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14. ABSTRACT The 2008 National Defense Strategy states that organization is key to DoD success. We must unite our disparate capabilities to wield unified force--to forge the Total Force into an information and knowledge-based enterprise. We must break down old barriers and transform our organizations. This will require investment in people. The National Military Strategy 2011 specifies that joint forces will be networked organizations. The network is vital to this transformation. The DoD is more than a net-centric organization; it is a networked organization. To meet the criteria outlined, the Services and joint community must have trained leaders who understand that the network is more than the sum of its parts, who know how to integrate and synthesize multiple network components into a joint network, and who understand the whole network enables C2. This paper draws a conclusion that the Service communities must change individual paradigms and develop a joint professional networked force by expanding joint training and focusing efforts on joint operations. The operational commander will have a seamless, efficient, and effective C2 network with these joint trained communication leaders. This paper recommends additions to training for communicators assigned to JTF capable headquarters and modifications to current joint exercises, which include a communications / network operations focus.					
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PREPARING FOR JOINT NETWORK OPERATIONS

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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Abstract

The 2008 National Defense Strategy states that organization is key to Department of Defense (DoD) success. We must unite our disparate capabilities to wield unified force--to forge the Total Force into an information and knowledge-based enterprise. We must break down old barriers and transform our organizations. This will require investment in people. The National Military Strategy 2011 specifies that joint forces will be networked organizations. The network is vital to this transformation. The DoD is more than a net-centric organization; it is a networked organization. To meet the criteria outlined, the Services and joint community must have trained leaders who understand that the network is more than the sum of its parts, who know how to integrate and synthesize multiple network components into a joint network, and who understand the whole network enables command and control (C2). This paper draws a conclusion that the Service communities must change individual paradigms and develop a joint professional networked force by expanding joint training and focusing efforts on joint operations. The operational commander will have a seamless, efficient, and effective C2 network with these joint trained communication leaders. This paper recommends additions to training for communicators assigned to Joint Task Force (JTF) capable headquarters and modifications to current joint exercises, which include a communications / network operations focus.

BACKGROUND

Reflecting on ten years of experience in the Global War on Terrorism, Department of Defense operations have become increasingly joint. Gone are the days of large-scale unitary Service operations. Combined with the increase of joint operations is the growing use of digital tools for command and control (C2), intelligence exchange, information sharing, planning, and mission execution. In this increasingly joint and networked environment, lies the necessity for joint, integrated, efficient, and effective network operations across the echelons of command. At the operational level of war, such a standing joint construct does not exist. Although such a construct presently exists at the Geographic Combatant Command (GCC) level with the Defense Information Systems Agency (DISA) operated Theater Network Operations Center (TNC), it does not satisfy the Joint Task Force (JTF) Commander's operational requirements.¹ The Services at the operational level maintain a component level network operations capability (e.g., the United States Army Corps includes a signal company with a network operations section). However, Service level network operations focus on Service specific network planning, engineering, installation, operations, and maintenance. They are typically not prepared to conduct these functions when dealing with the integration of communications platforms from other Services. In order to establish network C2, commanders in both Iraq and Afghanistan have recently established ad hoc joint network operations command and control centers (JNCC). Created from deployed Army Signal Brigades and augmented with robust Joint Manning Documents (JMD), these

¹ DISA TNCs are standing organizations responsible for the effective operation and defense of the GIG within their theater, for providing support to the GCC, and serving as a central point of contact for operational matters in support of a GCC. At the joint force level, the J-6 must establish a JNCC to manage and control joint networks. This is another local control center in the GIG operational hierarchy. As such, it interfaces with Service component control centers in the operational area. Joint Publication 6-0, *Joint Communications System*, 10 June 2010, IV-14.

organizations were not developed or implemented until several years after operations commenced and individual Services had already established their own communications networks. Had such an organizational capability existed from the beginning, it may have mitigated many challenges experienced throughout the echelons of command.

INTRODUCTION

Although it is preferred to organize the JTF HQ from an existing service component HQ at the three-star level such as an Army corps, Marine expeditionary force (MEF) numbered fleet or numbered Air Force,² a two star headquarters is also capable of serving as a JTF Headquarters (HQ) within an Area of Operation.³ This JTF HQ will typically operate with Army, Navy, Air Force, and Marine elements subordinate to the JTF HQ. In order to effectively command and control the JTF the JTF commander (CDR) must establish and maintain a command and control network throughout the organization⁴. There are currently no standing deployable JNCCs which can provide network engineering, installation, operation, and maintenance to the JTF.⁵ However, such a capability can be leveraged using existing Service organizations already established within the service operational command. The implementation of a JNCC capability requires minimal changes to joint and Service training, doctrine, and organization.

In today's information dominant environment, the JTF CDR conducts command and control via the information network. The network is "the critical tool" the JTF commander has to accomplish the mission. In order to be effective, fully trained and certified network

² Joint Publication 3-33, *Joint Task Force Headquarters*, 16 February 2007.

³ Since 2004, the 10th Mountain Division, 82nd Airborne Division, and 101st Airborne Divisions have all served as Combined Joint Task Force Headquarters in Afghanistan.

⁴ Also used is the term Joint Force Commander (JFC) to identify a JTF CDR. However, the term JFC is a general term applied to a combatant commander, subordinate unified command or JTF commander therefore the term JTF CDR is used. Joint Publication 1-02, *Department of Defense Military and Associated Terms*, 195.

⁵ The JTF J-6 establishes a JNCC (JP 6-0, I-15). This is not a standing Service level organization and therefore is not trained nor exercised as part of individual Service training requirements.

operators must operate the network. An ad hoc team cannot conduct network operations efficiently and effectively across the echelons of a JTF without a significant learning curve. This results in a degradation of the commander's ability to conduct C2 and thus minimizes the JTF's operational effectiveness. In order to provide the Joint Task Force (JTF) Commander a joint command and control network, a joint network operations command and control capability must be inherent within each Service's JTF capable headquarters.

SERVICE CAPABILITIES

Currently, Service organizations focus on Service specific networks. In today's increasingly joint environment, Service organizations require training and preparation to conduct joint network operations. Established at the operational commander level, the respective Service network operations centers would exercise this capability in a joint environment using the Tactics, Techniques, and Procedures established by the Joint Staff, Joint Forces Command (JFCOM), and the Joint Mobile Networking Operations (JMNO) group. Furthermore, the DoD and the joint community would maintain a joint network operations team capable of providing training assistance to Service level network operations and a surge function to augment deploying operational level network operations centers. The capabilities described exceed the current operation requirements of the Joint Communications Support Element (JCSE), which provides immediate communications to a JTF HQ. Until 2010, the JCSE was responsible for providing communications to the JTF HQ for up to 120 days. However, this is no longer the case. Due to current operation support requirements, such as providing communications support to the United States Central Command (USCENTCOM) Forward Headquarters, JCSE tries to relieve itself of long-term support commitments. Additionally, Service components when assigned to the JTF

commander area of responsibility are required to conduct all network operations functions through the JNCC and not through the Service component.

Each of the four DoD Services has the capability to conduct network operations (NETOPS) either as a subordinate organization to the JTF HQ through the J-6, as a JNCC, or as a functional component command. Joint Doctrine identifies that the JTF J-6 establishes a JNCC to serve as the single control agency for the management and operational direction of the joint communications system deployed during operations and exercises.⁶ At the operational level, the Army maintains NETOPS capabilities through the Division and Corps Signal Company that works alongside the Division / Corps G6. The United States Marine Corps (USMC) maintains similar capabilities. The USMC MEF G6 maintains a NETOPS section. In fact, the III MEF G6 states that its responsibilities include execution of Joint Communications Control Center (JCCC) responsibilities.⁷

The United States Air Force (USAF) continues to transition toward more centralized network operations via the Integrated-Network Operations and Security Center (I-NOSC). With this transition, many of the skills needed to conduct NETOPS at the operational level will wane. The overall impact of this centralization may be limited because it is more likely that a numbered Air Force will serve as JFACC rather than a JTF HQ. However, despite this decreased likelihood of operating as a JTF HQ or as a NETOPS Functional Component, the USAF maintains network operation and maintenance requirements to support the JFACC or Air Service Component within an area of operations and subordinate to a JTF. The numbered Air Forces still require the capability to conduct NETOPS within an area of operations. To meet this operational requirement, the USAF authorizes the Air Force Major

⁶ Joint Publication 6-0, *Joint Communications System*, 10 June 2010, III-4.

⁷ <http://www.marines.mil/unit/iiimef/Pages/Sections/G6/g6.aspx>, accessed 21 April 2011.

Commands (MAJCOM) to establish Communications Control Centers within a theater of operations. The MAJCOM executes this through a combination of the A6 staff and the USAF Communications Squadron that provides a network control center capability that includes network management.⁸

The United States Navy (USN) also centralizes communications operations, partly because the Navy tends to define its operating environment from a global perspective, as ships tend to cross GCC's. This makes the Navy's network operating environment more rigid and less flexible than the other Services. However, it does not negate the necessity for C2 and therefore NETOPS at the operational level; nor does it negate the necessity for the Navy to exercise such functions across the echelons of a JTF. The Navy has attempted to transcend its need for global as well as tailorable C2 with the implementation of the maritime operations center (MOC) at the number fleet headquarters. The goal of the MOC is to allow commanders increased ease and effectiveness in controlling assigned and attached forces through monitoring, assessing, planning, and directing missions.⁹ The intent for the MOC is better-enabled numbered fleet commanders, by using interoperable-networked systems to conduct C2 at the operational level. However, these systems remain Service centric.

SERVICE LEVEL JOINT NETWORK OPERATIONS TRAINING

Each Service possesses its own unique traditions and competencies, which contribute to the versatility, flexibility, and effectiveness of the joint force.¹⁰ The challenge to the Services and to the operational commander is determining and implementing solutions for conducting joint individual and organizational training, executing joint exercises and certifying the organization as JTF capable. There are a number of venues in which

⁸ Air Force Instruction 38-101, *Manpower and Organization, Air Force Organization*, 16 March 2011, 50.

⁹ *Navy Tactics, Techniques, and Procedures (NTTP 3-32.1) Manual*, October 2008.

¹⁰ DoD, *Capstone Concept for Joint Operations v3.0*, January 2009, iii.

operational headquarters conduct joint exercises; Roving Sands, Red Flag, and Joint Warfighting Experiment. Network focused joint training opportunities should also occur in order to ensure the operational commander's ability to command his network. To meet these goals, the J-6 must manage the entire network within the operational area and be cognizant of the performance of those portions of the Global Information Grid (GIG) outside of the operational area that affect the information needs of the joint force.¹¹

These joint communications training events should include communications specific as well as headquarters / command post operations. Although joint exercises are a necessity in ensuring the JTF Command is certified, they are seldom network focused. Including a network focus in existing exercises is essential. Although most joint exercises are operational or maneuver focused, communications are integral to their successful execution. Rather than identifying communications as an enabler, they can also be the focus. Leveraging current constructs and facilities can enable this network focus. For example, the JNCC is an operations floor similar to the Air Operations Center (AOC), leveraging the USAF AOCs or similar facilities used for training or exercises can facilitate JNCC training. This will also require a paradigm shift in the thought process of the operational commander. The operational commander must see the network as a weapons system, not just an enabler.

INDIVIDUAL TRAINING

To succeed, we need adaptive and thinking professionals who understand the capabilities their Service brings to joint operations and know how to apply those capabilities in a flexible manner.¹² We also need professionals who understand the strengths of the joint

¹¹ Joint Publication 6-0, *Joint Communications System*, 10 June 2010, IV-2.

¹² DoD, *Capstone Concept for Joint Operations* v3.0, January 2009, v.

force and who can integrate Service capabilities to maximize those strengths.¹³ In order to accomplish these goals outlined by the Chairman of the Joint Chiefs of Staff (CJCS) in the most recent Capstone Concept for Joint Operations, the DoD must have joint trained communications professionals. These communicators must possess the knowledge of how their Service operates, integrates, and enables the joint fight. As a member of the joint team, they must also understand how to integrate and enable the other Services so that the JTF CDR can C2 the JTF. To accomplish this, the Services could adopt a certification model at both the individual and organizational levels with requirements for qualifications and certifications complete with evaluations to be a fully trained “crew member / commander” position in a Network Operations / Control Center. Although this course / training can be built around a Service specific model, it would be most beneficial if applied on a Joint platform. Upon certification in Service specific network operations, the individual and subsequently the organization conducts training and certification in joint network operations. Depicted in Figure 1 is an example of this individual training and certification process.

Additionally, to facilitate seamless communications across the Services, the communications community can implement a cross-Service exchange program. Cross-Service exchange programs should include attendance at sister-Service communications schools upon completion and certification by the originating Service component. For example, an Army Signal officer would attend Air Force training once certified in Army networks and the USAF communications officers would attend Army schooling after the USAF version. Another factor for consideration is that with the increased centralization of network management at camps, posts, and stations across the globe, experience in some skillsets are decreasing and in some cases lost. For example, the ability / permission to

¹³ DoD, *Capstone Concept for Joint Operations* v3.0, January 2009, v.

manage the wide area network (WAN) architecture now resides at the USAF I-NOSC level. USAF communications personnel are not learning how to work on WANs to the same degree as before centralization. Realistic training can mitigate these decreases in knowledge and expertise due to centralization. Classroom instruction and “book learning” is insufficient training prior to deploying and working in a JNCC or similar organization.

The USAF has recently begun instituting changes within its communications career field, to include the USAF communications officers as a "rated" specialty. Although, most officers have yet to complete the training requirements, there will be qualifications and certifications complete with evaluations to be a fully trained crew commander position in a Network Control Center. A similar certification process applied to joint networks operations and adopted across the DoD would benefit the entire DoD community. Training communications officers in their respective Service networks only takes the communications officer so far. There is still a steep learning curve in a joint environment.

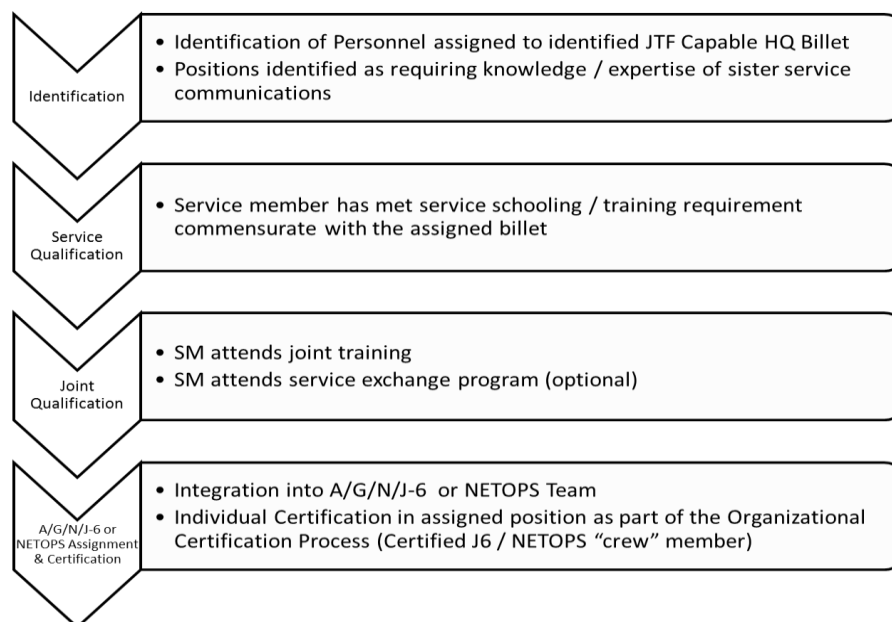


Figure 1: Individual Training and Certification Process

ORGANIZATIONAL TRAINING

The geographic combatant commanders have identified Service elements apportioned to their respective areas of responsibility that have the ability to establish an ad hoc joint task force headquarters. “The ability to integrate the Services diverse capabilities into a joint whole that is greater than the sum of the Service parts is an unassailable American strategic advantage.”¹⁴ Nevertheless, to sustain this capability, the armed forces must train and practice in a joint environment. One environment this can be executed is the Joint Expeditionary Forces Experiment (JEFX). Another option is to leverage as a component a preexisting exercise. Although the JTF HQ Master Training Guide outlines required tasks for completion by the J-6, most of these tasks are Planning and Information Assurance related vice NETOPS tasks.¹⁵ However, the CJCS has identified the requirement for joint readiness and interoperability and has directed the No-Notice Exercise Interoperability Exercise (NIEX) Program to enhance joint readiness, focusing on resolving problems of interoperability and command, control, and communications.¹⁶

To accomplish the training necessary to meet the requirements prescribed by the CJCS, training the JTF NETOPS team must take a systematic approach. At the organizational level, the execution of training exercises will facilitate the certification of the JTF communications team (See Figure 2). First, an organization internal NETOPS Exercise, consisting of the JTF capable HQ communications and NETOPS organization, followed by an Organization External NETOPS Exercise, and Organization Internal Command Post Exercise, and finally, an organization external command post exercise (CPX) which will lead to JTF HQ certification.

¹⁴ DoD, *Capstone Concept for Joint Operations* v3.0, January 2009, iv.

¹⁵ CJCSM 3500.05A, *Joint Task Force Headquarters Master Training Guide*, 1 June 2003.

¹⁶ CJCSI 3510.01D, *No-Notice Interoperability Exercise Program*, 21 March 2008, 1.

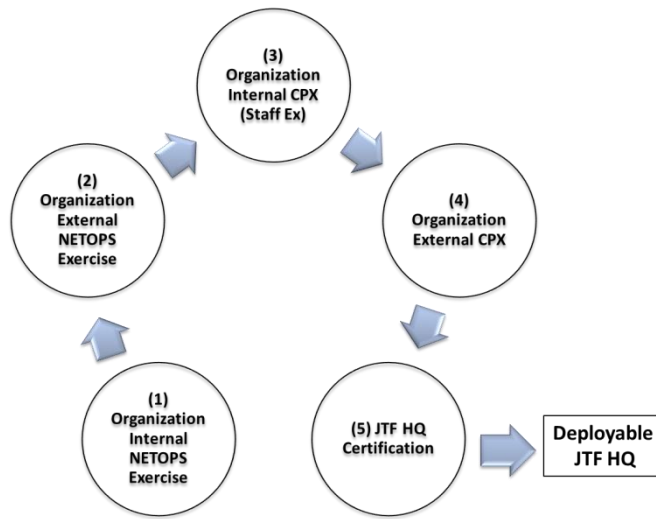


Figure 2: JTF HQ Certification Cycle

The JTF HQ organization certification process is first built on the identification of billets where joint communications / network training is necessary and proceeds with individual training prior to assignment to those billets. The organization then proceeds through a series of training exercise necessary for certification as a JTF Capable HQ.

(1) **Organization Internal NETOPS Exercise.** The first organization requirement is to conduct an organization internal NETOPS exercise. This exercise focuses on individual and organization internal NETOPS responsibilities to include planning, engineering, installation, operation, maintenance, network integration, monitoring, and reporting. Since this is an internal exercise, it is preferable that the Service components are not networked together, thus enabling each Service to focus on their respective internal responsibilities. Figure 3 illustrates the standard organizational components of this event.

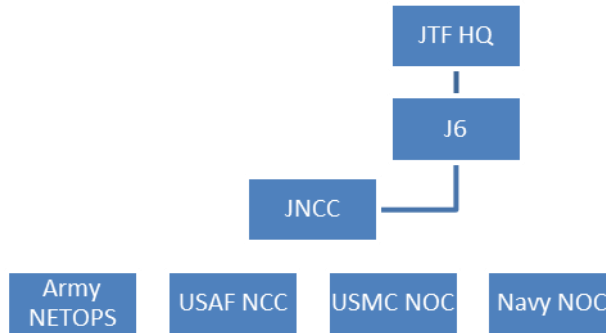


Figure 3: Organization Internal NETOPS Exercise

(2) *JTF and Subordinate HQ Internal CPX*. During the second exercise, the JTF HQ and Subordinate component HQ conduct internal command post exercises to flesh out internal functions. At this time, the JTF HQ and component command posts remain disconnected - not networked together (see Figure 4). A non-networked environment allows HQ staffs to focus on internal functions, roles, and responsibilities. Although command post exercises are typical at the Service component headquarters level, in this training model it is key to conduct the Organizational Internal NETOPS Exercise prior to the CPX.

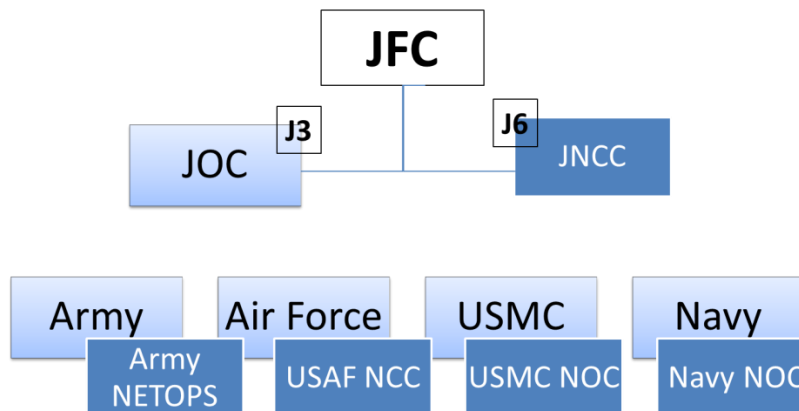


Figure 4: JTF and Subordinate HQ Internal CPX

(3) **Organization External Joint NETOPS Exercise.** Upon completing a Service specific network operations exercise focused on internal organizational roles and functions, a joint NETOPS exercise occurs. This exercise includes joint network planning and engineering, establishing the joint network, network operations, maintenance, monitoring, and reporting. Figure 5 shows the organizational layout with the JTF HQ and subordinate HQ networked together.

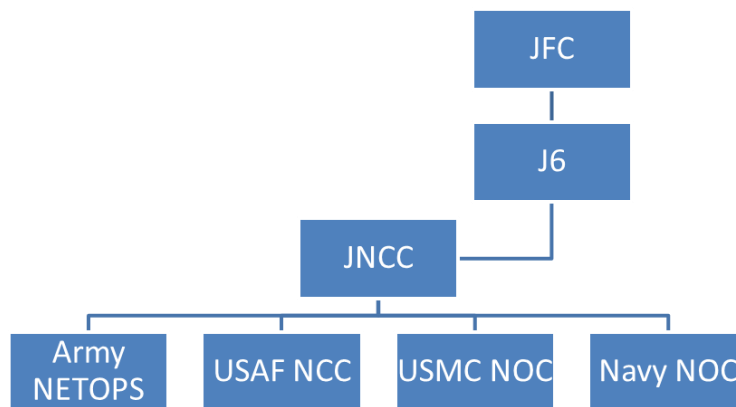


Figure 5: Organization External Joint NETOPS Exercise

(4) **Organization External CPX (JTF CPX).** The culminating event is the certification exercise. Conducted as an evaluation, the JTF CPX exercises the JTF HQ and each JTF component HQ. Illustrated in Figure 6 is an example organization layout for this exercise. During this event, the network is established, provides seamless, efficient, effective C2 to the entire JTF and NETOPS is conducted in accordance with joint doctrine, policies, and procedures.

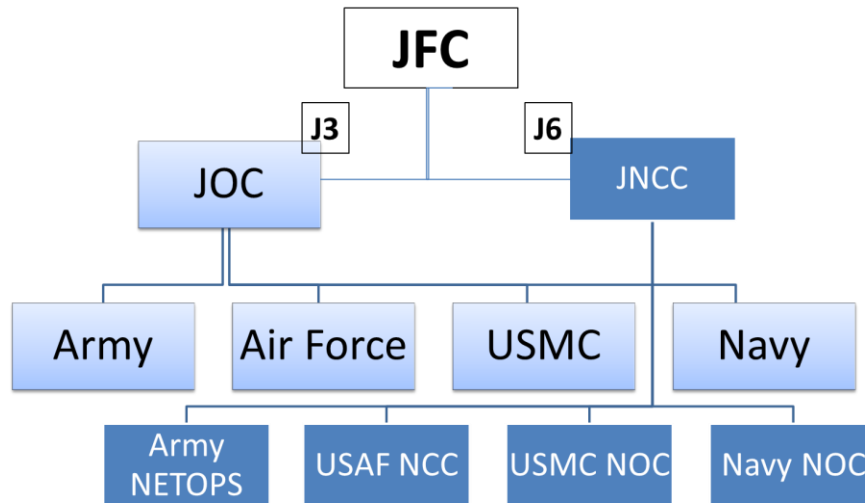


Figure 6: Organization External CPX (JTF CPX)

Successful employment of the joint NETOPS C2 concept requires a paradigm shift in the thought process of the operational commander. Today, the network is more than a tool necessary to conduct C2. It has evolved into its own unique warfighting function – just as integral to the fight, as intelligence, fires, and maneuver. To be successful, the performance of NETOPS integration is necessary at the strategic, operational, and tactical levels and across all DOD areas of interest.¹⁷

JOINT NETWORK OPERATIONS SUPPORT TEAM

Furthermore, the joint community would benefit by the existence of an organization responsible to educate and train DoD personnel on the application of communications networks in the context of joint network operations. Such an organization could be similar in nature to the Army Joint Support Team (AJST), located at the U.S. Army Combined Arms Center at Fort Leavenworth. The AJST is responsible for conducting U.S. Army and Joint air-ground operations education, training, and command and control systems

¹⁷ Joint Publication 6-0, *Joint Communications System*, 10 June 2010, IV-2.

integration in support of joint and military service training requirements for all four DoD Services and for elements of joint organizations in order to provide relevant and ready forces to joint force commanders.¹⁸ The Joint Network Operations Support Team (JNOST) would serve as an education, training, and support team to the joint communications community and provide joint communications expertise, liaison, and support to operational commanders worldwide. Success also requires adherence by the Services to standardized Joint network practices and policies -- Joint Doctrine on Networks. The organization and implementation of a JNOST could facilitate understanding and therefore could facilitate adherence to common practices and joint network doctrine.

Although the U.S. Army Signal Center hosts a four-week Joint Command, Control, Communications and Computers (C4) Planners Course (JC4PC) and the Joint Forces Staff College hosts a three week Joint C4 and Intelligence Staff Operations Course (JC4ISOC), neither of these courses focus specifically on joint NETOPS.¹⁹ The joint community would profit by an organization similar to AJST, responsible to educate and train DoD personnel on the application of communications networks in the context of joint network operations. The JNOST would serve as an education, training, and support team to the joint communications community.

DOCTRINE AND ORGANIZATION REQUIREMENTS

According to the Capstone Concept for Joint Operations, we need to create new joint and Service doctrine, tactics, techniques, and procedures and establish new methods for integrating our actions.²⁰ These new approaches should include C2 of the network. Service

¹⁸ <http://usacac.army.mil/cac2/AJST/About.asp> (accessed 7 April 2011).

¹⁹ JC4ISOC has six primary focus areas C2, NETOPS, Intelligence, Space Operations Support, Joint Interoperability, and C4I Planning. JC4PC focuses on the technical aspects of Joint C4 planning.

²⁰ DoD, *Capstone Concept for Joint Operations* v3.0, January 2009, iv.

components when assigned to the JTF would be required to conduct all network operations functions through the JNCC rather than through the Service component. Joint Publication 6-0 identifies JNCC and Service responsibilities. The JNCC, through component / Service control facilities, exercises control over deployed communications systems and serves as the single control agency for the management and operational direction of joint communications networks and systems.²¹

One way to facilitate JNCC management and operational direction is through the DoD standardization of joint network engineering practices and policies with adherence to such by the Service components. United States Strategic Command (USSTRATCOM) has developed standards for the GIG; however, Services develop their own policies and standards for the portion of the GIG for which they are responsible; this includes most operational level networks. Furthermore, inspections, and evaluations would be required to validate use of joint network standards, to ensure the capability is ready when deployed.

The mandatory sharing of resources in the area of operations facilitates operations. A configuration control board or similar board consisting of interested parties is one way to ensure fair resource allocation and mission accomplishment throughout the JTF. This sharing of resources is contentious due to funding allocation. For the most part the individual Services fund their own networks and communication requirements. However, all Services involved share a common mission, even though each Service component may have its own individual piece. Individuality should not be the allowance for separatism; instead, it should drive for a closer working relationship since each piece relies on each other to accomplish the greater objective.

²¹ Joint Publication 6-0, *Joint Communications System*, 10 June 2010, III-4.

COUNTERARGUMENT

Arguably, there may be voiced opposition to these proposed changes. U.S. Code Title 10 and current directives assign responsibility to the individual Services to operate their portions of the GIG, as they see fit in accordance with DoD policy and guidance. The Services therefore, aligned with their Title X responsibilities to organize, train, and equip their forces have established organizations, training, and networks tailored to meet their varied mission requirements. Both the Navy and the Air Force tend to see their operational environment as global. Aircraft and ships supporting a JTF CDR may cross multiple boundaries before entering the JTF joint operation area to conduct operations. This “global reach” causes both these Services to lean towards more centralized NETOPS C2.

Presently, the DoD and the Services continue efforts to transition toward a joint enterprise; consolidating servers, networks, and network operations centers to create efficiencies and reduce costs. A larger enterprise requires more centralized control of the network, as one network configuration change can affect the entire enterprise. Although centralization may work at the strategic level where there are fixed locations and infrequent changes, it does not work as well at the operational level where the environment is fluid and network changes must occur more rapidly.

Additional training associated with service members assigned to JTF capable organization also increases the workload of human resources personnel who must track training and qualification during the assignment process. Mandating additional schooling requirements or exchange programs removes communicators from operational assignments. Delays in assignments are particularly contentious in critically short career fields and with current high operational tempo.

The management of fiscal resources determines where and how the Services allocate funding. This includes funding for training and preparing forces to conduct both Service specific and joint operations. A dwindling DoD budget will force Services to prioritize their efforts and expenditures. The Services must first be proficient in their core competencies. Furthermore, the mandatory sharing of resources, paid for by the respective individual Service components, when conducting joint operations places a financial burden on the bill payer. Finally, even with the establishment of U.S. Cyber Command (USCYBERCOM) and Service component cyber organizations, the network remains a secondary / supporting effort in the eyes of most operational commanders.²²

REBUTTAL

U.S. Code Title 10 outlines disparate missions for the Armed Services and requires each Service to prepare itself to meet those requirements. However, this does not negate the requirement for interoperability. Joint policy already directs the necessity for interoperability of information and communications systems between Services at the equipment level.²³ However, interoperability must go beyond the equipment level and extend to the organizational level to include how the organization conducts business. The JTF CDR must be able to command and control in today's information dominated environment. The network is "the critical tool" the JTF CDR has to accomplish the mission.

Added to the critical importance of the network is also the critical importance of having fully trained and certified network operators. Only trained and certified communications personnel can achieve this task for the JTF CDR. Today's operations are

²² This may change as USCYBERCOM retain Unified Command Plan (UCP) authority over the GIG and all connecting networks. *UCP 2011*, 6 April 2011.

²³ Chairman, Joint Chiefs of Staff, Instruction 6212.01, *Interoperability and Supportability of Information Technology and National Security Systems*, 15 December 2008.

routinely no longer Service specific in nature. The ad hoc team expends a significant amount of time and energy learning how to conduct efficient and effective NETOPS across the echelons of operations and command. These inefficiencies prevent the JTF CDR and by extension through the network the JTF from achieving synergistic battle space effects.

RECOMMENDATIONS

1. Individuals assigned to positions with planning and / or network operations responsibilities at Service organizations identified as JTF HQ capable should complete joint communications training, currently either the JC4PC or JC4ISOC as a pre-requisite prior to assignment to that headquarters.

2. Organizations identified as JTF HQ capable should participate in a joint exercise annually. This exercise should include the C2 of Service and functional components and the engineering, installation, and operation of a joint network with ground, air, and maritime components.

3. Establish a Joint Network Operations Support Team responsible for education, training, and support to the joint communications community. Once the JNOST is established, identified individuals assigned to JTF capable HQs would attend joint communications training hosted by the JNOST.

4. Implement a Service exchange program for service members serving in identified positions to train and learn the communications operations of their sister Services.

Regardless of adoption and implementation of joint policies and procedures across the Services, each Service still maintains its own distinct mission and operational requirements. This distinction will invariably cause the Services to add their own unique variations to the execution of network operations. Therefore, there remains utility in a Service exchange

program to help better prepare communications officers to integrate the Service networks into the joint task force network.

CONCLUSION

Over the past five years, there has been much attention focused on NETOPS C2 and the methods to conduct and execute NETOPS. Conflict exists regarding the level of NETOPS centralization at the global, Service, or the GCC level. There are many differing opinions about the correct way to conduct NETOPS C2. Regardless, joint NETOPS must occur in order to support the JTF and enable the JTF Commander to conduct C2. Understanding the mission and requirements of the organizations within the JTF are essential to successful network operations, this includes understanding how organizations conduct operations, and the equipment used to conduct those operations. Training is crucial to achieving such understanding.

An underlying theme behind many of the issues associated with exercising command of the network in the joint environment is Service parochialism. However, the consistent execution of joint network planning combined with implementation of joint networks supporting a JTF can alleviate many of the challenges associated with joint network operations. The continuous exercise of joint network operations while simultaneously adhering to joint policies and procedures, the JTF CDRs C2 needs, and joint force operational requirements will make conducting future joint operations more efficient and will decrease the effects of “fighting the network” inherent with joint operations. The network is a weapons system, as with any weapon, it requires correct and consistent training to be proficient.

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