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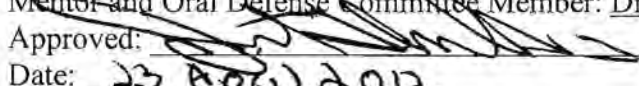
Implications of Privatizing U.S Marine Deployed Tactical Telecommunications

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OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF MILITARY STUDIES

Major Kwabena K. Gyimah

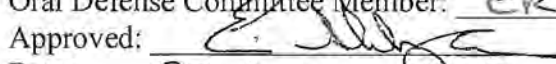
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Executive Summary

Title: Implications of Privatizing U.S Marine Deployed Tactical Telecommunications

Author: Major Kwabena Gyimah, United States Marine Corps

Thesis: This paper argues that the advantages of outsourcing the Corps' deployed telecommunications requirements to private contractors, though logical from a strategic perspective, has unintended consequences in operational and tactical environments. Specifically, it has introduced manpower management impediments and created an increased dependency on FSR support to operate and maintain the Corps' future telecom networks.

Discussion: Over the last decade the Marine Corps has been required to contribute beyond its typical niche of combat operations to include stability and reconstruction efforts, which demand a more enduring presence. This enduring presence changed the tactical telecommunications (telecom) requirements historically associated with the Corps' missions to a more robust commercial communications requirement, known as "commercialization." The Corps elected to procure telecom manpower and equipment from private telecom contractors such as Telecommunications Systems (TCS), Dataline & Solomon, and Rockwell Collins International, but did so without a solid plan for implementation and integration of contractors.

There has been limited training, if any, to prepare Marine communications leaders for contractor management. The parallel hierarchical structure of private telecom contractors does not make them accountable formally to the Marines they work for. There is lack of oversight on exactly how many contractors is appropriate for each communications unit and a forced integration of Marine communicators with private telecom contractors in Iraq and Afghanistan.

Marine communications leaders spend precious time discerning which contractors can be trusted and what shift rotations are optimal for integrating Marine communicators and contractors in the management of live telecom networks for combat operations; this detracts from the primary mission of rapidly enabling command and control. Habitual relationships are non-existent between Marine communicators and contractors and word-of-mouth turnovers, intuition, or telecom contract site leads are the only way of vetting the contractors as reliable.

As force capacity limitations restrict the Marine communications units to a manpower ceiling, contractors continue to arrive in theater and assume jobs traditionally held by Marine communicators. This shift in manpower structure, with a trajectory towards more contractors instead of Marines, results in decreased resources available for Marine communicators to develop and maintain their technical proficiency. Meanwhile, the telecom networks have evolved into a robust commercialized platform that makes the Corps more reliant on contractors and their equipment.

Conclusion: The Corps' senior leaders are indicating a return to the Corps' expeditionary roots, and its telecom manpower must be able to plan, install, operate, and maintain the telecom networks in future conflicts potentially void of private telecom contractors. Furthermore, the Corps' commanders and staffs must be prepared to utilize telecom networks less robust than the ones used over the last decade with a shift to expeditionary operations. The Corps has developed unrealistic telecom infrastructure expectations and habits of contractor dependency in both Iraq and Afghanistan, putting the Corps' future telecom readiness in jeopardy.

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Illustrations

	Page
Figure 1. <i>U.S. Military Defense Cuts Post Major Combat Operations</i>	3
Figure 2. <i>Contractor Personnel as a Percentage of Workforce in Recent Operations</i>	14

Table of Contents

	Page
DISCLAIMER	i
LIST OF ILLUSTRATIONS	ii
PREFACE	vi-v
CHAPTER 1 - INTRODUCTION	1
Title Page	1
Purpose	2
Front Matter	2
Disclaimer	3
List of Illustrations and Tables	4
Table of Contents	5
CONCLUSIONS	19
APPENDIX A: ARMED FORCES STRENGTH FIGURES FOR NOVEMBER 30, 2011	24
APPENDIX B: MARINE CORPS COMMUNICATIONS ELECTRONIC SCHOOL COURSES	25
APPENDIX C: TOP TEN OUTSOURCING SURVEY	26
APPENDIX D: COMMUNICATIONS TRAINING CENTER-2 COURSE LIST	27
BIBLIOGRAPHY	34
CITATIONS AND ENDNOTES	36

Preface

My recent deployments to Afghanistan and Djibouti presented me with different perspectives from my previous deployment to Iraq. In Iraq (2003) I had no contact with private telecommunications (telecom) contractors, whereas in Afghanistan (2011) and Djibouti (2008), I was introduced to significant contractor involvement with telecom, which stimulated my interest in researching and writing on the private telecom contractor and military communications operator dynamic. In Afghanistan and Djibouti, I witnessed deployment areas filled with contractors and confusion between military leadership and the contractors working “for them.” I use the words “for them” because those words were often spoken by military leaders, but in reality there was no formal process in place to make working “for them” credible. As I continued to inquire about the private telecom contractor integration with military communicators, I realized that I was operating in an environment in which military communicators competed for resources and relevancy with contractors to provide adequate command and control to commanders and their staff. The mystery was that, officially, there was no chain-of-command describing who worked for whom relative to contractors and military communications personnel. The contractors worked for their on-site leadership, and these on-site leaders coordinated with regional leaders who in turn answered to the contracting headquarters, usually in the states. Meanwhile, we (the military) had our own formal and clearly understood chain-of-command in both Djibouti and Afghanistan. In the end, the contractors in Djibouti who worked “for me” did an outstanding job primarily because of their prior military experience, in most cases, and their wealth of knowledge. In Afghanistan, there was a different dynamic, however, where I had numerous contractors working “for me” as Battalion Operations Officer, and the command relationships were quite complex. As I redeployed, I wanted to

generate discussion about the vulnerabilities of the contractor and military communicator integration on live deployed networks and inspire ideas to change the way the Marine and telecom contractor dynamic will work in the Corps' emerging future operations.

I would like to thank the Marine communicators from 8th Comm. Bn. for their perspectives and interview input. I mention you all in unit only in an effort to protect your candid thoughts. I would like to thank my mentor, Dr. Jonathan Phillips, for assisting me through this process, from the shaping of my topic to the defense of my paper. I would also like to thank Ms. Andrea Hamlen and Ms. Stase Rodebaugh from the Marine Corp University's Leadership Communication Skills Center for their review of my work. Most importantly, I would like to thank my wife Emily, and my son Benjamin, for their patience and understanding throughout this lengthy process.

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“Without command and control, campaigns, battles, and organized engagements are impossible, military units degenerate into mobs, and the subordination of military force to policy is replaced by random violence. In short, command and control is essential to all military operations and activities”¹

-Marine Corps Doctrinal Publication 6 - Command and Control

The Marine Corps’ telecommunication (telecom) networks enable commanders and their staffs to command and control (C2) Marine forces effectively and win battles. Command and Control is one of the Corps’ key warfighting functions and is inextricably linked to a commander’s ability to make decisions that determine the outcome of operations. The key element of the Marine Corps’ telecom networks, however, is not the advanced equipment, it is the Marine communications manpower that installs, operates, and maintains the Corps’ telecom systems.

An in-depth look into the Corps’ communications manpower over the last decade in Iraq and Afghanistan, reveals a manpower structure saturated with private military telecommunications contractors, known as field service representatives (FSRs). This should come as no surprise as outsourcing in the U.S. government, and the Department of Defense (DoD) specifically, is not a new phenomenon. A General Services Administration memorandum suggests that, “[t]here are short-term, tactical reasons for considering certain IT functions as candidates for outsourcing.”² However, that same memo recommends that “outsourcing should not be used as a means of dealing with personnel issues or inefficient operations.”³ Does the Corps’ procurement of FSRs to integrate with existing Marine communications manpower violate this second stipulation? Is the Corps’ current integrated FSR and Marine communicator telecom manpower construct sustainable given the Marine Corps’ plan to return to expeditionary operations?

This paper argues that the advantages of outsourcing the Corps' deployed telecommunications requirements to private contractors, though logical from a strategic perspective, has unintended consequences in operational and tactical environments. Specifically, it has introduced manpower management impediments and created an increased dependency on FSR support to operate and maintain the Corps' future telecom networks. This essay will first examine the strategic rationale for privatizing military service requirements in the past decade, followed by considerations of the impacts of integrating FSRs with the Corps' communicators at operational and tactical levels. The essay will conclude with recommendations for transforming the current deployed telecom FSR and Marine communicator manpower model to face the challenges of the Corps' future operating environments.

Why is privatizing some military service requirements strategically popular?

"The new administration should not try to fool the American people, perpetuating the myth of smaller government by not counting the hordes of service contractors it engages."⁴

- RAND Corporation

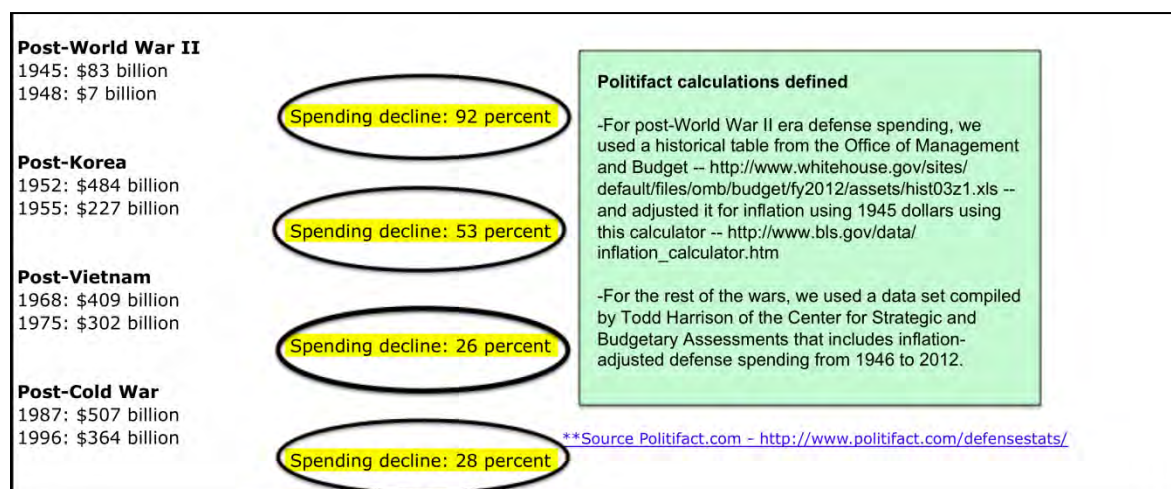
The rationale for transitioning from a Marine managed network to a privatized one requires an understanding of what drove the military towards privatization and why privatizing military support functions appeared logical to the military's senior leaders. A look at the rationale behind outsourcing in the private sector may provide some perspective. An Outsourcing Institute survey (see Appendix C) illustrates the typical reasons why businesses outsource (reduction in operating costs and to free manpower for other roles), but their circumstances differ in many areas from the military's, particularly as it pertains to mobility of the telecom networks and the threat as a consequence of operating in combat environments.⁵ For the U.S. military, there is specific guidance from the 1983 Office of Management and Budget

(OMB) circular that has informs senior military decision makers on what constitutes inherently governmental functions (functions not to be outsourced). However, the intent of this OMB document is primarily to incentivize outsourcing for many reasons, such as: cost savings, technical expertise, and deployed force capacity and sustainment challenges. The “best business practices” from the private sector and the OMB circular are some of the rudimentary influencers for senior military leaders to consider outsourcing.

Defense Department cuts play an even greater role in incentivizing the military’s senior leaders to outsource. As Defense Secretary Leon Panetta stated, "After every major conflict - World War I, World War II, Korea, Vietnam, the fall of the Soviet Union - what happened was that we ultimately hollowed out the force, largely by doing deep, across-the-board cuts that impacted on equipment, impacted on training, impacted on capability.”⁶

Figure 1 indicates declines in spending after major combat operations dating back to the 1900s. Though figures for pre/post World War I (1917-1918) were not calculated in the figure,

Figure 1. U.S. Military Defense Cuts Post Major Combat Operations



Source: Politifact. October 26, 2011. Retrieved January 21, 2012.
<http://www.politifact.com/defensestats/>

the results for that era paint the same picture. Historian Lance Janda, noted that, in fact, substantial troop cuts were made after World War I (WWI) because there was a reduced threat posed to the U.S.⁷

The evidence of spending cut patterns since the 1900s seems logical on the surface, but these cuts to military spending also mean cuts to troop numbers. The reduction of troops results in shortages when future wars come to the surface and the military requires additional manpower. As this trend is happening today, Secretary of Defense Leon Panetta wrote a letter to Congress addressing the super-committee's budget planning for the DoD, indicating that "automatic cuts would add up to a 23 percent reduction in the first year alone of 2013. After a decade, 'we would have the smallest ground force since 1940, the smallest number of ships since 1915, and the smallest Air Force in its history.'"⁸ In the end, troop reductions must be recovered during the buildup of an emerging conflict. The procurement of private military contractors (PMCs) before and during wartime, is a way for the government to rapidly rejuvenate the military's manpower loss while simultaneously keeping the increase of PMCs out of the public's view.

FSRs can provide cost savings by eliminating the overhead that the military service spends on each Soldier, Sailor, Airmen, or Marine. The White House's 2009 estimation of the cost of the troop increase in Afghanistan was \$1 million dollars (per troop / per year) at the time President Obama looked to deploy 30,000 troops, which would range an estimate of \$25-\$30 billion dollars a year.⁹ The extreme costs for troop manpower is one of the motivations for outsourcing military services to PMCs. The associated costs of a military member, factor in "cash pay (basic pay, subsistence and housing allowances, plus a federal tax advantage because those allowances are not taxed) but exclude noncash benefits, such as free health care for

military families back home, and deferred benefits, such as pay and health care for those who receive military retirement benefits.”¹⁰ These overhead costs, beyond the base payment (salary) that a troop receives, must continue to be paid by taxpayers as part of the military budget. In the case of a private contractor, however, monetary savings can be achieved because the DoD doesn’t pay for the individual contractor; they are paying for the actual cost of the contract or capability for an agreed upon duration of time. For example, “DRS Technical Services Incorporated, Herndon, Virginia, was recently awarded a \$7 million contract to provide management, supervision, manpower, equipment and supplies necessary to provide satellite-based wireless service for morale, welfare, and recreation purposes to three locations within the Helmand province of Afghanistan.”¹¹

Another advantage of private military contracting is in the area of technical expertise. Private industry is constantly developing and evolving with innovations driven by marketplace competition. Their employees are typically well educated and stay current with emerging technologies as technical subject matter experts. The U.S. military can leverage this expertise through private military contracts that provide telecom manpower with the requisite knowledge, skills, and aptitude in critical areas of telecommunications such as satellite, radio transmissions, data, and voice switching networks. The private contract companies are able to identify and resource the key technical experts in the various telecom fields and become responsive to the military services’ support requirements, especially during contingency operations. Through the use of databases, recruitment, and job fairs, private companies can rapidly mobilize the requisite manpower structure to support the requirements of the military.¹² These critical skills that private contracting offers entice military leadership to consider privatization.

Beyond technical expertise, senior military leaders are constrained by force capacity and sustainment limitations, and the utility of private contractors in reconstituting these shortfall capabilities offers an easy alternative to military manpower. The U.S. military services must address the challenges of force capacity and sustainment limitations. With respect to force capacity limitations, the U.S. Government via the Legislative branch wields power to limit the amount of forces within a Combatant Commander's theater in support of combat operations. As recent as 2008, there was a debate between the Executive and Legislative branch concerning Congress' desire to impose a force capacity limitation in Iraq while the President, as Commander-in-Chief, wanted to surge more troops. The results of the debate determined "that under the constitutional allocation of powers Congress has the prerogative to place a legally binding condition on the use of appropriations to regulate or end the deployment of U.S. armed forces to Iraq."¹³ In essence, Congress through appropriations (the power of the purse) could limit funding for combat operations that could prevent troop increases in Iraq as well as Afghanistan.

Aside from government limitations, there are restrictions to the deployment rotations that can be sustained by the military services, creating a force sustainment challenge that outsourcing to private contractors could mitigate. A Congressional Research Service report, noted that "Based on the most comprehensive measure of troop strength, DOD's Defense Manpower Data Center's Location Report, capturing all troops deployed for both wars, there were 294,000 U.S. troops in the region for Operation Enduring Freedom and Operation Iraqi Freedom in December 2008."¹⁴ There are a total of 1,464,884 troops in the U.S. Armed forces as of November 30, 2011 (see Appendix A).¹⁵ When analyzing the deployment figures of troops deployed for 2008 to Iraq and Afghanistan (294,000) against the total U.S. Armed Forces strength of approx 1.5

million troops, it is clear that repeatedly sustaining a deployed force is a challenge. For instance, if the 294,000 troops from the numbers above were to be replaced after their year deployment (2008-2009), the result would be a total of 588,000 troops deployed from years 2008-2010, which amounts to almost half of the U.S. Armed Forces. This is a true challenge for the DoD in terms of force sustainment. The force capacity limitations and force sustainment challenges create incentives for DoD to consider alternatives such as private contractor support to overcome its force structure shortfalls.

Collectively, cost savings, technical expertise, and force capacity and sustainment form a nexus that, from a strategic level, entice senior government and DoD leaders towards outsourcing to private companies as the best solution. In addition, incentives to outsource are further qualified by the 1983 OMB circular, which encourages leadership to find a means to outsource the functions that are considered not inherently governmental functions.¹⁶ As it relates to contingency operations, requiring rapid decisions for resources, the OMB circular incentives for outsourcing can quickly become commonplace templates for outsourcing decisions at strategic levels that affect operational and tactical environments across many of the military service's functional areas. But, with all of the incentives for outsourcing the Marine Corps' telecom requirements, however, there are also consequences that have yet to reach realization. The DoD's decision to outsource military manpower and equipment requirements to private contractors is now impacting the Marine communications functional area through the forced integration of FSRs and Marine communicators without a solid implementation plan.

Operational and tactical level implications as a result of privatizing

“There is no single clear source of guidance within the Federal government concerning how to make and implement the outsourcing decisions.”¹⁷

-GSA White Paper

The integration of private contractors in the Corps’ telecom structure in the Iraq and Afghanistan theaters have met the needs of the battlespace commanders. However, it has resulted in a decade of institutional challenges in both manpower management and a growing dependency on FSRs to operate and maintain the Corps’ telecom networks. This is incompatible with returning to the Corps’ expeditionary roots.

The operational and tactical level issues as a result of integrating FSRs and Marine communicators often escape the strategic level planners’ visibility as a consequence of the complex bureaucratic process necessary to negotiate change in the existing Marine and FSR command relationships and hierarchy. Imagine deploying as an Operations Officer (OPS O) or Detachment Officer in Charge of 283 Marine communicators who have spent their last year training and preparing for deployment operations. Months before arrival in country the OPS O is told that he has 75 FSRs who will work for him to provide communications support. Upon arrival he begins to understand that these FSRs have skills across the spectrum of the telecom network, primarily in radio, telephone, data, satellite, and communications construction (fiber entrenchment, building installation, etc). After orienting himself with the contractor site leaders on his compound, he realizes that the FSRs and their leadership are not contractually accountable or subordinate to him or his unit. He must integrate his Marines and these FSRs into a cohesive team that will operate effectively and maintain the base telecom network for the next year. This scenario is not fictional, and it is this dilemma that many communications operations officers and enlisted leaders must face as a result of the strategic level decisions to outsource across

numerous support functions.¹⁸ The next section will analyze the management of FSRs and Marine communicators in an integrated construct.

Manpower Management Challenges

The growing number of FSRs in Iraq and Afghanistan is creating an environment of confusion in the chain-of-command or, stated another way, command relationships between Marines and FSRs. The Marine Corps is very disciplined in its understanding and enforcement of the use of chain-of-command and reinforces this through its application of doctrine in the form of command relationship authorities between units. Relatively speaking, operational and tactical Marine units in Iraq and Afghanistan have understood who works for whom in these areas. The value of these doctrinal command relationships is that they offer unity of command towards a common mission and generate tempo towards its successful accomplishment. This hierarchical structure serves as a combat multiplier and wastes no time in achieving the desired tempo as Marine units transition into Afghanistan/Iraq and take-over the battlespace.

In contrast, FSRs have site managers for the local bases they represent and regional managers who coordinate with the site managers in Iraq and Afghanistan theaters of operation. Even more challenging, the FSR's hierarchy for coordination and reporting does not integrate with the Marine Corps' chain of command; it parallels it, instead. As stated in a *Joint Force Quarterly* article, private contractors "fragment the chain of command. All military units in a theater are under the command of a military officer, but contractors are not. While both contractors and the government have worked hard to resolve coordination issues, the fact remains that contractors are not under military command."¹⁹ A RAND Corporation report illustrates that "[i]n a blended workforce, the lines of authority are often confused, with

contractors not only supervising other contractors but contractors even supervising government employees.”²⁰ For a Marine communications leader arriving in country and responsible for the telecom network at the major bases and combat outpost, time dedicated upfront to understanding and integrating the organizational hierarchy of the FSRs with Marine communicators has two significant implications with respect to manpower management functions: reduced tempo and inappropriate assignment of authorities. These two issues present considerable challenges to Marine communications leaders at the operational and tactical levels and need to be explored in greater detail.

The development of tempo is critical to Marine communication leaders because the rapid installation and stability of a new or existing telecom network directly impacts a commander’s ability to use these resources to command and control his forces. The Corps’ doctrinal publication points out that the Corps “should keep in mind that all planning takes time and must facilitate the generation or maintenance of tempo, while ensuring that time allocated for planning does not adversely impact on tempo.”²¹ The planning time referred to is also applicable for Marine communications leaders and includes their plan for the employment of their people and equipment resources. The doctrine also points out that planning cannot consume the time needed to develop tempo. The seriousness and rationale behind the development of tempo with respect to command and control is directly linked to a commander’s ability to have the systems (telecommunication systems) in place that enable him to make decisions on the battlefield faster relative to his enemy. The commander’s command and control mechanisms are enabled through Marine communications leadership who apply the appropriate manpower mix to meet operational requirements; therefore, little time can be wasted in trying to identify the appropriate FSR and Marine communicator team that can install, operate, and maintain the telecom network

most effectively. Beyond the friction induced by having to lead and manage two disparate entities to achieve unity of command, Marine communications leaders are also challenged with how to assign authorities for network operation and maintenance to the FSRs they must integrate.

The allocation of authorities to FSRs over the last decade has been through trial-and-error. In the Marine Corps, authority is earned through years of established trust in the individual Marine. From Boot Camp, Officer Candidates School, the Naval Academy or any University, a recruit's or candidate's performance is screened and evaluated for months to years before they earn the authority to operate weapons or technical equipment. For the most part, each Marine is a known commodity within the unit and the Marine Corps prior to the deployment, and authorities are allocated accordingly. In the telecom community, the network must be operated and managed by manpower with appropriate authorities at different echelons if the goal is to maintain network availability, stability, and security. This is not the case when it comes to FSRs. Since Marine communications leaders first meet FSRs upon their arrival in country for a deployment, they are heavily reliant on the turnover from off-going units, their intuition about the FSR site leaders or trust in the FSR site leaders to make the right decisions when assigning authorities. This is an ineffective and risky approach for various reasons.

First, the turnover of a departing unit, which is probably the most credible means, cannot replace the alternative; habitual relationships built through trust from working with each other, analogous to the Corps' screening, training, and assignment of authorities. The departing unit's turnover as a source for assignment of FSR authorities also assumes that the combat environment will continue to operate in the same manner that the departing unit experienced, which is often not the case.

Second, intuition is the least preferred option for Marine communications leadership because no observation and trust has been built with the FSRs that merit appropriate delegation of authorities for network operation and maintenance. FSR site leaders run the spectrum in terms of their experience in leadership and understanding of not only their employees, but technical expertise as well. Trust in FSR site leaders takes time to develop, and because there is no consistent timetable for their deployment length, they can be replaced with a new site leader during the course of a deployment.

The merits of good habitual relationships and trust, is echoed in a Government Services Administration (GSA) study on outsourcing information technology in other Federal Executive Departments beyond the DoD, where the findings indicated that “outside vendors’ lack of corporate knowledge will prevent them from performing as well as insiders who are familiar with the agency, its customers, its reporting requirements, and its idiosyncrasies.”²² These findings are consistent with the challenges faced by Marine communications leadership in Iraq and Afghanistan.

The consequences of improperly assigned authorities are significant when installing, operating, and maintaining a major deployed live telecom network. System inputs and modifications to the telecom network have cascading effects across the spectrum of the network, from a small error that affects local area network (LAN) users to domain or enterprise level (network entirety) impacts. The current ad-hoc solution that operational and tactical level Marine communications leaders are employing puts at risk the stability of the command and control systems that serve as tools for the battlespace commanders to make decisions that determine operational outcomes.

Several Marine communications leaders presented mixed reviews concerning their experience with integrating FSRs and their Marine communicators towards a common mission and understanding. In one interview, the leader of a communications detachment who managed a telecom node in Ramadi, Iraq, stated that he had a positive outcome integrating FSRs because

He established and maintained a solid working relationship with the FSRs at his site first by acknowledging their expertise (and the continuity they provide) and then by explaining (and continuously reinforcing) their importance to [his] mission accomplishment in order to get them to work with [his] Marines as a team.²³

In another interview, a senior Marine communications leader who served in Afghanistan presented the opposite viewpoint, stating that “it is harder to manage an FSR than a military member; contractors have their own agenda, and they compete with military members for tasks. We [the Marine Corps] have also failed by placing them in the wrong positions.”²⁴ Though the Marine communications leadership has been successful over the last decade in working through these compounding issues, operating in this fashion assumes accepting risk in the ability to develop tempo effectively and manage the people who operate and maintain the telecom network with continued reliability and stability.

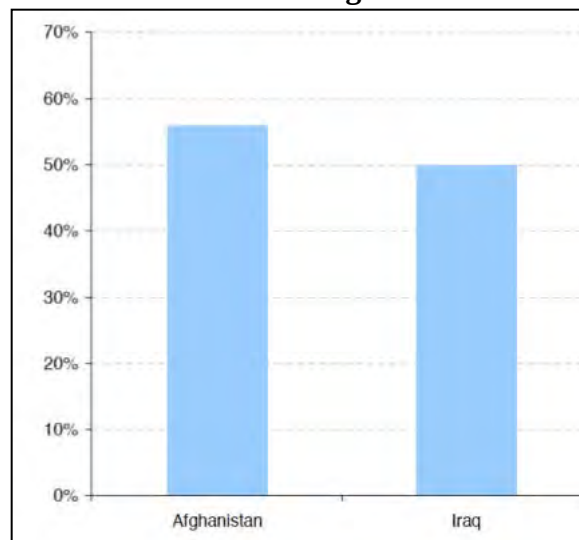
Ironically, Marine communications leaders have enabled command and control at the decisive moments with an integrated manpower primarily because of the large redundancy in the network architecture and communications systems equipment. These short-term successes over the last decade, however, have created an acceptance of risk and long-term manpower management challenges that have yet to be resolved or scrutinized.

Dependency on FSRs to operate and maintain the Corps' telecom networks

“Clearly, there are things that should be contracted and that the government need not and should not undertake, but the unfettered use of contractors has skyrocketed and must be brought under control.”²⁵ - RAND Corporation

The decisions to privatize military support functions as a whole in Iraq and Afghanistan have resulted in an increased trend of contractors in comparison to troops. This increase in contractors coinciding with a cap on Marine forces in theater yields a ratio of contractor numbers that approach parity with troop numbers. A Congressional Research Service Report (see Figure 2) on Iraq and Afghanistan captures troop versus generic private contractor ratio levels from 2007-2011.

Figure 2. Contractor Personnel as a Percentage of Workforce in Recent Operations



Source: Congressional Research Service. May 13, 2011.

Retrieve January 21, 2012.

<http://www.fas.org/sgp/crs/natsec/R40764.pdf>

The figure illustrates a contractor to troop ratio of at least 50% or a 1:1 ratio in both Iraq and Afghanistan. Though this data describes private contractors of all types, the astonishing amount of contractor integration in military operations has created a competition for Marines in general, and specifically for Marine communicators to maintain their proficiency in their military

occupational specialty. In 2011, 8th Communication Battalion (Comm. Bn.), a Marine communications unit, deployed to Afghanistan with a force capacity limitation of 283 Marines had to integrate 75 FSRs into their organization for its 2011 deployment.²⁶ In an interview with its assistant operations officer, he stated that “Today, 8th Comm. Bn’s FSR to Marine communicator ratio is (2 FSRs: 3 Marines) of those who operate and maintain the telecom network on a daily basis.”²⁷ The ratio depicted in the Comm. Bn above, much like the 1:1 troop ratio of general private contractors, cause concern for the sustained technical proficiency of Marine communications operators and illustrates the trajectory towards a growing dependency on contractors over the long-term. The Marine Corps has invested time and money to ensure that Marine communicators not only have the skills to fight in combat first, but also the requisite skills to establish reliable command and control system networks that support combat operations.

The career progression of a Marine Corps enlisted communicator is a 1-3 month entry level training school (see Appendix B)²⁸ unit training in preparation for deployments, limited Communication Training Center (CTC) classes (see Appendix D)²⁹, and refresher training at the approximately 6 and 13 years in the Corps (see Appendix B).³⁰ Aside from the entry-level school and CTC classes, there are limited opportunities for Marine communicators to get solid technical training as a result of the repetitious deployments. Over the last decade, Marine communicators at the Corps’ major bases (II Marine Expeditionary Force (II MEF) Camp Lejeune, NC and I MEF Camp Pendleton, CA) have been conducting alternating deployments to Iraq and Afghanistan and have met increasing numbers of FSRs. The Corps’ Iraq/Afghanistan deployment cycle has reduced training opportunities at home-station to pre-deployment, CTC, and limited communications field training venues. The reality is that over the last decade

opportunities to get technical communications training occurred mostly during deployments to Iraq and Afghanistan.

The Headquarters Marine Corps Director Command, Control, Communications, and Computers (C4) branch acknowledges the lack of training in their new Information Enterprise Strategy, stating “the USMC Communications Military Occupational Specialty (MOS) structure and training establishment must transition from the infrequent training opportunities to constant, continuous, and real time training that keeps the Network Marine abreast of dynamic changes in MAGTF communications architecture.”³¹ The emphasis is on sustained training that keeps Marine communicators technical proficient.

The impact of FSRs for the Marine communicators since 2002 has been the sharing of telecom network resources day-to-day that diminishes Marine communications operator training and experience opportunities on a live network. Operating in this fashion over the last decade only contributes to a growth of dependency on the FSRs who have continued to assume greater responsibilities as managers of the telecom networks. The private contractors phenomenon is also creating a dependency beyond the manpower that they provide to the Corps. The equipment that comes with the contracts agreed upon at the strategic levels is also creating a dependency. DoD, as part of the procurement process, has not only paid for FSRs to provide manpower, but equipment as well. The logic for procuring equipment support from private contractors is two-fold.

First, the duration of the deployments in Iraq and Afghanistan since 2002 has extended beyond the Corps’ organic telecom capabilities. As the Marine Corps and Joint Services have taken on roles beyond simple combat operations, such as stability operations, the duration of operations has extended beyond the normal use of their telecom equipment. As the Corps’

operational and tactical leaders began to envision prolonged operations, requests for larger and more robust telecom capabilities followed. This type of robust commercial telecom network over the last decade has been termed “commercialization.”

Second, as an expeditionary force, the Corps could employ contractors to install, operate, and maintain the telecom network that would enable the Corps to redeploy their tactical telecom equipment to the continental United States. The advantage of redeploying this equipment is in the training and maintenance opportunities it offers to deploying units. An Armed Forces Communications Electronics Association article reiterates the rationale stating,

The very situations that call for rapidly deployable military communications gear also mandate commercial equipment for long-term theater operations...When command, control, communications and computers (C4) sites are needed for the long haul, more permanent—strategic—fixtures are required...Commercialization could be viewed as building up a temporary communication/data transfer site into a permanent fixture with the needed C4 capabilities to accomplish the mission.³²

What may have seemed like a good idea has not yielded the desired outcomes. The reliance on FSRs to establish and maintain major portions of the Corps telecom network over the last decade has occurred at the expense of a dependency on them and their equipment. Will this dependency expand beyond Iraq and Afghanistan?

Current FSR and Marine manpower model is incompatible with returning to the Corps' expeditionary roots

The Marine Corps' senior leaders have indicated a desire to get back to the Corps' expeditionary roots which, in simplest terms, means returning to operations from the sea as “America's 911 force.” However, a decade of operating with dependency on FSRs and commercialization threatens the Corps long-term ability to operate effectively in an expeditionary environment. The U.S. government has discussed defense-spending cuts to not only military manpower, but to private contractor jobs as well. With this in mind, there is a great

potential that the Corps will have a significantly reduced amount of FSRs but the appetite for FSRs has created a current level of expectation and dependency.

The Marine Corps now faces the dilemma of how to prepare for the next conflict in combat areas potentially void of many talented FSRs and a workforce of Marine Corps communications operators now in leadership positions who could not maximize their technical proficiency over the last decade. The Commission on Wartime Contracting in Iraq and Afghanistan illustrates the thought that, “When federal personnel rotate in and out of theater too quickly, and when long-serving contractors become the local resident experts, reliance on contractor support becomes a detriment to effective government management and oversight of contractors.”³³ These dependency issues highlight a decade of short-term successes that simultaneously are developing a long-term growing dependency on FSRs to support the Corps’ operation and maintenance of its telecom network.

Conclusion:

“If an IT function is not a distinctly integrated part of an agency’s core processes, then it is a probable candidate for outsourcing. The decision process for outsourcing must be directly interrelated with the long-range, strategic planning process.”³⁴

-GSA White Paper

The senior leaders, with the best intentions, sought to take advantage of outsourcing the Corps’ deployed telecommunications requirements to private telecom contractors.

Unfortunately, however, the unintended consequences impacting the operational and tactical environments pose a serious threat to Marine telecom manpower readiness and have developed unrealistic future expectations as it pertains to telecom network infrastructure.

The manpower management challenges facing Marine communications leaders are a result of a lack of private contractor training and a forced integration without adequate

implementation processes to allow the best chances for success. The informal command relationships breed confusion and patterns of trust were not built prior to deployment. This slows the Marine communications leader's ability to achieve tempo in assimilating their Marines to the network and allocating appropriate authorities to FSRs that prevent negligent or inappropriate network modifications. Marine communications leaders have overcome some of these challenges primarily because of the robust network redundancy that is transparent to the user. Nonetheless, this manpower structure assumes risk.

The growing trend of dependency on FSRs and their equipment as the Corps' answer to C2 over the last decade is a cascading effect resulting from strategic level decisions that must be resolved by operational and tactical level leadership. The duration of operations in both Iraq and Afghanistan drove strategic decisions that resulted in procuring manpower and equipment for those respective theaters.³⁵ The equipment and manpower requested and paid for by the DoD writ large, and the Marine Corps specifically, has resulted in an evolution from tactical communications to a robust commercialization network.³⁶

The Corps' telecom apparatus in Afghanistan as it exists today, and in Iraq before the Corps' departure, has acclimatized Marine commanders and staffs to capabilities and personnel that they cannot realistically expect in an expeditionary and budget-constrained environment. This construct also does not provide incentives for the Corps to adapt, anticipate, and rapidly modernize their current tactical telecom equipment, their personnel, and training. Simply put, the Corp is living outside of their organic telecommunication means while growing a dependency on private telecom contracts that facilitate requirements in the short term but are unrealistic for the long-term. The lack of a better processes to address the challenges jeopardizes the Corps' communications community's future ability to install, operate, and maintain

effectively a telecom network that satisfies commanders and staffs who have a decade of commercialization institutional memory.

The core issue that makes the integration challenges difficult at the operational and tactical levels is trust. There are no existing relationships that have been established with many of the FSRs that are informally or administratively assigned to a Marine communications unit, specifically its Detachment Officer in Charge or Operations Officer. The Marine Corps should invest in a contractor site lead at each of the major deployed bases and attach them to the senior communications agency on base, typically the MEF G-6 (senior operational communications staff). The contractor site lead should be formally assigned as a liaison in the Corps' chain-of-command as part of the contract.

Currently, contracts are developed at the Contracting Officer Representative (COR) level. The formal level for resolution of an FSR's performance and accountability related issues is at the COR level. Often, these individuals do not reside in the theater. Even if Marine leaders in theater have an issue with an FSR, this must be communicated back to the COR for formal resolution. The liaison would be in a better position to work contract modification and request issues with the COR as a result of their proximity to the MEF G-6 and subordinate communication unit staffs. The liaison should also work with the communication units from the major subordinate Marine commands to develop habitual relationships, conduct planning for upcoming deployments, and interface with his personnel in theater or en-route to the theater of operations. As the contractor liaison, he quickly becomes a trusted agent, and familiarizes himself with the communications leadership and their upcoming requirements.

The advantages to having a contractor liaison is: first, he becomes a resource for the Corps and integrates into the chain-of-command as a unified voice to his company's personnel,

aligning more closely to the Marine Corps' chain of command. Second, he opens lines of communications before the stress of combat operations begin. Third, he can educate Marine communications leadership on the capabilities of the FSRs in country and assist in matching the appropriate authorities to those personnel. Finally, he may be able to align FSR deployments to theater with communications units to foster better relationships.

How to alleviate the growing dependency on FSRs is another matter. Strategically, it is unacceptable to say that the Marine Corps should have no private telecom contractors (FSRs) or commercialization equipment, nor is the Corps at an operational or tactical level ready for such a rapid transition. A recommended course of action would be to embrace an emerging technology as it exists today.

Cloud computing is a trending innovation that may be an optimal solution for resolving the Corps telecom manpower challenges to meet the future expeditionary environments. The basic concept behind cloud computing, is the interaction of two primary components. The first component is the user who will access services across a telecom means, typically the Internet. The second component, which will be referred to as "back-office equipment," consists of all of the other parts that provide services to the user including: servers, software, hardware, databases, and security interdiction devices. The geographic separation and interaction of the user and back-office equipment, allows for a similar but interactive telecom network management model between Marine communicators and FSRs.

Conceptually, Marine communicators would continue to manage the user component in deployed areas, providing on-site support to users (Marines in combat) as they always have. FSRs, on the other hand, would provide back-office equipment services from a remote site, typically at a hub. The Corps will also ensure that the hub has a strong contingent of Marines to

represent the Corps' desires. Currently, the back-office and user related equipment is usually managed by local Marine communications units and FSRs on-site. Therefore, this cloud computing solution would be a departure from the Corps' current operating model, but there are advantages to operating with this proposed cloud computing solution.

First, this cloud computing solution utilizes the technical expertise of the existing FSRs and planned FSR manpower that operate and maintain the commercialization networks for voice, data, and satellite networks in Afghanistan and formerly Iraq. Second, the Corps can utilize some of the acquisitioned equipment that resides on the major deployed bases in Afghanistan and previously Iraq as the wars come to a close. Third, the cloud computing solution restructures the FSR manpower and Marine communications manpower to roles with which they are familiar with; contractors typically operate in commercial infrastructures and Marines operate in tactical and expeditionary environments. Lastly, it postures a communications hub for 24/7 support that Marines can connect into during contingency and conventional operations as well as training exercises.

The cloud computing solution meets the intent of the Commandant's planning guidance in which he articulates getting back to the Corps' expeditionary roots. Shipboard space is already at a premium as the Navy and Marine Corps continually battle for space aboard amphibious ships. Cloud computing provides an opportunity to leverage innovative and emerging ideas, while partitioning Marine communicators and FSRs along the areas of their expertise and mitigating operational and tactical manpower integration challenges.

What has made the communications networks and manpower effective in enabling command and control thus far, beyond the significant network redundancy, are the Marine communications leaders and operators and the FSRs. They have negotiated the obstacles

resulting from the decisions to outsource without a well-organized process for manpower integration and have been successful. The ability of the Corps telecom manpower and FSRs to provide reliable command and control, however, is at risk without more scrutiny of the integration of private telecom contractors. Perhaps this essay will at the very least generate discourse about the future implications of privatizing Marine telecommunications as the Corps plans its next chapter in future operations.

APPENDIX A

ARMED FORCES STRENGTH FIGURES FOR NOVEMBER 30, 2011

	11/30/11	10/31/11	Change From	Previous Month	11/30/10
			Amount	Percent	
Total Armed Services	1,464,884	1,466,545	-1,661	-0.11%	1,476,861
Army	564,566	565,557	-991	-0.18%	569,604
Navy	323,672	324,463	-791	-0.24%	327,993
Marine Corps	200,663	201,692	-1,029	-0.51%	202,707
Air Force	333,060	331,880	1,180	0.36%	334,393
Total DoD	1,421,961	1,423,592	-1,631	-0.11%	1,434,697
Coast Guard	42,923	42,953	-30	-0.07%	42,164

Source: United States Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics. September 2011. Retrieved January 11, 2012.
<http://siadapp.dmdc.osd.mil/personnel/MILITARY/ms0.pdf>

APPENDIX B

MARINE CORPS COMMUNICATIONS ELECTRONICS SCHOOL COURSES				
CID	NAME		LENGTH	Course Type
1	M09AN31	CCNA	56 DAYS	Entry Level Course
2	M09CGW1	A+	21 DAYS	Entry Level Course
3	M09DRV1	MUX (MRC 142)	27 DAYS	Entry Level Course
4	M09BNW1	CYBER NETWORK	104 DAYS	New Course (TBD)
5	M0925U1	FROC	63 DAYS	Entry Level Course
6	M09DPV1	TSIMC	94 DAYS	Entry Level Course
7	M09DRW1	TROPOSCATTER(TRC 170)	27 DAYS	Entry Level Course
8	M09AN21	DATA NETWORK SUPERVISOR	57 DAYS	Advanced Course
9	M09CJA1	DEFENSE MESSAGE SYS COURSE	38 DAYS	Entry Level Course
10	M09D3H1	INFORMATION ASSURANCE MGRS CRSE	23 DAYS	
11	M09BNU1	DATA SYSTEMS CHIEF	52 DAYS	Chief Course
12	M09BNJ1	INFORMATION ASSURANCE TECH CRSE	72 DAYS	
13	M09BNL1	RADIO CHIEF CRSE	77 DAYS	Chief Course
14	M09 BNK1	WIRE CHIEF CRSE	63 DAYS	Chief Course
15	M09CHN1	COMM CHIEF CRSE	56 DAYS	Chief Course
16	F03BNB1	COMM CABLE AND ANTENNA APPRENTICE CRSE	95 DAYS	SHEPPARD AFB TEXAS
		Entry Level Courses		
		Chief (Technical Leadership Course)		
		Chief (Senior Leadership Course)		

Source: Marine Corps Communications Electronics School 14 January 2012. Retrieved January 16, 2012.

APPENDIX C

Top Ten Outsourcing Survey

Executive Survey: The Outsourcing Institute's Annual Survey of Outsourcing End Users

Top 10 Reasons Companies Outsource

- 1.** Reduce and control operating costs
- 2.** Improve company focus
- 3.** Gain access to world-class capabilities
- 4.** Free internal resources for other purposes
- 5.** Resources are not available internally
- 6.** Accelerate reengineering benefits
- 7.** Function difficult to manage/out of control
- 8.** Make capital funds available
- 9.** Share risks
- 10.** Cash infusion

Source: The Outsourcing Institute Membership, Survey of Current and Potential Outsourcing End-Users, Top Ten Outsourcing Survey. Retrieved January 17, 2012.

APPENDIX D

COMMUNICATION TRAINING CENTER – 2

Mission Statement: To plan, coordinate, execute and supervise communication systems training in the regional area of each Marine Expeditionary Force (east Coast, West Coast, Okinawa). This includes form and informal training, contracted training, vendor training and New Equipment Training (NET). To design, develop, conduct and evaluate training and education for Marine Corps personnel related to communication systems and conduct prescribed training and certification of Marines as Information Assurance (IA) professionals.

CTC-2 COURSE LIST

(Each course title is linked to the description)

CISCO CERTIFIED NETWORK ASSOCIATE
(CCNA)
CCNA PREPARATION COURSE
CISCO CERTIFIED NETWORK
PROFESSIONAL (CCNP)
CCNA SECURITY
CISCO CALL MANAGER BASIC
ADMINISTRATOR COURSE
MICROSOFT CERTIFIED SYSTEMS
ADMINISTRATOR (MCSA) CERTIFICATION
COURSE
MICROSOFT (70-270) INSTALLING,
CONFIGURING AND ADMINISTERING
WINDOWS XP PROFESSIONAL
MICROSOFT (70-290) MANAGING AND
MAINTAINING A MICROSOFT WINDOWS
SERVER 2003 ENVIRONMENT
MICROSOFT (70-291) IMPLEMENTING,
MANAGING AND MAINTAINING A
MICROSOFT WINDOWS SERVER 2003
NETWORK INFRASTRUCTURE
COMPTIA NETWORK+ CERTIFICATION
COURSE
COMPTIA SECURITY+ CERTIFICATION
COURSE

COMPTIA A+ CERTIFICATION COURSE
SWAN RF COURSES
SWAN DATA COURSES
LIGHTWEIGHT MULTI-BAND SATELLITE
TERMINAL (LMST)
GLOBAL BROADCASTING SERVICE (GBS)
COURSE
SINGLE CHANNEL RADIO INCIDENTAL
OPERATOR (IROC)
ADVANCED RADIO INCIDENTAL OPERATOR
(AROC)nd after completion of the IROC.
RADIO SUPERVISORS COURSE (RSC)
JOINT AUTOMATED CEOI SYSTEM (JACS)
TOCNET OPERATORS / MAINTAINERS
COURSE
MRC-142C OPERATORS COURSE
AN/PRC-117G OPERATORS COURSE
ENHANCED POSITIONING LOCATING
REPORTING SYSTEM COURSE (EPLRS)
SIMPLE KEY LOADER (SKL) COURSE
TELECOMMUNICATION SUPERVISORS
COURSE (TSC)
TRANSITION SWITCH MODULE (TSM)
COMMUNICATION PLANNERS COURSE

CTC-2 COURSE INFO

CISCO CERTIFIED NETWORK ASSOCIATE (CCNA)

Course ID: M03AN3G

Training Days: 20 (CCNA 1 -5 days, CCNA 2/3 -10 days, CCNA 4-5 days)

Number of Students: 20

Purpose and Scope: Train Marines to have the knowledge to pass the Cisco Certified Network Associate (CCNA) certification exam and to apply that knowledge to a live Marine Corps computer network. CCNA is a comprehensive curriculum that includes four separate modules. These modules cover the learning objectives of the CCNA certification exam. The curriculum emphasizes the use of decision-making and problem-solving techniques to resolve networking issues. Students learn how to install and configure Cisco networking devices in both local and wide area networks using various protocols and troubleshooting techniques to improve network performance and security. Additionally, training is provided in the proper care, maintenance, and use of networking software tools and equipment. The CCNA certification course features these modules: CCNA-1 Network Fundamentals; CCNA-2 Routing Protocols and Concepts; CCNA-3 LAN Switching and Wireless; CCNA-4 accessing the WAN.

Target Population: Lance Corporal and above in communications military occupational specialties only. DOD civilian employees who are working in a telecommunications billet may also attend.

Prerequisites: The student must have a background in computer operations and networking. Student must have 1 year remaining on contract to attend any CCNA course. Student must have completed MOD 1 to attend MOD 2 or 3. Students must have completed MODs 1-3 to attend MOD 4. In order to progress through the modules, student must show completion of previous module.

Notes: Class is broken into CCNA Modules 1, 2, 3, and 4. CCNA MOD 1 and 4 are one week long, CCNA MOD 2&3 are combined into a two week course. CTC Certificate given after completion of Module 4. CCNA Prep Course is offered prior to CCNA Certification examination.

CCNA PREPARATION COURSE

Course ID: N/A

Training Days: 5

Number of Students: 20

Purpose and Scope: This Course is offered as a review for students who have completed CCNA Mods 1 through 4 prior to taking the CCNA certification exams.

Target Population: Lance Corporal and above who have completed CCNA Modules 1 through 4.

Prerequisites: The student must have a background in computer operations and networking. In order to progress through modules, student must show completion of all CCNA Modules.

Notes: Certification examination is a two part exam (ICND 1 and ICND 2).

CISCO CERTIFIED NETWORK PROFESSIONAL (CCNP)

Course ID: N/A

Training Days: 25

Number of Students: 20

Purpose and Scope: The purpose of this course is to build upon the foundation of networked learned in the CCNA classes. This certification track has been updated in 2010 to include the newest networking technologies. CCNP-Switching involves the following topics: Multilayer switching, advanced MAC address tables, troubleshooting switch physical layer problems, implementing and trouble-shooting VLANs, VTP configuration and trouble-shooting, Ether channel configuration and trouble-shooting, advanced spanning-tree manipulation, intro to Cisco Express forwarding (CEF), high availability protocols, intro to IP telephony and QoS, intro to wireless and switch security. CCNP-Routing includes the following topics: advanced metric tuning, convergence manipulation, controlling neighbor relationships, route filtering and summarization. OSPF topics include: verification and review, advanced concepts metric tuning, summarization, stub areas and virtual links. BGP topics include: concepts, internet integration strategies, configuration, route injection, iBGP concepts, path attributes and route influences. CCNP-Troubleshooting will introduce students to trouble-shooting instruction and lab activities involving the following topics: methods, maintenance, diagnostic tools, basic switching, advance switching, routing protocols, redistribution, BGP and performance, security, NAT, DHCP, IP telephony, IPv6, advanced services and VPNs.

Target Population: Lance Corporal and above who have completed CCNA Modules 1 through 4.

Prerequisites: The student must have a background in computer operations and networking. In order to progress through modules, student must show completion of all CCNA Modules and a valid CCNA Certification.

Notes: To obtain a CCNP certification, students must pass the certification exam for each of the CCNP Classes: Switching, Routing and Troubleshooting.

CCNA SECURITY

Course ID: N/A

Training Days: 5

Number of Students: 20

Purpose and Scope: Cisco Certified Network Associate Security (CCNA® Security) validates associate-level knowledge and skills required to secure Cisco networks. With a CCNA Security certification, a network professional demonstrates the skills required to develop a security infrastructure, recognize threats and vulnerabilities to networks, and mitigate security threats. The CCNA Security curriculum emphasizes core security technologies, the installation, troubleshooting and monitoring of network devices to maintain integrity, confidentiality and availability of data and devices, and competency in the technologies that Cisco uses in its security structure.

Target Population: Lance Corporal and above who have completed CCNA Modules 1 through 4.

Prerequisites: The student must have a background in computer operations and networking. In order to progress through modules, student must show completion of all CCNA Modules.

Notes: Students are not given a voucher for certification unless they have an active CCNA Certification.

CISCO CALL MANAGER BASIC ADMINISTRATOR COURSE

Course ID: N/A

Training Days: 8

Number of Students: 20

Purpose and Scope: The purpose of the Voice over Internet Protocol Administrators Course is to provide the knowledge necessary for the successful deployment and maintenance of Cisco Unified Call Manager Suites in support of the Voice over Internet Protocol (VoIP) Network. Graduates of this course will be able to install and operate Cisco Unified Call Manager Suites in support of Marine Corps Installation VoIP networks as well as deployed VoIP command and control systems.

Target Population: The target population of this course is all ranks within the Field Wire and Data Military Occupational Specialties.

Prerequisites: At a minimum, students must have at least one year remaining on their current contract, hold a secret clearance, and have 6 to 12 months experience administering client and network operating systems.

MICROSOFT CERTIFIED SYSTEMS ADMINISTRATOR (MCSA) CERTIFICATION COURSE

Course ID: N/A

Training Days: 25

Number of Students: 20

Purpose and Scope: This course path provides instruction on installing, managing and maintaining Windows Server 2003, implementing and administering Active Directory, Domain Naming Service, Exchange Server 2003, and Windows XP. These courses are designed for personnel who are assigned to network administrator billets.

Target Population: The target population of this course is Lance Corporal and above in communications military occupational specialties only. DOD civilian employees who are working in a telecommunications billet may also attend.

Prerequisites: At a minimum, students must have at least one year remaining on their current contract, hold a secret clearance, and have 6 to 12 months experience administering client and network operating systems.

Notes: Recommend completion of A+ and Network + courses prior to attending any of the four modules. The Microsoft Exchange Server 2003 Certification test retired in March 2011.

MICROSOFT (70-270) INSTALLING, CONFIGURING AND ADMINISTERING WINDOWS XP PROFESSIONAL

Course ID: N/A

Training Days: 10

Number of Students: 20

Purpose and Scope: Designed to provide the skills and knowledge necessary to prepare information technology Marines and civilian Marines install, configure, administer and support client systems utilizing the Microsoft Windows XP Professional operating system. This is the first course of the Microsoft Certified Professional (MCP), Microsoft Certified Systems Administrator (MCSA), and Microsoft Certified Systems Engineer (MCSE) series. The course concludes with the students being administered the Microsoft 70-270 Exam.

Target Population: The target population of this course is Lance Corporal and above in communications military occupational specialties only. DOD civilian employees who are working in a telecommunications billet may also attend.

Prerequisites: At a minimum, students must have at least one year remaining on their current contract, hold a secret clearance, and have 6 to 12 months experience administering client and network operating systems.

Notes: Recommend completion of A+ and Network + courses prior to attending any of the four modules.

MICROSOFT (70-290) MANAGING AND MAINTAINING A MICROSOFT WINDOWS SERVER 2003 ENVIRONMENT

Course ID: N/A

Training Days: 5

Number of Students: 20

Purpose and Scope: Designed to provide the skills and knowledge necessary to prepare information technology Marines and civilian Marines install, configure, administer, and support the primary services in the Microsoft Windows Server 2003 operating system by examining basic administration procedures. Subjects covered include, creation and management of Windows Server 2003 user, group and computer accounts, to the sharing of system resources, and to the installation and maintenance of system hardware. This is the second course of the Microsoft Certified Professional (MCP), Microsoft Certified Systems Administrator (MCSA), and Microsoft Certified Systems Engineer (MCSE) series.

Target Population: The target population of this course is Lance Corporal and above in communications military occupational specialties only. DOD civilian employees who are working in a telecommunications billet may also attend.

Prerequisite: Completion of: (70-270) Installing, configuring and administering Windows XP Professional.

Notes: Recommend completion of A+ and Network + courses prior to attending any of the four modules.

MICROSOFT (70-291) IMPLEMENTING, MANAGING AND MAINTAINING A MICROSOFT WINDOWS SERVER 2003

NETWORK INFRASTRUCTURE

Course ID: N/A

Training Days: 5

Number of Students: 20

Purpose and Scope: Designed to provide the skills and knowledge necessary to prepare information technology Marines and civilian Marines configure, administer, and support networking services in the Microsoft Windows Server 2003 operating system by covering TCP/IP and IP Addressing. Subjects covered include, implementation, management and maintenance of Domain Naming Service (DNS), Dynamic Host Configuration Protocol (DHCP) and routing and remote access (RRAS). This is the third course of the Microsoft Certified Professional (MCP), Microsoft Certified Systems Administrator (MCSA), and Microsoft Certified Systems Engineer (MCSE) series.

Target Population: The target population of this course is Lance Corporal and above in communications military occupational specialties only. DOD civilian employees who are working in a telecommunications billet may also attend.

Prerequisite: Completion of: (70-270) Installing, configuring and administering Windows XP Professional, (70-290) Managing and maintaining a Microsoft Windows Server 2003 environment.

Notes: Recommend completion of A+ and Network + courses prior to attending any of the four modules.

COMPTIA NETWORK+ CERTIFICATION COURSE

Course ID: M03KZ7G

Training Days: 5

Number of Students: 20

Purpose and Scope: To bring the Information Assurance (IA) workforce into compliance with the DOD 8570.01_ standards. This course provides instruction on network media and topologies, protocols and standards, network implementation concepts, and network support concepts. The course provides the student with the opportunity to obtain a Network+ certification at the conclusion of the course.

Target Population: Primarily individuals who are currently assigned to or may be assigned to an Information Assurance Technician (IAT) Level I billet or higher. This includes civilians as well as uniformed service members.

Prerequisites: At a minimum, students must have at least one year remaining on their current contract.

Notes: This course is a great introduction to gain a working knowledge of data networks for non-065x Marines.

COMPTIA SECURITY+ CERTIFICATION COURSE

Course ID: M03D3RG

Training Days: 5

Number of Students: 20

Purpose and Scope: The purpose of this course is to obtain a Security Plus Certification in order to be able to comply with Marine Corps and DoD's Information Assurance guidelines. The Security Plus certification will provide students with an understanding of how to protect and defend the DoD computer network architectures against multiple threats or attacks. The course provides the student with the opportunity to obtain a Security+ certification at the conclusion of the course.

Target Population: Primarily individuals who are currently assigned to or may be assigned to an Information Assurance Technician (IAT) Level II billet or higher. This includes civilians as well as uniformed service members.

Prerequisites: At a minimum, students must have at least one year remaining on their current contract.

Notes: Recommend completion of Network+ Course prior to this course.

COMPTIA A+ CERTIFICATION COURSE

Course ID: M03CGWG

Training Days: 10

Number of Students: 20

Purpose and Scope: To bring the Information Assurance (IA) workforce into compliance with the DOD 8570.1 standards. This course provides instruction on personal computer components, laptop computers and portable devices, operating system concepts, printers and scanners, network concepts, security concepts, safety and environmental issues, and communication and professionalism skills. The course provides the student with the opportunity to obtain an A+ certification at the conclusion of the course.

Target Population: Primarily individuals who are currently assigned to or may be assigned to an Information Assurance Technician (IAT) Level I billet or higher.

Prerequisites: At a minimum, students must have at least one year remaining on their current contract.

SWAN RF COURSES

Course ID: M03KLCC

Training Days: 10

Number of Students: 8

Purpose and Scope: To provide the first of two knowledge and skill areas required to effectively deploy the SWAN-D VSAT terminal. The first half of this 10 training day course focuses on student proficiency installing, operating and maintaining the SWAN-D. The second half of the SWAN-D RF course focuses on creating Master Reference Terminal (MRT) configurations and boot files used to control the SWAN-D TDMA (Time Division Multiple Access) network.

Target Population: The target population of this course is primarily PVT through GySgt of MOS' 0622, 0623, 0628, 0651, 0656 and 2834.

Prerequisites: Individuals attending the SWAN-D Data/RF Operator Course must have completed CCNA Module 1 and CCNA Module 2 before attending this course. At a minimum, students must have at least one year remaining on their current contract and hold a secret clearance.

Notes: Units have the option to submit personnel for one or both courses.

SWAN DATA COURSES

Course ID: M03KLEG

Training Days: 8

Number of Students: 8

Purpose and Scope: To provide students with the knowledge and skills necessary to effectively configure the tactical SIPRnet/NIPRNET Wide Area and Local Area Networks (WAN/LAN) which run over the SWANs satellite transport backbone (established during the SWAN-RF course). This 8 day course is networking intensive and requires that students have prior familiarity with basic operations/functionality of Cisco routers and switches. Upon completion of this course, students will be able to configure the networking equipment within a SWAN-D VSAT terminal to pass NIPR/SIPR data, voice and video traffic to distant end terminals.

Target Population: The target population of this course is primarily PVT through GySgt of MOS' 0622, 0623, 0628, 0651, 0656 and 2834.

Prerequisites: Individuals attending the SWAN-D Data/RF Operator Course must have completed CCNA Module 1 and CCNA Module 2 before attending this course.

At a minimum, students must have at least one year remaining on their current contract and hold a secret clearance.

Notes: Units have the option to submit personnel for one or both courses.

LIGHTWEIGHT MULTI-BAND SATELLITE TERMINAL (LMST)

Course ID: M03KZ6G

Training Days: 15

Number of Students: 8

Purpose and Scope: To train students to become operators of the Lightweight Multiband Satellite Terminal (LMST). This course provides knowledge and skills required to install, operate, and maintain the Lightweight Multiband Satellite Terminal (LMST).

Target Population: The target population of this course is primarily Pvt through Sgt of MOS' 0621, 0622, 0623, 0628, 2831 and 2834.

Prerequisites: At a minimum, students must have at least one year remaining on their current contract and hold a secret clearance.

GLOBAL BROADCASTING SERVICE (GBS) COURSE

Course ID: M03DCJG

Training Days: 4

Number of Students: 8

Purpose and Scope: To train students to become proficient operators of the Global Broadcast Service (GBS) suite. The Global Broadcast Service (GBS) course provides the knowledge and skills required to install, configure, operate, and maintain the Global Broadcast Service (GBS) system.

Target Population: The Target Population for this course is Private through Sergeant holding the 0621, 0651 MOS.

Prerequisites: Students should have knowledge and experience with networking fundamentals, communications security, and communications safety. At a minimum, students must have at least one year remaining on their current contract and hold a secret clearance.

SINGLE CHANNEL RADIO INCIDENTAL OPERATOR (IROC)

Course ID: M03KBFG

Training Days: 5

Number of Students: 16

Purpose and Scope: To train students to become incidental Single Channel Radio operators. The Single Channel Radio Incidental Operator Course provides instruction on Radio and Antenna Fundamentals, Communication Security, and basic operations of the AN/PRC-150, AN/PRC-152, AN/PRC-117, AN/PRC-148, AN/PRC-153, and the AN/PSN-13. In addition to the basic operations of the equipment, the students also will learn procedures for loading required cryptographic keys/fills into the equipment utilizing a Simple Key Loader (SKL).

Target Population: The target population of this course is primarily Private through Sergeant in non-0600 Occupational Specialty.

Prerequisites: At a minimum, students must have at least one year remaining on their current contract and hold a secret clearance.

ADVANCED RADIO INCIDENTAL OPERATOR (AROC)

Course ID: N/A

Training Days: 10

Number of Students: 16

Purpose and Scope: The purpose of this course is to train students on advanced Radio techniques. Topics covered include the AN/PRC-150 ALE, TAC CHAT, 3G HF/RPA, AN/PRC-117 RPA, HPW/WMT, AN/PRC-152, DAGR navigation.

Target Population: The target population of this course is primarily Private through Sergeant in the 0621 Military Occupational Specialty.

Prerequisites: At a minimum, students must have at least one year remaining on their current contract and hold a secret clearance. Non-0621 MOS personnel may attend after completion of the IROC.

RADIO SUPERVISORS COURSE (RSC)

Course ID: M03BNPG

Training Days: 20

Number of Students: 20

Purpose and Scope: To train students in supervisory roles within a tactical radio section by introducing the student to single and multi-channel radio planning procedures and considerations. This course provides knowledge and skills required to Configure multiplexers, Configure Signal Converters, Manage Multi-Channel sites, Manage Troposcatter Sites, Complete Team Assignment Forms, Advanced configurations of single channel radio systems, Network diagrams, Systems Planning, Evaluation and Engineering Device (SPEED), Safety, Grounding, MOS Skills Progression Training.

Target Population: The target population for this course is Corporal and Sergeant holding the MOS of 0621, 0622 or 0623. All students should be within Marine Corps height and weight standards.

Prerequisites: At a minimum, students must have at least one year remaining on their current contract and hold a secret clearance.

JOINT AUTOMATED CEOI SYSTEM (JACS)

Course ID: M03CWZG

Training Days: 5

Number of Students: 16

Purpose and Scope: The Joint Automated CEOI System (JACS) course provides instruction on general CEOI knowledge, loading and configuring JACS software, creation of Master Net Lists (MNL), frequency request and analysis procedures. Additionally this course covers CEOI resources such as suffixes, signs, countersigns, expanders, smoke and pyro, quick reference pages, call words, color words, share groups, net groups, short titles, and additions.

Target Population: The target population of this course is primarily SSgt's and above of MOS 0629, 0648, 0699, and 0602.

Prerequisites: At a minimum, students must have at least one year remaining on their current contract and hold a secret clearance.

TOCNET OPERATORS / MAINTAINERS COURSE

Course ID: M03CWZG

Training Days: 1

Number of Students: 12

Purpose and Scope: To train students on the operation of the TOCNET vehicular system and integration with communication systems found in Marine Corps tactical vehicles.

Target Population: All MOS's.

Prerequisites: None

MRC-142C OPERATORS COURSE

Course ID: N/A

Training Days: 10

Number of Students: 12

Purpose and Scope: To train students on the installation, operation, and maintenance of the AN/MRC-142C Transmission Suite. This course provides knowledge and skills required to configure the transmission suite, associated cryptographic devices, and TAC-300 multiplexer.

Target Population: This course is designed for Marines holding Primary MOS of 0622. **Prerequisites:** At a minimum, students must have at least one year remaining on their current contract and hold a secret clearance.

AN/PRC-117G OPERATORS COURSE

Course ID: N/A

Training Days: 5

Number of Students: 16

Purpose and Scope: To train the students on the advanced capabilities of the AN/PRC-117G. This course provides the knowledge and skills required to operate the AN/PRC-117G Adaptive Networking Wideband Waveform (ANW2). Additionally students will be taught the installation and operation of the AN/PRC-117G's Computer Programming Application (CPA).

Target Population: The target population of this course is Private through Sergeant in the 0621 MOS.

Prerequisites: At a minimum, students must have at least one year remaining on their current contract and hold a secret clearance.

ENHANCED POSITIONING LOCATING REPORTING SYSTEM COURSE (EPLRS)

Course ID: M03YKAG (Operators Course) / M03YKBG (Managers Course)

Training Days: 5

Number of Students: 20

Purpose and Scope: The purpose of the course is to train students in the installation of the Enhanced Position Location Reporting System (EPLRS) Radio Suite. The course provides instruction on the installation of an EPLRS Radio Suite, power requirements, and grounding, loading COMSEC, loading mission parameters, and troubleshooting.

Target Population: The target population of this course is Private through Sergeant of the 0621 and 0651 Military Occupational Specialties

Prerequisites: At a minimum, students should have at least one year remaining on their current contract and must possess a secret clearance.

SIMPLE KEY LOADER (SKL) COURSE

Course ID: N/A

Training Days: 1

Number of Students: 20

Purpose and Scope: The purpose of the course is to PROVIDE ANY Marine of any MOS who need to use the SKL but are not familiar with it and all the functions within the SKL. This includes but is not limited to building and deleting platforms, keys, load sets and how to receive and transfer different items from SKL to SKL.

Target Population: All MOS's

Prerequisites: None

TELECOMMUNICATION SUPERVISORS COURSE (TSC)

Course ID: M03KBSG

Training Days: 20

Number of Students: 20

Purpose and Scope: To train students in supervisory roles within a tactical and commercial wire section by introducing the student to multiple switching systems. The course also provides knowledge and skills required to supervise outside and inside plant operations, planning and management procedures, configuration of multiplexers, signal converters, and network interface equipment.

Target Population: The target population of this course is primarily Corporals and Sergeants of MOS 0612, and 0614. Junior Marines of MOS 0612, and 0614 are welcome to enroll, but will not be accepted if NCOs need seats. All students should be within Marine Corps height and weight standards.

Prerequisites: At a minimum, students must have at least one year remaining on their current contract and hold a secret clearance.

TRANSITION SWITCH MODULE (TSM)

Course ID: N/A

Training Days: 20

Number of Students: 12

Purpose and Scope: This course is an advanced level switching course which expands on the DEOS, RSAM and related components training that students received in entry level MOS school. The course provides the knowledge and skills required to configure

multiplexers, signal converters, and network interface equipment, Private Branch Exchange Switchboards, and Ethernet Gateway configurations as it pertains to central office switching.

Target Population: This training course is designed for Marines with the MOS' 0612, 0613, and 2847. All students must be eligible for a secret clearance and within height and weight standards.

Prerequisites: At a minimum, students must have at least one year remaining on their current contract and hold a secret clearance.

COMMUNICATION PLANNERS COURSE

Course ID: N/A

Training Days: 10

Number of Students: 12

Purpose and Scope: This course is designed to introduce planning concepts for integration of radio, wire, and data systems into communication architecture. Topics covered include Communication Systems Overview, Communication Architecture planning guidelines, Communication Symbology and Diagram drafting.

Target Population: This course is designed for Staff Sergeant and above in 0600 MOSs.

Prerequisites: At a minimum, students must have at least one year remaining on

Source: The Communication Training Center-2. Retrieved January 13, 2012.

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