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14. ABSTRACT Personnel Recovery (PR) maintains significant relevance at the operational level of war. Combatant commanders (CCDRs) are responsible for the planning, preparation, and execution of PR for military and civilian personnel within their area of responsibility. The current Department of Defense (DOD) PR system is not optimized for the increased potential for U.S. personnel becoming isolated in the future operating environment. Implementation of a network-based PR planning and response system at the CCDR level will enable PR across the future spectrum of conflict. The PR network provides a mechanism to build awareness and make faster decisions during planning and execution of PR operations. The following paper addresses the current DOD PR system and its limitations; the PR network as a concept; the elements required for the implementation of the PR network at the operational level; an example of PR networked response; counterargument, and rebuttal.					
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**NAVAL WAR COLLEGE
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**NETWORK-BASED APPROACH TO OPTIMIZE PERSONNEL RECOVERY FOR
THE JOINT FORCE**

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.

Signature: _____

26 MAY 2011

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Abstract

Personnel Recovery (PR) maintains significant relevance at the operational level of war. Combatant commanders (CCDRs) are responsible for the planning, preparation, and execution of PR for military and civilian personnel within their area of responsibility. The current Department of Defense (DOD) PR system is not optimized for the increased potential for U.S. personnel becoming isolated in the future operating environment. Implementation of a network-based PR planning and response system at the CCDR level will enable PR across the future spectrum of conflict. The PR network provides a mechanism to build awareness and make faster decisions during planning and execution of PR operations. The following paper addresses the current DOD PR system and its limitations; the PR network as a concept; the elements required for the implementation of the PR network at the operational level; an example of PR networked response; counterargument, and rebuttal.

INTRODUCTION

On 23 March, 2003, an 18-vehicle convoy of the U.S. Army's 507th Maintenance Company became isolated in the vicinity of An Nasiriyah, Iraq. Separated from the 600-vehicle main body of the 3rd Forward Support Battalion (FSB) convoy, the 33 soldiers of the 507th Maintenance Company element found themselves in a desperate situation due to a navigational error. In an attempt to exit An Nasiriyah, the soldiers of the lost convoy came under fierce attack by Iraqi military and irregular forces. The aftermath of the 90-minute firefight yielded 11 American soldiers killed, 20 wounded, 9 captured (POW), and 16 able to rejoin friendly forces. The time from the initial navigational error (off assigned route) until the beginning of the firefight was approximately 1 hour, with the nearest support (an element of the 8th Marine Tank Battalion belonging to Task Force Tarawa) 10 kilometers to the South.¹

This event details one of many possible isolating incidents encountered by U.S. forces in the future. Analyses of the future operating environment forecast that an increasing number of military and Department of Defense (DOD) civilian personnel will be at risk to isolation. Under joint personnel recovery (PR) doctrine, combatant commanders (CCDRs) are responsible for the planning and execution tasks to recover isolated personnel within their areas of responsibility (AOR).² However, the current DOD PR construct, characterized by hierarchal, insular coordination, is not optimized to respond to the myriad of isolating incidents likely to be encountered in the future.³ To meet the future operational challenges of PR, CCDRs must implement a **joint, network-based approach to PR planning and response**. This approach provides a mechanism to build greater awareness and make faster decisions to meet the PR demands of future operations across the spectrum of conflict.

The PR network is a relatively new concept that has not yet reached operational realization. The Joint Personnel Recovery Agency (JPRA) introduced the PR network in 2009 as an element of the future PR concept of operations (CONOPS), however it has not yet

¹ *Attack on the 507th Maintenance Company*, 12-15, <http://www.army.mil/> (accessed 4 April 2011).

² Chairman, U.S. Joint Chiefs of Staff, *Personnel Recovery*, Joint Publication (JP) 3-50 (Washington, DC: CJCS, 5 January 2007), xiii, <http://www.dtic.mil> (accessed 17 March, 2011).

³ Marc DiPaolo, *Joint Personnel Recovery Operating Concept and Capabilities Based Assessment Results* (Ft. Belvoir, VA: Joint Personnel Recovery Agency) 19 July 2010, 6.

been implemented at the CCDR level.⁴ Once the PR network concept is institutionalized, it will provide an effective and efficient approach to the planning and response of joint PR operations. Effective implementation of the PR network depends upon clear CCDR intent for PR within the AOR, adoption of technologies to support the network architecture, and joint-level collaboration for joint PR capabilities.

PR BACKGROUND

PR provides a key operational function with strategic impacts. At the strategic level, PR denies an adversary the opportunity to leverage the intelligence and propaganda value of captured personnel to diminish national will and perception of risk.⁵ Thus, PR remains a vital element of operational protection capability.

All components (either service-based or functional-based) are responsible for integrating PR into operational planning. However, not all components may be organized, trained, or equipped to accomplish all PR tasks within their operational area. Therefore, it is incumbent upon component commanders to identify shortfalls and coordinate PR requirements with the Joint Force Commander (JFC) through the Joint Personnel Recovery Center (JPRC).⁶ The JPRC is staffed with PR experts from each component “to plan, coordinate, and monitor PR missions, and to integrate PR activities with other operations and activities in the assigned operational area.”⁷ In the event of a PR shortfall, the JFC (through the JPRC) will task PR assets from another component to ensure adequate response to an isolating event.

⁴ Marc DiPaolo, *Joint Personnel Recovery Operating Concept and Capabilities Based Assessment Results* (Ft. Belvoir, VA: Joint Personnel Recovery Agency) 19 July 2010, 8.

⁵ Chairman, U.S. Joint Chiefs of Staff, *Personnel Recovery*, Joint Publication (JP) 3-50 (Washington, DC: CJCS, 5 January 2007), ix, <http://www.dtic.mil> (accessed 17 March, 2011).

⁶ Ibid., 70.

⁷ Ibid., xii.

Unfortunately, dedicated theater PR assets are often limited, and are unable to meet the high demand. For example: a USAF PR force consisting of HH-60G helicopters, HC-130P/N refueling aircraft, and Pararescue (PJ) personnel may have the range to respond to an isolating event anywhere within a given AOR. However, the fastest response (assuming the HH-60G enroute speed) of the PR force to an isolating incident is approximately one hour for every 100-120 nautical miles (NM) from the force's point of departure. If a unit becomes isolated 200 NM from the nearest available PR force, it is likely that recovery will take in excess of two hours, not including delays in command and control (C2). This limitation may lead component and subordinate commanders to accept risk unnecessarily for personnel that could become isolated far from dedicated PR response forces.

PROBLEMS WITH CURRENT DOD PR

There are several limitations to the current DOD PR concept of operations. These limitations include: parochial focus on traditionally "at risk" personnel, lack of "jointness" in practice of PR, and a PR C2 concept optimized for major combat operations rather than the entire spectrum of conflict. These limitations present challenges that may expose large numbers of personnel vulnerable to isolation in future operations.

PR doctrine traditionally emphasizes the preparation and recovery of special operations forces (SOF) and aircrew, since they historically comprise the largest "at risk" population to isolating events. The following example from Marine Corps Order 3460.2, *Policy for Personnel Recovery and Repatriation*, identifies personnel operating forward of the battle area as those who receive the highest consideration for PR training and planning:

This includes, but is not limited to, naval aviators; naval flight officers; enlisted aircrews; force reconnaissance and reconnaissance battalion personnel assigned to reconnaissance teams; radio battalion personnel assigned to radio reconnaissance platoons; scout snipers; personnel assigned

to firepower control teams; personnel assigned to counter-intelligence/human exploitation teams and personnel assigned to Surveillance Sensor Operator platoons.⁸

This excerpt highlights two significant issues. First, the concept of a *forward area* is less relevant in the advent of non-linear battlespace operations, and may not apply in most contemporary conflicts. Second, this excerpt identifies a very small group of operators, omitting scores of additional personnel that may find themselves in isolating scenarios. The aforementioned case of the 507th Maintenance Company in Iraq provides a clear example of a group not traditionally regarded as “at risk,” that quickly became isolated in Iraq.

DOD PR mechanisms “ensure a complete and coordinated effort to recover US military, DOD civilians and DOD contractor personnel, and other personnel directed by the President of the United States or Secretary of Defense.”⁹ This promotes the idea that all service components must be prepared to conduct PR of personnel from any other service or agency. This concept represents a shift from legacy documents, which dictated that each service was responsible for their own PR.¹⁰ This suggests that modern PR is conceptually “joint”, however in practice, it remains a component-centric operation.

Since the joint force air component commander (JFACC) or commander, Air Force forces (COMAFFOR) often possesses the only (or most robust) dedicated PR assets (the USAF is the only service that organizes, trains, and equips solely for PR), they are usually designated as the supported commander for PR by the JFC. This traditionally places the

⁸ U.S. Marine Corps, *Policy for Personnel Recovery and Repatriation*, Marine Corps Order (MCO) 3460.2, (Washington D.C.: Headquarters U.S. Marine Corps, 2 Dec 2002), 12, <http://www.marines.mil/> (accessed 30 March 2011).

⁹ U.S. Air Force, *Personnel Recovery*, Air Force Doctrine Document (AFDD) 2-1.6, (Maxwell AFB, AL: Headquarters, U.S. Air Force Doctrine Center, 1 June 2005), 5, <http://www.dtic.mil/> (accessed 12 August 2010).

¹⁰ *Ibid.*, 6.

JPRC at the joint air operations center (JAOC), especially since PR operations often require the coordination of air assets.¹¹ Component personnel recovery coordination cells (PRCCs) will coordinate with the JPRC to report an isolating incident, request support, report a PR operation (PRO) in progress, or receive a tasking. This layer of close coordination between the JPRC and the PRCCs is essential to ensure adequate support, efficient use of PR resources, and provide deconfliction.¹²

However, the current system does not offer the collaborative benefits of a more network-based approach. The current PR C2 concept, illustrated in Figure 1, represents an insular, hierarchal mechanism that does not provide the greatest level of coordination across the joint force. Furthermore, the current PR C2 concept lacks the flat, omni-directional nature of future networked C2 consistent with the DOD C2 vision.¹³

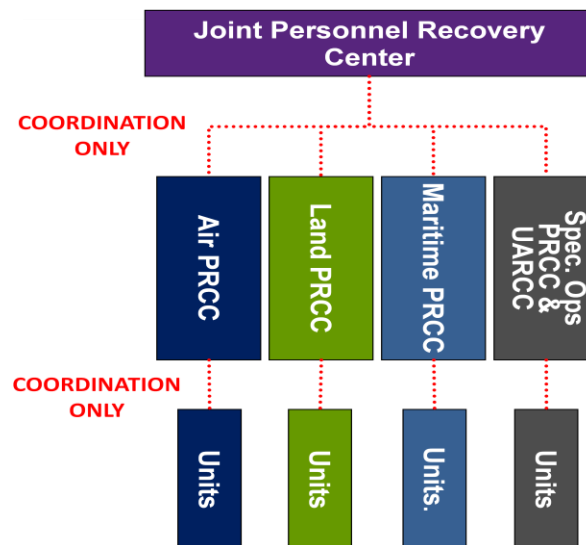


Figure 1: Current PR C2 Concept¹⁴

¹¹ Chairman, U.S. Joint Chiefs of Staff, *Personnel Recovery*, Joint Publication (JP) 3-50 (Washington, DC: CJCS, 5 January 2007), 42, <http://www.dtic.mil> (accessed 17 March, 2011).

¹² Ibid.

¹³ Marc DiPaolo, *Joint Personnel Recovery Operating Concept and Capabilities Based Assessment Results* (Ft. Belvoir, VA: Joint Personnel Recovery Agency) 19 July 2010, 4.

¹⁴ Ibid., 7.

A recent recovery operation in Afghanistan illustrates the limited joint integration of PR under the current construct. In 2002, coalition forces launched Operation Anaconda in the Shah-i-Kot valley region of Afghanistan to destroy remaining Taliban forces. Prior to the operation, the JPRC received notification, but the nearest dedicated PR force (a USAF rescue unit) was not included in planning with the land and special operations components. When threat level and environmental conditions exceeded the capability of organic forces, a U.S. Army unit requested assistance for the medical evacuation of an injured soldier. When the JPRC was notified, the same joint limitations experienced during planning materialized into confusion, delays, and several failed attempts to facilitate the recovery.¹⁵

Additionally, the traditional PR construct is optimized for major combat operations (MCO), where potential isolating incidents, isolated personnel, and the units tasked to perform PR are more conventional. Under this construct, PR operations in OIF were largely successful.¹⁶ However, operations such as irregular warfare (IW) and counterinsurgency (COIN) present PR challenges beyond those of MCO. This is due to operations requiring large numbers of personnel interspersed with the local population coupled with an adversary that will employ asymmetric strategies to undermine U.S. legitimacy. While the 507th Maintenance Company scenario occurred during MCO, it demonstrates the vulnerability of small ground forces in urban areas against irregular forces, for which the current PR system is not well suited.

The *Joint Operating Environment*, produced by Joint Forces Command, offers the following passage with regard to conflict in the twenty-first century, namely IW:

¹⁵ Ibid., 33.

¹⁶ Darrel D. Whitcomb, "Rescue Operations in the Second Gulf War," *Air and Space Power Journal*, 5 March 2005, 95-102, <http://www.airpower.au.af.mil> (accessed 30 March 2011).

When U.S. interests are threatened and the host nation is incapable of maintaining security, a substantial commitment of “boots on the ground” for sustained periods of time will be required. There are no “rapid decisive operations” in irregular warfare that can achieve swift victory... Joint forces will very likely find themselves involved in combat and relief operations in cities. Such areas will provide adversaries with environments that allow them to hide, mass, and disperse, while using the cover of innocent civilians to mask their operations. Any urban military operation will require a large number of troops...¹⁷

This excerpt solidifies that future operations will require continuous, prolonged contact with the adversary absent of the traditional battlefield setting. Furthermore, the nature of urban operations forces offensive ground operations to a highly decentralized, small-unit level.¹⁸ The use of small groups of interspersed troops providing security for indigenous people places personnel at increased risk of becoming isolated, particularly in dynamic, urban areas.

Additionally, the enemy of the future has been characterized as a “hybrid” threat, utilizing tactics that seek to undermine U.S. resolve and legitimacy. The future threat is likely to fight using a combination of conventional and irregular means to unhinge U.S. operations through perceived economic and diplomatic means.¹⁹ Therefore, the future adversary will very likely use the appropriate tactics to isolate, capture, and exploit U.S. personnel in an attempt to gain an asymmetric advantage.

Beyond MCO, future IW and COIN operations will demand a high number of personnel on the ground exposed to the risk of isolation. This environment will be dynamic, complex, and fast-paced, demanding a PR system than can respond efficiently and effectively.

¹⁷ Joint Forces Command, *Joint Operating Environment: Towards 2035*, (Suffolk, VA: Headquarters, Joint Forces Command), 2010, 68-70.

¹⁸ Chairman, U.S. Joint Chiefs of Staff, *Doctrine for Joint Urban Operations*, Joint Publication (JP) 3-06 (Washington, DC: CJCS, 16 September 2002), I-8, <http://www.dtic.mil> (accessed 30 March, 2011).

¹⁹ Joint Forces Command, *Joint Operating Environment: Towards 2035*, (Suffolk, VA: Headquarters, Joint Forces Command), 2010, 68.

THE PR NETWORK SOLUTION

In order to meet the challenge of PR in twenty-first century warfare, a new approach must be implemented. The concept of a “PR network” integrated at the C2 level will provide effective joint-level PR planning and response by aligning resources that can “see” an isolating event unfold, and coordinate resources that can “act” in response. In the context of C2, “see” refers to the ability to “monitor” and “understand,” while the term “act” refers to the ability to “plan,” “decide,” and “direct.”²⁰ This “see/act” concept is the fundamental premise behind a capable, network-based approach to joint PR, illustrated in Figure 2:

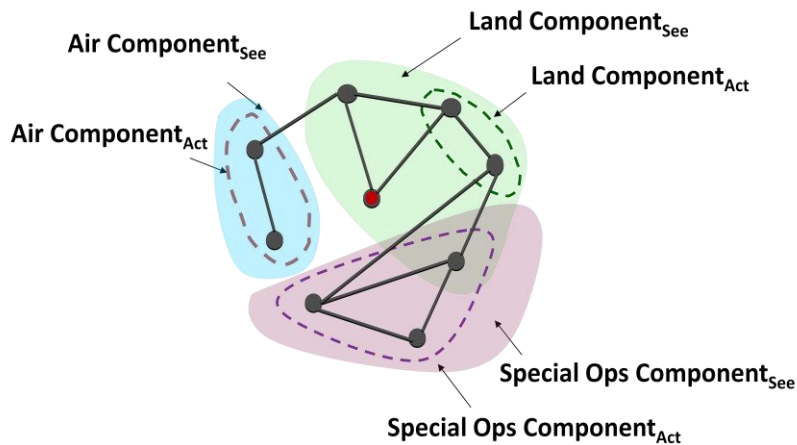


Figure 2: PR Network Concept²¹

The PR network allows an entity (in this case, a functional component) to incorporate their ability to see or act in the context of a joint operation. In Figure 2, the “nodes” of the network represent potential (or actual) isolating events. In planning for PR, each component will perform a detailed analysis of their ability to see an isolating event occur, and their

²⁰ Marc DiPaolo, *Joint Personnel Recovery Operating Concept and Capabilities Based Assessment Results* (Ft. Belvoir, VA: Joint Personnel Recovery Agency) 19 July 2010, 8-9.

²¹ Ibid, 33.

corresponding ability to act upon it. If there are any gaps in either a component's "see" or "act" capability, then they must coordinate with the joint force to close them.

In Figure 2, all the nodes reside within the shaded areas – therefore, there is dedicated (or in some cases, redundant) capability to see an isolating event. However, the hashed lines do not surround all nodes, requiring coordination at the joint level to move or reassign PR assets from another component to ensure coverage during particular operations.

In execution (response), the PR network acts much like a social network. The concept of the collaborative, networked approach to PR execution is illustrated in Figure 3.

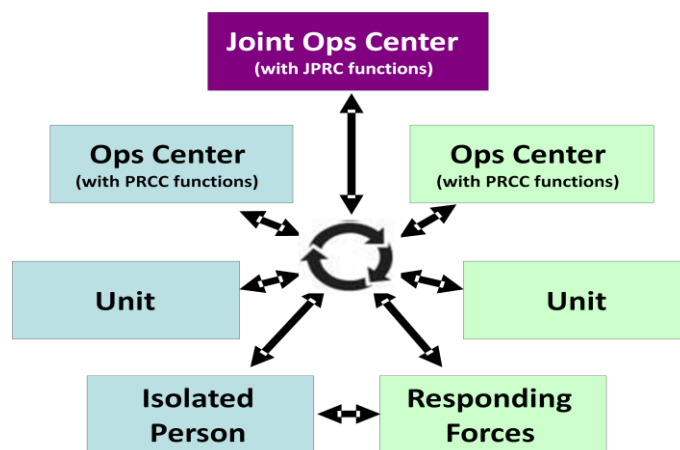


Figure 3: PR Response Network Concept²²

In this concept, the JPRC behaves more like a network host, collaborating with other elements rather than "pulling" and "pushing" information and tasks along insular channels. In an optimized, ideally networked scenario, the awareness of one entity becomes the awareness of all participants. In the event of a PR incident, this flat, collaborative approach enables greater awareness, faster decisions, and more effective response from the isolated personnel (IP) to PR responders.

²² Marc DiPaolo, *Joint Personnel Recovery Operating Concept and Capabilities Based Assessment Results* (Ft. Belvoir, VA: Joint Personnel Recovery Agency) 19 July 2010, 19.

IMPLEMENTATION OF THE PR NETWORK

At the CCDR level, the PR network will require a tremendous amount of joint force integration, from potential IPs to PR responders. The essential requirements for the successful integration of the PR network include: commander's intent for PR planning, and response; joint-level collaboration of joint PR capability, and communications technology incorporating a usable architecture to support this concept.

CCDR's intent must convey that PR is an integral part of operational planning, not merely a risk mitigation measure. As part of this philosophy, CCDRs should establish a realistic goal of what constitutes "adequate" PR response, thus not relying solely upon dedicated PR forces possibly positioned hours away. For example, a CCDR might require that any unit smaller than platoon sized (20-30 personnel) operating in unsecure areas must have PR response within one hour during operations. To that end, subordinate units must access the PR network during the planning and execution phases of operations to ensure that isolating events can be "seen" and "acted upon" at the outset.

Additionally, CCDR's intent should also reflect that all combat units must be prepared to conduct PR at the most basic levels. This maintains that response time to an isolating incident remains a significant factor in the success of PR recovery tasks. For instance, Army Regulation 525-28, *Personnel Recovery*, states: "Commanders shall ensure that Soldiers and Army civilians under their command are trained in all aspects of PR to include both actions as IP and as a recovery force or staff."²³ During OIF, General Moseley, the designated JFACC and CCDR's Personnel Recovery Coordinator, (PRC), conveyed the importance of timely response to PR events in his intent:

²³ U.S. Army, *Personnel Recovery*, Army Regulation (AR) 525-28, (Washington D.C.: Headquarters U.S. Army, 5 March 2010), 10, <http://www.adpd.army.mil> (accessed 30 March 2011).

I am the PRC and am therefore responsible to [the CCDR] for ensuring the recovery of [isolated personnel]...by the quickest, most capable PR force able to respond to the individual event, regardless of the component of “ownership.” The [JPRC] will task the most appropriate [unit] to conduct the recovery taking into account the individual capabilities and the requirements of the specific mission with time being the most critical factor.²⁴

The JFACC’s intent (here, interpreted as CCDR’s intent) clearly expresses time of response as the singularly most critical factor for facilitating PR. This supports the notion that PR capability must be maintained across the force, where able. Moreover, this idea supports the need for dedicated PR forces capable of the most complex PR missions as well as opportune PR forces comprised of combat units prepared at the most basic level. To meet the CCDR’s intent of timely response, all forces, dedicated and opportune, must have access to the PR network.

Most importantly, commander’s intent must convey to subordinates how a network-centric C2 system should operate. The *DOD C2 Implementation Plan* states the following:

Consequently, commanders must be skillful at crafting their commander’s intent, enabling junior leaders to exercise initiative and take advantage of fleeting opportunities in the heat of battle, vice centralizing decision-making at high levels...A net-enabled force maintains the flexibility to exploit advantages of network operations and employment of advanced technology without hindering the initiative of skilled and ready forces. In an operational context, this translates to a subordinate’s ability to act without specific instructions per commander’s intent.²⁵

In the context of PR at the CCDR level, the JPRC must be empowered (as it does under the current construct) with overall authority to task joint forces in support of PR, however the collaborative nature of the PR network will allow for faster decisions. In planning, subordinate units can submit requirements and forward solutions in real time during the planning cycle.

²⁴ Darrel D. Whitcomb, “Rescue Operations in the Second Gulf War,” *Air and Space Power Journal*, 5 March 2005, 95-102, <http://www.airpower.au.af.mil> (accessed 30 March 2011).

²⁵ Ibid.

During execution, PR forces can respond to isolating incidents at lower levels while the network provides visibility at the highest (joint) levels. For instance, PR forces from separate components can initiate recovery procedures on the same isolating incident without delay, with the role of the JPRC to “stand down” the force(s) that it does not want to facilitate the recovery. With universal visibility enabled by the PR network, a PR force commander does not have to await mission tasking. Alternatively, the commander can use the information available to make a decision to execute, allowing the JPRC to stop the process if it deems another unit is best suited for the mission.

Joint-level collaboration is another essential element of PR network implementation. When subordinate units realize during planning that they cannot facilitate their own PR (“see” and/or “act”) during phases of the operation (due to threat level, weather, range, complexity, limited forces, etc.), then they will collaborate with their component PRCC via the PR network *at the joint level*. If the component PRCC cannot assign resources to provide adequate PR response, then they will coordinate with the other PRCCs at the joint level of the network and have assets assigned by the JPRC. Figures 4 and 5 illustrate networked PR planning using the 507th Maintenance Company scenario as an example:

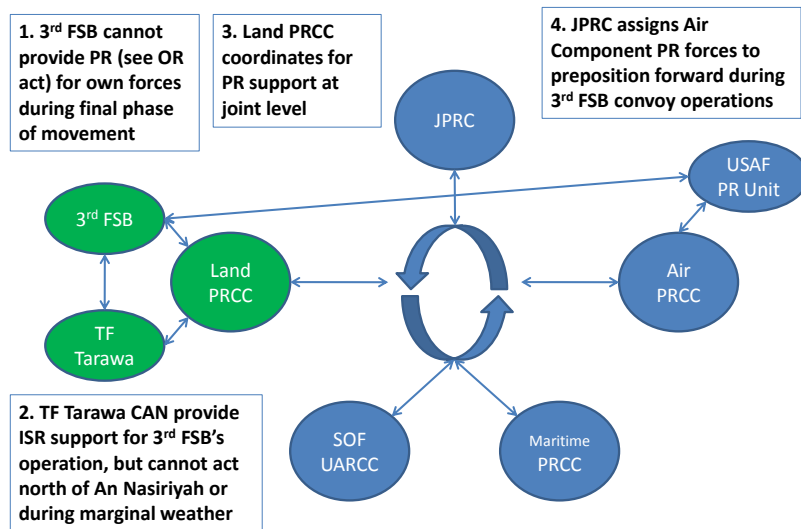


Figure 4: Network-Based Joint PR Planning Example²⁶

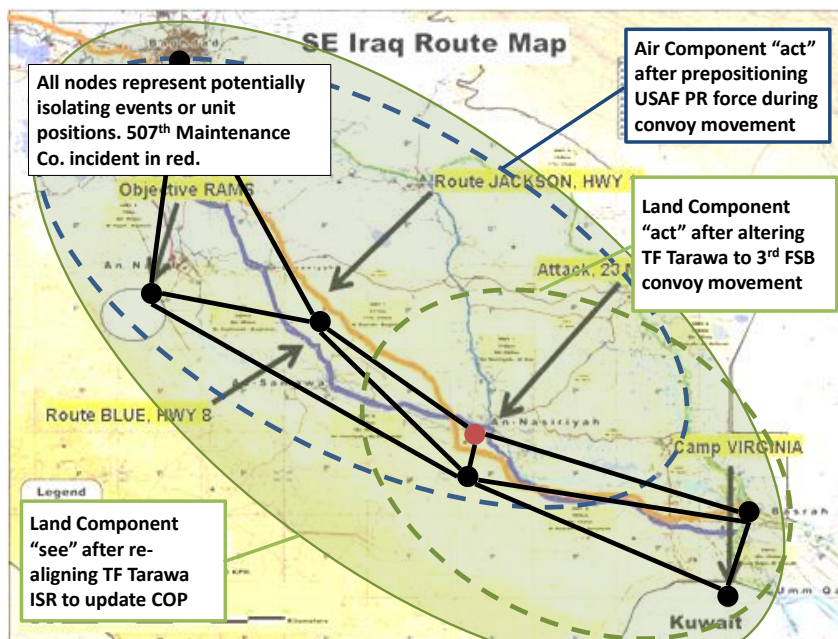


Figure 5: Network-Based Joint PR Planning – Graphic Depiction²⁷

²⁶ Graphic produced by the author.

²⁷ Graphic produced by the author, derived from Figure 1 of *Attack on the 507th Maintenance Company*, 4, <http://www.army.mil/> (accessed 4 April 2011).

In the above scenario, the 3rd Forward Support Battalion cannot provide PR for their convoy, therefore submitting a shortfall to the PR network during planning. The land component PRCC and its subordinate units collaborate to find a solution. In this case, task force (TF) Tarawa, a U.S. Marine Corps unit, can provide intelligence, surveillance, and reconnaissance (ISR) to update the PR network common operational picture. Additionally, TF Tarawa can provide PR response in the southern portion of the route during favorable weather. The remaining shortfall (north portion of the route and marginal weather) is provided by the air component, which collaborates via the network from the air component PRCC and subordinate PR units. The JPRC, with the authority to re-task dedicated PR assets, assesses the risk of pre-positioning air component PR forces and makes the final decision. Graphically depicted in Figure 5, the planning-phase collaboration ensures that all network nodes are adequately covered by assets that can “see” and “act” in the event of an isolating incident.

This network-based approach to PR planning incorporates the “see” and “act” functions throughout the operation. This approach transcends the norm of hierarchal coordination enabling in-stride joint collaboration. Units accessing the network can forward PR requirement shortfalls to their respective component PRCCs, while other PRCCs and their subordinate units can offer solutions in real time, rather than wait for traditional “stove-piped” coordination. The final decision as to which asset will provide the “see” and/or “act” functions remains with the JPRC, consistent with CCDR intent.

In order to support the key tenet of joint collaboration, the network must be enabled by technology that can support such operations. The network must provide an accessible, robust architecture incorporating a common operational picture (COP) to build awareness

and establish connectivity between IPs and recovery forces. According to the *DOD C2*

Implementation Plan:

Transformation of DOD C2 capabilities to an integrated, interdependent, leader-centric and net-enabled capability portfolio is a goal of the Department. That transformation requires the establishment of a rich information-sharing environment with trusted information and functionality provided through assured services. Achieving this net-enabled vision will require a migration from the current system-based implementation construct towards a shared services-based environment. Data and services must be visible and accessible to eliminate information stovepipes and to enable operational agility.²⁸

This vision of the DOD maintains that technology enables the ability of leader-centric C2. A robust, network-enabled C2 structure brings visibility to the information, tasks, and actions incorporated with PR planning and execution. It does not suggest that it is a substitute for decision-making, or that decisions are more centralized. Technology enables faster decisions by bringing the right information to the decision makers at the appropriate levels. The DOD C2 Implementation Plan captures this sentiment:

C2 is first and foremost a human endeavor. DOD C2 must be leader-centric and net-enabled to facilitate initiative and decision-making at the lowest level possible. While materiel solutions, processes, and engineering can enable decision-making, command and control is not synonymous with network operations or employment of advanced technology. Rather, it maintains the flexibility to exploit both.²⁹

The essence of the PR network, as with all network-based applications, is to enhance situational awareness to enable fast decisions. While technology is not a panacea, the network leverages technology to optimize the efficiency and effectiveness of PR tasks during planning and execution.

²⁸ Assistant Secretary of Defense for Networks and Information Integration, *Department of Defense Command and Control Implementation Plan*, (Washington D.C.: Office of Assistant Secretary of Defense for Networks and Information Integration, 1 October 2009), 6, <http://www.cio-nii.defense.gov>, (accessed 12 April 2011).

²⁹ Ibid., 15.

NETWORKED RESPONSE: THE 507TH MAINTENANCE COMPANY EXAMPLE

The 507th Maintenance Company scenario in OIF can be used to illustrate the potential effectiveness of the PR network during response. Prior to the mission, convoy vehicles would be equipped with Blue-Force Tracking (BFT) and over-the-horizon communications. Isolated personnel report (ISOPREP) information on all personnel and convoy routing would be on file with the land component PRCC, who could forward the information electronically to all players on the PR network. In the subordinate unit tactical operations center (TOC), convoy movement would be monitored and periodic position reports updated with higher headquarters.

Whether by human error or Global Positioning System (GPS) failure, the 507th convoy makes a wrong turn near An Nasiriyah, which is an unsecured urban area. Once off-route, the TOC queries the convoy to correct back to established routing in order to prevent the element from becoming isolated. The convoy does not respond due to equipment failure and continues across the Euphrates River into enemy territory.

At this point, the 507th convoy element is isolated, since they are out of contact from their TOC, separated from the main body of support, and unaware that they are close to peril. The TOC immediately posts an isolating event report on the PR network, which the land component PRCC acknowledges. Subsequently the land PRCC forwards call signs, BFT identifiers, ISOPREPs, and frequencies in a standard digital format to all players on the PR network. The nearest USAF PR force of HH-60G helicopters and PJs initiates launch procedures and notifies the air component PRCC that they are two hours away from the 507th convoy. At the same time, the TF TARAWA TOC, tracking the event on the PR network, notifies the land component PRCC that the 8th Marine Tank Battalion is 10 kilometers (KM)

south of the lost convoy's position and is deploying a reconnaissance platoon to assist in recovery.

The PR network has made the incident visible to all stakeholders via the COP, to include dedicated PR forces (the USAF PR force) and opportune PR forces (the 8th Marine Tank Battalion). Both units have enough information to execute based on their capability and commander's intent. Finally, the JPRC makes the highest-level decision to stand down the USAF team, since USMC unit is able to respond much faster.

The marines arrive at the scene just as the soldiers are receiving sporadic fire from Iraqi forces. The marines provide perimeter security, fire support, and recover soldiers from disabled vehicles. Due to the fast response enabled by the PR network, all members of the convoy element are recovered, repatriated, and returned to combat duty.

CHALLENGES

There are two significant challenges to the adoption of this network-based approach to PR. The first is overreliance of the network upon technology and the second is the lack of economy of force induced by multiple units responding to the same incident without tasking. Both of these challenges represent arguments for maintaining the current hierarchal PR construct in order to prevent a loss in operational capability.

The PR network relies upon a significant investment in technology. The joint force will require information systems that are compatible with the PR network, its architecture, and the COP. To achieve the level of connectivity and collaborative capability, information systems in TOCs, on aircraft, on vehicles, and in the hands of individuals will have to be acquired and modified to become compatible with the PR network architecture. Additionally, the multiple nodes between units and sizeable bandwidth requirements create vulnerabilities

in the system. If the connectivity between units is severed, or if the network is overwhelmed by the flood of data or a cyber attack, then there will be gaps in information used to make decisions.

These gaps may lead to the second challenge, which is the issue of multiple units initiating recovery missions without tasking. If the component PRCC or JPRC cannot “stand down” multiple PR units executing on the same isolating incident, then there is a possibility of PR forces not being available for other missions. In the previous example, the JPRC and Air Component PRCC were able to “stand down” the USAF PR force, thus maintaining their ready status for a subsequent mission that may require their capabilities. If the JPRC is unable to stop a unit from executing PR response on a mission that does not require their support, then other units may be held at risk.

REBUTTAL

Technology may seem to represent vulnerability, but the network is a concept that can survive in a degraded mode, if planning is adequate and monitoring is consistent. Furthermore, network technology is not a replacement for C2 – it is merely an enhancement of its capacity. The *DOD C2 Implementation Plan* offers the following argument:

To compensate for increased risks, DOD must ensure our C2 systems, and their associated networks, are resistant to attack and are robust enough to reconstitute quickly if a successful attack takes place. Throughout these challenges, our leaders must still be able to execute missions using decentralized decision-making consistent with their commander’s intent in degraded information environments, so leaders and their subordinate forces are not paralyzed when network degradation occurs.³⁰

³⁰ Assistant Secretary of Defense for Networks and Information Integration, *Department of Defense Command and Control Implementation Plan*, (Washington D.C.: Office of Assistant Secretary of Defense for Networks and Information Integration, 1 October 2009), 6, <http://www.cio-nii.defense.gov>, (accessed 12 April 2011).

The joint force should not avoid leveraging technology simply because it contains vulnerabilities. Instead, forces should maintain the capability to operate during degraded network operations through training and established procedures.

This principle also applies to the potential danger of multiple units executing absent a tasking. Commander's intent must clearly convey the criteria for PR execution, to include acceptable levels of risk for potential responders. Any commander that makes a decision to respond to a PR incident does so with an assessment of risk – not only to their own forces, but also to others that may need their capabilities within the same span of time. Commanders retain the authority to execute within higher commander's intent, yielding to the JPRC's ultimate decision when issued.

CONCLUSION

Recent operations demonstrate that while DOD PR has evolved, the future environment will demand higher levels of joint integration and real-time collaboration to meet the increased threat of isolation to the force. The PR network offers a more efficient and effective approach to planning and execution of joint PR over the current insular, hierarchal system.

A network-based approach to PR planning reduces risk by ensuring that commanders will have adequate assets to “see” and “act” upon the myriad of potentially isolating events that can occur in the dynamic future operational environment. The collaborative nature of network-based planning allows unit and component commanders to highlight vulnerabilities and offer solutions within the planning cycle. Furthermore, joint-level collaboration makes

available joint capabilities when individual components cannot provide adequate PR support for their operations.

The PR network will also enhance the timeliness and effectiveness of PR execution. With network-enabled information sharing and a useable COP, dedicated and opportune PR forces can make decisions and assess risk much faster; eliminating traditional C2 delays. This ensures that the appropriate force responds to an incident in the minimum time possible.

The PR network is not a replacement for decentralized decision-making. While the DOD C2 vision is a leader-enabled concept, commander's intent must convey the importance of sound decisions in the absence of accurate information or network degradation. An optimized network capability must not be the sole factor in successful mission accomplishment; rather it should provide the necessary information-sharing and collaborative decision making to bring our people back.

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