Getting the message through in the Persian Gulf War

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Introduction

LTG Charles A. Horner, as the commander of U. S. and Coalition Air Forces (CENTAF) in the Persian Gulf War, recently wrote:

Having the best personnel, equipment and plans are meaningless if you cannot talk to anyone or have a functioning system for command and control. Building a communications infrastructure from scratch was one of the most significant challenges faced as our forces arrived in the theater....Our ability to disseminate information was testimony to the successful efforts of the communicators.[1]

The U.S. Army Signal Corps was the Army's communicator in the Persian Gulf War. In the 130th and 131st years of the Signal Corps' existence, the Corps once again, albeit not without its share of problems, met the challenge succinctly stated in its motto, "get the message through."

Although the Signal Corps' basic mission of providing command, control, and communications was the same, the communications systems used in this electronic battlefield of the late twentieth century bore little resemblance to Signal Corps founder Albert J. Myer's wigwag signaling system first tested in combat during the Civil War. Nor was there much, if any, similarity in the organizational structure of the Civil War's Signal Corps and that of the Persian Gulf War's Signal Corps operation.

The 6th Signal Command, under the Army Central Command (ARCENT), headed the latter's Echelon Above Corps (EAC) operation. ARCENT, along with four other service component commands, reported to Central Command (CENTCOM) under the leadership of GEN H. Norman Schwartzkopf.[2] As summarized below, the Signal Corps played a critical role in providing viable EAC and tactical communications. The Signal Corps was an instrumental player in bringing the Persian Gulf War to a quick and successful end.

President Bush's "line in the sand" was drawn and not erased. The Signal Corps' support in preserving that line is spotlighted here in this special issue of the ARMY COMMUNICATOR.

USAISC

Establishing the Army's communications in Saudi Arabia did not begin with the 6th Signal Command, but with the U.S. Army Information Systems Command

(USAISC) headquartered at Fort Huachuca, Arizona. When Saddam Hussein sent his forces into Kuwait on 2 August 1990, the U.S. military had two leased telephone circuits and two record traffic circuits in Saudi Arabia. USAISC had a tactical satellite terminal in Bahrain. USAISC responded to the emergency by tapping worldwide Information Management Area (IMA) expertise. "By the end of August 1990, USAISC had designed, engineered, installed and was operating the largest common user data communications capability (called ODS-NET) ever present in a theater of operations."[3]

Needless to say, it took a lot of work to reach that point. During the first stage of the "communications campaign" (2 August 1990-15 December 1990), USAISC swiftly and innovatively reacted.

On 2 August, the command had only a small detachment in theater, USAISC-Central Area Detachment (USAISC-CA) responsible for providing communications support to the U.S. Military Training Mission (USMTM).

On 7 August, USAISC activated an emergency operations center at Fort Huachuca. Five days later, the commander of the 11th Signal Brigade, COL Charles G. Sutten, deployed to Saudi Arabia with elements of his S-3 staff. Then on 15 August, the brigade's 86th Signal Battalion under the command of LTC Rich Goone deployed a task force with equipment, commencing Signal Corps support (Node 64) at Riyadh. Five days later, a task force from the 40th Signal Battalion, commanded by LTC Roy Edwards, established Signal Corps support (Node 99) at Dhahran.

The 11th Signal Brigade, an EAC unit, was responsible for providing "theater-level tactical and strategic DCS [Defense Communications System] entry communications...."

By early September, USAISC had fielded a commercial transportable satellite terminal (CTST) having an "initial capability of two compressed T1 circuits" or 96 channels. By the middle of November, the entire 11th Signal Brigade and the 67th Signal Battalion from Fort Gordon reached full closure.[4] "Capabilities included state-of-the-art automated message and telephone switching; satellite, tropospheric and line-of-sight radios; and cable and wire construction." Another aspect of the data communications architecture was the ODS-NET which connected to the DDN MILNET, thereby supplying the data links to support the Standard Army Management Information Systems (STAMIS).[5]

The second stage of the "communications campaign" (15 December 1990-15 January 1991) began on 15 December with the coordinated provisional activation between USAISC and ARCENT of the 6th Signal Command, a "streamlined Theater Signal Command," established to meet the "long-term in theater IMA planning needs."

On 19 December, Sutten took command of the 6th Signal Command while COL Andrew C. Follmer became the 11th Signal Brigade's commander. On Christmas day, Sutten and the 6th Signal Command deployed to Saudi Arabia and was later headquartered in Riyadh. The 6th assumed responsibility for all USAISC's assets in theater.

During this build-up phase, USAISC deployed two area Signal Corps battalions from Europe (the 44th Signal Battalion and the 63rd Signal Battalion) to join the 11th Signal Brigade. These two units along with Fort Gordon's 67th Signal Battalion provided area subscriber service to EAC customers.

The 86th and the 40th Signal Battalions supplied the communications link between the deployed corps, ARCENT, and CENTCOM. The deployment on 15 January 1991 of the 653rd Signal Company, a National Guard tropospheric company, rounded out the deployed EAC units. According to USAISC's executive summary, By the time Desert Shield became Desert Storm, "the largest echelon above corps communications and automation network ever fielded in a theater of operations was in place and fully functional."

The communications achievement won the praise of GEN Colin L. Powell, chairman of the Joint Chiefs of Staff, who commented that this communications system, installed in six months, surpassed the system that evolved in Vietnam over six years.[6]

Having established entry communications in theater, the 11th Signal Brigade's mission was to provide EAC communications to LTG John J. Yeosock, commander of ARCENT, and his major subordinate commands, including ARCENT Headquarters in Riyadh; ARCENT's Mobile Command Post in King Khalid Military City (KKMC); Kuwait's Task Force Freedom; the 22nd Support Command's (SUPCOM) Headquarters in Dhahran and KKMC; the 22nd SUPCOM Logistics Bases; and communications links to the XVIII Airborne Corps, the VII Corps and EAC units.

It took the combined resources of five Signal battalions, a communications-electronics (C-E) maintenance company and a light tropo company to meet this formidable EAC task.

When completely deployed, the 11th Signal Brigade along with its augmentation units—comprised of 2700 soldiers and 13 voice and 5 message switches—supplied communications support to over 90 sites throughout the theater. Transmission links using tropo scatter, satellite, line-of-sight and cable connected the sites and switches thereby providing "a communications network which encompassed Dhahran, Riyadh, King Khalid Military City, and Kuwait."

This network spanned the theater, reaching the outermost operations of the XVIII Airborne Corps and the VII Corps. At the 1991 Regimental Signal Symposium, the commander of the XVIIIth, LTG Gary E. Luck, gave the Signal Corps high marks for its communications support in the Persian Gulf War. He said, "I am a big believer in [the] Signal Corps, always have been. It was a crucial part of our business in Southwest Asia, and it worked perfectly."[7]

Complicating the 11th Signal Brigade's mission was the need to "merge units from four separate locations into it's operations and effectively interface with communications systems from the Air Force,

Marines, and...other Army elements." The 11th Signal Brigade "provided tactical and strategic DCS entry communications in the theater. Satellite radios, telephone switching and message center capabilities supported...ARCENT and the combined arms ground forces." All five elements of the IMA were involved, "an unprecedented support described by GEN Powell as 'the key to our success' in bringing the war to such a stunning close." Commenting on C3 systems, Powell said, "'I can sit at my desk each day and reach out--effortlessly-- and touch General Schwarzkoph immediately and securely.'"[8]

While these accolades, indeed, were warranted, there were undeniably problems--problems from which we can learn. To quote LTG Horner again, "People who fail to study their history are destined to repeat it...."[9]

One lesson learned from this war concerned communications planning. For example, there was no Joint Communications Electronic Operating Instructions (JCEOI). It was January 1991 before a functional, workable CEOI existed.[10] A communications plan could have supported deploying EAC units. Consequently, task forces were put together somewhat on an ad hoc basis. This want of planning forced the brigade to compete for air deployment priority of its initial task forces. A Signal Corps general officer could have focused and coordinated the communications policy and could have operated more productively with counterparts at other component commands. The corollary was a pivotal delay of communications support. Communications planning must play a vital role in EAC mission planning.[11]

Related to the need for communications planning was unprotected automation and other requirements. ARCENT, for example, used message text format (MTF) software which the brigade initially did not have. The brigade had to support ARCENT's Mobile Command Post (MCP) along with seven liaison teams. These unanticipated mission requirements placed heavy demands on the 593d Signal Company and the 209th Signal Company. The brigade was taxed to provide support to ARCENT Headquarters and the 22nd SUPCOM. More scrutiny of projected requirements is needed to guarantee that future Signal Corps support will be adequate. There is a critical need for well planned Signal Corps doctrine for EAC.[12]

Other lessons learned from the 11th Signal Brigade's perspective concerned the need for more trained TRITAC/DGM personnel, user owned and operated equipment, the Modification Table Organization and Equipment (MTOE) structure of the 11th Signal Brigade, contractor maintenance support, air support, and precedence abuse.[13] These observations are a forum for discussion by Signaleers, users of the Signal Corps' communications and others determined to learn from America's most recent conflict.

Corps Level Communications

In addition to EAC communications provided by the 6th Signal Command and the 11th Signal Brigade, the Signal Corps provided support to the numbered field army. LTG Yeosock recently wrote:

With the execution of Desert Storm on 17 February 1991, the theater assumed a greater complexity and scope....[A] numbered field army was employed...to coordinate the actions of the tactical corps conducting the theater main attack....[Third Army's] XVIII Airborne Corps and the VII Corps were the organizations that made things happen during Desert Storm....While ARCENT headquarters and EAC units set the stage for ground operations, it was the corps that maneuvered in southern Iraq and Kuwait to accomplish the objectives.[14]

Simply put, they could not have maneuvered without communications provided by the Signal Corps including the XVIII Airborne Corps' 35th Signal Brigade and the VII Corps' 93rd Signal Brigade for a total of three Signal brigades operating in the theater.[15] Highlighted below are the operations of the VII Corps' 93rd Signal Brigade and the XVIII Airborne Corps' 35th Signal Brigade.

93rd Signal Brigade (VII Corps)

On 8 November 1990, the American public learned that the VII Corps was to deploy to Southwest Asia. That deployment began four days later on 12 November. In some 97 days the VII Corps, commanded by LTG (now GEN) Frederick M. Franks, Jr., had deployed to the desert. The VII Corps' 93rd Signal Brigade provided the communications support. In the end, the 93rd Signal Brigade deployed approximately 1,700 primary equipment items and some 2,500 soldiers. The 93rd installed a communications network covering more than 75,000 sq. kilometers in Southwest Asia.[16]

Planning to accomplish that mission began as soon as the brigade learned that the VII Corps was to deploy to the Persian Gulf. Two critical factors in the predeployment planning were the need for "long haul, multichannel and single channel, and COSCOM support" and the amalgam of MSE within the VII Corps. Movement planning called for the brigade to have six Corps Area Signal Centers (CASCs) and two CSCs (Corps Signal Center) in the theater before a significant number of subscribers arrived. Delayed air support foiled that plan. Further complicating and thwarting deployment plans were problems encountered at ports whereby "units and assemblages were separated and did not arrive in sets."[17]

The XVIII Airborne Corps' 35th Signal Brigade reported a comparable "illogical/unsynchronized" flow of forces and equipment resulting in the "fragmented shipment of unit's sets." In the end, "units had to piecemeal communications systems from several companies to field complete systems before they could deploy to install communications."[18]

There were other concerns too, including the minimal level of AUTOVON and "direct connectivity" to Saudi Arabia needed in overseeing travel to the theater. Consequently, the 93rd established a satellite link from VII Corps's headquarters in Stuttgart, Germany to Dhahran, thereby, giving the VII Corps "quick and direct access to the theater." To complete

the link and to offset the 93rd's TACSAT, which was on its way to the theater or being readied for shipment, the V Corps' 22nd Signal Brigade supplied a AN/TSC-93 and AN/TTC-39. For security reasons, the "use of STU-III's became the norm throughout the Corps both in Germany and to the SWA theater."[19]

Other problems arose given the huge size of the VII Corps and the projected magnitude of the operation and its communication requirements. These factors led to the attachment to the 93rd Signal Brigade of the 1st Signal Battalion, a digital group multiplex (DGM) area battalion from the 7th Signal Brigade. USAREUR's 268th (Light Tropo) Company and Fort Monmouth's 235th (TACSAT) Company also augmented the brigade's own 26th, 34th, and 51st Signal Battalions. The result was a mixture of different generations of communications equipment creating various interface challenges. The 1st had DGM equipment, the 268th used AN/TRC-170 digital troposcatter equipment, the 235th had AN/TSC-85/93 tactical satellite equipment from A to B models, and the brigade's own units used the "older, improved Army tactical area communications system equipment and the older A model tactical satellite equipment."[20]

Adding to this challenge was the realignment of the VII Corps into a five division corps with a separate ACR, further increasing communications requirements. As stated in the 93rd Signal Brigade's after action report and sounding strangely familiar to reports from the 11th Signal Brigade, "the lack of an infrastructure to rely on created an insatiable appetite for tactical communications, both in port and in follow-on areas." According to the 93rd's report, the 11th Signal Brigade, which was responsible for port communications, "did not have adequate resources available in country to provide redundant and sufficiently located support."

The VII Corps' headquarters, located only two kilometers from a node, had problems with its communications equipment. "The thirst for communications could not be supported [during the deployment stage] since the 11th did not have enough terminals or instruments to support the corps and the 93rd did not have any equipment [yet] in country."

Port operations, consisting of Jubayl and Damman, both demanded communications support. As the 93rd's equipment was unloaded, systems were installed to service subscribers. For example, "the first two AN/TRC-151s to come off the ships installed a system to an 11th Signal node and a warehouse on the docks." That system operated until the beginning of the air attack. It was "an expensive mission in that it cost one forward support platoon to keep the port in communications with the VII Corps elements."[21] The 35th Signal Brigade also reported being "taxed [to the] limits."[22]

Further complicating matters was the mix of communication architectures in the VII Corps' subordinate divisions, including two Mobile Subscriber Equipment (MSE) divisions, and two IATACS Canadian Marconi (AN/TRC-145 and AN/TTC-41) divisions along with the 11th Signal Brigade's DGM equipment.

"As the units began to arrive the corps was flooded" with this mixture of systems. The 93rd developed interfaces and fortunately had the time to "hone its technical skills before the ground assault began."

In the end, the systems were integrated into a workable network including links into the Ptarmigan system of the United Kingdom's 1st Armored Division. "Whatever works is doctrine" became the rule.[23] The 35th Signal Brigade reported similar problems of interfacing MSE to ATACS/TRI-TAC. In fact, Desert Shield was the XVIII Airborne Corps' first experience with MSE.[24]

The ever growing communications network was "built from the port as equipment arrived and was pieced together in unit sets." The aforementioned shipping problems affected construction of the network.

The 93rd Signal Brigade's backbone network was constructed as equipment deployed to the theater. The unit tactical assembly areas (TAA's) and divisional density influenced the location of CASCs.

During the first week, the 7th Support Group and the 1st Armored Division were the main customers. Two CASCs were in place by 14 December 1990. As more units arrived and deployed to theater, the demands on the network grew.

On 20 December, 1990, a large portion of the network was installed. The following day, another three CASCs were operational. At that time, only two corps message switches (98 and J6) were on line.

By 24 December, the remaining CASCs were operational for a total of nine. According to the 93rd's after action report, by this time the corps network was "fully deployed with the exception of the corps main...." Tropo and satellite constituted the EAC links. The record network remained incomplete since the last TYC-39 (Corps Main) was not installed. The mixture of digital and analog equipment presented problems the brigade was forced to overcome.[25]

As the VII Corps transitioned to war, the 93rd Signal Brigade confronted the challenge of keeping the communications system in step with the anticipated lightening-speed maneuvering of the VII Corps.

The Corps planned to move intact westward to the forward assembly areas (FAA). In response, the 93rd relocated four CASCs (73, 91, 93, 96) to support units as they moved and reconfigured the network compensating for the loss of the CASCs in the east. CASC 73 supported Log Base Echo, CASC 93 sustained units in the northwest quarter, and CASC 96 supported units in the northeast. CASC 91 provided support to the west and southwest. The brigade's plan for the CASCs in the east was for a "maintenance stand down period" before the attack. The "basic Signal plan" called for movement of five CASC's (91, 92, 96, 97, and 98) across the Iraqi border supporting the VII Corps' attack. The brigade went through three distinct phases of preparation to reach the final positions. During these phases, CASCs were established, moved, displaced, placed on and off line, and coordinated with company commanders as the brigade moved

the communications into place for the attack. In summary, reported the brigade:

During the G-7 to G-day there were 37 tail moves, three CASC jumps with re-installation, three CASC removals from the network, a Corps main and Corps TAC move, a jump of the bridge SYSCON and continued offensive action, with multichannel support, on the part of the 'killers' to support the deception plan.

The network continued to be solid and robust although stretched.....The brigade was performing well on the morning the attack began.[26]

As the ground war began on 24 February with the XVIII Airborne Corps' attack, "units were in line with their supported division and awaiting word to move." At the start of the offensive, VII Corps requested that the 93rd accelerate its movement plan. The brigade "was...ready to go." The companies were in convoy line, "awaiting word to go." "The plan was to send four CASC's to Iraq (91, 92, 97, and 98) and keep 96 in reserve."[27]

In actuality, most of the maneuver units quickly outdistanced the corps area communications system capabilities. There were exceptions.

Two divisions equipped with MSE gained entry to the corps area communications system through gateway switches in the southern area and constructed their MSE networks "in a somewhat linear fashion to maintain critical connections...."[28] The brigade linked the backbone with troposcatter digital trunk groups. Long distances made it necessary to connect the backbone using long haul tropo.

Thirty hours after the attack began, the corps backbone was driving north by means of line of sight. According to the 93rd Signal Brigade, the "corps had lost no command and control since the battle was being fought at the TAC via FM, single channel and multichannel TACSAT." After that, the network became "robust."[29] Another exception to outdistancing the corps area communications system was the 34th Signal Battalion.

One of its forward platoons sustained ultra high frequency line of sight communications to the 2nd Armored Cavalry Regiment during the first thirty-six hours of the ground campaign.

How? The platoon "extended the radio system far beyond its design capabilities" enabling it to support communications 175 kilometers away from the nearest CASC.

Some seventy-two hours after the offensive began, the 93rd had completed the full area communications network, including the four CASC's in Iraq.[30] Ninety-six hours into the campaign the network consisted of the "stable base in Saudi Arabia, CASC 91 & 92 within 30 kilometers of the border, and 96, 97, and 98 all on line near the corps front." When the cease fire ended the war, "all five CASC's were on line and servicing subscribers."[31]

Before and during the offensive, record communications were employed broadly. The VII Corps' networks averaged message counts of 25,000 a day, climaxing at 40,000 during the early hours of the campaign. As units maneuvered into Kuwait, the 93rd Signal Brigade continued to provide communications support, establishing two CASC's near the border of Kuwait. In the end, the network functioned with ten CASCs, which "conducted 21 jumps, 4 command signal centers and 4 smaller corps command outposts, as well as 107 multichannel systems to support 1,500 tactical subscribers at 46 locations." That network stretched the corps communications network over 220 kilometers.[32]

35th Signal Brigade

The 35th Signal Brigade provided communications for the XVIII Airborne Corps during Operation Desert Shield/Desert Storm. According to a recent article (ARMY COMMUNICATOR, Fall/Winter 1991), force structure changes over the past several years gave the 35th the flexibility to support the XVIII Airborne Corps in any contingency operation, including the conflict in the Persian Gulf.[33]

During various phases of the war, the 35th supported the XVIII Corps' organic units: the 101st (AASLT) Airborne, 82nd Airborne, and 24th Infantry (MECH) Divisions, as well as the 3rd Armored and French 6th Armored Divisions.[34] In the "first major war fought under the guidelines prescribed in the AirLand Battle Doctrine,"[35] the 35th Signal Brigade, whose subordinate units are the 25th, 50th (Airborne), 327th (Airborne), and 426th Signal Battalions, used an integrated TRITAC, ATACS, MSE and the French RITA network to satisfy communications requirements.[36]

The 57th Signal Battalion, an MSE unit from III Corps at Fort Hood, attached early in the initial deployment, and a 3rd Signal Brigade control element remained under brigade' command throughout the war. The 142nd Signal Battalion, also from Fort Hood, was attached to the 35th during the transition to combat operations, supporting MARCENT's Tiger Brigade and the 1st Cavalry Division in VII Corps.[37]

Predeployment began at 1900 hours on 6 August 1990.[38] The 35th's doctrine: " ... Signal assets must go to war the same way the Airborne Corps goes to war,"[39] prepared it well for the regional operation in the Persian Gulf.

Initial phases of communications support for the XVIII Airborne Corps, the Army's designated contingency corps, focused on establishing a corps Emergency Operations Center (EOC) and the Fort Bragg Sustainment Base Communications Network.

The EOC, supported by the 35th's 327th Signal Battalion, assured command and control until the Corps' Commander deployed to the objective area. The Fort Bragg Sustainment Base Communications Network, installed by the 25th Signal Battalion, was activated (as it is during any deployment or exercise) as the CONUS source of telephone and data capabilities for the 35th's deployed, downsized multichannel TACSAT and HF assemblages.[40] At about the same time, the 35th's 50th Signal Battalion deployed several Liaison Officer support teams (LNO) to CENTCOM and ARCENT headquarters replete with two radio operators, TACSAT radio, facsimile and STU-III telephones.[41]

By virtue of a Corps Assault Command Post (ACP) that accompanied the Corps Chief of Staff, the

senior XVIII Airborne representative, on 7 August, constant communications were maintained with the Fort Bragg EOC during the deployment phase. There was no lapse in communications from the time a contingency of the 35th's 50th Signal Battalion boarded the first C-141 (additional personnel and a heavy ACP package departed on three C-141's later that day) until a multichannel satellite system was established in country linking Saudi Arabia and Fort Bragg.[42]

In general terms, the 35th relied heavily on the Defense Communications System (AUTOVON and AUTODIN), long range single channel radios (TACSAT, HF and RATT), and lightweight C-130 roll-on/roll-off capable equipment during the predeployment and deployment phases of Operation Desert Shield. Down-sized, transportable assemblages extended Fort Bragg's telephone and data capabilities to the deployed force until air and sea shipments of larger communications packages arrived to support lodgement and combat operations. (Use of incremental packages ensured the 35th sufficient communications regardless of the length of deployment.)[43]

The 35th's mission during Operation Desert Shield was to support the XVIII AB's four and two-thirds divisions as they defended the key port and oil producing facilities in the eastern Saudi Arabian peninsula. "Marked by an ever expanding AOR ... [and] almost continuous influx and repositioning of forces, and the additional requirement of a theater level group of support units which had never been fielded..., the 35th, using more than 1,200 vehicles, and terminating 136 total communications systems, used almost 100 percent of its organic units along with those of the 57th Signal Battalion."[44]

The mature Desert Shield backbone network consisted of 5 TRITAC CASC in the Ad Damman/Dhahran area and an additional four CASCs and five MSE nodes in an adjacent 3000 square mile area with "remote enclaves of corps and division command posts spread throughout."[45]

Innovation--planning--training were the 35th Signal Brigade's responses to the challenges of the offensive portion of the war. In stark contrast to the brigade's mission in Desert Shield, i.e., providing relatively fixed-base communications, Desert Storm made different demands. To provide command and control for air assault, mechanized and armored forces moving rapidly across great expanses of desert, the 35th organized five Corps level command post support packages, (Corps Main (CTOC) ALPHA, CTOC BRAVO, and Corps Tactical Command Posts (TACCP) White and Blue[46]) four downsized TTC-41A node centers and three FM/TACSAT interface teams. While MSE Node Centers were designed for this type of operations, the versatility of all of the elements provided network coverage into Iraq. Standard Corps Area Signal Centers, equipped with TTC-39A TRITAC switches, [47] "had little chance of being able to keep up with this type of rapid movement."[48]

In addition to the forward-looking force structure (initiated in 1987)[49] that facilitated the evolution into a offensive configuration while maintaining Desert Shield support, the 35th Signal's ODS historical report attributes its success to other innovations. For example, the 35th assured adequate communications support in theater for several of its major subordinate command (MSC) subscribers through a "signal slice deployment concept." That is, certain MSCs arrived in theater with communications equipment and personnel incorporated into their deployment packages. Not incidentally, this pre-positioning relieved the 35th of significant burdens.[50] Innovative equipment usage also involved the employment of a small digital switch (SDS), borrowed from General Telephone and Electronics (GTE), which the 35th assessed a "critical component of the switching network during all phases of defensive and offensive operations." The SDS, a small, 150 line version of the TTC-39A, which fits into three-foot locker size cases, expanded trunking and the number of available telephones during both Desert Shield and Desert Storm.[51]

Summarizing Desert Storm operations, the 35th established and maintained a communications network covering in excess of 120,000 square miles. The network simultaneously supported Corps forces at Fort Bragg, Theater Rear Area at Ad Dammam/Dhahran, Corps Rear Area near KKMC, Corps TAA and the Corps Main Battle Area (MBA) in southern Iraq to the Euphrates River. It extended from Dhahran half way across Saudi Arabia to Rhafa and north to the Euphrates. According post-conflict evaluations, the task would have been impossible without extensive use of long haul multichannel communications assets, specifically the AN/TRC-170 Tropospheric Scatter (tropo) terminals and the AN/TSC-85 and AN/TSC-93 satellite terminals. "These assets satisfied the critical network and command post connectivity required in every phase of the operation.[52]

Conclusion

As echoed in this glimpse of the Signal Corps' role in the Persian Gulf War, there were, indeed, problems and concerns in communications support. The Center for Army Lessons Learned (CALL) along with others (including the Command Historian Office at the Signal Center) is studying in depth the U.S. Army's performance in the war. Preliminary analysis already is reshaping AirLand Battle doctrine.

While there were difficulties, the Chief of Staff Army has remarked that he never experienced any major communication problems throughout the operation. As MG Robert E. Gray, commander of the US Army Signal Center, said recently in his State of the Signal Corps Address:

We faced DS/DS and achieved great success-not only in SWA, but on the home front-the support given by you, the signal soldier in the field and in the sustainment arena has been echoed throughout the Army. Despite the fact that our branch was halfway through the largest force modernization ever undertaken by the Army with non-developmental telecommunications equipment, that we deployed to a theater....without a communications infrastructure, and that the burden

infrastructure, and that the burden of communications spanned not only American units but twenty-seven nations' military forces, was an unequalled feat in the history of the Army.[53]

That feat in getting the message through deserves accolade. It also warrants critical analysis from both the Signal Corps and recipients of the Signal Corps' communications support (its customers). The post-Cold War U.S. Army will be assessing for some time the findings of the Desert Storm Special Study Project (DSSP) established by the Army Vice Chief of Staff.[54] From lessons learned, the Signal Corps will strive to perfect its doctrine in the ever continuing challenge, as stated in the Corps' regimental motto, to be "watchful for the country."

653rd Signal Company (Light Tropospheric Scatter)

The 653rd Signal Company (Light Tropospheric Scatter), from Perry, Florida, under the command of CPT Jim Gowen, was unique in being the only U.S. Army Guard or U.S. Army Reserve Signal unit deployed to Southwest Asia (SWA). Activated in December 1990 and deployed in January, the company arrived on 16 Jan, 1991, in Dhahran, and on 8 May, 1991, returned to its armory without any accidents, any injuries, or any loss of equipment. The company's threefold mission was to maintain the primary communications link between ARCENT and Marine Command (MARCENT) and between the XVIII Airborne Corps and the VII Corps; to provide log and command and control systems to III, VII, and XVIII Airborne Corps; and to serve as the backbone of the communications system between ARCENT and ARCENT Forward.

The company mastered its mission by supplying multichannel communications using tactical tropospheric scatter radio equipment, which the unit transported to site, set up, and operated within three days of its arrival at the Port of Dammam. Reportedly, once set up, the 653rd maintained its equipment with the highest systems reliability of any operation in theater. Even before the ground war began, the 653rd had "logged 10,000 transmission hours with less than 2 percent downtime. During the ground war,[the company, calling itself the AT&T of the Army, experienced]...less than 1 percent downtime during 7,400 transmission hours." According to Gowen, the 653rd made "long-haul connections with individual shots ranging from 67 to 131 miles each and relay shots up to 300 miles." Reportedly, this was the first U.S. Army National Guard unit to enter Kuwait City "upon which time they provided communications back to Riyahd." BG James C. Rinaman, Jr., commander of 53rd Signal Brigade, the unit's higher headquarters, rated them "100 percent in performance." The 653rd's accomplishments were all the more impressive given the fact that the unit had received its equipment in August 1990, only four months before deployment. BG Rinaman attributed this to their excellent training "and their outstanding attitude."[55]

Endnotes

[1]LTG Charles A. Horner, "The Air Campaign," Military Review, LXXI (September 1991), p. 17.

[2]LTG John J. Yeosock, "Army Operations in the Gulf Theater," Military Review, LXXI (September 1991), pp. 2-4.

[3]USAISC, United States Army Information Systems Command In Support of Desert Shield and Desert Storm, USAISC, Fort Huachuca, April 1991, pp. i, ii, 5 and "Gulf War Communications Quickly Fielded, Efficient," Signal 45 (Aug 91), pp. 44-45.

[4]USAISC, "United States Army Information Systems Command In Support of Desert Shield and Desert Storm Executive Summary," (USAISC, Fort Huachuca, April 1991), pp. i-iii, 2, 4-6, USAISC, Persian Gulf War Records, USASC&FG Archives; USAISC, "United States Army Information Systems Command ODS Chronology," 29 May 1991, p. 1, USAISC, Persian Gulf War Records, USASC&FG Archives; "Gulf War Communications Quickly Fielded, Efficient," Signal 45 (Aug 91), pp. 44-45; 11th Signal Brigade, "11th Signal Brigade Gulf War Significant Events," p. 1 of enclosure one to LTC Craig L. Zimmerman to Commander, USAISC, 10 July 1991, 11th Signal Brigade, Persian Gulf War Records, USASC&FG Archives; and Wrenne Timberlake, "ISC takes the desert by Storm," ARMY COMMUNICATOR 16 (Spring 1991), p. 17.

[5]USAISC, United States Army Information Systems Command In Support of Desert Shield and Desert Storm, USAISC, Fort Huachuca, April 1991, pp. ii, iii, 5-6.

[6]"Gulf War Communications Quickly Fielded, Efficient," Signal 45 (August 91), pp. 44-45; USAISC, United States Army Information Systems Command In Support of Desert Shield and Desert Storm, USAISC, Fort Huachuca, April 1991, pp. iii, 8, 10; Letter w/ attachment, COL Andrew Follmer to ISC Command Historian, 23 June 1992; and LTG Yeosock, "Army Operations in the Gulf Theater," Military Review, LXXI (September 1991), pp. 11-12.

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[11]11th Signal Brigade Operation Desert Storm After Action Report/ Lessons Learned, 20 April 1991, pp. 4, 6, copy in 11th Signal Brigade, Persian Gulf War Records, USASC&FG Archives.

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[14]LTG Yeosock, "Army Operations in the Gulf Theater," Military Review, LXXI (September 1991), pp. 13, 15.

[15]Telephone interview with Dr. Robert Wright, Center of Military History, and Dr. Kathy Roe Coker, 28 January 1992. At the time of publication, the organizational affiliations of all the Signal units supporting the Persian Gulf War was unavailable.

[16]"Signal Soldiers Diagnose Tangled Technical Issues," Signal, 45 (August 1991), p. 38.

[17]COL Richard M. Walsh, Commander, 93rd Signal Brigade to DCG, CAC et al, with attached 93d Signal Brigade Operations Desert Shield/Storm After Action Report, 2 Oct 91, pp. 1-3, 93rd Signal Brigade, Persian Gulf War Records, USASC&FG Archives.

[18]CPT Jimmy W. Whiteley to Director, CALL, 16 January 1991, 35th Signal Storm After Action Report, 2 Oct 91, pp. 1, 3-4, 93rd Signal Brigade, Persian Gulf War Records, USASC&FG Archives.

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[26]Ibid., pp. 7-9 and Notations, LTC Rodakowski, former commander of the 34th Signal Battalion, 29 July 1992.

[27]Ibid., p. 9.

[28]"Signal Soldiers Diagnose Tangled Technical Issues," Signal, 45 (August 1991), p. 39.

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[32]"Signal Soldiers Diagnose Tangled Technical Issues," Signal, 45 (August 1991), p. 39.

[33]Guidotti, Captain John A., "The 35th Signal's new go-to-war concept," ARMY COMMUNICATOR, Fall/Winter 1991, pp. 20-23.

[34]Report, 35th Signal Brigade (Corps)(Airborne) Historical Review, Operation Desert Shield/ Desert Storm, 1990-1991, p. 1, 35th Signal Brigade, Persian Gulf War Records, USASC&FG Archives.

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[36]Ibid, pp. 2-4.

[37]Ibid.

[38]Ibid., p.5.

[39]Guidotti, Captain John A., "The 35th Signal's new go-to-war concept," the Army Communicator Fall/ Winter 1991, p. 20.

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[42]Ibid., pp. 6-7.

[43]Guidotti, Captain John A., "The 35th Signal's new go-to-war concept," the Army Communicator (Fall/Winter 1991), p. 21.

[44]Report, 35th Signal Brigade (Corps)(Airborne) Historical Review Operation Desert Shield/Desert Storm 1990-1991, p. 12, 35th Signal Brigade, Persian Gulf War Records, USASC&FG Archives.

[45]Ibid. Equipment configuration is at Illustration __.

[46]Ibid., p. 23.

[47]Ibid., p. 18.

[48]Ibid, p. 8.

[49]Ibid., p. 13.

[50]Report, 35th Signal Brigade (Corps)(Airborne) After Action Reports Operation Desert Shield/ Desert Storm 1990-1991, JULLS Long Report, p. 39, 35th Signal Brigade, Persian Gulf War Records, USASC&FG Archives.

[51]Ibid., p. 13.

[52]Ibid., .39.

[53]MG Robert E. Gray, State of the Signal Corps Address, 3 December 1991, Regimental Signal Symposium 2 December-6 December 1991, Speech Files, Commanding General's Records, USASC&FG Archives.

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[19]COL Richard M. Walsh, Commander, 93rd Signal Brigade to DCG, CAC et al, with attached 93d Signal Brigade Operations Desert Shield/Storm After Action Report, 2 Oct 91, p. 3, 93rd Signal Brigade, Persian Gulf War Records, USASC&FG Archives and Notations, LTC Scott Rodakowski, former commander, 34th Signal Battalion, 29 July 1992.

[20]Ibid., p. 1 and "Signal Soldiers Diagnose Tangled Technical Issues," Signal, 45 (August 1991), p. 38.

[21]COL Richard M. Walsh, Commander, 93rd Signal Brigade to DCG, CAC et al, with attached 93d Signal Brigade Operations Desert Shield/

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