

Pacific Theater operations

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The purpose of this article is to provide an informational overview of the NSC-Pacific; its design, implementation, and operations throughout the Pacific Theater. The focus is to describe the manner in which we “fight the network” leveraging key Network Service Center elements: the 311th Signal Command (Theater), the Pacific Theater Network Operations and Security Center, Theater Strategic Signal Brigades, and our most important asset - People. The NSC concept has been discussed in various articles and forums in recent past and is now successfully implemented across the globe. However, a thorough examination of how it actually performs from a regional perspective has yet to be communicated.

This article also describes the current organizational environment, the NSC-P capabilities, limitations, and the operational challenges the units in the Pacific face on a daily basis. The intent is to develop a higher level understanding of the requirements that enable the synchronization of the critical NSC elements across the Pacific LandWarNet and the challenges that impede progress. The intended impact is to provide practical knowledge, informing both the operating and generating forces in the Pacific theater as well as other NSCs across the Army enterprise of the increased capabilities that a well-designed NSC can provide to the Warfighter. A fully functional NSC will provide the 311th SC (T) with the ability to effectively extend and efficiently mitigate issues related to the delivery of IT services to users throughout the Pacific theater of operations despite geographic location of the supporting IT infrastructure.

Theory

The theory behind the NSC is multifaceted and well documented. The idea was born from the

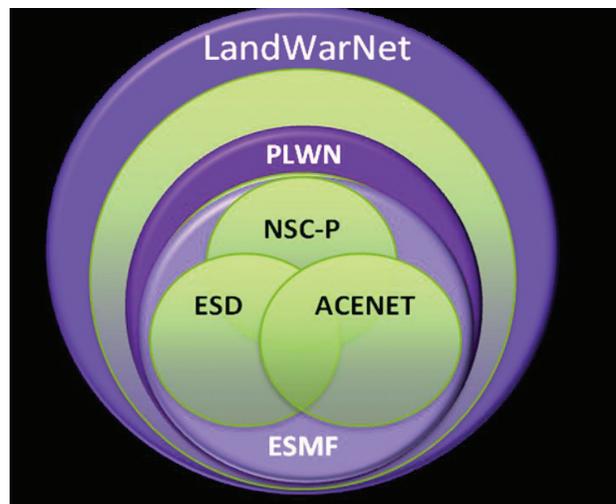
demand for increased mobility and modularization within the Army, in addition to the challenges presented by the new threat environment. These challenges drive the requirement for greater speed and agility in accessing mission critical network capabilities and information resources, while maintaining a high level of information security. The NSC-P accomplishes this by integrating and provisioning PLWN resources, including network access, equipment, and personnel to deliver a synchronized, seamless, and on-demand information capability in support of the Army's transformation to a more net-centric,

modular force. The NSC, at its most fundamental level, consists of globally standardized processes and procedures required to deliver enterprise services that are implemented and executed by the theater signal commands and their subordinate organizations. Structure

In order to completely understand the Network Service Center concept one must first discuss the sum of its parts. The NSC-P serves many masters which can rapidly evolve into a

management nightmare if not properly executed. The NSC is neither a place nor a location, but a framework - primarily a managerial concept. First and foremost, it is a point of injection for information sharing and reporting. It is comprised of a command and control element, an engineering element, and a services element that is designed to provide ease of access, efficiency, and standardization across the PLWN with one simple goal in mind - provide robust, reliable IT services transparently to the customer. Whether it is a tactical system providing communications to a remote customer in a Theater Security Concept Plan exercise, a strategic system on a desktop at an established base, or a real world contingency like humanitarian assistance support in Japan, the goal is to provide the same quality of service to the customer.

The NSC-P focuses its line of operation to support three overarching lines of effort; to operate, maintain, and defend the PLWN. These LOEs align themselves with our three higher



headquarters; United States Army Pacific, Network Enterprise Technology Command, and the U.S. Army Cyber Command and their requirements and expectations for the PLWN. The 311th Signal Command is under the operational control of USARPAC. The LOE associated with “operate” clearly fits the focus of this higher headquarters for operational control because USARPAC is primarily focused on ease of access and reliability of services for daily operations as well as any contingencies or exercises. Essentially, they aren’t focused on how we provide the service, just that the service is provided. The two higher commands that focus on the “how” are USARCYBER and NETCOM. The LOEs “maintain and defend” are really the “how” in the provision of services. Network defense must be present in every signal operation and the LOE “defend” that is associated with this supports the intent of USARCYBER to provide for secure, protected networks across the Global Information Grid. In order to extend network services there must be a conscientious and dedicated effort

to maintain the network. The “maintain” LOE supports NETCOM’s emphasis on consistency and reliability of network services.

For the Pacific theater, the 311th SC (T) is the Army’s IT service provider. They execute the activities associated with network operation, management, and defense and are responsible for managing and delivering IT services to Warfighters and other users of the PLWN. The 311th performs these duties through its headquarters and subordinate commands and organizations, including two Theater Strategic Signal Brigades. The NSC operations center reports to the 311th G3, aggregates and provides theater-wide status and service awareness, and is empowered to direct daily operations across NSC elements.

ACENET and ESMF

A key enabler and great contributor to the NSC-P success is TF ACENET. ACENET as

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described in a white paper by LTC Mumford, 516th Signal Brigade S3, "is a Task Force of USARPAC G6, IAPM, 311th SC (T) Project Managers, Network Engineers, 516th Brigade S3, P-TNOSC, P-RCERT and Regional NECs under the C2 of the 516th Signal Brigade commander to implement changes on the PLWN. The task force takes the outputs of the ESMF process and delivers changes requested by the customer.

Through daily teleconferences, ACENET synchronizes the changes directed by the NSC-P TASKORDs with the regional NECs current environment. ACENET effectively leverages excellence across the PLWN by identifying subject matter expertise and matrixes the virtual team to produce an implementation plan. ESMF verifies ACENET follows the left and right limits of the charter and delivers a Technical Acceptance Report agreed upon by the customer, ACENET, and the O&M team (NEC/TNOSC). Without ACENET, the NSC-P is just another data collection and reporting entity with no real ability or authority to effect change throughout the organization. ACENET is that authority and

it allows collaboration across the enterprise at various levels leveraging many different assets to efficiently effect change throughout the Pacific Theater. Operations

The NSC-P Operations Center manages the day-to-day operation of the components that constitute the NSC and performs other roles as directed by the 311th G3. This responsibility includes the clarification of theater discrepancies on Network Operations roles and responsibilities, allocation of major organizational work assignments, and review and approval/disapproval of theater enterprise-wide service requests or requests for change, etc. within the theater. Additionally, the NSC Operations Center maps service availability to mission impact and may direct or prioritize response efforts across NSC operational elements to minimize downtime or outages.

With operational oversight over other NSC elements, the operations center is the organization responsible for understanding and tracking the health of the PLWN; they work to ensure that proper procedures are followed within the NSC construct and that resources are allocated to best meet the needs of the theater. The performance of this role requires close coordination with theater

organizational planning and engineering functions, as well as meticulous oversight of 311th specific projects.

A critical responsibility for the NSC operations center is managing relations with the supported Army user community. The NSC operations center personnel negotiate theater-wide service level agreements, remediate service disputes, coordinate inter-theater transitions, and collaborate with unit commanders to understand the requirements of the user community.

Theater Network Operations and Security Center

The TNOSC is a key component, operating as a synchronized element in concert with all other 311th operational entities to execute the NSC operational concept. They are primarily responsible for the technical operation, management, and defense of their respective theater LWN, situational awareness reporting, and coordination of theater service support activities. TNOSCs provide the NSC-P and other organizations NETOPS situational awareness and reporting information, and work closely with Regional Computer Emergency Response Teams in the defense portion of their mission. They also perform policy dissemination, compliance monitoring and enforcement, and, report compliance status directly to the NSC-P, NETCOM, and USARCYBER.

Theater Strategic Signal Brigades

Currently, the 311th controls two TSSBs that disseminate situational awareness data as required; 1st Signal Brigade, which includes the K-TNOSC, and three Signal Battalions (36th,

Signal NCOs conducting daily business in the P-TNOSC Operations Center





The standardized tactical entry point site at Fort Greeley, Alaska operated by personnel of the 59th Signal Battalion

41st, and 304th), is located at Camp Walker, in the Republic of Korea. They provide the 1st Signal Brigade Commander with near real-time information about the status of KLWN assets and operations on the Korean peninsula. Their focus is primarily on Combined Enterprise Regional Information Exchange – Korea networks. The 516th Signal Brigade, which includes the P-TNOSC and five Signal Battalions (30th, 307th, 58th, 59th, and 78th), is located on Fort Shafter, Hawaii. They provide the 516th Signal Brigade Commander with near real-time information about the status of PLWN assets and operations outside of the Korean peninsula. Their focus is on “USARPAC” networks. The 1st and the 516th both staff and manage the TNOSCs as well as regional Network Enterprise Centers. The subordinate battalions under the TSSBs serve as the tactical arms of the brigades and deploy Warfighter Information Network –Tactical assets forward in support of TSCP exercises and real world contingencies. They essentially extend the network throughout the Pacific Theater to provide operating forces with reach-back capabilities to the LWN.

Because of its location and operational relationship, the 516th Signal Brigade is considered to be an essentially organic part of the NSC-P construct. Due to the fact that the 311th is an orders based unit, the 516th must receive and process these orders for dissemination and assignment to subordinate battalions for execution. The 516th provides the conduit from the 311th to the operational Signal battalions. Not only does the 516th serve the NSC-P in this function, it also provides manning augmentation to the operations center when called upon. Personnel are detached from the Brigade HQ, 30th and the 307th Signal Battalion to help provide the necessary manning coverage for 24/7 operations. For the purpose of this article we will only discuss the 516th Signal Brigade and its subordinate battalions because of the command relationship with and proximity to the NSC-P.

Regional Hub Node

An additional element of the theater NSC construct, is the Regional Hub Node. It will be primarily responsible for managing and provisioning

satellite transport services for Joint Network Node enabled units in theater. The 311th Pacific RHN is not currently in operation, however, an interim RHN will be established in Guam this fiscal year. It will provide the interface into the LWN for WIN-T assets, including assembly of the transmission plan and support of satellite communications equipment at the RHN site, and, tying the tactical networks securely into the enterprise.

Currently, our deployed signal assets tie into the PLWN by transmitting to regional Strategic Tactical Entry Points located throughout the Pacific Theater. We have access to STEP sites in Hawaii, Okinawa, Alaska, California, and even as far as Georgia if ever the need arise.

Network Enterprise Center

Network Enterprise Centers, formerly known as Directorates of Information Management are the organizations that support and maintain IT infrastructure located on posts, camps, and stations. NECs also provide

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touch labor and direct support to users as an extension of the Enterprise Service Desk. Each installation has a single NEC responsible to operate all installation level IT infrastructure. Additional tasks of the NEC include situational reporting activities, local planning and engineering, local enforcement of Department of Defense and Army NETOPS and Information Assurance policies, and service request support for installation tenants. NECs normally work independently of the TNOSCs, but on occasion, direct coordination is necessary. The NSC-P works through the P-TNOSC and the 516th to ensure that PLWN related policies, procedures, and plans are properly executed and issues that may arise at the NEC level are mitigated expeditiously.

Network Monitoring

The NSC-P exercises various means of C2 through the use of leader's tickets, trouble tickets, teleconferences, and battle tracking software. Leader's tickets are predefined criteria that state when certain conditions are met, shift personnel alert leadership so that they can take action. Leader's tickets are normally commander's critical information requirements that require a higher level of coordination or attention for action or decision making and are transmitted through email or telephony.

Trouble tickets are of a different nature; they are designed to accomplish network related tasks and are submitted through a program called Remedy. Remedy consolidates tickets for tracking and assigning responsibility to the network technicians or NETOPS teams for action. Remedy provides a means for centralized management of ticket issuance and fault mitigation to get the job done.

Teleconferencing is where the NSC-P can really exercise its control. Teleconferences are held daily and provide a forum for all involved with the network to discuss current and projected issues, coordinate planning, and organization, or anything else related to the network. Everyone from the highest level of leadership to the lowliest network technician participates in these teleconferences and that is where the magic happens. These teleconferences enable the NSC concept to function without boundaries by getting things accomplished that would otherwise be caught up in the "stovepipe" without direct coordination. The beauty of it is that everyone that gets involved is informed at the same time thus avoiding confusion that may stem from loss in translation by following the normal chains of coordination.

Battle tracking and analysis is an absolute necessity and it is accomplished through the use of Spectrum

Network Fault Manager and eHealth Performance Manager to proactively identify possible problems and resolve incidents with thousands of networking components that reside on the PLWN. Automated alerts and root cause analysis help to ensure these issues are dealt with promptly. Currently, the P-TNOSC manages the Spectrum servers, but provides Spectrum views of all network nodes and links to the NSC-P. Because of this, the NSC-P has much better visibility and control of its IT enterprise. As a result network management and incident response is greatly enhanced.

Constraints and Limitations

By definition, the NSC-P will integrate Connect, NETOPS, and Service capabilities, executed by theater signal organizations to effectively and efficiently manage, coordinate, and provision LWN capabilities for operating and generating forces across the theater. Doing so, however, is not without its difficulties. Many constraints and limitations hinder progress almost daily; some of these are described below. By discussing these factors, we hope to empower other NSCs with the knowledge to thwart these encumbrances and avoid the pitfalls of NSC mismanagement.

Facilities

The first constraint is in regard to space limitations at the NSC-P Operations Center and the P-TNOSC. Although both the NSC-P and the P-TNOSC are located in the same building, they reside on opposite ends. In a perfect world, the NSC-P would be co-located with the P-TNOSC & RCERT, but due to space required to fulfill this condition, it is not currently feasible to merge the two centers. The 311th is working with the P-TNOSC to relocate some of the NSC-P Operations Center staff closer to the P-TNOSC in the interim that a more enduring solution can be attained. 311th is discussing a possible solution to relocate the NSC-P and members of the P-TNOSC to a building that houses DISA. This would solve the disconnect problem between the various organizations and provide a more centralized management function.

Personnel

As we structure the NSC-P to cover 24/7 operations, 365 days of the year, we will always run into manning issues, both military and civilian. The NSC-P is currently manned by a small, permanently assigned cell that provides C2 for normal day to day business. When a requirement is identified such as a TSCP exercise or real world contingency, the cell is augmented from across the 311th, the 516th subordinate units, and the P-TNOSC in order to cover the manning requirements throughout the duration of the operation. The P-TNOSC is mostly comprised of

contractors who have strict boundaries in regards to working overtime. Funding becomes an issue during contingencies and must be well managed in order to avoid unnecessary expenditures. Mission readiness is affected when military personnel are detached from the brigade headquarters and subordinate battalions causing a domino effect across the entire 311th SC (T). This puts a strain on the units that must support the NSC-P reducing their ability to perform their normal duties as directed.

authorized overtime, or unscheduled network outages that always arise at the most inopportune moments. The optimal solution would be to train military personnel to cover down on these gaps. However, we have become so dependent upon our highly skilled civilian workforce that we have been unable to attain this mastery at the military level. Eventually, balance will have to be achieved through a combination of both civilian and military personnel in an effort to increase mission readiness and effectiveness.

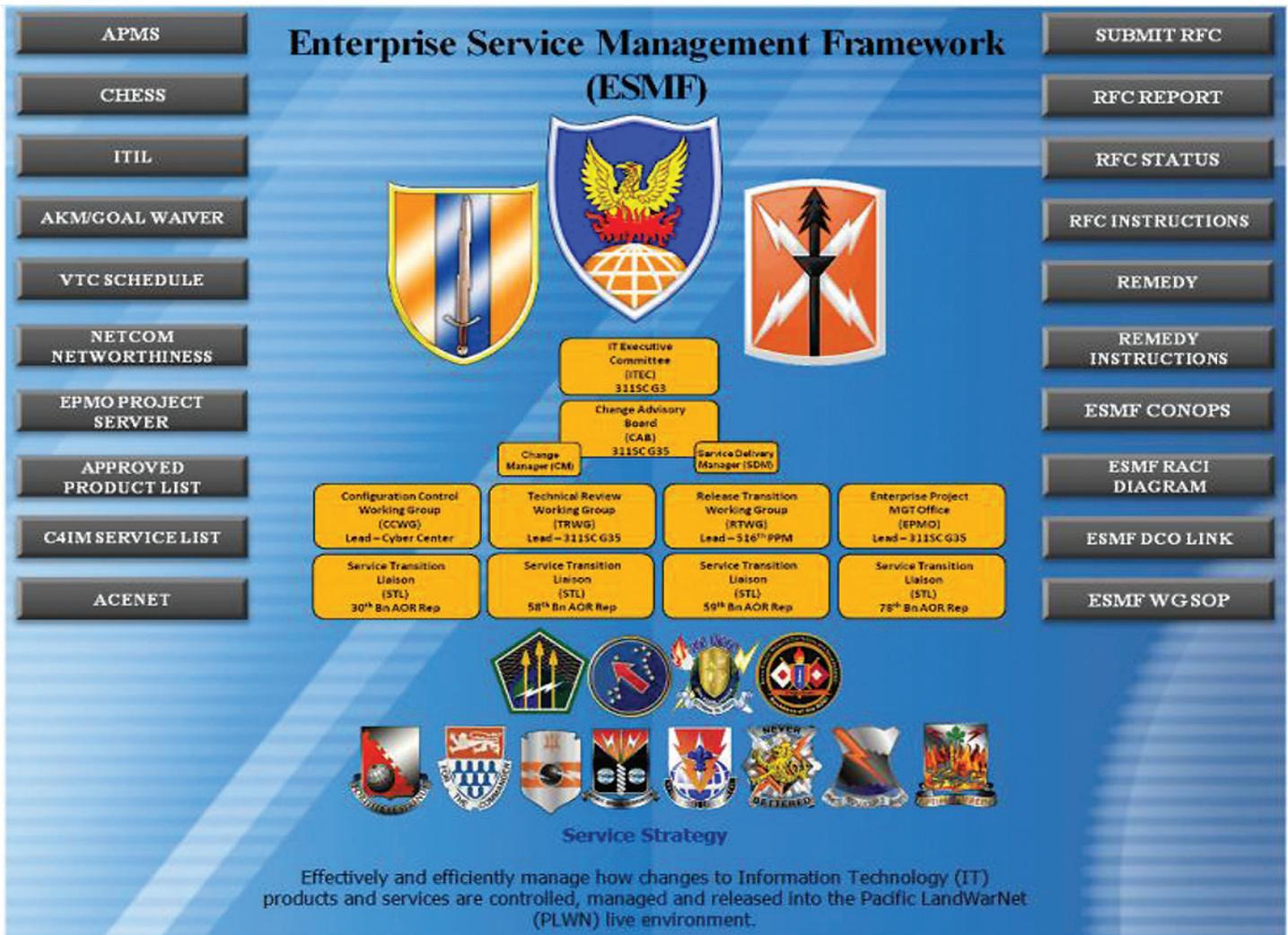
Geography

Subordinate commands geographically disparate from the 311th SC (T) pose yet another challenge that is directly correlated with the funding and manning issues mentioned above. Spanning 7 time zones across the Pacific Theater and crossing the International Dateline, the battalions under the 516th Signal Brigade operate on a different clock. When the duty-day ends in Hawaii, it is in full swing in Japan. This makes it especially difficult to run 24/7 operations for the civilian sector in terms of additional shifts,

Organizational Structure and Reporting

The question one has to ask when dealing with multiple echelons of the various units located across the Pacific is "Who is really in charge and what is our command relationship with regards to the NSC-P construct?" As an example, the P-TNOSC falls under the 516th and works directly with the

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NSC-P under the 311th. They also report directly to NETCOM and USARCYBER for LWN related issues.

This can create a lot of confusion for reporting purposes and sometimes causes conflict within the brigade. The military command structure does not always lend itself to transparency thus creating the "stovepipe" effect that we must normally adhere to yet simultaneously strive to avoid.

At times, decisions need to be made almost immediately despite chain of command relationships between higher headquarters, the 311th, 516th, TNOSCs, and the operating and generating forces.

A fluid, well-organized NSC will deter this inefficiency if properly executed, understood, and maintained by the command.

Summary

The NSC-P synchronizes operations of many elements to provide the commanding general of the 311th SC (T) and higher echelons a complete operational picture of the PLWN. In essence,

it is a single focal point through which to monitor, manage, sustain, and, when necessary, direct signal forces throughout the Pacific Theater.

A key to enabling the NSC-P to successfully achieve its goals is to find balance between filling and funding personnel and facilities requirements and synergizing the support requirements with the military hierarchical structure. The goal is to extend secure, robust LWN network services across the Pacific Theater and do it transparently to the customer providing a seamless transition from garrison to the deployed environment. The greatest challenge is in bringing together all the people, processes, and infrastructure responsible for the operation, management and health of the network under a single, administrative control entity. The NSC-P is that entity, and if properly manned, equipped, and funded, can effectively accomplish this significant mission

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ACRONYM QuickScan

C2 - Command and Control
CENTRIX-K - Combined Enterprise Regional Information Exchange - Korea
ESD - Enterprise Service Desk
ESMF - Enterprise Services Management Framework
GIG - Global Information Grid
IAPM - Information Assurance Project Management
JNN - Joint Network Node
KLWN - Korean LandWarNet
K-TNOSC - Korea TNOSC
LOE - Line of Effort
LOO - Line of Operation
LWN - LandWarNet
NEC - Network Enterprise Center
NETCOM - Network Enterprise Technology Command
NETOPS - Network Operations
NSC - Network Service Center
NSCP - Network Service Center Pacific

O&M - Operations and Maintenance
PLWN - Pacific LandWarNet
P-RCERT - Pacific Regional Computer Emergency Response Team
P-TNOSC - Pacific- Theater Network Operations and Security Center
RCERT - Regional Computer Emergency Response Team
RHN - Regional Hub Node
STEP - Standardized Tactical Entry Point
TAR - Technical Acceptance Report
TASKORD - Tasking Order
TNOSC - Theater Network Operations and Security Center
TSCP - Theater Security Concept Plan
TSSB - Theater Strategic Signal Brigade
USARCYBER - United States Army Cyber Command
USARPAC - United States Army Pacific
WIN-T - Warfighter Information Network - Tactical