Supporting 3rd Armored Division

Communications on a mobile battlefield in

by CPT Bryan S. Goda and CPT Robert M. Prudhomme

"MSE is far superior to ATACCS, especially in a highly mobile and intense conflict. During Operation Desert Storm, the division Signaleers truly earned their combat pay."

—MG Paul E. Funk
CG, 3rd Armored Div

Background

The 143rd Signal Battalion is the TOE Division Signal Battalion for the 3rd Armored Division, based in Frankfurt, Germany. The 143rd Signal Battalion, along with Charlie Company of the 17th Signal Battalion, started its Mobile Subscriber Equipment New Equipment Training (NETT) on 26 May 1990, and concluded with a highly successful CAPEX on 10 September 1990. During the CAPEX, the battalion jumped every node center at least once, and every SEN and RAU team at least twice. The network covered an area 110 km east to west, and 64 km north to south. In addition, the battalion practiced a node center jump in conjunction with a SYSCON jump, an exercise which was to pay hugh dividends later. LTC Bill Burse rated his battalion combat ready. Based on the results of the CAPEX, the 3rd Armored Division commanding general signed the DD Form 250 accepting MSE as the division's new communications system.

Three weeks after the CAPEX, the battalion began an FTX with the objective of practicing an MSE support concept for a division movement to contact covering 100 km at a rate of 20 miles per hour. The plan had a base of 2 node centers, with 2 node centers held in reserve which would move behind the lead brigade and establish node centers well forward in a doctrinal grid configuration. With the mountainous terrain of central Germany, it was possible to establish internodal links as long as 79 km. Despite this fact, the installation times for the forward node centers were not fast enough to keep the forward Mobile Subscriber Radio Telephone (MSRT) users within 15 km of the forward Radio Access Units (RAU).

Concurrently with the battalion FTX, one company supported a division rotation at the Combat Maneuver Training Center in Hohenfels. The net result of these two exercises was that the battalion was training with MSE continuously for a four-week period after MSE NETT. This developed a solid base of institutional knowledge among the operators and users. Little did anyone realize that the battalion would soon get to test their newly learned skills in Operation Desert Storm.

On 9 November 1990, the line drawn in the Persian Gulf sand took on a whole new meaning for the men and women of the 143rd Signal Battalion. President Bush ordered the powerful defenders of the Fulda Gap, the 3rd Armored Division, to deploy to Southwest Asia and destroy the vaunted Iraqi Republican Guards. This is the courageous story of 638 Signal soldiers supporting the Army's most lethal combat division.

Plan Development

The initial planning for the operation had the division conducting a movement to contact of approximately 150 km, which would be followed by a hasty attack. Based on the results of the October FTX, the battalion plans section realized that the doctrinal approach would not meet the division requirements for an operation of this nature.

In order to meet the needs of the division, the communications plan needed to be flexible, able to extend over long distances, and survivable. After much discussion, the Battalion Commander, LTC Burse, approved a plan consisting of a modified "daisy chain". Although this approach had been tried unsuccessfully by other units before, several important modifications were made to overcome the inherent drawbacks to this design.

The design that was developed consisted of a two node base, and a chain of node centers 30 km apart placed along the division axis of advance. This allowed the battalion to extend communications over 150 km. This initial daisy chain would be used to support the movement to contact. Once the division reached its objective, the battalion would go back into its normal MSE network configuration (Figure 1).

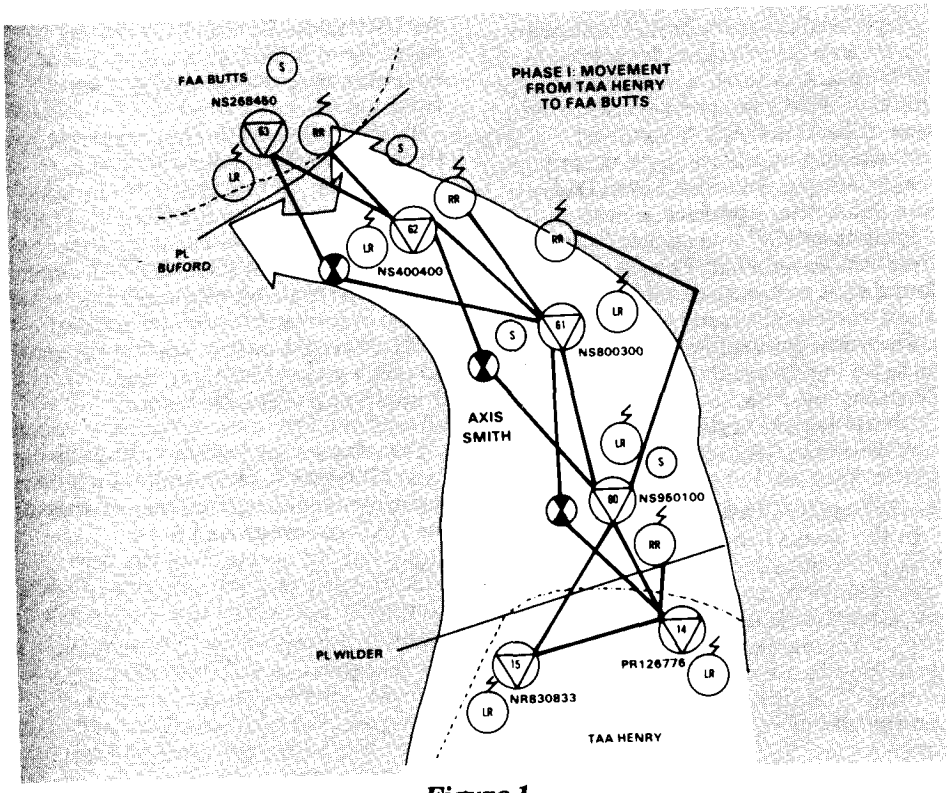

Figure 1

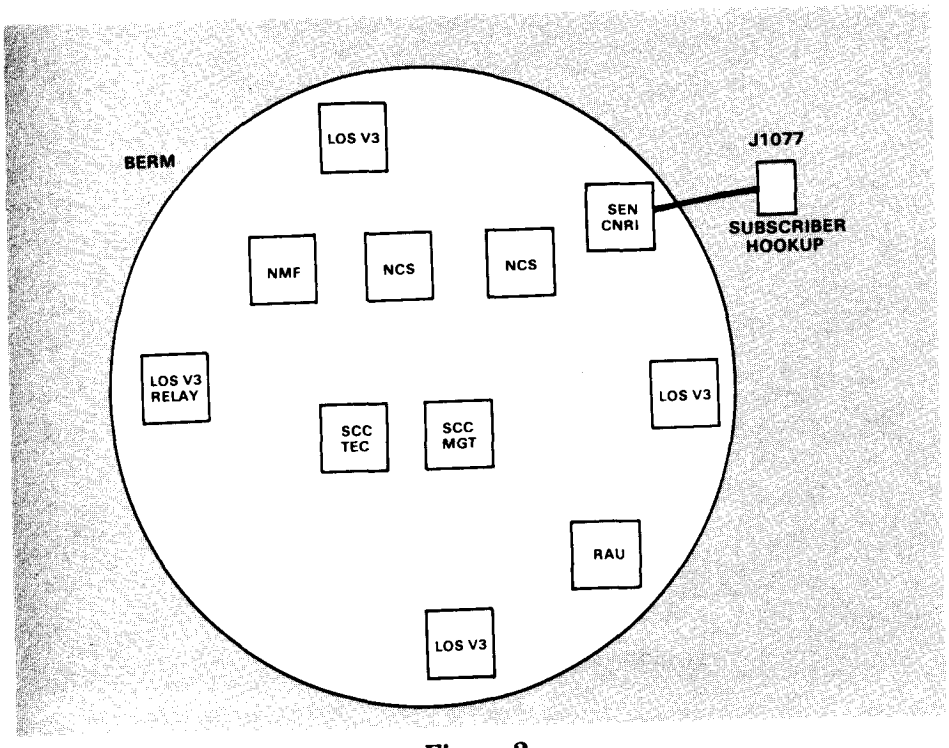

Figure 2

The division plan was to cross the line of departure in division column, and then approximately 30 km into Iraq, refuel and transition to a wedge formation. In order to place the node centers as far forward as possible so that RAU coverage could be extended forward, the four "daisy chain" nodes moved behind the combat trains of the division advance guard battalion. Every 30 km, a node center would peel off and set up along the axis of advance. Between node centers, a remote RAU was dropped off the axis of advance to improve RAU coverage.

The division command posts were broken into four cells, a Jump DTAC, DTAC, Jump DMAIN, and the DMAIN. The concept was to have an element of DTAC and element of the DMAIN always in the MSE network while the other element moved. The MAIN collocated with a SEN at the node centers while the DTAC was usually tied in through an LOS system to the forward node center. The two 17th Signal Battalion node centers (14 and 15) acted as the network base across the line of departure. All subscriber numbers were loaded into these 2 node centers. This procedure greatly simplified network start-up. A radio relay (LOS V3) placed at each node provided alternate routing and backup if a link went out. Remote RAUs were placed 15 km between node centers to provide Mobile Subscriber Radio Telephone (MSRT) access along the MSR. A local RAU at each node center helped to provide excellent overlapping RAU coverage. A local Small Extension Node (SEN) with Combat Net Radio (CNR) off of the node center provided "phone booth" service for any subscriber to plug into the MSE System. The use of the CNRI greatly extended FM communications (Figure 2).

Since the division would be constantly on the move, providing service to the 200 MSRT users in the division would be given priority. Only the Division Main (2) TAC CP (2), SENs and DISCOM (Large Extension Node) would be linked in while the division was on the move. When the division halted, all SENs would be tied into the network when possible.

All Line-of-Sight V3s (LOS), LOS V1s, and RAUs had their 15 meter masts affixed to the sides of the vans. The idea for this came from SSG Lloyd Graham, the LOS team chief from the 60 Node Center. The masts were secured by 2x4s, rope, and cargo straps. This "quick erect" installation allowed an LOS van to be on the air within 5 minutes. Though the antennas were close together, the battalion experienced very little frequency interference and no antennas fell down even in 60 mph winds.

A standard platoon site layout was developed for the 6 node center platoons. Vehicles were set in standard formation in convoy (Figure 3), so vehicles could pull off of the axis of advance and set up quickly. This setup was designed to aid in antenna separation in a small area and to also allow subscribers ready access to wireline service.

Each node center was assigned a direct support bulldozer from the 23rd Engineer Battalion to build a defensive berm around the site. The bulldozers proved invaluable in digging in vehicles and fighting positions. A field hospital and maintenance collection point was set up at 4 of the node centers due to their central location along the axis of advance.

Network Management

In order to control the rapidly changing network, a split SYSCON was developed. Both SYSCONs had dual FM net capability and a management component. Each SYSCON element would leapfrog so that central control would be maintained. When the Systems Control Center (SCC) was out of system, the alternate SYSCON utilized pre-planned frequencies generated by the SCC if any interference was encountered.

When both SYSCONs were in system, it became readily apparent that 2 separate SYSCONs could not be in control of the network. This was solved by having only one active SYSCON, with the other SYSCON dealing only with subscriber issues. Periodic updates were done between SYSCONs so that a current network status could be maintained at both locations. The active SYSCON was designated by the affiliation of the normal SYSCON numbers. Transfer of control was done by faxing a system worksheet to the standby SYSCON. Once the standby had posted the current network status, the standby SYSCON affiliated the normal SYSCON numbers, and assumed control of the network.

A small switchex was conducted so that each node center switch would have the division stand-alone 12 preprogrammed conference calls and 40 compressed dial numbers. Each node center was given a list of the 160 MSRTs in the division and 40 non-division MSRT subscribers. This list was utilized to track subscriber movement and insure there was no loss of service. In order not to lose any subscriber numbers, a new duplication SOP was adopted from the 13th Signal Battalion. It was found that numbers could be passed along the chain when more than one node center jumped forward. This was done by verifying duplication, dropping the link, and then doing an Activate Local Duplication (ALD) command for the jumping node center.

Refining the plan

In the weeks before the actual attack, the division had two "HUMMEXes" to rehearse the communications plan, and to rehearse the division movement in column, transition to a wedge, and actions on contact. The first rehearsal was conducted with only 2 node centers and 4 remote RAUs. The rest of the division participated down to platoon leader level.

Once the division crossed the LD for HUMMEX 1, the RAUs rapidly became saturated, and many subscribers were unable to even affiliate. The concept for dropping node centers along the axis of advance worked fairly well, but installation time was almost two hours for both node centers. This left the majority of MSRT subscribers out of coverage for considerable periods of time.

In the wake of this first rehearsal, the battalion planners adjusted the concept for "HUMMEX II" to include all 6 node centers and 13 RAUs. With these refinements to the plan, the division launched HUMMEX II. Once again, the division rehearsed the entire movement to contact scenario with node centers moving behind the advance guard battalion, and dropping off along the axis of advance.

Two things the battalion learned from HUMMEX II were that installation times had to get faster and that the RAU coverage had to be improved. To accomplish the first task, the switch operators from Node Center 63 discovered that the switch could be initialized up to Assign Online Diagnostic (AOD) command 91, then the interswitch cables could be disconnected and the switch could move with both vans on DC power. Once the switch arrived on site, the interswitch cables were connected, the

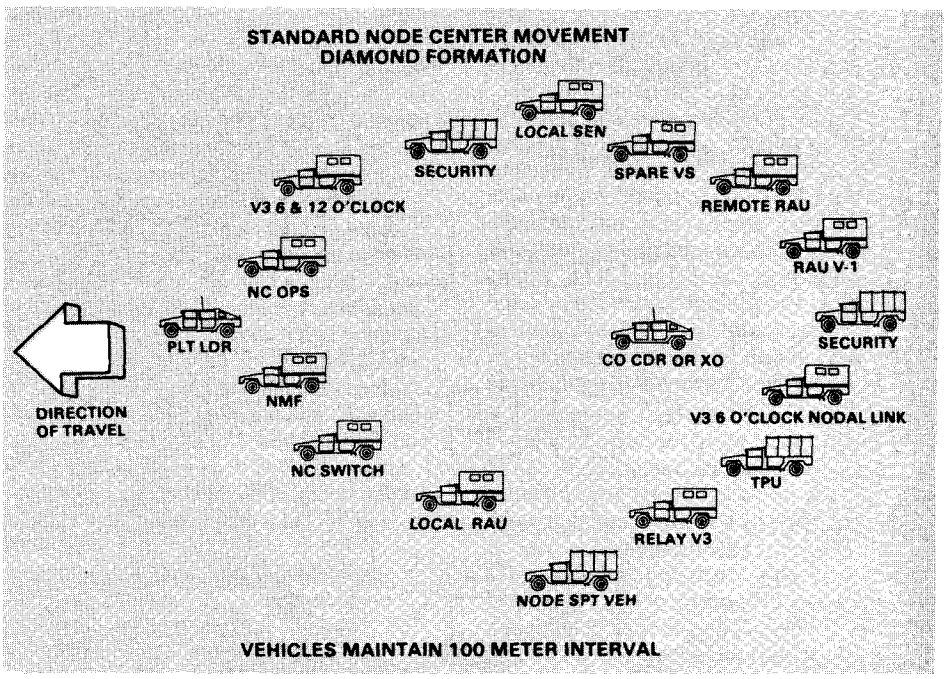

Figure 3

final two AOD commands were performed, and the switch could be operational in 5 minutes or less. To improve RAU coverage, the plans section decided to place remote RAUs at 15 km intervals between node centers. This provided uninterrupted MSRT access as the division moved forward.

With these improvements in place, the battalion had one more chance to practice the war plan prior to the start of the ground war. Seven days before the start of the ground war, the Third Armored Division began movement from its Tactical Assembly Area to its Forward Assembly Area in a movement that was phased over three days. This was 143rd Signal Battalion's dress rehearsal for war (Figure 1).

On G-7 (start of the ground war minus 7 days), the jump SYSCON moved to Node Center 14 to assume control of the network. Once again, the battalion supported the move from the front, dropping RAUs and node centers along the MSR. In addition, when the division halted, the forward node center established a hasty node site to tie in the forward brigade and division CPs. Because the movement was phased over three days, the Signal battalion was unable to practice breaking the rear node centers and jumping them forward. In all three rehearsals, that was the one aspect of the plan which was not rehearsed. Once in the FAA, Node Centers 14 and 15 moved to a holding area.

Having conducted three rehearsals, the battalion was able to refine the war plan to the point where each node center, RAU, and SEN was confident in the concept and execution. This repetition set the stage for success when Operation Desert Storm entered its final phase.

Plan Execution

Third Armored Division spent seven days in the forward assembly area prior to the start of the ground war. On the day prior to the beginning of the ground war, NCs 14 and 15 moved forward to locations approximatley 25 kilometers south of the Iraq border. The same day, the jump SYSCON moved to NC 14.

On the morning of 24 February, 14 and 15 moved out to locations just 8 kilometers south of the border. At approximately 0800 hours, they began installing the 1415 link. The war plan was to break the FAA network at 1000 hours, and move the division forward to positions just south of the border. At 1030 hours, the corps commander ordered the division to attack at 1500 hours that day. This was 13 hours earlier than planned, and it forced the 60, 61, 62, and 63 nodes to race to catch 2nd Brigade so they would be in position to lay down the "daisy chain" as the division moved to contact (Figure 4).

At 1452 hours, the division advanced guard battalion crossed the Iraq border, with Node Centers 60 and 61 following the combat trains of the lead tank battalion. The DTAC was

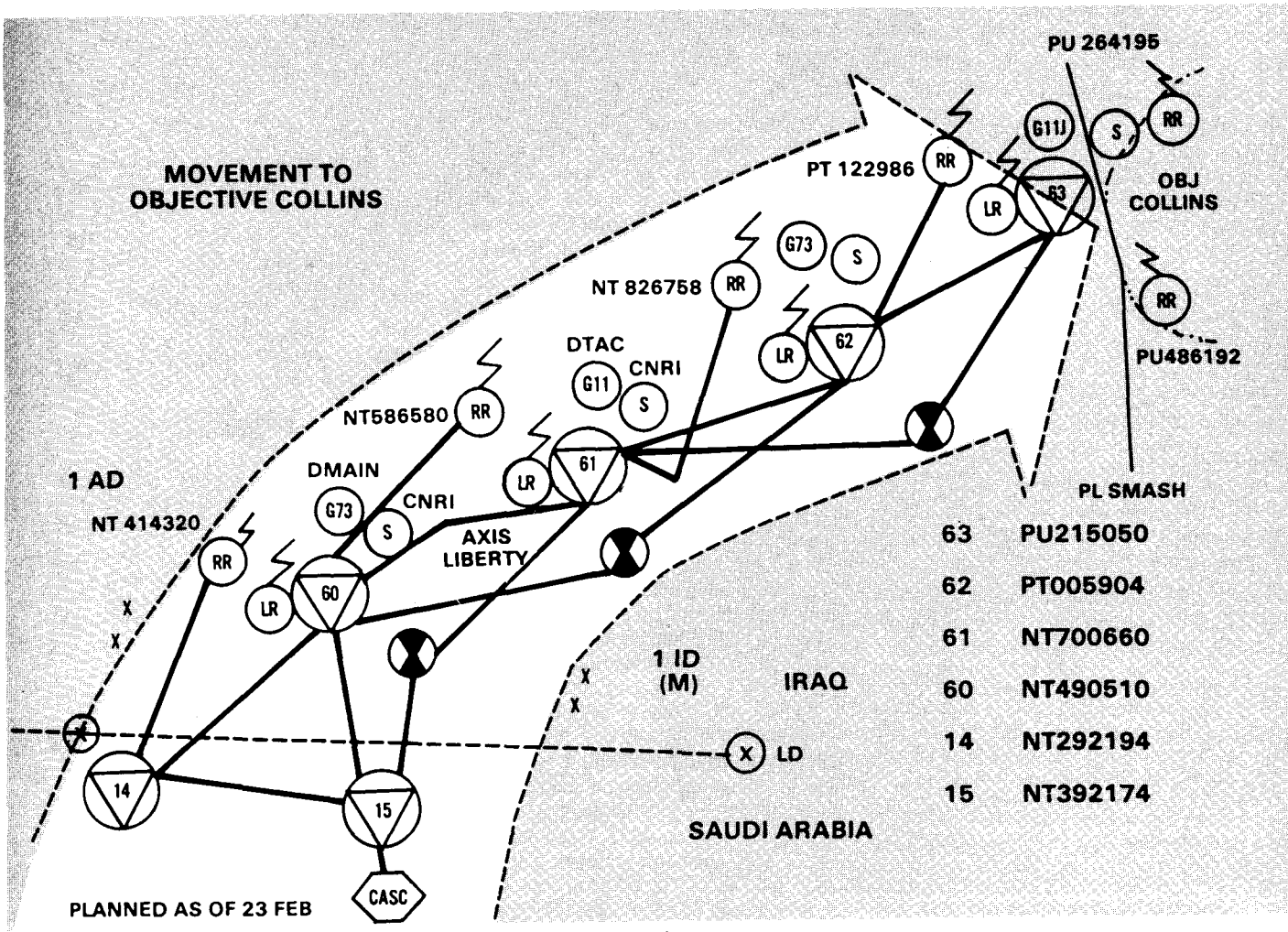

Figure 4

located just north of the border with a link into NC 14. Node Centers 62 and 63 were approximately 30 km behind, trying to catch up to 2nd Brigade. At appoximately 1630 hours, remote RAU 15 was dropped off at its planned location, and installed a link to Node Center 14. This kept the 2nd Brigade MSRT users in the network as 60 moved to its planned location. Spot reports of enemy in the vicinity of 60's planned location forced 60 to locate approximately 2 km from its planned location.

By 1830 hours, 60 had installed the first internodal to 15, and had affiliated the local RAU and turned the beacon on. About 1900 hours, the division commander decided to halt movement for the night. NCs 62 and 63 were halted south of the border until first light the next day. DMAIN was located with its local SEN off of NC 15, while the jump DMAIN was using the CNRI SEN at Node Center 14. Second Brigade, the DTAC, and DIVARTY were also linked into the network that night to allow the units to continue coordination prior to moving at first light the next morning.

With a gateway link into the 93rd Signal Brigade at NC 15, the division had excellent communications with VII Corps from approximately 1600 hours on the 24th until 15 jumped forward on the morning of 27 February. At first light on 25 February, Third Armored Division continued the attack with 1st Brigade moving across the berm, followed by DIVARTY, and 3rd Brigade. Node Centers 62 and 63 crossed the berm at 0830 hours and began racing to catch up to Second Brigade.

By 1100 hours, Node Center 61 was on location and had established its first internodal link while the 62 and 63 nodes were passing the lead elements of Second Brigade. At this point, the plan was working better than during any of the rehearsals. The division CPs were in contact with corps and with each of the brigade CPs, which were moving. Shortly after 1500 hours, Node Center 62 arrived at its location and 40 minutes later, had an internodal link initialized and the local RAU affiliated. Thirty minutes later, the SCC had updated the network status and assumed control of the network. The SCC's first order was to have Node Center 14 break systems and prepare to move.

By 1630 hours, the 63 node had caught up to 2nd Brigade and was moving behind the combat trains of the lead battalion. Less than one hour later, the division had its first contact as the lead company of 4-8 CAV began engaging an Iraqi mechanized company which was dug in 3 km to their front. Due to the contact and the fact that it was getting dark, 63 established a hasty node site approximately 5 miles west of its

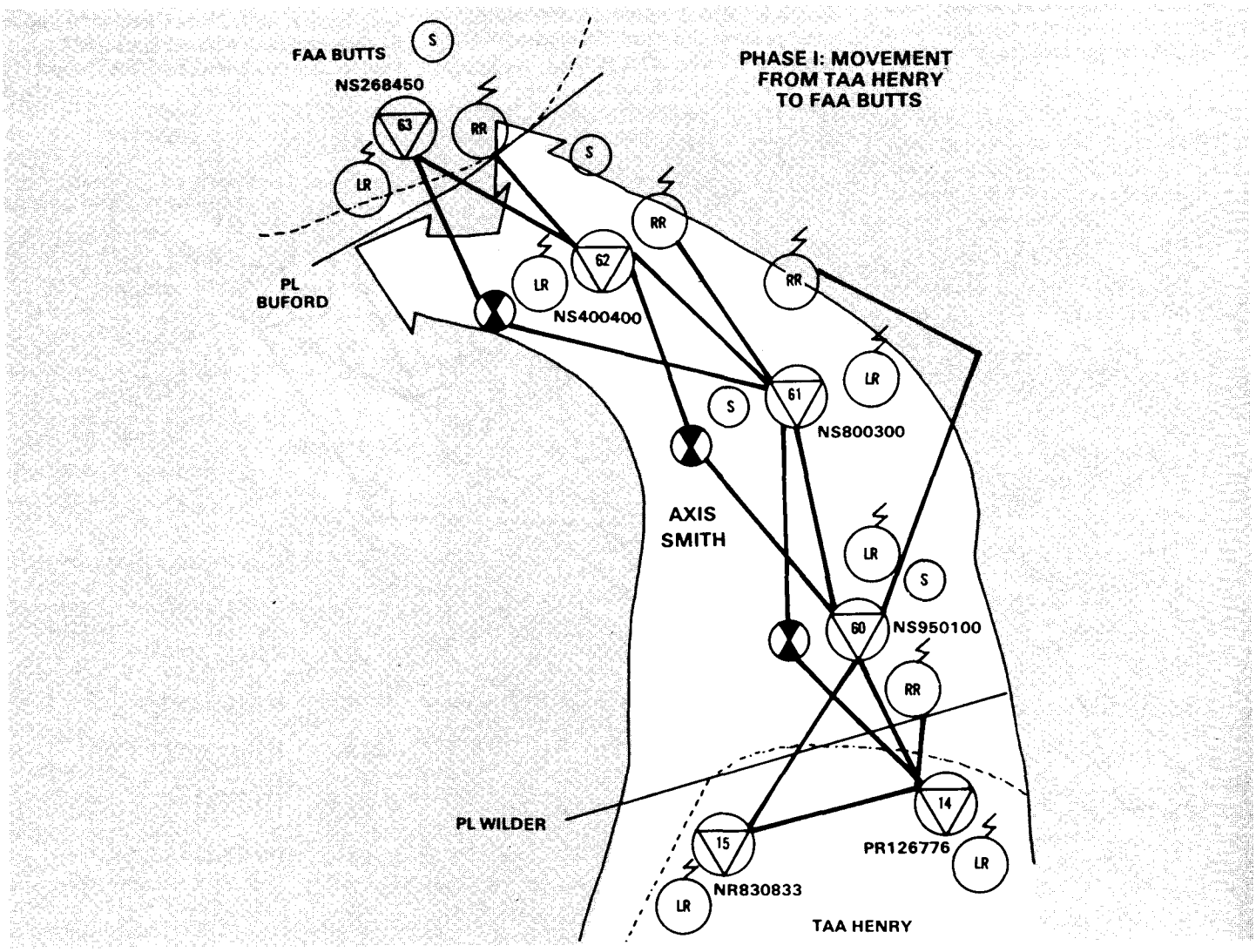

Figure 5

planned location. Once again, the first internodal and local RAU were operational in less than 30 minutes.

At 1830 hours, the 14 node center and SYSCON departed on a 150 km jump to the 63 node to establish the next link in the chain. The original plan had been to break the three rear node centers at this point and move them forward to 63 to begin establishing a more doctrinal grid network. However, it had become obvious that the division would not stop at Objective Collins as planned but would transition immediately to a pursuit. In addition, there was no Corps CASC which was in position to provide a gateway to any of the other 3AD node centers. This meant that Node Center 15 would have to remain in place, tied to NC 61 through the relay at 60.

With the lead brigade in contact, and developing the situation, the division commander began to bring the 1st Brigade on line on the right flank. As this was happening, Burse began relaying engineering data to the brigade, DTAC, and DIVARTY SENs were tied in, and the DMAIN was operational at NC 62. The corps commander spent the remainder of the night at the DTAC and made several calls to ARCENT Headquarters in Riyadh, approximately 200 miles to the south.

The morning of 26 February, Node Center 63 broke systems and moved the additional five miles to its planned location. Node Centers 60 and 14 were enroute to 63 to pick up team packets for their next mission. Second Brigade passed 3rd Brigade forward, and then 3rd and 1st Brigades continued the attack east. At 1230, the A Company commander picked up the team packets for Node Center 60, and continued to the 63 location. Two hours later, 14 arrived at 62, picked up team packets, and also continued to 63 (Figure 5).

At 1630 hours, 60 arrived at a location 25 kilometers forward of 63 and began establishing links. Fourteen departed Node Center 62 following the Battalion S-3 to a planned location forward of 60. At 1830, Burse took remote RAU 14 to a location 10 miles forward of Node Center 60 to provide RAU coverage for 3rd and 1st Brigades, which were involved in a heavy fight against elements of five Republican Guard Divisions. Once again, the brigade, DTAC, and DIVARTY SENs established links to the forward 2 nodes. At this point, BG Blackwell, the ADC-M, made the decision to break the gateway and move Node Center 15 forward. Node Center 61 was also instructed to break and by 1900 hours, 15 and 61 were enroute to 60. Node Center 14 arrived at remote RAU 14's location about 1900 hours, and was held there until the area in its planned jump location was cleared of enemy.

At 0600 hours on 27 February, DMAIN departed Node Center 62 for Node Center 60. The plan was then to break NC 62 and the SCC at 1000 hours and move them forward to 60. However, the 62 switch crashed at 0830, and SYSCON directed 62 to move immediately. At 0930, Node Center 15 linked up with 62 on the MSR, and they departed together for NC 60. By 1000 hours, NC 61 had arrived at 60 to pick up team packets for its next mission.

With 1st and 3rd Brigade still involved in fairly heavy contact, 14 was unable to move to its planned location, so NC 61 moved forward to the same holding area. When the G-2 declared the area clear of enemy, 14 moved forward and established a node center site approximately 25 kilometers east of Node Center 60. NC 61 moved to a location northeast of 60, but west of 14. This was the beginning of a more doctrinal grid network (Figure 6).

At approximately noon, the DMAIN arrived at Node Center 60 and established operations. At 1410, NCs 15 and 62 arrived at 60 to pick up team packets for the next mission. Less than five minutes after their arrival, G-3 from the jump DMAIN called SYSCON and said to get 62 and 15 ready to roll to the 14 location. SYSCON had already selected locations for 15 and 62 that created a diamond shaped network with NC 62 at the eastern point in Kuwait. At 1530, jump DMAIN, Node Centers 15 and 62 departed for NC 14.

By 1830, the jump MAIN, 15 and 62 had arrived at 14. Thirty minutes later, G-2 declared 15's planned location safe, and the jump MAIN and NC 15 moved there. By 2130, NC 15 was sitting on the smoldering remains of an Iraqi mechanized company battle position. Node Center 62 remained on hold at NC 14 until G-2 declared the next planned location safe. At midnight, the first combat elements of 3rd Armored Division pushed into Kuwait, and at 0400 SYSCON received a call from G-3, announcing a cease-fire effective 0800 hours on 28 February.

With the SCC in control of the network at Node Center 14, the SYSCON jumped at 0700 to 14 to link up with NC 62. At 1130 hours, G-3 cleared NC 62 to move to its planned location in Kuwait. After a 4-hour road march past the scorched remains of two Iraqi divisions, Node Center 62 arrived in Kuwait, and an hour later had established the first operational MSE node in Kuwait. On 1 March, Node Centers 61 and 63 moved into Kuwait and established the remainder of the 3rd Armored Division MSE network in Kuwait. This act represented the completion of 143rd Signal Battalion's combat operations in Operation Desert Storm.

Summary

Great praise should go out to the men and women of the 143rd Signal Battalion and Charlie Company, 17th Signal Battalion, for their hard work and dedication. Special thanks should also go out to GTE, especially Mike Benson, who provided outstanding technical assistance throughout the deployment and attack. LTG Franks—the VII Corps commander—stated, "This was 3rd Armored Division's finest hour in any conflict." The division was credited with over 1000 enemy tanks, personnel carriers, and trucks destroyed. Franks spent two days of the 100 hours war with the 3rd Armored Division DTAC and was always able to communicate. Franks stated, "3rd Armored Division had the best communications in the Corps." Similar praise was echoed by COL Walsh, the 93rd Signal Brigade commander. Perhaps MSE's performance was best expressed by LT Duggan, a platoon leader from 93rd Signal Brigade with Army Tactical Communications Systems (ATACCS) equipment. He stated, "We simply cannot keep up with you."

Duggan should not despair. MSE is now battle proven and soon will be fielded across the Army.

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CPT Robert M. Prudhomme is a 1984 Doane College (Nebraska) graduate with a BA in journalism. He has graduated from Signal OBC, OAC, and the MSE Network Planners course. He has served as the Squadron Signal Officer for 2nd Squadron, 11th ACR; Battalion Signal Officer and assistant S-3, 3rd Battalion, 5th Cav (3rd AD); and is currently B Company Commander, 143rd Signal Bn.