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Voice of the Signal Regiment

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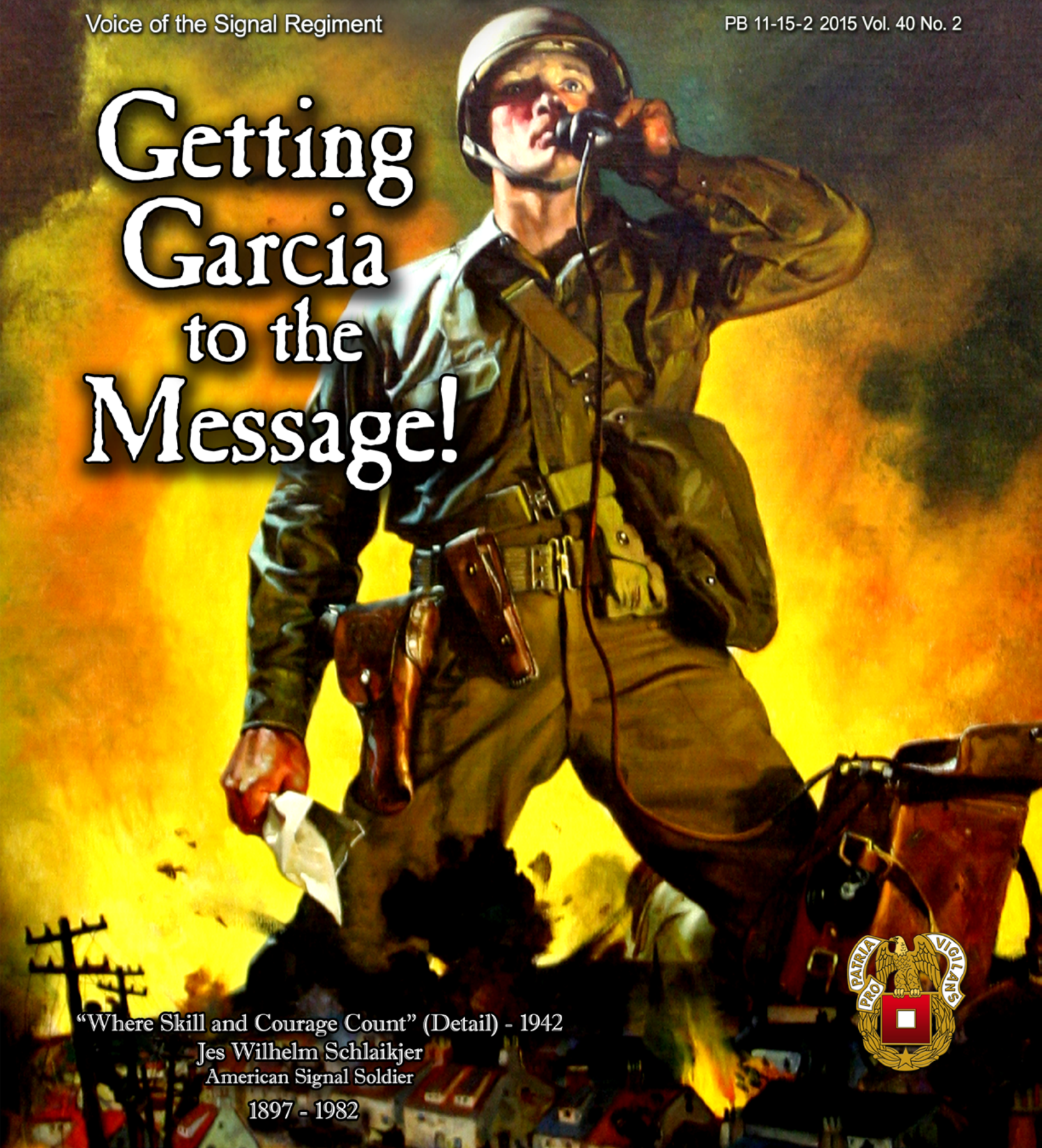
Getting Garcia to the Message!



"Where Skill and Courage Count" (Detail) - 1942
Jes Wilhelm Schlaikjer
American Signal Soldier
1897 - 1982

Submit an article to your professional journal

The Army Communicator is the U.S. Army Signal Regiment's professional journal, exploring trends in the Regiment and providing a place for Signal Regiment members to share accomplishments, ideas and lessons-learned with their colleagues. The Army Communicator depends on non-commissioned officers, officers, warrant officers and Regimental civilian employees to contribute quality articles on topics of interest to the entire Regiment. We invite all our readers to submit articles, write letters to the editor or contact us if you have any questions, comments or suggestions.

How to submit an article

Steps involved in submitting an article to AC are outlined as follows:

Select a relevant topic of interest to the U.S. Army Signal Regiment / military information-technology community. The topic must professionally develop members of the U.S. Army Signal Regiment.

Write an outline to organize your work. Put the bottom line up front and write clear, concise introduction and conclusion paragraphs.

Follow the writing standard established in AR 25-30, Preparing and Managing Correspondence, Section IV (the Army writing style), and DA Pamphlet 600-67, Effective Writing for Army Leaders, especially Paragraphs 3-1 and 3-2. The Army standard is writing you can understand in a single rapid reading and is generally free of errors in grammar, mechanics and usage. Write as if you were telling someone face-to-face about your subject.

Send the article to the editor Larry Edmond at Larry.e.edmond.civ@mail.mil Or place a copy of the article on AKO in the "Articles for Submission" folder and send a notification e-mail to the Army Communicator editor.

Submit pictures to the "Signaleers at work" photo contest

The Spring edition will feature photographs depicting Signal communications activities around the world. Take an action shot of Signaleers at work. Identify the "what," "when," "where," and "who" in the photograph. Give the photograph a two word tagline title and submit it for publication. The best photographs will be featured in the Spring edition of the Army Communicator and all of the photographs will be catalogued for future generations to see the state-of-Signal in 2015-2016. The photographs should be in 300 dpi, JPG format and sent as an attachment to an e-mail. Do not imbed the photograph in a Powerpoint slide or Word document. Each individual can submit no more than three photographs. Group photographs or award ceremonies are discouraged. The photograph should show "Signaleers at Work" and be in the correct uniform.

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Army Communicator

Voice of the Signal Regiment

Features

Special Feature Article

Join the Discussion
At the end of articles where you see this icon, you can weigh in and comment on-line.

~On the Cover~

On the cover is a reproduction of a poster by Jes Wilhelm Schlaikjer (1897–1982) who was an American artist, most known for his recruitment and war bonds posters during World War II. He served in the Signal Corps of the Army 1st Division in France as a telegrapher. His poster highlights the critical role that Signal communications professionals historically filled and continue providing to enable warfighter dominance.

Cover design by Billy Cheney

A Message to Garcia

In all this Cuban business there is one man stands out on the horizon of my memory like Mars at perihelion. When war broke out between Spain and the United States, it was very necessary to communicate quickly with the leader of the Insurgents. Garcia was somewhere in the mountain vastnesses of Cuba - no one knew where. No mail or telegraph could reach him. The President must secure his co-operation, and quickly.

What to do! Someone said to the President, "There's a fellow by the name of Rowan will find Garcia for you, if anybody can."

Rowan was sent for and given a letter to be delivered to Garcia. How "the fellow by name of Rowan" took the letter, sealed it up in an oil-skin pouch, strapped it over his heart, in four days landed by night off the coast of Cuba from an open boat, disappeared into the jungle, and in three weeks came out on the other side of the island, having traversed a hostile country on foot, and having delivered his letter to Garcia, are things I have no special desire now to tell in detail.

The point I wish to make is this: McKinley gave Rowan a letter to be delivered to Garcia; Rowan took the letter and did not ask, "Where is he at?" By the Eternal! There is a man whose form should be cast in deathless bronze and the statue placed in every college in the land.It is not book-learning young men need, nor instruction about this or that, but a stiffening of the vertebrae which will cause them to be loyal to a trust, to act promptly, concentrate their energies; do the thing - "carry a message to Garcia!"

General Garcia is dead now, but there are other Garcias. No man who has endeavored to carry out an enterprise where many hands were needed, but has been well-nigh appalled at times by the imbecility of the average man - the inability or unwillingness to concentrate on a thing and do it. Slipshod assistance, foolish inattention, dowdy indifference, and half-hearted work seem the rule; and no man succeeds, unless by hook or crook, or threat, he forces or bribes other men to assist him; or mayhap, God in His goodness performs a miracle, and sends him an Angel of Light for an assistant. You, reader, put this matter to a test: You are sitting now in your office -six clerks are within your call. Summon any one and make this request: "Please look in the encyclopedia and make a brief memorandum for me concerning the life of Corregio."

Will the clerk quietly say, "Yes, sir," and go do the task?

On your life, he will not. He will look at you out of a fishy eye, and ask one or more of the following questions:

Who was he?
Which encyclopedia?
Where is the encyclopedia?
Was I hired for that?
Don't you mean Bismarck?
What's the matter with Charlie doing it?
Is he dead?
Is there any hurry?
Shan't I bring you the book and let you look it up yourself?
What do you want to know for?

And I will lay you ten to one that after you have answered the questions, and explained how to find the information, and why you want it, the clerk will go off and get one of the other clerks to help him find Garcia - and then come back and tell you there is no such man. Of course I may lose my bet, but according to the Law of Average, I will not.

Now if you are wise you will not bother to explain to your "assistant" that Corregio is indexed under the C's, not in the K's, but you will smile sweetly and say, "Never mind," and go look it up yourself.

And this incapacity for independent action, this moral stupidity, this infirmity of the will, this unwillingness to cheerfully catch hold and lift, are the things that put pure socialism so far into the future. If men will not act for themselves, what will they do when the benefit of their effort is for all? A first mate with knotted club seems necessary; and the dread of getting "the bounce" Saturday night holds many a worker in his place.

Advertise for a stenographer, and nine times out of ten who apply can neither spell nor punctuate - and do not think it necessary to.

Can such a one write a letter to Garcia?

"You see that bookkeeper," said the foreman to me in a large factory.

"Yes, what about him?"

"Well, he's a fine accountant, but if I'd send him to town on an errand, he might accomplish the errand all right, and, on the other hand, might stop at four saloons on the way, and when he got to Main Street, would forget what he had been sent for."

Can such a man be entrusted to carry a message to Garcia?

We have recently been hearing much maudlin sympathy expressed for the "down-trodden denizen of the sweat shop" and the "homeless wanderer searching for honest employment," and with it all often go many hard words for the men in power.

Nothing is said about the employer who grows old before his time in a vain attempt to get frowsy ne'er-do-wells to do intelligent work; and his long patient striving with "help" that does nothing but loaf when his back is turned. In every store and factory there is a constant weeding-out process going on. The employer is constantly sending away "help" that have shown their incapacity to further the interests of the business, and others are being taken on. No matter how good times are, this sorting continues, only if times are hard and work is scarce, this sorting is done finer - but out and forever out, the incompetent and unworthy go. It is the survival of the fittest. self-interest prompts every employer to keep the best-those who can carry a message to Garcia.

I know one man of really brilliant parts who has not the ability to manage a business of his own, and yet who is absolutely worthless to anyone else, because he carries with him constantly the insane suspicion that his employer is oppressing, or intending to oppress, him. He can not give orders, and he will not receive them. Should a message be given him to take to Garcia, his answer would probably be, "Take it yourself."

Tonight this man walks the streets looking for work, the wind whistling through his threadbare coat. No one who knows him dare employ him, for he is a regular firebrand of discontent. He is impervious to reason, and the only thing that can impress him is the toe of a thick-soled No. 9 boot.

Of course I know that one so morally deformed is no less to be pitied than a physical cripple; but in your pitying, let us drop a tear, too, for the men who are striving to carry on a great enterprise, whose working hours are not limited by the whistle, and whose hair is fast turning white through the struggle to hold the line in dowdy indifference, slipshod imbecility, and the heartless ingratitude which, but for their enterprise, would be both hungry and homeless.

Have I put the matter too strongly? Possibly I have; but when all the world has gone a-slumming I wish to speak a word of sympathy for the man who succeeds - the man who, against great odds, has directed the efforts of others, and, having succeeded, finds there's nothing in it: nothing but bare board and clothes.

I have carried a dinner-pail and worked for a day's wages, and I have also been an employer of labor, and I know there is something to be said on both sides. There is no excellence, per se, in poverty; rags are no recommendation; and all employers are not rapacious and high-handed, any more than all poor men are virtuous.

My heart goes out to the man who does his work when the "boss" is away, as well as when he is home. And the man who, when given a letter for Garcia, quietly takes the missive, without asking any idiotic questions, and with no lurking intention of chucking it into the nearest sewer, or of doing aught else but deliver it, never gets "laid off," nor has to go on strike for higher wages. Civilization is one long anxious search for just such individuals. Anything such a man asks will be granted; his kind is so rare that no employer can afford to let him go. He is wanted in every city, town, and village - in every office, shop, store and factory. The world cries out for such; he is needed, and needed badly - the man who can carry a message to Garcia.

"A Message to Garcia" was originally published as a filler without a title in the March 1899 issue of the magazine Philistine which Elbert Hubbard edited, but was quickly reprinted as a pamphlet and a book. It was very popular, selling more than 40 million copies, and being translated into 37 languages. It also became a well-known allusion of American popular and business culture until the middle of the 20th century. According to language expert Charles Earle Funk, "to take a message to Garcia" was for years a popular American slang expression for taking initiative. (Wikipedia).

Breaking the archetype of Signal warfighter support

By CPT Ryan C. Boileau, Sr.

The current training environment allows innovative approaches and breaks the archetype of how Signal support enables warfighters.

When a brigade combat team deploys to a combat training center, its leaders plan well in advance for the event much like an operational deployment. Part of this process involves identifying gaps in personnel or equipment and requesting assistance from the U.S. Army Forces Command through the Request for Forces process.

The RFF's align with specialty branches to cover shortfalls not organic to the unit, which would exist in an operational deployment. Examples include civil affairs and psychological operations detachments supporting a BCT mission rehearsal exercise or mission readiness exercise before beginning a humanitarian support mission. This might also include special operations forces augmenting a BCT in a decisive action training environment; lift assets for an MRE in mountainous terrain; and signal teams to augment a BCT when operating independent of a division or corps.

The Current Model

There is a lot of detailed planning which goes into the sourcing requirements to identify a particular team, company, or battalion to fill the RFF. The plans sections across each of the signal brigades are deeply involved with FORSCOM and corps planners, ultimately acceding to or rejecting the tasking. The end result is the assignment of teams or sections from specific companies within a signal battalion tasked to provide signal systems support to a brigade or battalion headquarters at the CTC. It is the signal battalion's leadership responsibility to plan and resource the move to the CTC. The attachment to the training brigade begins during reception, staging, and onward integration phase at the CTC site.

A fully integrated package as outlined in the COAs of this article not only increases the return on investment for the supporting teams, but also works to significantly improve the perception of the supported force about Signal teams and increases the level of support that is available to the maneuver task force.

The CTC S6 planners assist with communications integration, giving recommendations to the training unit on the RFF package from a signal perspective. Typically, this is done by bullpen assignment: array all forces available (CPNs, JNNs, SNAPs, etc.) in one column and align them with a supported unit. In most cases, the organic signal assemblage to a battalion is assigned to support that battalion, with the exception of the brigade support battalion and brigade engineer battalion, which are often collocated with the brigade and can pull services from that BCT JNN. It is not unusual for one or both CPNs from the BSB and BEB to remain on-site either in a dual-homing model to provide redundant communications for the BCT, or in a hot reserve status, available for assignment as needed to resolve failures in another system.

Once the bullpen is

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exhausted, planners identify shortfalls and use this to formulate the RFF. Since this is considered in the form of teams, the RFF is in a team format ("Request FORSCOM provide 3xCPN teams to augment 1-3 ABCT's rotation to Joint Multinational Readiness Center"), and that's the package the signal brigade fills. A fundamental flaw to this model is that there is no request for leadership higher than the team level; indeed, to the signal community we know we operate extended from our parent HQs, so it's not even an unusual request – likely the thought of higher leadership accompanying the teams is not considered.

The planning shortfall in bullpen-alignment is not seen until arrival at the CTC, where multiple teams of non-organic signal personnel are embedded with their supported units and expected to hit the ground at a full sprint: the COMMEX is typically scheduled at a CTC immediately after initial setup in a cantonment area. The gaining element has no history with these personnel and no knowledge of their strengths and weaknesses, and the supporting team has no real concept of the overall plan for signal support and how they fit into it. Accordingly, the battalion S6 will give a task and purpose (install the WIN-T services and provide X, Y, and Z on that backbone), but very little utilization or guidance beyond that. Throughout the rotation, the attached signal team is simply in extended support mode, and not overly involved in planning or reacting to events within the exercise.

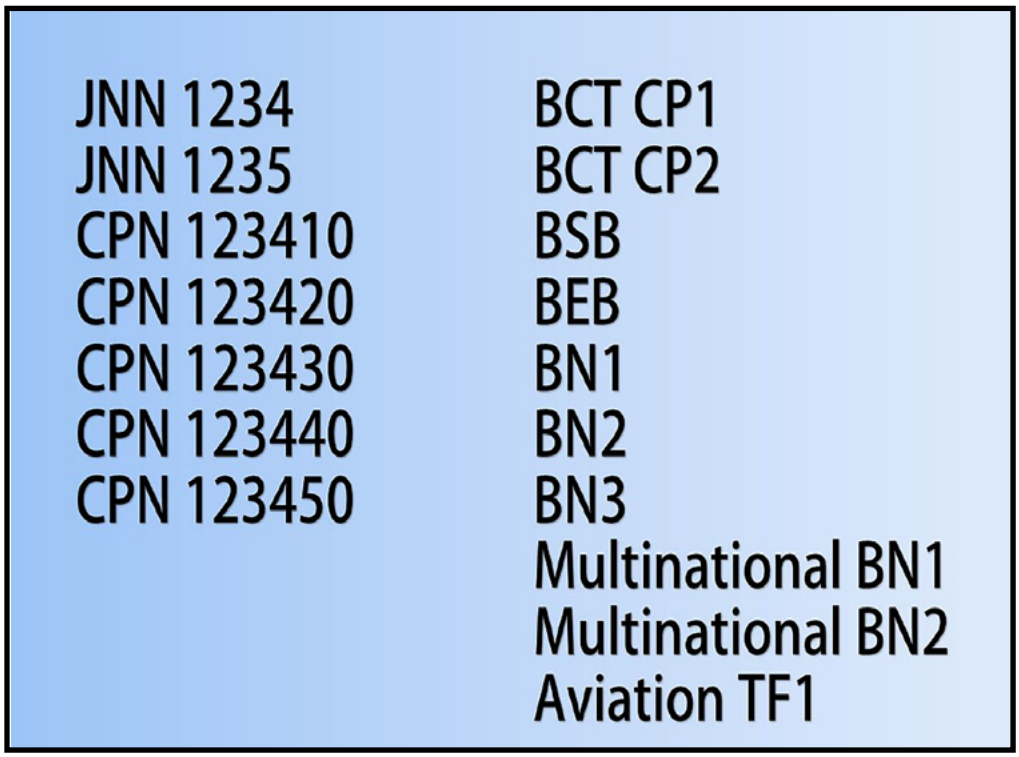

Figure 1 Example bullpen allocation. In this sample, three attachments not organic to the BCT have need for WIN-T services and no ability to provide. In this case, the BCT planners would submit an RFF for 3 CPN teams to support this shortfall.

Proposal

After identifying team needs during the RFF process, leaders of the brigade in training should add a request for mission command support in accordance with MTO&E alignment. Since an A/B Company in an ESB has five CPNs in a platoon, if it's five or less CPNs then request a platoon leader and platoon sergeant to accompany the teams.

If the RFF package is larger than five CPNs, then ask for the PL and PSG as well as a company representative (the XO or operations NCO may be a good choice). When spanning multiple companies across the tasking, battalion leadership from the S3 network operations cell absolutely needs to be considered – ideally a network technician or systems engineer.

The role of these higher levels of leadership is to help with command and control as well as to identify training objectives for the teams and strengths/ weaknesses within the team composition. If the RFF comes through with just the team packages, then the Signal brigade leaders should ask to add the additional personnel. Since it is a CTC rotation away from home station,

an argument could be presented to send a small contingent of maintenance personnel as well (two-four personnel split between motor and signal maintenance).

COA 1 - Administrative Attachment of leadership package to the CTC EXCON

In this COA, the higher-level leadership attaches to the CTC EXCON, and then embeds within an observer coach trainer team, or is split and assigned into two or more OC/T teams. The benefit of this course of action is the leaders have freedom of maneuver within the CTC to visit their personnel and interact with the supported unit S6, allowing for a sharing of goals and understanding. Because a dynamic grows between the leadership and the supported S6, free communication will exist and the S6 can let the leadership know both the good and bad about the supporting team. In the case of negative information, the leadership can take immediate action to resolve rather than letting the situation fester.

Here, the leadership also gains a look "behind the curtain" at how the OC/Ts shape and influence the operation and how they coach, mentor, and train their counterpart.

Since the leadership is embedded within the OC/T teams, there's a training requirement to validate them as Tier 1 qualified OC/Ts. At JMRC, this requires a week of in-depth training to get to the minimal baseline. Doubtless, the other CTCs have a similar program to support exercise participants and follows a similar timeline.

COA 2 - Tactical Attachment of leadership to the rotational training unit

Here, the leadership is assigned to augment the BCT S6 shop. They become LNOs for their teams, providing an additional source of contact and knowledge of the team strengths, weaknesses, and capabilities directly to the supported BCT S6. Further, their presence increases an often-understrength S6 shop, reducing the workload required across the team and increasing output. The attached leadership loses the freedom of maneuver and visibility on the bigger picture they would see with the EXCON attachment, but have the potential to see how a maneuver BCT utilizes mission command and to increase the impact of that provision through their presence.

COA 3 – Hybrid

In this situation, members of the leadership are split into roles between EXCON and BCT S6 attachments. One or more personnel are assigned to each, gaining the benefit of both sides – the BCT S6 gains additional personnel to relieve shortfalls and increase throughput, and the CTC OC/Ts gain a link to the supporting CPN teams, allowing them to get after team training objectives specific to each.

As a support package grows more robust, this third COA becomes the most feasible. When battalion NetOps personnel are included, they are best suited for attachment to the BCT S6 section. In other cases, the battalion leadership could discuss desired assignment location with the CTC S6 planners, and tailor to the best fit from the supporting unit's desired training outcomes. Inclusion of maintenance and engineers allows for additional training opportunities by incorporating them into the BCT concept of signal support.

The Bill and the Benefit

Obviously, a cost is associated with sending additional personnel and equipment to a CTC and it must be borne by an organization somewhere. By tailoring the RFF package to include immediate next-level leadership only, the impact is negligible in the big picture. A few additional personnel attending a major training event have minimal impact on the overall cost of the exercise. As a former Signal Brigade planner, I cannot imagine a higher headquarters G8 balking at adding leadership personnel to an existing RFF package. However, if that should happen then the Signal Brigade could support the additional cost out of their budget – the return on investment is more than worth the cost involved.

Placing signal leadership with the supported communications packages increases the level of training the signal teams will receive at the CTC. Rather than simply experiencing a mission set with customers – as is currently the goal of any training event for signal – the team will be able to improve on specific training objectives identified to either the BCT S6 (with COAs Two and three) or to the EXCON S6 (with COAs 1 and 3).

Additionally, regardless of the COA employed

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the supporting signal unit will return to their home station with leaders who have personally seen their teams operate in a customer-support role to a battalion, and will have a better understanding of the implied tasks which are never fully understood the first time. As these leaders increase in positions of responsibility, they will be able to share the lessons learned from a CTC rotation with others, and understand the intrinsic value in getting personnel to one of these events.

Conclusion

Any time a signal element is able to deploy to a CTC and provide support to a customer, that team will benefit. Adding leadership to the package sent forward increases the potential for focused training and better shared understanding between the supported and supporting elements. A signal battalion team – no matter its composition – brings a level of training and experience that a maneuver S6 likely has not experienced, and that S6 will be able to reap the benefits of the tactics, techniques and procedures inculcated into the signal team by the signal leadership and the signal battalion S3. Much like an FH-M net sends timing to all its stations, the occasional interaction of a maneuver S6 with ESB teams will re-synch the S6 to an appreciation of standards and best practices employed in site selection, setup, and sustainment.

Across the CTCs, during planning conferences the S6 planner must help to formulate the RFF to include higher-than-team leadership. With the BCTs, the brigade S6 must consider the need for additional personnel and include the leadership in the RFF package. Last, at the signal brigade where the RFF lands, the planners must look at not only the force alignment request (ie, 3xCPNs and 1xSSS), but also at the level of leadership commensurate with that package organically, and then plan to send the leadership as well as the teams to the exercise.

A fully integrated package as outlined in the COAs of this article not only increases the return on investment for the supporting teams, but also works to significantly improve the perception of the supported force about signal teams and increases the level of support that is available to the maneuver task force. The BCT continues to receive the historical support provided by an RFF signal team but potentially also gains personnel for its planning and engineering cells. Lastly the teams from the ESB company gain additional opportunities to focus on specific training objectives through integration with the CTC EXCON.

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Acronym QuickScan

BCT – Brigade Combat Team
BEB - Brigade Engineer Battalion
BSB - Brigade Support Battalion
CTC – Combat Training Center
DATE – Decisive Action Training Environment
EXCON - Exercise Control
LNO - Liaison Officer
MRE – Mission Rehearsal Exercise
MRX – Mission Readiness Exercise
MTO&E - Modified Table of Organization & Equipment
OC/T - Observer Coach Trainer
PL – Platoon Leader
PSG – Platoon Sergeant
RFF – Request for Forces
RSOI - Reception, Staging, and Onward Integration
RTU – Rotational Training Unit
SOF – Special Operations Forces

Shoot · Move · Communicate

A Battalion Signal Officer preparing for a rotation at the National Training Center recently reached out and asked what are the best practices needed for success. The answer may vary from unit to unit, but there are several common trends that have been constant over the past year. These trends are usually rooted in the unit's train up for the National Training Center, and become very apparent upon their arrival.

The NTC is designed to work on all of a unit's systems and force them to exercise mission command. Although a unit's home station training may not replicate the NTC environment, an organization cannot ignore training on their mission command systems.

Arriving at NTC is not the time for an organization to start getting acquainted with tactical satellite and high frequency radios, digital systems in the command post, retransmission sites, and how to establish upper tactical internet. Instead, it is imperative to conduct this training at home station and expand on that knowledge base throughout the rotation.

During home station training this is also the time to establish communications equipment maintenance practices. Routinely, units will arrive with a sixty percent or lower operational readiness rate for their communication systems, specifically on radios and Blue Force Trackers. These commo pacing items require attention at home station and the idea that the OR rate will improve during the rotation is false. Historically a unit's OR rate will start to decline right after roll out. This is only more reason to start communication equipment maintenance practices early and create a tracking system. A recommendation to help improve this reoccurring issue is for units to add a commo equipment focus to their "Maintenance Mondays" routine.

In addition to home station training, one of the most crucial practices is battalion staff synchronization, specifically, between operations and signal. Time and time again the scheme of maneuver is not synced with the concept of signal resulting in the operation quickly outrunning frequency modulation communications. In a garrison environment, the Signal officer is closely tied to the battalion executive officer, but that changes as the task force transitions to operational planning.

The operations officer (S3) and Signal officer (S6) must synchronize their efforts to ensure the commander will be able to exercise mission command across the battlefield. This requires the S6 to be involved in the Military Decision Making Process and develop a relationship with the S3 early. This relationship between the Operations Officer and Signal Officer should at least cover adding the RETRANS and key commo events to the Operation's Synch Matrix, developing of a security plan for RETRANS sites and confirming a PACE plan by war fighting function.

As mentioned earlier, a training focus area must be RETRANS sites. Due to the vast area covered, a Battalion's traditional one RETRANS vehicle structure is far from adequate. A Task Force needs to be prepared to have multiple RETRANS vehicles and plan to provide security on those sites. A typical operation can cover twenty to fifty kilometers over mountainous terrain. To help prepare for this, an organization needs to train Soldiers across the Battalion (preferably at each company) on how to establish a RETRANS.

It is a common misconception that only a 25 series (Signal) can establish a RETRANS site. All that is required to RETRANS one net is a vehicle, two radios, two antennas, and a retransmission cable also known as a "dog bone." Once the radios are on the right settings, the Battalion will extend their FM Line of

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Site communications reach. Recently, a Task Force was able to successfully train their Scouts and a maneuver company on how to establish a RETRANS. They effectively talked on FM radios over a fifty kilometer distance through mountainous terrain from their lead element back to the tactical operation center using four RETRANS vehicles.

This type of creativity must be applied, and fully thought through. Some points to consider: a track vehicle (i.e. M1068, M113) as a RETRANS will be extremely limited due to terrain. Additionally, camouflage netting and low profile antennas (i.e. COM201B with tripod leg structure) help increase RETRANS survivability.

Beyond Line of Sight communications, TACSAT and HF radios, are also a valuable asset at NTC. Many organizations will only go over a slideshow and call training complete, but to become capable, a unit must execute a home station training event with only HF and TACSAT radios.

This is a forcing function causing units to make sure they have the right antenna components and increases familiarity. HF and TACSAT radios given to the right subordinate units are great assets at NTC because it increases an organization's PACE plan and helps communications when FM will be unreliable due to distance or terrain.

Furthermore, if a unit arrives and struggles with HF radios a great resource in the battalion TOC will be the Joint Terminal Attack Controller operators assigned to the Task Force. HF and TACSAT radios are JTAC's primary systems that they use on a daily basis.

As a final point, the Command Post often goes untrained as a unit prepares for NTC, but it is vital to ensuring the Task Force has proficient operators on their mission command systems prior to arrival.

The TOC needs to be able to effectively create a digital common operating picture utilizing all digital systems and the CP must practice using the COP to synchronize efforts. These digital systems go relatively untrained at home station due to lack of Brigade level training events, but the command post can overcome this by utilizing CPOF stand alone software.

This CPOF software is not networked, but still allows the Command Post to go through the motions of using a Digital COP (visit NTC Tarantula Team MilSuite page for more information on CPOF Stand Alone Software). A method to train digital systems is to send a competent NCO with longevity to the Mission Command Digital Master Gunner Course. This individual can increase the efficiency and training of the unit on mission command digital systems. Additionally, a battalion Signal shop can work through the Regional Hub Node to practice accessing a satellite. Although, they may not be able to establish upper TI, this allows the Signal Soldiers to make accessing the satellite a battle drill, allow for cross training of personnel, decrease TOC set-up time, and ensure the Satellite Transmission Terminal is fully mission capable.

These may seem simple or straight forward, but organizations continue to not focus on mission command as a line of effort in their train-up plan, which ultimately has affected their performance at the National Training Center. With all rotations at NTC being Decisive Action and no longer consisting of the COIN structure, a Task Force no longer falls in on an already established communications infrastructure. A DA rotation requires leader emphasis to leverage all available systems and the synchronizing of all efforts to dominate the battlefield. These areas of emphasis will position any unit for success at the National Training Center.

ACRONYM QuickScan

CP - Command Post
CPOF - COmmand Post of the Future
HF - High Frenquency
JTAC - Joint Terminal Attack Controller
NCO - Noncommissioned Officer
NTC - National Training Center
PACE -
RETRANS - Retransmission
RHN - Regional Hub Node
TACSAT - Tactical Satellite
TOC - Tactical Operations Center

Signal Officer Transformation

On 16 October 2015, the DA G1 approved the notification of future change for the Signal Officer Transformation Military Occupational Classification and Structure with an effective date of 1 October 2016.

As illustrated in Figure 1, the MOCS action established a new Area of Concentration 25G – Network Integration Officer, within the Signal Corps Branch 25 Officer career field from the grade of CPT through LTC and a new AOC 25Z for Signal Corps Officers in the grade of COL.

Additionally a new Functional Area 26 is also established. FA26 will contain FA26A – Network Systems Engineer (previously FA24), FA26B – Information Systems Engineer (previously FA53) and FA26Z – Senior Information Network Engineer, which combines FA24 and FA53s COLs into FA26Z.

This MOCS action will dramatically enhance the Signal Regiment's ability to produce experienced and professionally developed officers with the right knowledge, skills and abilities to build, operate, maintain and secure DoD networks from the tactical edge through the strategic level of war. This action addresses the current training and education gaps for Branch 25 officers, and the current education gaps for the FA53 by introducing education based learning outcomes. It also addresses force structure deficiencies in the FA53 career field by reducing the number of FA53 CPT authorizations.

What the MOCS change action will accomplish

(Continued on page 10)

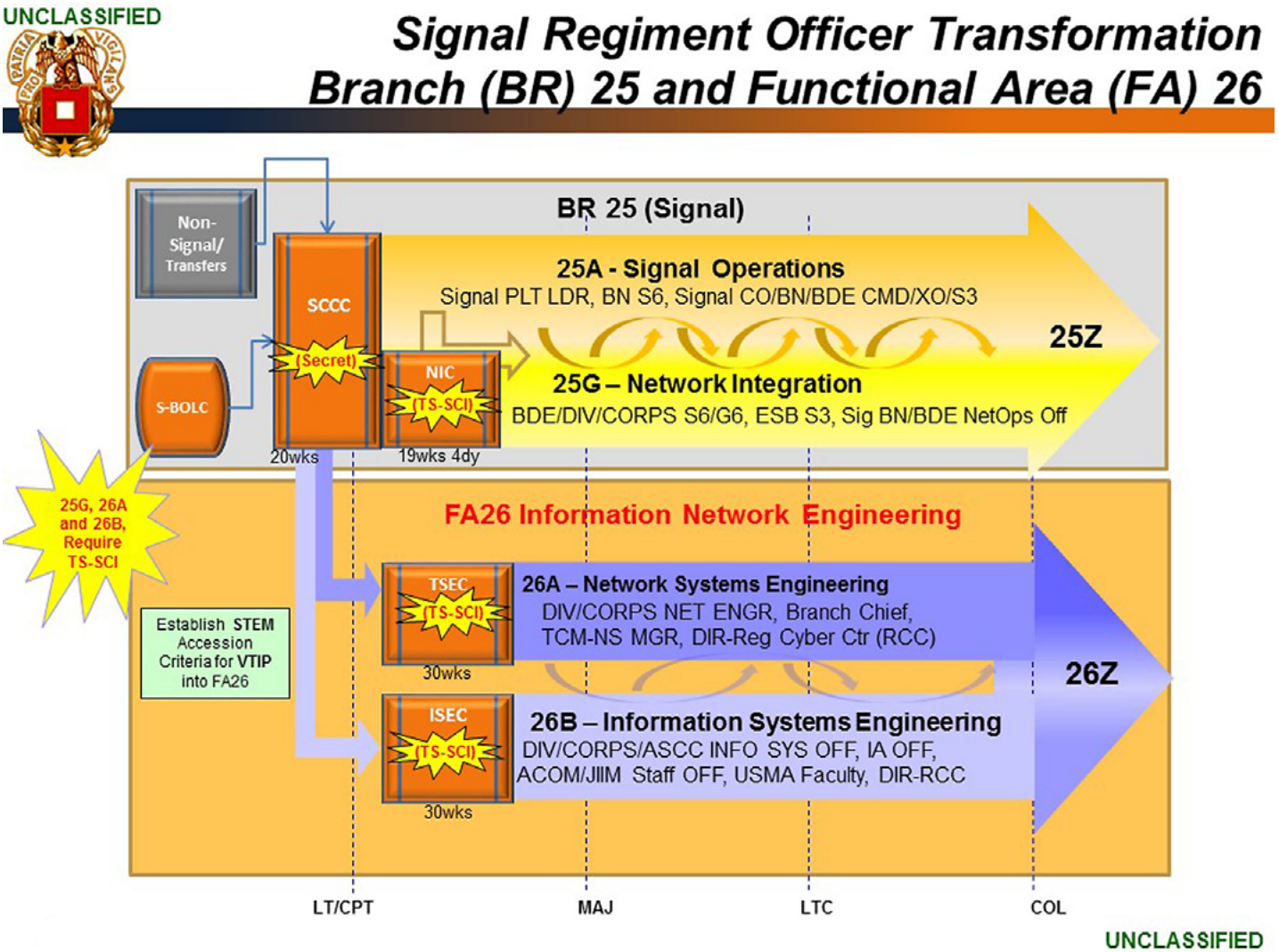

Figure 1

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For Branch 25

- Requires TS-SCI clearance for 25G enabling access to threat intelligence at BCT/MfSB and higher.
- Creates 25G course: Provides advanced cyber information technology and security as well as tactically focused branch operational training at CPT, MAJ or LTC
- Provides experiential development of Signal officers in information technology as they fill the role of FA53 in selected positions and reduces reliance on contractors
- Inculcates skill and confidence among Signal CPT and MAJ in their ability to lead, manage and adapt to emerging cyber IT and security Department of Defense Information Network requirements.
- Mitigates FA53 shortages at the CPT level; enhances viability of FA26

For Functional Area 26

- Establishes parity and more equity within the Signal functional area officer inventory
- Provides graduate level foundation in technical design, systems engineering process, and project management education (like current FA24); elevates FA53 skillset from manager to system engineer
- Raises technical expertise; provides agile and adaptive thinkers who can exploit current and future cyber information technology and security techniques and procedures
- Enhances the FA26 structure providing increased opportunity and career field viability for professional development from CPT to COL
- Enables talent management; assignment flexibility and best-of-breed selection to fill LTC and COL key development positions
- TS-SCI prerequisite for all FA26 officers enables access to threat intel at every level

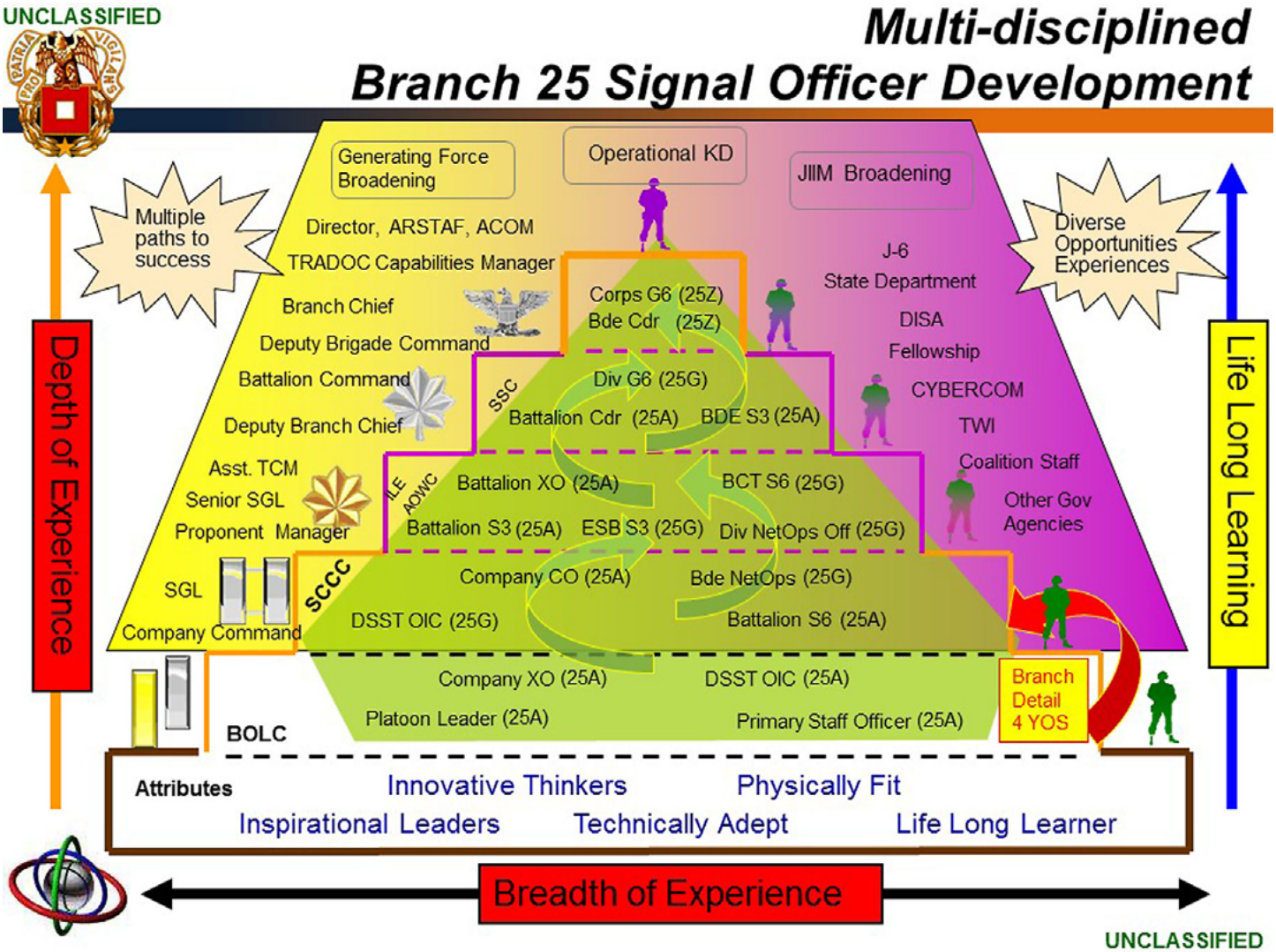

Figure 2

Branch 25

Branch 25 is a diverse branch that is responsible for ensuring every form of communications available is employed, operational, maintained, and protected to support mission command of unified land operations.

The Army has become increasingly network dependent over the last 25 years. Concurrently, the provisioning, control and security of the networks has become more complex. Both trends will continue well into the future.

Branch 25 officers are critical to the Army's ability to provision and integrate operational networks in support of mission command, yet, a significant gap has developed between emerging technical requirements and the skills, knowledge, attributes, and abilities of Signal officers with regard to Internet Protocol based systems.

Therefore, this MOCS action proposes the establishment of AOC 25G within Branch 25 to ensure that those Branch 25 officers designated to serve in the most critical positions in the Army's warfighting formations receive an immersion in advanced Signal operational and technical training.

The professional development objective is that every Branch 25 officer at the executive level would have obtained training and experiential development in 25G network integration at some point during CPT – LTC years of service. AOC 25G officers can be assigned to consecutive and/or continuous assignments of increasing responsibility in positions coded 25A or 25G.

AOC 25G will produce highly trained and experienced network integration officers to serve as brigade S6, division and corps G6, ASCC and higher levels. AOC 25G Officers will also serve as network operations officer at BDE S6, Div/ Corps G6, expeditionary Signal Battalions, Theater Tactical Signal Brigades, Theater Strategic Signal Brigades and higher level Signal units, as well as S2/S3 in ESB.

FA 25A will continue to encompass traditional command and staff positions within Signal platoons, companies, battalions and brigades. Officers are accessed into AOC 25A at 2LT, attend the Signal Basic Officer Leader Course and are assigned to Signal units. A significant number of Signal LTs serve branch detail assignments in Maneuver, Fires and Effects branches, and return to Signal between 3-4 years of service. All Signal officers attend the Signal Captain Career Course; upon graduation, a majority will serve AOC 25A follow-on assignments in Signal units. AOC 25A will be authorized at 2LT to LTC.

AOC 25G will be an in-service accession AOC at CPT and higher, and will access from the candidate pool of AOC 25A officers. AOC 25G will encompass: all existing network operations officer positions within non-Signal units, Signal battalions and brigades; all FA53 information systems management authorizations existing in non-Signal brigades; and, all brigade S6 and division G6 positions. The realignment of FA53 authorizations within AOC 25G will help mitigate CPT-MAJ over-structure challenges within FA53. Concurrently, it will enhance the development of advanced network operations skills to include security among Signal officers in tactical and operational maneuver and maneuver support formations. Selected AOC 25A officers will attend the 19 week, 4 day Network Integration Course at Fort Gordon after completion of the SCCC, or later upon selection for an AOC 25G assignment at CPT, MAJ or LTC. Selection for the course will be assignment driven. AOC 25G will be authorized at CPT and higher. After training and utilization in AOC 25G, officers will be able to serve in either 25A or 25G until promotion to COL when all become 25Z as illustrated in Figures 1 and 2.

The pilot 25G course will begin in FY17. The pilot 25G course will be a combination of the current FA53 Course, BN/BDE S6 Course, cybersecurity training and BDE/ DIV Signal Operations-focused scenarios that reinforce the Military Decision Making Process throughout to better prepare Signal Officers to meet the Army warfighting challenges to win in a complex world. Due to the lead time required to produce 25G trained officers, for the purpose of Unit Readiness Reporting under the provisions of Chapter 4, AR 220-1 (Unit Status Reporting), AOC 26B may be substituted for AOC 25G during the period 1 October 2016 – 1 October 2019.

25A description of duties

Signal officers command, lead and manage signal units and personnel engaged in the installation, operation, administration, maintenance, and security of wide area communications networks and information systems enabling mission command for tactical, operational, strategic,

(Continued on page 12)

(Continued from page 11)

and sustaining base operations. They advise and provide technical expertise to supported commanders, staffs and other users of communication networks and information services. Signal officers plan, build, secure, operate, maintain and protect communications networks. Plans, coordinates, and supervises the training, administration, operation, supply, maintenance, transportation, security and allocation of resources for Signal units and facilities.

Unique duty positions

- Signal Platoon Leader
- Signal Company Executive/ Operations Officer
- Signal Company/Detachment/ Rear Detachment Commander
- Signal Battalion/Squadron S6 Officer
- Signal Battalion/Brigade Executive/Operations Officer
- Signal Battalion Commander
- Signal Plans Officer Division/ Corps/ASCC/ACOM
- Signal Staff Officer ACOM/ DA/Joint/Combined/DoD

25G description of duties

Network Integration officers lead, direct and manage units and activities that plan, integrate, secure, operate, maintain, and protect communication networks and Mission Command Systems to enable the commander to integrate all warfighting functions. They supervise or support network and security operations that ensure friendly freedom of action in and through cyberspace and the electromagnetic spectrum while denying enemy forces the same. Network Integration officers advise commanders and staffs concerning cyberspace capabilities and the conduct of cyberspace operations that ensure network and information system availability, information protection, and information delivery.

Unique duty positions

- Brigade/Division/Corps Network Operations Officer
- Brigade/Regiment/Group S6 Officer
- Div/Theater Sustainment Command G6 Signal Officer
- Division/Corps, Deputy G6
- Division/Corps/ASCC/ ACOM Network Officer
- ESB/TTSB/TSSB NetOps Officer
- ESB S3
- Staff Signal Officer ACOM/ DA/Joint/Combined/DoD

All Signal CPTs must successfully complete the SCCC at the U.S. Army Signal School, Fort Gordon, GA. When assigned to a 25G billet, officers must successfully complete the 4C-25G Network Integration Course at the U.S. Army Signal School, Fort Gordon, Ga. Attendance at this course may be waived by exception with proponent office approval for equivalent network integration training, education, and/or experience. When assigned to 25G positions, officers must obtain and maintain TOP SECRET clearance with Sensitive Compartmented Information access. Officers must initiate procedures to obtain TS-SCI clearance immediately upon notification of selection for AOC 25G.

FA 24 and FA 53

FA 24 and FA53 will merge into one functional area with more opportunity, enhanced career field viability, and ultimately more agile and adaptive technical leaders in an increasingly ambiguous and uncertain cyberspace domain. The specialized technical requirements of FA24 and FA53 are different and require a significantly different curriculum of training and education; however there are similarities. The decision to combine FA's 24 and 53 is the result of careful analysis that identified the following similarities:

- FA24 and FA53 are highly technical and are increasingly interdependent.
- FA24 and FA53 provide essential capabilities in building and defending the network infrastructure and information systems.
- FA24 and FA53 perform systems engineering functions at the tactical through strategic levels of command.
- FA24 and FA53 work collectively with BR25 to ensure LAN (Information Systems)/WAN (Telecommunications Systems) integration, thus enabling mission command and information dominance.
- FA24 and FA53 perform project management functions with regard to information network engineering for DoDIN Operations.
- FA24 and FA53 require specific Science, Technology, Engineering, or Math degrees as well as a TS/SCI security clearance for accession.

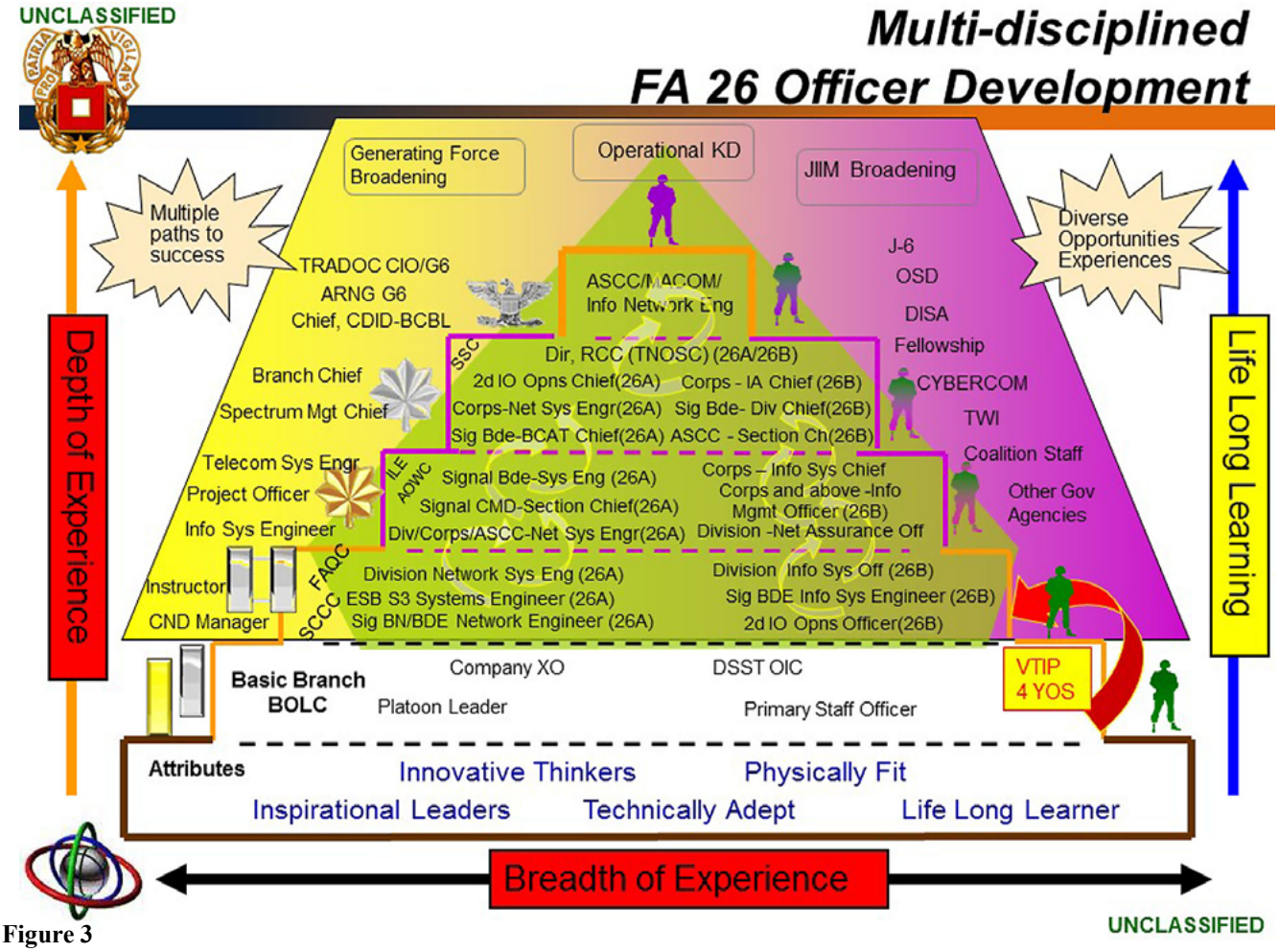

Figure 3

- Merging FA24 and FA53 into one functional area establishes more equitable opportunity for all cohorts and year groups within the inventory and affords flexibility in managing assignments at the executive level.

Functional Area 26 – Information Network Engineering

AOC 26A and 26B Officers will be recruited from across the Army (all branches) into FA26 (AOC 26A and 26B) at primarily the fourth year of service through the Voluntary Transfer Incentive Program. All will require a STEM degree and must be able to obtain and maintain a TS-SCI clearance. All candidates will attend the FA26 qualification course consisting of information technology, network design to include security, systems engineering and program management followed by education in their respective AOC 26A or 26B course. The FA 26B course will be enhanced by FY17 to provide higher level training and education including Master of Science curriculum taught by PHD cadre. Graduates of the 26A and 26B courses will be assigned to a majority of the current FA24 or FA53 positions respectively. AOC 26A and 26B will be authorized at CPT through LTC.

26A unique duty positions

- Div/Corps/ASCC Network Systems Engineer
- Cyber Protection Brigade Computer Network Defense Manager
- U.S. Army Cyber Leader College Instructor
- U.S. Military Academy Instructor
- Div/Corps/ASCC Senior Network Systems Engineer
- Division/Branch Chief
- Corps/ASCC/ACOM/DA/Joint/Combined/DoD Chief Network Systems Engineer/Director
- Regional Cyber Center Director

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UNCLASSIFIED

Signal Regiment Officer TOE Authorizations by Echelon and Formation 1 Oct 16

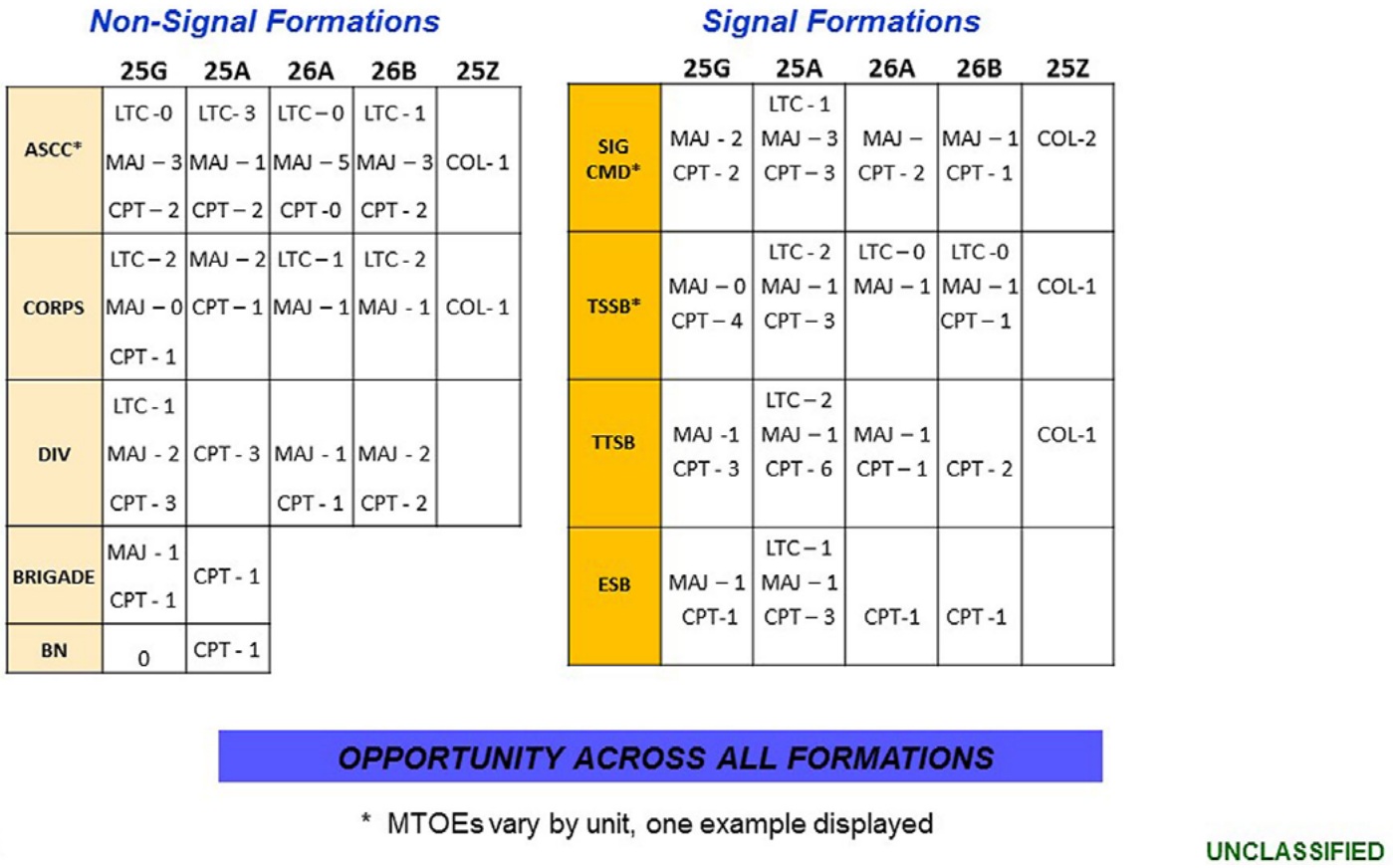

Figure 4

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26B unique duty positions

- Div/Corps/ASCC/ACOM/DA/Joint/Combined/Dod Information Systems Officer
- Div/Corps/ASCC/ACOM/DA/Joint/Combined/Dod Information Assurance Officer
- Div/Corps/ASCC/ACOM/DA/Joint/Combined/DoD Chief Information Systems Officer/Director
- Div/Corps/ASCC Content Staging / Information Dissemination Management Officer
- Cyber Protection Brigade Computer Network Defense Manager
- U.S. Army Signal School / Military Academy Instructor/Writer
- Regional Cyber Center Director
- Information Operations Battalion Commander
- Division/Branch Chief
- Knowledge Systems Engineer
- Joint Action Officer

Summary

The Signal Regiment Officer Transformation will provide enhanced technical training to Signal Officers improving their ability to lead, manage and adapt in order to assure uninterrupted access to critical communications and information links while operating in a contested, congested and competitive operating environment. The TS-SCI prerequisite for all 25G and FA26 officers will enable access to threat intelligence at every level to strengthen defense of the DoDIN and is essential to enable network and data convergence.

Figure 4 illustrates the distribution of Signal Regiment officer PEO authorizations by echelons and formations effective FY17 and the distribution of Signal officer authorizations after the MOCS change action implementation with a diversity in

opportunity across all formations and all levels.

The Signal Regiment Officer Transformation is not an endstate, it is a stepping stone for the Signal Regiment to meet the demands of Force 2025 and Beyond.

Frequently Asked Question

Q: Will assignment opportunities for AOC 25G qualified officers be limited to serving primarily in non-Signal MTOE units in BDE S6/DIV G6/Corps G6 positions?

A: No, there will be a shared balance between 25G authorizations between Signal and non-Signal formations as illustrated in the article above. The talent management goal for the Signal Corps is for officers to rotate between 25A and 25G assignments with an objective of every Signal Officer being 25G qualified at the rank of LTC.

Q: Will constructive credit for AOC 25G be granted to officers who have served in positions being coded 25G?

A: Yes, the criteria and process for 25G constructive credit are being established based on successful completion of qualifying assignments and possession of a current TS/SCI clearance.

Q: Why aren't BN S6 positions being coded 25G?

A: While BN S6s would benefit greatly from the additional training provided in the 25G Network Integration Course, there is insufficient capacity in the course to train the number of officers required to fill all BN S6 positions.

Q: How technical will the 25G course be?

A: The 25G course will build upon the technical foundation received at SCCC, without creating Signal Officers who are overly technical. The 25G course will produce critical thinkers who enable mission command by analyzing missions and innovating network solutions through network architecture engineering, implementing persistent network defense, and facilitating efficient data and knowledge management in a dynamic operating environment.

Q: At what level will AOC 26B officers be authorized?

A: AOC 26B will be authorized in battalion and higher Signal units; and, also in G6 at Div/Corps/ ASCC and higher similar to the current FA24.

Q: How does FA26 achieve assignment flexibility and best-of-breed selection to fill LTC and COL key development positions?

A: Currently FA 24 and 53 LTCs are competing for director, Regional Cyber Center. The Signal proponent has identified potential additional CSL-KB FA 24 and 53 positions at LTC and COL for CSL-KB consideration. Signal proponent is working with stakeholders in order to establish a robust CSL-KB path for the future FA26.

ACRONYM QuickScan

AOC - Area of Concentration
DoDIN - Department of Defense Information Network (Formerly GIG- Global Information Grid)
ESB - Expeditionary Signal Battalions
IP - Internet protocol
MCS - Military Command Systems
MOCS - Military Occupational Classification and Structure
NOFC - Noticiation of Future Change
SBOLC - Signal Basic Officer Leader Course
SCI - Sensitive Compartmented Information
TS - Top Secret
TTSB - Theater Tactical Signal Brigade
VTIP - Voluntary Transfer Incentive Program

Defining the brigade combat team Signal command support relationship

MAJ Brian Laney

As our Army continues to transition from years of counterinsurgency centric operations, the mission of the brigade combat team Signaleers remains the same, "ensure the commander can always securely communicate." At the epicenter of this mission is the command support relationship between the BCT signal officer (S6) and the brigade signal company commander. This relationship is quickly becoming difficult to define.

Our most current signal doctrine, FM 6-02 (Signal Support to Operations), is vague in articulating the "how" of this relationship. Not being specific in this definition leaves units and individual personalities to make their own interpretation of the doctrine. Clearly defining the "how" of this relationship will allow commanders, staff, coaches and trainers to reinforce doctrine so all BCTs fight the same.

As highlighted below, FM 6-02 dictates that the BCT S6 coordinates with the BCT S3 to request assets from the signal company commander. Additionally, the commander is to maintain command authority over the company.

After observing multiple Decisive Action and Mission Readiness exercises at the Joint Readiness Training Center (JRTC), this is not how we operate within the Signal corps. Many brigade S6s arrive at the JRTC and believe the Signal Company and its assets belong to them.

FM 6-02 (Signal Support to Operations) defines the BCT S6 roles and responsibilities in the following way:

2-9. The S-6 section personnel within the brigade CPs support the commander's communications requirements across the area of operations. The S-6 consults and informs the higher headquarters J-6/G-6, the brigade signal company commander, assigned or attached battalion S6 staffs, and adjacent units to ensure efficient communications employment throughout the brigade area of operations.

2-10. The S-6 is responsible for planning the communications and information systems support for the brigade, brigade CPs, and subordinate units organic to, assigned to, or operating within the brigade area of operations. Unless specifically noted, these roles and responsibilities are applicable to both the BCT S-6 and the multifunctional support brigade S-6.

FM 6-02 defines the BCT Signal company roles and responsibilities:
2-12. The brigade signal company provides 24-hour communications support of the signal system networks for Stryker brigade combat teams, infantry/armored brigade combat teams, and supported multi-functional support brigades (fires brigades, battlefield surveillance brigades, sustainment brigades). Unit subordinate elements (platoons and teams) deploy throughout the BCT area of operations.

2-13. The brigade signal company provides operational elements designed to engineer, install, operate, maintain, and defend the joint enterprise theater network supporting operations as an integral part of the Coalition Forces Land Component Command/Army forces. It extends DISN services to the division and subordinate elements operating in an area of operation and provides basic network management capabilities. The brigade S-6 coordinates with the brigade S-3 to request allocation or positioning of signal assets in the brigade area of operations. The unit commander maintains command authority over the company's assigned operational platoons and attached elements.

Our current doctrine and what has been observed on the ground do not coincide, as evidenced by the comment below. The following is an AAR comment excerpt from a BCT signal company commander participating in a JRTC rotational exercise when asked, "How can the BCT better support the signal company?" As a side note, this commander was also serving as the brigade automations officer

(FA53) for the BCT.

"Although I understand that as the FA53 for the BCT, I have an inherent relationship with the BCT S-6, the signal company commander should not be the assistant S-6. The signal company provides a lieutenant to the S-6 shop during operations as the platoon leader for the JNN/TCN platoon that can and should fill that role. This accomplishes several things.

First it allows the company commander to focus on commanding his Soldiers and ensuring that the correct resources are lined up with the appropriate mission.

Second, it provides mentorship and development to a LT that would otherwise not be available at that stage in the young leaders' career. Finally, it allows that PL to be fully involved in not only the platoon that is supporting the S-6, but all Soldiers in the S-6 expanding their knowledge and understanding of the signal mission and capabilities."

Comments like this from BCT signal company commanders are the norm rather than the exception. Too many times the officers within the signal company are expected to become assistant staff officers within the brigade S6 shop. This immediately creates resentment and dissention within the signal company, because the platoon leaders need to be with their Soldiers and the commander should to be allowed to command and control his company. A commander cannot command and control his company from the confines of the brigade TOC or S6 shop. The signal company commander should work side by side with the BCT S6, but not be counted as a member of the brigade staff. Staff officers plan and commanders execute those plans.

I believe FM 6-02 para. 2-13 needs to be amended to define the relationship between the BCT S6 and the JNN/TCN PL supporting the BCT main TOC during combat operations. As noted above this experience can be valuable to the young PL, but must be defined by doctrine so all BCT elements operate with a common command and support relationship.

As leaders is an Army in constant transition, signal company commanders are experiencing a great deal of friction between their parent battalion, which can be the Brigade Engineer Battalion (BEB) or Brigade Special Troops Battalion (BSTB), the brigade S6, and other brigade staff. While in garrison the signal company administratively falls under the BEB or BSTB. During tactical operations the signal company must move away from its parent battalion to conduct its combat mission of supporting the brigade communications infrastructure. In order to alleviate this friction, all parties must know their role in the BCT and stay in their respective lanes.
FM 3-90.61 (BSTB) defines the following with respect to collaborative planning:

3-9. When available, BSTB units and company commanders can directly assist BCT staff during the planning phase. If leaders and commanders are performing more important missions, their designated representatives assist BCT staff. With detailed knowledge of their units' strengths and weaknesses, company commanders can greatly assist BCT staff in the initial planning process. At some point when the plan has been sufficiently developed, these company commanders and key BSTB personnel must begin their own planning and mission preparation. This involvement in the BCT's planning allows company commanders to more thoroughly plan and prepare for the operation.

3-10. The BSTB commander and staff should develop procedures to ensure that they are kept current with and are integrated into BCT planning and execution.

ATP 3-34.22 (BEB) describes planning for the brigade signal company as follows:
1-59. The company typically conducts collaborative planning for mission specifics with the BCT S-6.

There must be a clear delineation between collaborative planning and mission execution. Parallel planning is highly encouraged.

At the JRTC the most successful units begin this collaborative planning process during the BCTs Leadership Training Program and continue through rotation.

As noted above, there must be a clear breaking point in the planning process when the signal company commander is allowed to return to the company to conduct his/her own planning and prepare the company for mission execution.

With most BCTs this is where the lines become blurred and the command support relationship moves away from doctrine. This is where individual personalities and leadership styles enter the equation to muddy the waters. This is the point where we, as signaleers, need to focus on doctrine and how we can best support the communications architecture for the BCT.

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Now that we know "what" we are supposed to do; the question is how do we fix it and/or what does right look like?

As a starting point, the BCT S6 and the signal company commander need to set the signal team up for success by establishing and defining the command support relationship based on our written doctrine very early in the BCT training cycle.

Determining the boundaries of this relationship will free the company commander to execute administrative tasks and employ the Military Decision Making Process that he/she is often required to execute. Placing a JNN/TCN PL in the BCT S6 shop allows a signal leader to be present, with the responsibility of battle tracking and maintaining situational awareness, in the absence of the commander and/or BCT S6. During contingency and field training operations, the signal company command post should also be physically located near the BCT S6 shop within the BCT Main Command Post. This layout will assist in facilitating direct coordination between the BCT S6 staff and the signal company leadership. However, this physical proximity should not alter the pre-defined command and support relationship between the BCT S6 shop and the signal company. These additions are not currently dictated by doctrine, and as such, much be passed on through best practices and/or dictated through the BCT S6, as the senior signaleer in the BCT. Signal company commanders must take a step forward into this larger role and set their platoon leaders up for success. Successful operations require us to work together, define the art of the relationship and ensure the BCT CDR, S3 and appropriate battalion commanders understand the command support architecture.

Our doctrine is written to allow the commander to command and the staff officer to conduct planning and recommend allocation of resources. To ensure this happens company and field grade Signaleers must educate battalion/brigade commanders and staff on how the BCT signal team will operate. Signal company commanders need to develop positive relationships with brigade signal officers to better provide the brigade with the critical communications infrastructure required to be successful in combat. Currently this relationship is defined across several different publications allowing for confusion and interpretation. As a signal community, we must better define this relationship and incorporate it into current doctrine.

MAJ Brian Laney *is currently assigned as a student at the Command and General Staff College and most recently served at the Joint Readiness Training Center as the Senior Signal Company Observer, Coach, Trainer. MAJ Laney received his commission from the Officer Candidate School and was assigned to the 4th Infantry Division where he served as a Scout Platoon Leader and RSTA SQDN Assistant S3. Following the Signal Captains Career Course he was assigned to the 2nd Stryker Brigade Combat Team, 25th Infantry Division, 2nd Squadron 14th U.S Cavalry as an S6 until he took command of the brigades 556th Signal Company.*

ACRONYM QuickScan

BCT - Brigade Combat Team
BEB - Brigade Engineer Battalion
BSTB - Brigade Special Troops Battalion
LTP - Leadership Training Program
MDMP - Military Decision Making Process
NM - Network Management
TOC - Tactical Operations Center
JRTC - Joint Readiness Training Center

Tobyhanna Army Depot training ramps Reservists' readiness

By Ed Mickley

Reservists from every military branch can learn communications-electronics systems troubleshooting and repair techniques here to improve their maintenance and repair readiness. The depot, which enhanced Army and Marine reservist electronic capabilities for years, is now expanding the joint training program to include Air Force, Navy and Coast Guard Military Occupational Specialties.

Students work alongside Team Tobyhanna's civilian counterparts to gain in-depth knowledge for sustainment of Command, Control, Communication, Computer, Intelligence, Surveillance, reconnaissance (C4ISR) equipment associated with their MOS. Depot training reaches beyond the limits of general knowledge skills associated with occupational specialties and dramatically increases work force and unit readiness.

The hands-on experience has proven invaluable for Soldiers and Marines and will do the same for Sailors, Airmen and Coast Guardsmen who might deploy.

"This, by far, is better than any training I've ever had," said a recent National Guardsman. "Training is usually convoluted with information you don't ever use. Here we're learning so many things that we can use in the field."

Servicemembers are assigned to work areas according to their MOS. They spend time in a classroom learning the capabilities of the equipment as well as the test and validation procedures then transition to hands-on training to perform tests and corrective maintenance on a variety of equipment.

"It costs less to bring our Marines here for two weeks than setting up a field exercise somewhere for a long weekend," said one Marine sergeant. "Tobyhanna Army Depot has the facilities to accommodate our needs and there are tangible benefits derived from the relationship between the Marines that use the equipment and the civilians that repair it."

This summer, in addition to traditional MOS courses, the depot is offering an opportunity to study cutting-edge technology that is gaining ground around the Department of Defense - Introduction to Robotics. The course covers the basic principles of robotics as applied in industry and the military. Instruction includes extensive use of an articulated robotic arm throughout the course to demonstrate automation and control processes.

Course topics include robotic arm basics, forward and inverse kinematics, familiarization with the lab-volt servo robot, point-to-point programs, task programs, program editing, servo control systems, robotic peripheral devices such as gravity feeders, pneumatic feeders, linear slides, belt conveyors and rotary carousels, mobile robots such as tracked vehicles and humanoids, and wireless control of robots.

Students will participate in numerous hands on practical exercises emphasizing the programming of a Servo Robot System. They'll also build and program two wireless mobile robots: a tracked vehicle with robotic arm, similar to many used throughout the military, and a humanoid.

Tobyhanna provides a welcoming environment for students to learn, train and gain experience while preparing for deployment.

"We greatly appreciate the professionalism and attentive interpersonal communication from the Tobyhanna staff and civilian work force," a Marine executive officer said. "When our Marines deploy, they'll take with them increased MOS skills thanks to what they learned and experienced at Tobyhanna."

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

First organic digital communications to forward-stationed Patriot brigade

By MAJ Jackie N. Kelley

Army Air Defense Artillery Brigades have begun receiving their first generation of digital communications systems. October 2015 marks the final two weeks of SIPR/NIPR Access Point and Troposcatter systems fielding for the 35th Air Defense Artillery Brigade, the only permanently, forward-stationed Patriot brigade in the U.S. Army. This is the ADA community's first of many upgrades to the legacy communications packages that have long existed in their inventory. The 35th ADA Brigade will now bolster its own organic SNAP/TROPO capability, increasing their digital and beyond line-of-sight capability.

Background

Some of you may recall nomenclature like Switch Multiplexer Unit (CDS/SMU) SMU, Communications Modem and Key Generator -194 from almost two decades ago with the Digital Group Multiplexing and Mobile Subscriber Equipment systems. Young and old Signaleers alike arriving to ADA units are very surprised to see that the equipment is still being utilized in communications packages to include the Engagement Control Station, the Information Control Center, and the Communications Relay Group.

Additionally, the impact of the changes also frees up additional communications asset requests from units like the 1st Signal Brigade's 304th Expeditionary Signal Battalion which has traditionally provides tactical communications support for the 35th ADA Brigade.

MTOE Changes

With the FY16 MTOE changes to equipment, the 35th ADA Brigade's S6 Section has grown from 18 to 26 personnel by adding a network operations section

(Photo bySSG Heather A. Denby)

OSAN AIR BASE, South Korea – CPT Brett Rigby, an automations officer assigned to 35th Air Defense Artillery Brigade, speaks with Walter Plucinski, telecommunications system field service representative, about integration of organic SIPR/NIPR Access Point and Troposcatter systems for a U.S. Army Patriot unit at Suwon Air Base 7 October 2015. Soldiers of 35th ADA Brigade will be the first to operate Patriot missile systems using an organic SNAPTROPO communications.

consisting of a Network Management Technician CW2/255N, a Telecommunications Operations Chief SFC/25W, an Electromagnetic Spectrum Manager SSG/25E, a Satellite Communication Systems Operator / Maintainer SSG/25S and a communications support team consisting of an NCO and two soldiers, which will be largely responsible for supporting the newly acquired SNAP/TROPO systems both administratively with satellite access requests, coordination with regional hub nodes, and frequency requests, as well as logistically by coordinating high level support through the use of the two telecommunications systems field service representatives that are contracted to support the 35th ADA Brigade over next 18 months.

Other changes to the MTOE authorization include an Information Protection Technician CW3/255S position. There is one glaring advantage that can be quickly noticed within the ADA BDE's MTOE's at the battalion level, which is the authorization for one Information Systems Technician CW2/255A and Cyber Network Defender SFC/25D (MTOE change FY14), seeing that level expertise is rare.

However, that should also provide some type of indicator as to how important and robust the information systems are at that level.

The Way Ahead

This is only part one of fieldings and upgrades of digital communications systems to the ADA community. The next upgrades scheduled to be delivered in 2020 will provide a seamless architecture that will allow the Air Defenders to directly access current communications platforms without the need to provide interfaces for the current legacy communications systems.

Closing

With change comes opportunity. The Signal Soldiers, Noncommissioned Officers, Warrant Officers, and Commissioned Officers that will serve alongside Air Defenders of the future will be part of a unique chapter in the history of modernization for the ADA community.

(Photo bySSG Heather A. Denby)

OSAN AIR BASE, South Korea – PFC Emanuel Carter, an air defense enhanced early warning system operator, and 1LT Jonathan Taylor, fire control platoon leader assigned to 6th Battalion, 52nd Air Defense Artillery Regiment, check connectivity of SIPR/NIPR Access Point and Troposcatter system during its organic fielding to the unit October 7, 2015. The battalion operates under the 35th Air Defense Artillery Brigade, the Army's only forward-stationed Patriot brigade.

The ADA Brigades will also have a great opportunity to leverage technology and conduct combat rehearsal with equipment that is organic to them. It is all about Readiness, particularly here in Korea.

The current SNAP/TROPO and future equipment fieldings will enable the ADA community to exercise seamless digital communications while preparing for their wartime mission.

MAJ Jackie N. Kelley, *serves as the 35th ADA Brigade Signal officer.*

Acronym QuickScan

ADA - Air Defense Artillery
CRG - Communications Relay Group
DGM - Digital Group Multiplexing
ECS - Engagement Control Station
ESB - Expeditionary Signal Battalion
ICC - Information Control Center
KG - Key Generator
MTOE - Military Table of Equipment
MSE - Mobile Subscriber
NCO - Non-commissioned Officer Equipment
NIPR - Non-secure Internet Protocol Router
RHN - Regional Hub Nodes
SIPR - Secure Internet Protocol Router
SNAP - SIPR/NIPR Access Point
TROPO - Troposcatter Systems

Reducing field service representatives while maintaining operational force capacity

By CDT Soderia Kakoulakis
CDT Jacob Page
CDT Samuel Mo
CDT Jesse Glenn

This article is a platform seeking to collect data from experienced leaders and users.

Previous and expected decreases in funding require the Army to employ cost effective and sustainable systems on the battlefield now more than ever before.

Army leaders face the challenge of reducing field service representatives while maintaining Soldier proficiency in operating communication and mission command systems.

We are a cadet run team under the supervision of an officer advisor from the Department of Systems Engineering at the United States Military Academy at West Point. Our team is working in conjunction with the Program Executive Office Command Control Communications-Tactical (Readiness Management Division) dedicated to identify methods in order to increase combat effectiveness in the Army.

The purpose of this collaboration is to mitigate the impact on operational readiness due to the reduction of FSRs, and maximize unit capacity on mission command and communications systems.

PEO C3T's current progress to right-size the FSR force structure demonstrates their compliance to meeting mandated cutbacks.

Figure 1 depicts the forecasted reduction of FSR personnel in the upcoming years due to budgetary constraints. While PEO C3T is committed to supporting the efforts of reducing FSR support personnel on its systems, they are taking deliberate action to find ways to sustain soldier proficiency and ensure effectiveness of mission command within each unit.

Although our research provides a general overview of the operational and training challenges in regards to fielding many of these systems, such as WIN-T, insight from experienced officers and

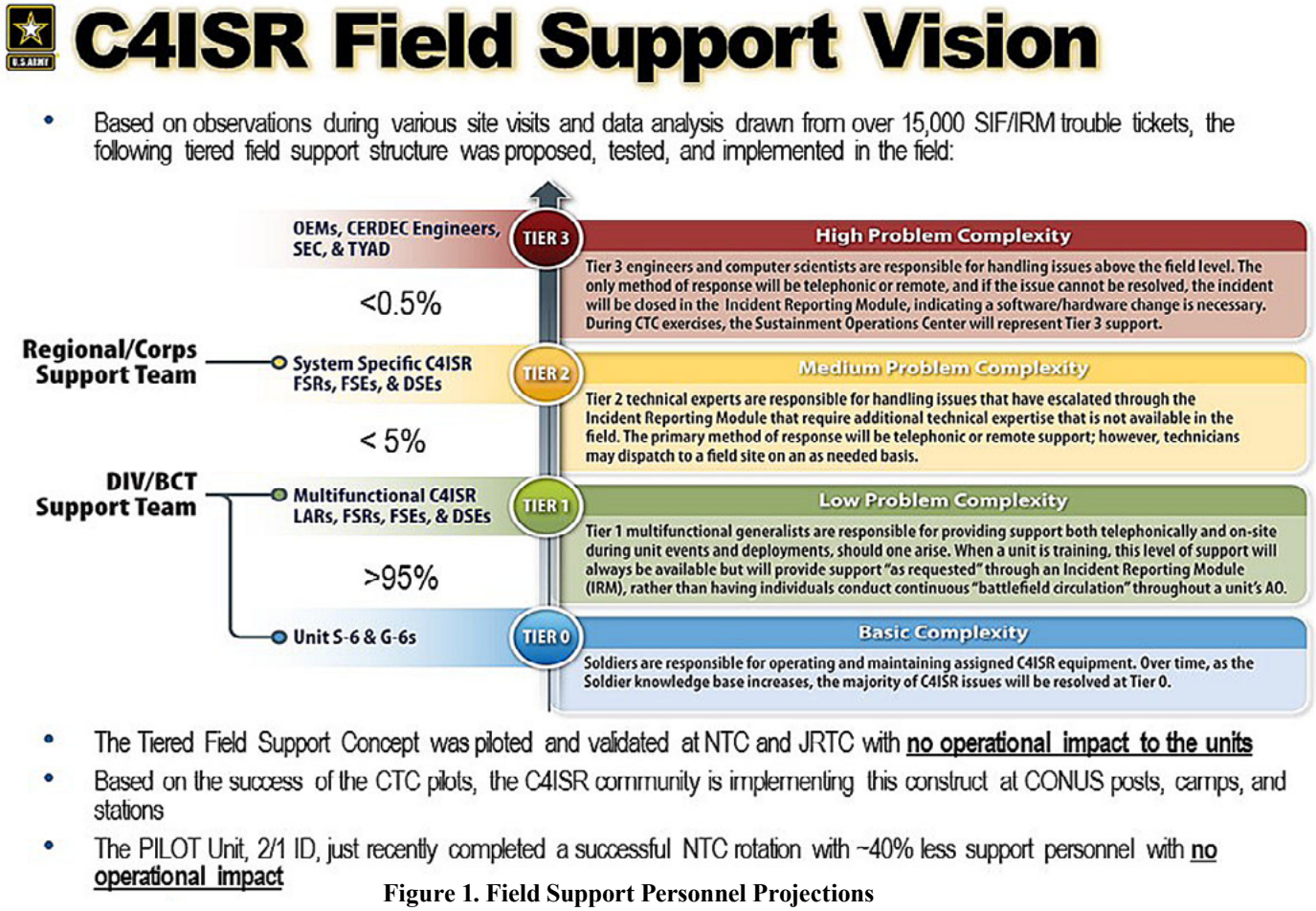

Figure 1. Field Support Personnel Projections

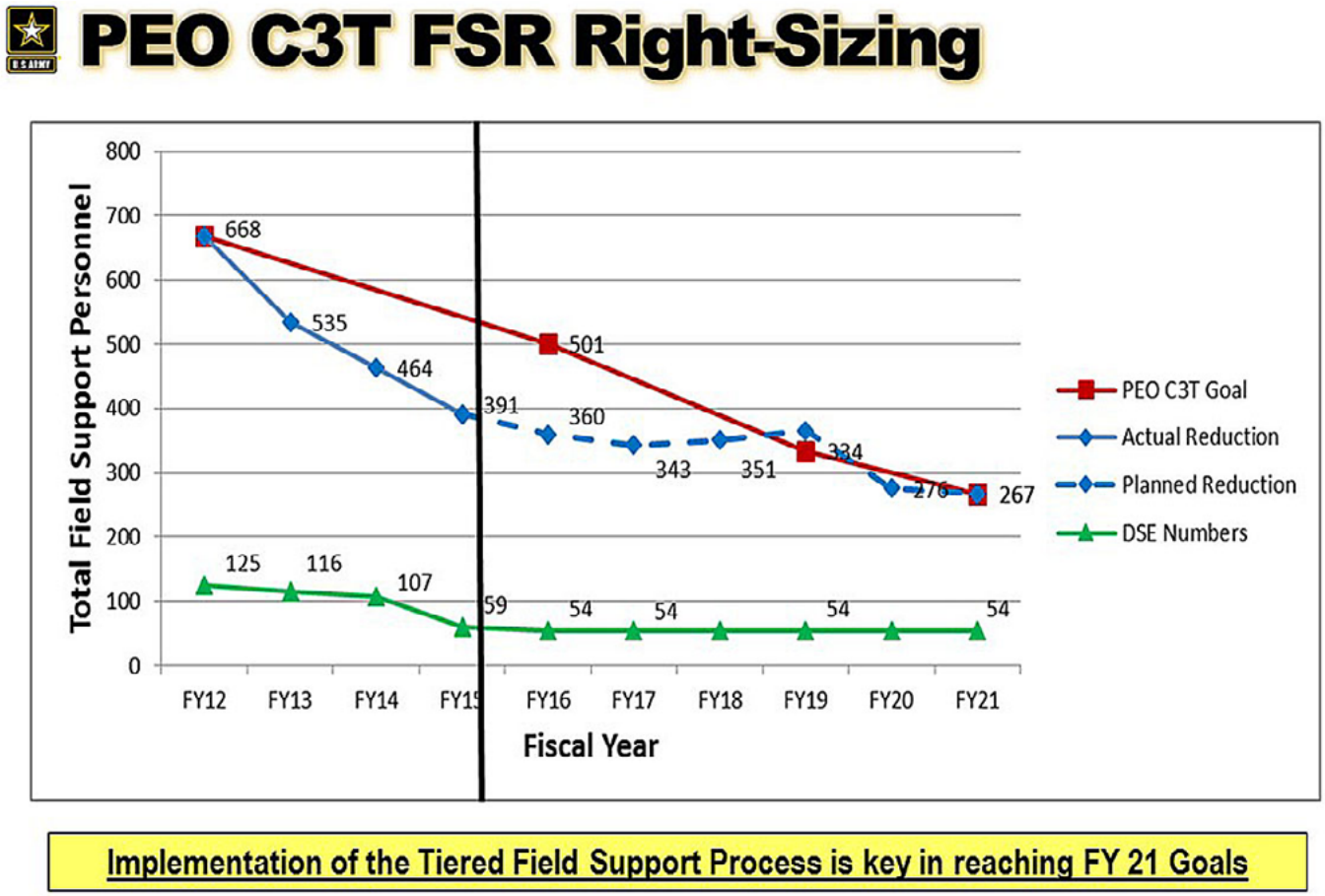

Figure 2. Revised Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Field Support Tiers2

noncommissioned officers will provide an invaluable, real world perspective. Your insight will help us create a more accurate and detailed representation of what communications system utilization challenges a unit may face, and ultimately a roadmap to guide an S6 and unit leaders to be able to install/operate/maintain their equipment with limited outside support.

Although Army leaders are developing methods to mitigate effects of these cutbacks, the communications field will continue to be challenged to maintain operational readiness as new equipment and Increments are fielded. This restructuring leaves many units to operate without the full effective capabilities of their warfighter mission command systems. This research effort will focus on providing a framework to assist and train Soldiers while mitigating the impact of fewer FSRs. Our team and PEO C3T are working in conjunction to assist the Army by creating a more cost effective and self sustaining ground force. The focus of this project is to further develop a unit's ability to operate and maintain their mission command and communication systems with improved self-sustainability. It is rapidly becoming more urgent to increase unit effectiveness, and maintain combat readiness under the current budget constraints.

Our research strategy will focus on collecting relevant information by analyzing historical data, conducting stakeholder interviews, and surveys. This technique provides a necessary understanding of difficulties with training implementation of similar systems in the past. We aim to provide users with autonomy and ability to sustain PEO C3T systems with minimal reliance on FSRs in order to increase soldier proficiency and unit capacity. In addition to recommending who, what, or how the Army trains on PEO C3T supported equipment, having both the Unit Commander's and User's buy-in are as crucial to success as the solution itself.

Army leaders have implemented certain procedures and methods to increase effectiveness of PEO C3T systems during brigade or division level exercises at combat training centers. The PEO C3T MilTech

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Solutions' Single Interface to the Field addresses the issue, but does not completely mitigate the effects of decreasing FSRs. This system features an 11-item incident reporting form for Soldiers to quickly fill in the information for a support ticket. This process enables Soldiers to obtain support for any system managed by the Army's Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance. Although a useful tool, SIF does not replace a soldier's proficiency on maintenance and operation of the system C4ISR. Another technique is the tier system, outlined in Figure 2, which identifies pertinent personnel and categorizes deficiencies to optimize repair and maintenance time.

Our methodology to approach this problem is divided into four distinct phases; defining the problem, designing a solution, making the critical decisions, and implementing the solution. We are currently in the problem definition phase, gathering information and conducting our analysis on stakeholder needs and wants. We will use the information we collect to generate and modify potential courses of action. Once we develop substantial alternatives, we will conduct a performance analysis of each solution and assign a scoring value to determine which course of action will be most effective. Then we introduce the final recommendation to our client and provide a plan of action to facilitate implementation.

We are asking for your assistance. Participation from experienced officers and noncommissioned officers will drive this research and facilitate recommendation design. After action review comments and experiences from field exercises with WIN-T and mission command systems (such as CPOF, AFATDS, DCGS-A, etc.) will be extremely useful. Determining the number of "touches" a system operator needs in order to be proficient is key to our research and any other training recommendations on these systems would also be helpful. Our team greatly appreciates participation and insight.

.

The research team consists of four cadets from the United States Military Academy at West Point majoring in Department of Systems Engineering academic programs.

CDT Soderia Kakoulakis *(Systems Design and Management Major) is a brown belt on the Army West Point Judo Team and is a member of Company A4.*

CDT Jacob Page *(Engineering Management Major) plays centerfield on the USMA-West Point baseball team and is a member of Company A1.*

CDT Samuel Mo *(Systems Engineering Major) is a swimmer on the USMA-West Point swim team and is a member of Company C2.*

CDT Jesse Glenn *(Engineering Management Major) is a gymnast on the USMA-West Point gymnastics team and is a member of Company C3.*

The cadet capstone academic advisor is MAJ Danny P. Thebeau II, Department of Systems Engineering, USMA-West Point.

Please contact us at the following e-mail address

USMA.PEOC3TRMD@usma.edu

if you are interested in supporting our research efforts.

Acronym QuickScan

AFATDS – Advanced Field Artillery Tactical Data System
C4ISR – Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance
CPOF – Command Post of the Future
DCGS-A – Distributed Common Ground System-Army
NCO – Noncommissioned officer
PEO C3T (RMD) – Program Executive Office Command Control Communications-Tactical (Readiness Management Division)
SIF – Single Interface to the Field
WIN-T – Warfighter Information Network-Tactical

Join the Discussion

At the end of articles where you see this icon, 👎 you can weigh in and comment on-line.

One Army Program yields dramatic scientific contribution

By CW3 Victor Wolfe and MAJ William Frobe

CW3 Victor Wolfe and MAJ William Frobe recently completed the Army's Advanced Civil Schooling Program. Their research was published in July 2015 as a peer-reviewed scholarly article. A synopsis of their research article is reprinted here.

Team members work in a snow packed mound used as a testing site for their research into the feasibility of using smartphones to improve the response time in locating and assisting search and rescue of avalance victims.

An Unlikely Meeting

CW3 Victor Wolfe and MAJ William Frobe were were selected to be Advanced Civil Schooling students at the University of Colorado at Boulder's Interdisciplinary Telecommunications Program in the fall of 2013. The two met at orientation day and bonded over their common connection as the only military students in the program that year.

A Research Team is Formed

The 76 students in the class each submitted a research proposal, from which the director of the ITP, Professor David Reed, chose the top 19 research proposals which were assigned to the students who were organized into four-person teams.

CW3 Wolfe proposed the idea of using a smartphone to find an avalanche victim instead of a costly and antiquated avalanche beacon as is commonplace today. Wolfe's proposal was chosen as one of the 19 for further investigation and he immediately chose MAJ Frobe to be his teammate. Then they chose two other students, Vineetha Shrinivasan from India and Tsung-Yen Hsieh from Taiwan to complete their team. The team only had one semester to conduct their research. As a group, they fine-tuned their research problem statement to be: Feasibility Study of Using 4th Generation Long Term Evolution (4G LTE) for Unmanned Aerial Vehicle assisted Search and Rescue.

The Problem with Avalanche Search and Rescue

The current state-of-the-art in avalanche search and rescue is that skiers, snowboarders and backcountry enthusiasts must travel in pairs or a group and each person must have an expensive avalanche search and rescue beacon, costing approximately $250 - $300, on them and turned on at all times. It is then up to their fellow backcountry enthusiasts to save their lives. In the event an avalanche is spotted by someone down below and they call 911, it generally takes a helicopter rescue team approximately 45 minutes from time of notification to the time of rescue.

However, after 30 minutes, the avalanche survival rate drops to approximately 33%. The focus of the team's research was to see if an app on a smartphone could replace the expensive beacon and also notify first responders of the exact position of the avalanche victim, thereby lowering the recovery time and, in turn, increasing the

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survival rate of victims. The team did not know if 4G LTE signals would propagate through densely packed snow such as is present in an avalanche. A traditional avalanche beacon sends out a signal at 457 kHz, which is a very low frequency. The 4G LTE smartphone that is commonly used operates at a frequency range of 700-1900 MHz. There is an inverse relationship between how well a radio wave will propagate through objects and the amount of data it is able to carry. A very low frequency such as that of an avalanche beacon will propagate extremely well, yet carry very little information. While a very high frequency wave such as a satellite television broadcast signal can carry a lot of data, an object or even weather will affect it. The team's research focused on how effectively data could be sent from a buried smartphone and report the GPS position of that downed smartphone at varying snow depths.

One App to Find Them All…

Dr. Gates brought in Mr. Nicholas Little who is a Boulder alumnus and entrepreneur who is also the owner of the startup Forge Aero LLC. Nick assisted the team with tablets and smartphones for testing as well as app development and flight testing procedures. Dr. Gates also enlisted the help of Scott Heath from Leptron Industrial Helicopters. Leptron provided the team the Unmanned Aerial Vehicles for their tests. Leptron UAV helicopters are constructed with military grade aluminum and carbon fiber, contain aircraft quality aeronautics, and Global Positioning Systems onboard. The team used the Android developer's toolkit to develop an application that could measure the signal strength as well as the other parameters necessary for 4G LTE to provide a link between the smartphones and tablets and a nearby cell tower. If the 4G LTE parameters didn't propagate from the cell tower to the buried smartphone and back then the device could not be located.

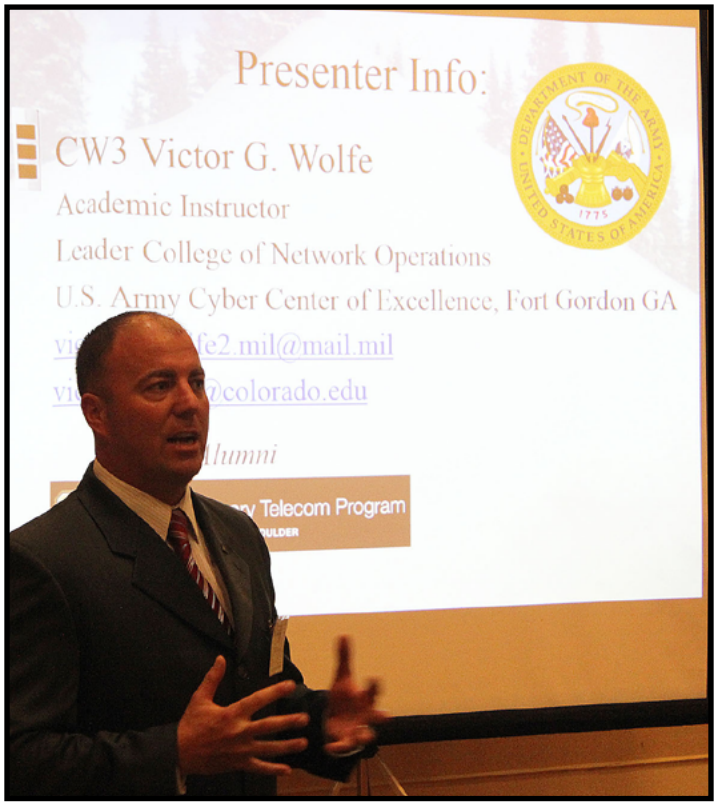
Team members taking signal strength readings on smartphones that the group used in its research project to improve location and rescue of avalanche victims.

Fun and Field Testing at Copper Mountain Ski Resort

Vineetha and Wolfe developed the first working application to initially test whether signals could propagate through a dense pile of snow. The team went out to the Flatirons Crossings Mall parking lot where snow plows had piled the most recent snowfall. They used a spectrum analyzer to confirm the signal strength on the uplink to the tower and found that the app worked from underneath a foot of snow. Though not a rigorously scientific test, this proved promising.

About a week later the team conducted their flight testing outside of Leptron's headquarters in Golden, Colorado just twenty miles south of the university. Flight tests went well but the team knew they needed to test the equipment in an area skiers normally used and, for the first test, included cell phone coverage in the area. Vineetha modified the app and with some help from Nick Little's crew the capstone team got a cooperative app to record the signal strength and 4G LTE parameters on the smartphone that was to be buried in the field tests at Copper Mountain Ski Resort. The team also developed an app to receive the signal parameters of the buried device on a tablet fixed to the front of the UAV helicopter. Wolfe coordinated with Hagen Lyle, the manager of ski patrol at Copper Mountain Ski Resort, to get access to a closed off area of the resort that had good cell phone coverage. Hagen obliged and arranged for a snow making machine to create a huge pile of snow and pack it down to simulate real avalanche debris.

In the densest snow which measured 90 g/cm3 compared



CW3 Victor C. Wolfe presents the findings of his research team to the Internatioinal Conference on Unmanned Aircraft Systems Conference June 2015 in Denver, Colo.

to the surface density of 22 g/cm3, the buried smartphone still sent out the recorded signal strength as well as the GPS position of the device at a depth of seven feet. These findings amazed team members who tested several more times that day to confirm the results. There is a short minute and a half YouTube video summarizing the group's day of testing at Copper Mountain here: http://youtu.be/FXus7d7_04Y

Capstone Concluded

The team took all of the data and modeled it in MATLAB, a computer program commonly used by engineers to model their simulations. MATLAB provides graphical and mathematical proofs of modeled data. Tsung-yen modeled the data and then the team organized the findings into a detailed research report and public presentation.

The team presented their findings and defended their research before select faculty and industry representatives on May 3, 2014. After some deliberation, the faculty took a vote and determined that Vic, Bill, Vineetha and Tsung-Yen's team deserved the Capstone Award, which is presented to the top three ITP research teams each year for exceeding the state-of-the-art by pushing the boundaries of current technology.

Their Research Gets Published – But Someone Must Present It

Vineetha and Tsung-Yen graduated in May 2014 and Wolfe and Frobe would graduate in December of the same year. However, before graduation, the team submitted their research report to the International Conference on Unmanned Aircraft Systems call for papers. After a lengthy peer-review process their paper was selected for presentation.

The only catch was that if the team wanted it to be published they had to get someone to present their findings at the ICUAS conference in Denver in June 2015. After learning that two Army officers were to have their research published, the leadership at the U.S. Army Signal Center of Excellence (now Cyber Center of Excellence) encouraged Wolfe to present the team's findings before the scientific community at ICUAS 2015.

What Now?

In 2015 there was a second capstone group at CU-Boulder that took over where Wolfe's team left off and continued the research on detecting smartphones in an area with no cell phone coverage, but they had issues acquiring the needed equipment to attach a small-cell to a UAV.

A small-cell is basically a miniature cell tower that can be moved around. The buzz created by Wolfe, Frobe, Vineetha and Tsung-Yen's group also got the attention of the National Telecommunications and Information Administration and representatives from NTIA have expressed their intent to work with the University of Colorado in future research projects. NTIA has proposed sponsoring further CU-Boulder research involving search and rescue using app based GPS location reporting on the NTIA's FirstNet initiative. FirstNet is a public safety program that is designed to provide community first responders as well as state and federal emergency organizations the means to operate on their own broadband network. FirstNet is in the process of deploying a nationwide LTE network on Band 14 frequencies allocated specifically for emergency services personnel that will not have to compete with commercial traffic from

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providers like Verizon, AT&T Sprint and T-Mobile. You can find out more about FirstNet here: **www.firstnet.gov**

Conclusion

Although many studies have been published on detecting the position of mobile cellular devices, this was the first of its kind to quantify the detection of a cell phone that was buried under the snow. The group's research has certainly created some buzz within the telecommunications industry, federal government, ski resort industry, and academic institutions. The value of this research to potentially save the lives of avalanche victims in the future is clear. The technology is available and the team proved its reliably to at least a seven foot depth. Though successful in geolocating disaster victims, the application of this search and rescue life-saving solution is subject to regulatory approval by federal authorities, such as the FAA, FCC, U.S. Forest Service and state counterparts.

CW3 Victor Wolfe *is an instructor at the U.S. Army Signal School at the Cyber Center of Excellence and Fort Gordon, Ga.*

MAJ William Frobe *is the CIO/G6 executive officer at the U.S. Army Intelligence Center of Excellence and Fort Huachuca, Ariz.*

Advanced Civil Schooling is a fully funded program through which the Army pays for a Bachelors or Master's degree. Signal Soldiers are encouraged to achieve a Masters degree in an IT-related field.

For more information on ACS contact your HRC branch manager or go to: **https://www.hrc.army.mil/officer/army%20advanced%20civilian%20schooling%20acs**

For more information on the University of Colorado at Boulder's Interdisciplinary Telecommunications Program contact Elizabeth Golder at (303) 492-8475 or **http://www.colorado.edu/itp/**

Acronym QuickScan

4G LTE - Fourth Generation Long Term Evolution
ACS - Advanced Civil Schooling
App - Computer or mobile device application
Android - Mobile operating system
AT&T - American Telephone and Telegraph
Band 14 - FCC designated public safety frequencies
CIO - Chief Information Officer
CU-Boulder - University of Colorado at Boulder
F1 - State Department designator for student visas
FAA - Federal Aviation Administration
FCC - Federal Communications Commission
FirstNet - First responder network authority
g/cm3 - Grams per cubic centimeter
G6 - Signal staff section where a General Officer is on staff
GPS - Global Positioning System
HRC - Human Resources Command
ICUAS - International Conference on Unmanned Aircraft Systems
IT - Information Technology
ITP - Interdisciplinary Telecommunications Program
IEEE - Institute of Electrical and Electronics Engineers
ISBN - International Standard Book Number
kHz - kilohertz is a measure of frequency equivalent to 1,000 cycles per second
LLC - Limited Liability Company
MHz - Megahertz is a measure of frequency equivalent to 1,000,000 cycles per second
MATLAB - Matrix Laboratory computing environment
NTIA - National Telecommunications and Information Administration
UAV - Unmanned Aerial Vehicle

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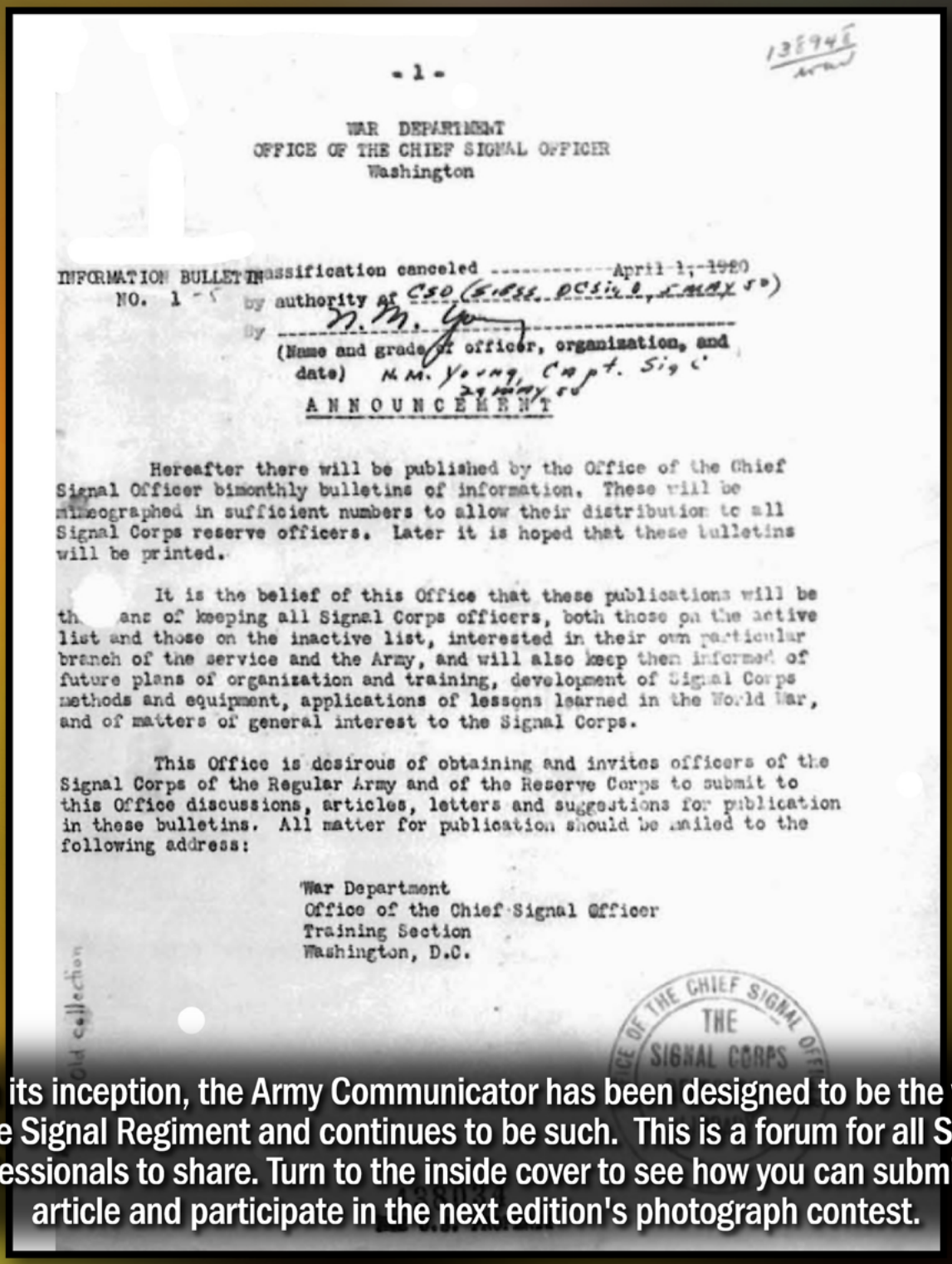

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WAR DEPARTMENT
OFFICE OF THE CHIEF SIGNAL OFFICER
Washington

INFORMATION BULLETIN
NO. 1

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By M. M. Young
(Name and grade of officer, organization, and date) M. M. Young, Capt. Sig C. 29 May 50

ANNOUNCEMENT

Hereafter there will be published by the Office of the Chief Signal Officer bimonthly bulletins of information. These will be mimeographed in sufficient numbers to allow their distribution to all Signal Corps reserve officers. Later it is hoped that these bulletins will be printed.

It is the belief of this Office that these publications will be th[illegible]ans of keeping all Signal Corps officers, both those on the active list and those on the inactive list, interested in their own particular branch of the service and the Army, and will also keep them informed of future plans of organization and training, development of Signal Corps methods and equipment, applications of lessons learned in the World War, and of matters of general interest to the Signal Corps.

This Office is desirous of obtaining and invites officers of the Signal Corps of the Regular Army and of the Reserve Corps to submit to this Office discussions, articles, letters and suggestions for publication in these bulletins. All matter for publication should be mailed to the following address:

War Department
Office of the Chief Signal Officer
Training Section
Washington, D.C.

From its inception, the Army Communicator has been designed to be the voice of the Signal Regiment and continues to be such. This is a forum for all Signal professionals to share. Turn to the inside cover to see how you can submit an article and participate in the next edition's photograph contest.

ARMY COMMUNICATOR

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