studies Institute is trying to put together an oral history on the War on Terrorism," he said. "They are talking to officers across the services in the hopes of capturing oral history. Everyone from GEN [David] Petraeus to simple people like me have shared their history." Meko said that he believes the new program is necessary for officers to succeed in future assignments.

"Having witnessed a number of people struggle with it early in my career, I think the Army has come a long way because of efforts like this," he said.

*MAJ Pam Newbern, 25A, completed the the Intermediate Level Education course at the U.S. Army Command and General Staff College, Fort Leavenworth, Kansas in June 2009. Her previous Signal Branch assignments include Korea, Hawaii, Fort Drum, Kuwait and Fort Meade, Md. She holds journalism degrees from the University of Montana and a computer science degree from Hawaii Pacific University.*

# Army team wins DoD award for satellite communications project

By Stephen Larsen

Thanks to an innovative communications effort wounded Soldiers in theater are getting more timely medical care.

Not too long ago, it took hours for deployed medical personnel to transmit digital X-ray or CT scan files in Iraq and Afghanistan. Now, it takes minutes, thanks to the Joint Telemedicine Network project, for which the JTMN implementation team was honored with the Department of Defense Chief Information Officer 2009 team award at the Pentagon on Oct. 28, 2009.

The members of the JTMN implementation team include LTC Nanette Patton, deputy chief information officer for Business and Theater Systems Integration for the Army Medical Department and the sponsor of the project; LTC Alfred Hamilton, CENTCOM medical chief information officer and the operational sponsor for the project; Salvatore Granata, Product Manager, Defense Wide Transmission Systems project lead, part of the Defense Communications and Army Transmission Systems Project Office of the Program Executive Office, Enterprise Information Systems; MAJ James Morrison, Task Force 44 Medical Command G-6, who represented the medical community in Iraq; MAJ Jack Leech, Health Information Systems Officer for Combined Joint Task Force -101 in Afghanistan; MAJ Dan Bridon, HISO for Task Force 30 in Afghanistan; LT Peter Winkel, the J6 for Task Force Med; and Liz Snyder, the project manager for PM DWTS' prime contractor DRS Technologies, Inc.

The need for the JTMN emerged when LTC Hamilton went to Iraq and Afghanistan for 60 days in 2007 and visited military health care facilities and providers throughout the theater to ascertain what information technology support they needed to help them provide the best medical care possible.

"We went through their concerns and a picture emerged," said LTC Hamilton. That picture clearly showed that the existing in-theater telecommunication infrastructure was not sufficient to support critical medical situations. It took an average of four-and-a-half hours to transmit a single full-body CT study of traumatically wounded service members from one medical facility to another, and more than an hour to transmit a single digital chest X-ray. Also, in many instances, patients being evacuated would reach the next echelon of care before transmitted medical data and images got there.

LTC Hamilton captured all this information in a Joint Urgent Operational Needs Statement that he wrote, in which CENTCOM identified the requirement for a satellite communications capability utilizing very small aperture terminals with sufficient bandwidth to expeditiously transmit

critical medical data and images. In response to the JUONS, the JTMN project started in October 2008, with the JTMN implementation team including members who collaborated from locations around the world including Fort Monmouth, N.J., McDill Air Force Base, Fla., Falls Church, Va., Germany, Kuwait, Iraq and Afghanistan.

## The JTMN solution

The JTMN implementation team's solution included modifying existing VSATs in theater to handle greater bandwidth capacity, re-purposing VSATs no longer needed in Iraq for use in Afghanistan, providing additional VSATs throughout the theater and upgrading the Landstuhl, Germany hub to link the network back to CONUS. The team successfully achieved initial operational capability for the system in March 2009. Since then the team has continued



Lt. Col. Tony Allen, Theater Radiology Consultant, views digital CT scans in Iraq thanks to the Joint Telemedicine Network.

expanding and improving the system. LTC Patton noted that the team overcame multiple obstacles in implementing the project – including time zone challenges, 100 percent turnover of key project personnel, contracting delays, transportation issues, supply chain failures and satellite bandwidth shortages.

A significant obstacle that the team had to overcome was the failure of an aging satellite providing temporary Ku bandwidth for the JTMN until the launch of a new satellite.

“There are only so many birds [satellites] over Afghanistan,” explained Granata, “and everyone is trying to use them. These satellites were not meant to last as long as they have, and we’ve had three instances where the orbit of a satellite deteriorated and we had to move to an interim satellite to keep the network running while we arranged getting on another satellite for a long-term solution.”

Thanks to the team’s ability to react calmly and work together to overcome these obstacles, now deployed medical personnel can transmit 250 megabit digital X-Ray or CT scan images within about five minutes via JTMN.

“This allows radiologists to view the images before the patient arrives at the medical treatment facility,” said LTC Patton, “and enables the medical team to provide more effective care during the ‘golden hour’ – the time period from a few minutes to an hour following traumatic injury, during which there is the highest likelihood that prompt medical treatment will prevent death.

“Having the images at the medical treatment facility before the

wounded Soldier arrives allows the medical team to proactively have a game plan when the wounded Soldier arrives,” said MAJ Morrison.

Bridon said another benefit is that JTMN’s video teleconferencing capability allows remote teleconsultation with medical specialists at other locations – in theater, Germany, or back in CONUS. Morrison added that in addition to enabling tele-consultation, JTMN’s VTC allows distance learning and remote training. The JTMN network allows technicians from other locations to perform remote diagnostic maintenance services on their radiological equipment. “These JTMN capabilities have reduced our need to put people at risk by having to send them out on the roads to do maintenance or to get training,” Morrison said.

Both MAJ Morrison and MAJ Bridon said they appreciate that JTMN now allows medical personnel in theater to transmit electronic medical records detailing past medical history, medications, immunization records, laboratory data and radiology reports – even in austere regions of Iraq and Afghanistan where the telecommunications infrastructure is not well-developed.

“JTMN allows us to do automated ordering of Class VIII medical supplies [medicines, medical equipment and dressings] using web-based tools,” said MAJ Morrison.

#### **‘Our brothers-and-sisters-in-arms deserve it’**

LTC Patton called the process of implementing JTMN a roller-coaster ride. “Some teams implode when there’s all that pressure to overcome

so many obstacles, but we kept it all together,” LTC Patton said. “Life threw us some curveballs, but we adjusted and improvised.”

“Our team was just a perfect team,” said LTC Hamilton. “Everyone had a role and they were all intertwined and just clicked.”

MAJ Bridon said that when he and the Task Force 30 MEDCOM team arrived in Afghanistan this past May, JTMN was up and transmitting at only three sites in Afghanistan – but over the last six months he and his team have worked to triple the number of JTMN sites – all this despite very difficult and dangerous conditions in theater – and have many more sites in various stages of implementation and planning.

“The benefits to our wounded warriors because of the proliferation of JTMN continue to improve the care given at all echelons, in and out of Afghanistan,” said MAJ Bridon. “All of that gain makes the long hours, grueling travel and high stress worth it. Our brothers-and-sisters-in-arms deserve it.”

*Mr. Stephen Larsen is the public relations officer for the Defense Communications & Army Transmission Systems.*

### **ACRONYM QuickScan**

**AMEDD** - Army Medical Department

**CENTCOM**

**CIO** - Chief Information Office

**CJTF** - Combined Joint Task Force

**CT** - Computed tomography scan

**DCATS** - Defense Communications

and Army Transmission Systems

**DoD** - Department of Defense

**HISO** - Health Information Systems Officer

**IOC** - Initial operational capability

**IT** - Information technology

**JTMN** - Joint Telemedicine Network

**JUONS** - Joint Urgent Operational Needs Statement

**MEDCOM** - U. S. Army Medical Command

**PEO EIS** - Program Executive Office, Enterprise Information Systems

**SATCOM** - Satellite communications

**VSATS** - Very small aperture terminals

**VTC** - Video teleconference

**CPT John Lavoie (left) and SGT David Leach of the Task Force 30 MEDCOM pose proudly next to one of the Joint Telemedicine Network Very Small Aperture Terminals in Afghanistan.**



# Spectrum managers get their own tools

By Shawn P. Sweeney

Imagine being an air traffic controller at a busy international airport required to use a different console for each major airline carrier instead of managing all aircraft on one console. In such a situation the potential for air disasters would be greatly increased.

Until just recently, Army spectrum managers faced a situation much the same in the management of the radio frequency spectrum. You have to look at the history of spectrum management in the Army to understand how this happened.

Up to the early 1980s the vast majority of Army radios were owned and operated by the Signal Corps. Spectrum management was centrally managed from the Department of Army because the density of radios was low. As the number of radios proliferated, spectrum management was pushed down to lower levels to ensure adequate "as needed" execution.

Historically the tools used by spectrum managers were developed as part of radio or communications programs. These tools were primarily designed to accomplish communications planning and frequency assignment only for these systems. Examples of this were the Revised Battlefield Electronic CEOI System for Single Channel Ground and Airborne Radio system and the System Control Center and its later iterations for the Mobile Subscriber Equipment. As more radios were added to the Army inventory such as air-to-ground, ADA, and Fires systems, individual communications planning and management systems were developed and employed. For many Army systems this management was done manually.

The prevailing attitude that spectrum management was a part-time job compounded the problem. Both senior noncommissioned and commissioned officers performing this duty were identified by ASI/SI D9/5D.

Today Brigade Combat Teams employ more radios than an entire Corps did less than two decades ago. Army leaders have taken notice of the exponential increase and the corresponding spectrum management problems. In 2002 The U.S. Army Training and Doctrine Command stood up the Frequency Spectrum Proponency Office at the U.S. Army Signal Center of Excellence, Fort Gordon, Ga., to address the entire range of issues confronting spectrum management. Two areas addressed early by the FSPO were to establish an MOS and to support the development of tools specifically designed for complete management of the spectrum. A Military Occupational Specialty 25E, electromagnetic spectrum manager, was established in early 2008. The FSPO also introduced the electromagnetic spectrum operations construct which is the doctrinal basis for how the Army conducts spectrum related missions.

In 2005 the Army started using Counter Radio Controlled Improvised Explosive Devices Electronic Warfare which is an RF jammer to counter a new threat. This caused problems with friendly communications systems because there was no way to isolate the frequency use between jammers and friendly electromagnetic spectrum

dependent systems such as radios, radars, and sensors. From this the Coalition Joint Spectrum Management Planning Tool, commonly referred to as CJ, was born.

CJ's capabilities include the ability to perform spectrum analysis and discriminate between EW and other spectrum dependent devices. CJ also provides the capability to effectively manage the electromagnetic environment by optimizing the spectrum being used, provide enhanced operational spectrum planning and collaboration with other CJ users both horizontally and vertically. The main goal of CJ is to eliminate transmissions conflicts and to exchange frequency data between EW and communications systems.

The FSPO has been instrumental in the development of CJ from developing the original requirements to providing subject matter expertise through the Validation & Verification, training, and fielding to EUCOM and to the units supporting CENTCOM in OIF and OEF beginning in the first quarter of fiscal year 2010.

The transition plan for CJ is to become part of the Global Electromagnetic Spectrum Information System which is intended to provide capabilities for integrated spectrum operations across the entire Department of Defense, in addition to interoperability with Federal, State and local government spectrum agencies and coalition forces.

While the CJ brings many new capabilities the spectrum manager must still rely on a database to plan, manage, and execute the spectrum plan and trust that the picture provided by the database is accurate and complete. Due to the dynamics in the operational environment this is rarely the case.

To compliment the CJ capabilities the FSPO, under the auspices of the Army IED-D ICDT, has developed an initiative to sense, analyze and share real time spectrum usage for the BCT and above spectrum manager. This capability enables the spectrum manager to mitigate frequency fratricide between friendly and EW systems and better utilize the electromagnetic spectrum for the commander.

This initiative is referred to as the Spectrum Situational Awareness System. S2AS is comprised of a hardware component (monitoring receiver) to sense and collect the spectrum and a software component (Multi-spectral Ambient Noise Collection and Analysis Tool) used to analyze the collection, which was developed by the Electronic Proving Ground. Essentially the S2AS provides spectrum managers with the ability to take a real time snapshot of the electromagnetic environment and compare the database records against the actual spectrum picture.

The spectrum manager can then analyze the collected spectrum for compliance with the static database, locate rogue signals in space, direction find rouge signals (to a limited degree), and assist in collection and analysis of radio frequency interference.

Through both CJ and S2AS the spectrum manager of today is acquiring the capabilities to provide operational spectrum support to the commander and provide a degree of spectrum situational awareness. The FSPO continues

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to pursue enhancements to spectrum tools in addition to working to ensure that all EMSO concerns such as training, organization, and leadership training and education are addressed.

Shawn P. Sweeney, a retired Army first sergeant, is currently a Department of Army civilian working for the Frequency Spectrum Propensity Office, Fort Gordon, Ga. He is the primary author for Army Electromagnetic Spectrum Operations doctrine and the lead for the development and writing of Joint Electromagnetic Spectrum Operations doctrine.

## ACRONYM QuickScan

ADA - Air Defense Artillery  
BCT - Brigade Combat Team  
CENTCOM - U.S. Central Command  
CJ - Coalition Joint Spectrum Management Planning Tool  
CJSMPT - Coalition Joint Spectrum Management Planning Tool  
CREW - Counter Radio Controlled Improvised Explosive Devices Electronic Warfare  
EMSO - Electromagnetic Spectrum Operations  
EPG - Electronic Proving Ground  
EUCOM - U.S. European Command  
EW - Electronic Warfare  
FSPO - Frequency Spectrum Propensity Office  
GEMISIS - Global Electromagnetic Spectrum Information System

IED-D ICDT - Improvised Electronic Device-Defeat Integrated Capabilities Development Team  
MOS - Military Occupational Specialty  
MSE - Mobile Subscriber Equipment  
MANCAT - Multi-spectral Ambient Noise Collection & Analysis Tool  
OEF - Operation Enduring Freedom  
OIF - Operation Iraqi Freedom  
RBECS - Revised Battlefield Electronic CEOI System  
SINGGARS - Single Channel Ground and Airborne Radio system  
SCC - System Control Center  
S2AS - Spectrum Situational Awareness System  
V & V - Validation and Verification

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# Regiment welcomes new Chief Warrant Officer

The Signal Regiment said goodbye to CW5 Andy Barr and welcomed CW5 Todd Boudreau in a ceremony held Jan 28, in Conrad Hall.

CW5 Barr is retiring after 40 years of service to the nation and the Signal Regiment.

CW5 Boudreau comes to the position of the third Regimental Chief Warrant Officer with a tremendous resume of credentials. CW5 Boudreau recently served as the Signal warrant officer proponent manager, Office Chief of Signal, U.S. Army Signal Center of Excellence and Fort Gordon, Ga.

He enlisted in the Army in 1983 and attended Strategic Microwave Maintainer-Repairer (26V) advanced individual training at Fort Gordon. Before his appointment as a warrant officer, he

completed the Primary Leadership Development Course, Noncommissioned Officer Academy, Camp Jackson, South Korea, and the Basic Noncommissioned Officer Course, Noncommissioned Officer Academy, Fort Gordon. He received his warrant officer appointment in 1990.

His enlisted assignments include the 36th Signal Battalion, Korea and the Alternate National Military Command Center (Site-R), Md. His past warrant officer assignments include maintenance officer for the 6th Theater Signal Command, Saudi Arabia; station manager for the Fort Detrick Satellite Complex, Md; training, advising and counseling officer at Fort Rucker, Ala; officer in charge of the Standardized Tactical Entry Point and Communications Complex at Fort Buckner, Okinawa, Japan; communications officer for the Supreme Allied Commander, Supreme Headquarters Allied Powers Europe, Belgium; and satellite systems engineering officer, Defense Information Systems Agency Europe, Stuttgart, Germany.

CW5 Boudreau is a recipient of the Bronze Star Medal, two Defense Meritorious Service Medals, five Army Meritorious Service Medals, two Army Commendation Medals, three Army Achievement Medals, two Army Good Conduct Medals, National Defense Service Medal with Bronze Star, Southwest Asia Medal with three Bronze Service Stars, Global War on Terrorism Service Medal, Korea Defense Service Medal, Saudi/Kuwait Liberation Medal, Kuwait Liberation Medal, Meritorious Unit Citation, Army Superior Unit Award, Military Outstanding Volunteerism Medal, and the Drivers/Mechanics Badge. He has also received the Signal Corps Regimental Association Order of Mercury.

He is married to the former Soonja Yoon and has two sons, Patrick who is a senior Airman currently stationed in Korea and Jesse who works as the floor manager of the Panzer Kaserne Service Federal Credit Union.

CW5 Boudreau also serves as the associate pastor for Augusta First Assembly of God.

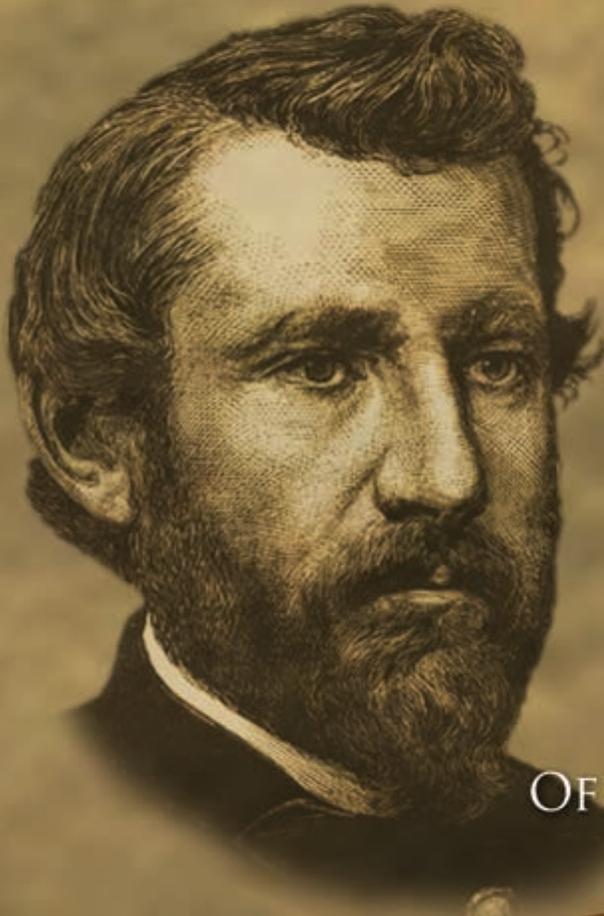
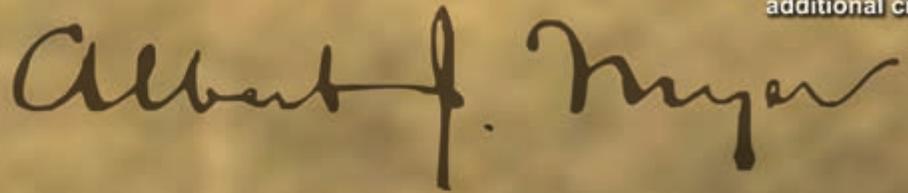


**BG Jeffrey Foley, Fort Gordon commanding general and Chief of Signal congratulates CW5 Todd Boudreau after the induction ceremony for Regimental Chief Warrant Officer held Jan. 28 in Conrad Hall. CW5 Boudreau becomes the third Regimental chief warrant officer, replacing (left) CW5 Andy Barr.**

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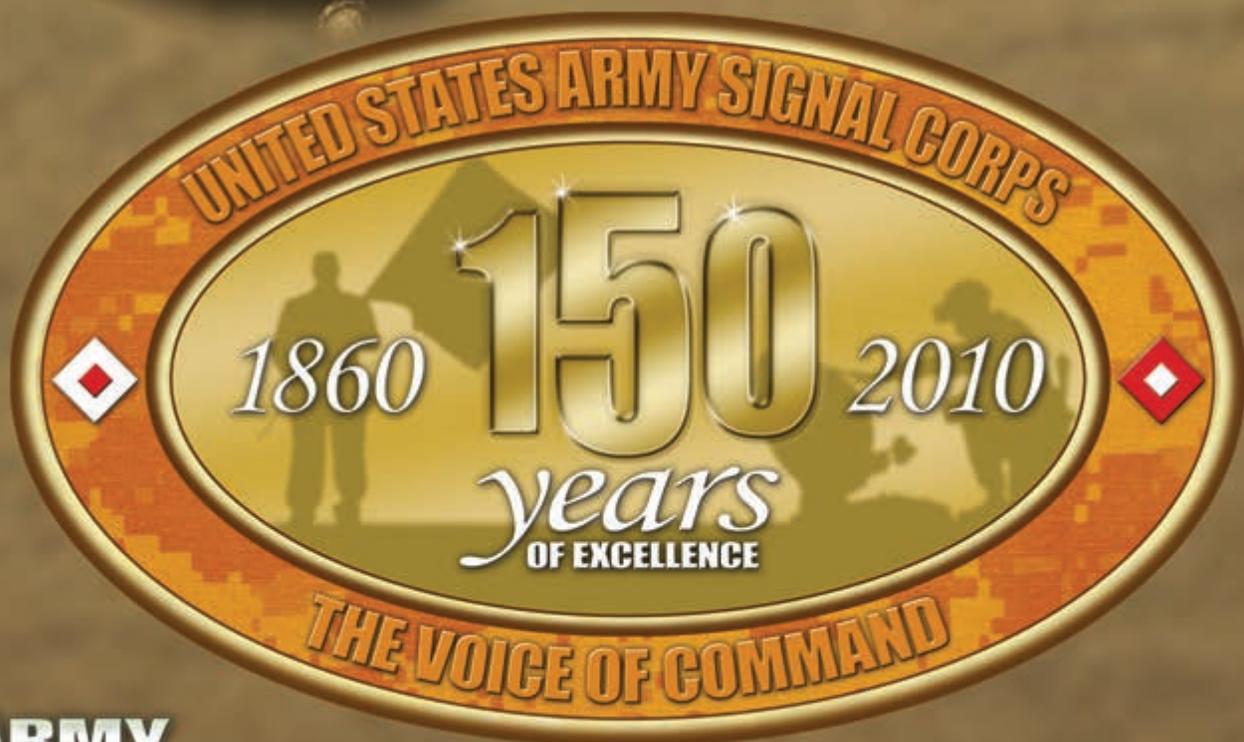
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*Brigadier General Albert J. Myer (1828-1880) was originally commissioned as an Assistant Surgeon in the United States Army on 28 September 1854. His critical analysis of military operations over vast terrain, informed by his medical dissertation related to sign language and early training in Bain code telegraphy, inspired Myer to devise the Wig-Wag signaling system which revolutionized communications capability on the battlefield. On 21 June 1860, Congress directed that a new Army staff position be created to integrate communications innovations such as the Wig-Wag into the operational Army. Because of his dedication and zeal, Myer was commissioned as a Major and became the U. S. Army's first Signal Officer on 27 June 1860.*

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