Theater Aviation Sustainment and Maintenance Group Soldiers offload an AH–64 Apache helicopter from a C–5 Galaxy aircraft during a night mission at an aerial port of debarkation. (Photo by Staff Sgt. Donald Craze)

Sustainment in an Anti-Access/ Area-Denial Environment

The sustainment enterprise needs to significantly change both its structures and how it operates to effectively support the joint force in an anti-access/area-denial environment.

■ By Samuel R. Bethel

The lights go down as the briefing to the combatant commander begins. "Sir, at 0330 hours local time, hostilities commenced. Following its pre-war doctrine, our adversary initiated a series of anti-access/area-denial attacks to disrupt coalition forces' deployment. Focusing almost exclusively on our logistics and force projection enterprises, the enemy has achieved decisive results.

At 0432 hours, a diesel submarine us-ing advanced antishipping missiles sank two unescorted large medium-speed roll-on/roll-off ships transporting enough equipment for a heavy brigade combat team. At 0515, the primary theater fuel storage area was attacked by intermediate-range ballistic missiles, destroying most of the fuel needed by the Air Force to perform counter-air operations.

At 0639 hours, a third ship struck what is believed to be an intelligent mine while moving into our primary seaport of debarkation. The Navy believes it will take two weeks to clear the channel of any similar threats. Simultaneously, enemy special forces have emerged from the countryside and attacked numerous convoys.

Currently, our logistics networks are under heavy cyberattack, and at this time, we have no connectivity with the national supply system. The list goes on,

but in summary, our ability to reinforce and support current forces has been all but eliminated. This will preclude any major combat operations until the situation is rectified."

This scenario is not the script of some Hollywood movie. Potential adversaries are investing billions of dollars into making that situation a reality. These measures, known collectively as anti-access (A2)/area-denial (AD), will require the sustainment enterprise to significantly change both how it structures its force and how it operates.

The Joint Operational Access Concept defines A2 as "those actions and capabilities, usually long-range, designed to prevent an opposing force from entering an operational area." The concept defines AD as "those actions and capabilities, usually of shorter range, designed not to keep an opposing force out, but to limit its freedom of action within the operational area."

A2 includes a range of military capabilities that affect the sustainment enterprise's ability to deploy the force. These capabilities include submarines and surface combatants equipped with advanced antishipping missiles, smart mines designed to lie dormant for months, advanced anti-aircraft systems, theater ballistic and cruise missiles that can threaten both aerial ports of debarkation (APODs) and seaports of debarkation (SPODs), and cyberattacks against sustainment networks.

AD often exploits the same capabilities as A2, but it focuses primarily on the ability of the sustainment enterprise to support the force. These threats run the gamut of military operations and include cruise and tactical ballistic missile attacks against supply and transportation nodes, hybrid threats (special operations forces and insurgents) that organize attacks against convoys and rear-area activities, and man-portable air-defense systems to interdict and cause attrition to the air lines of communication (LOCs).

The A2/AD Threat

The threat is real. Former Secretary of Defense Robert M. Gates noted in a May 2010 speech to the Navy League, "Potential adversaries are investing in weapons designed to neutralize U.S. advantages—to deny our military freedom of action while potentially threatening America's primary means of projecting power: our bases, sea and air assets, and the networks that support them."

China, Russia, Iran, and North Korea are all investing heavily in A2/AD strategies and capabilities. The use of A2/AD is not restricted to advanced nation states. Even the Lebanese terrorist group Hezbollah has possession of advanced guided missile systems, including SS–N–26 Yakhont anti-ship missiles. Although they are not necessarily aimed at the United States, this advanced A2/AD threat being in the hands of a nonstate actor indicates the widespread nature and relative low cost of implementing an A2/AD strategy.

The Army's experience in both Iraq and Afghanistan demonstrates the vulnerability of supply convoys and troop movements to relatively poorly trained insurgents. This threat will be compounded if executed by highly trained special operations forces.

As a result of A2/AD, the sustainment enterprise will face a heavy threat of cyberattacks. Even poor and technologically unsophisticated nations now possess significant cyberattack capabilities.

The joint force and its supporting sustainment enterprise is hardly powerless in the face of the A2/AD threat. Coping with this new environment will require the joint force to implement five broad strategies: suppression, active defense, dislocation, dispersion, and redundancy. Each of these strategies will profoundly affect how the sustainment enterprise operates and how it is structured.

Suppression

The preferred strategy for defeating the A2/AD threat is the active destruction or suppression of the en-

emy's capability. Destroying the enemy's A2/AD assets requires a large, early deployment of Army, Navy, Air Force, and Marine Corps elements to establish air, maritime, and cyber superiority using a combination of fire and maneuver. These deployments in turn will have to be supported by the sustainment community.

The Army sustainment enterprise, with its requirement to provide support to the other services, particularly the Air Force and Marine Corps, in such diverse specialties as fuel, port operations, and common-user land transportation, remains an integral part of the sustainment effort even if no Army tactical formations are committed.

The requirement to support the counter-A2/AD effort calls for the early deployment of echelons-above-brigade (EAB) sustainment units. Since most of these units now reside in the Reserve component, the Army must carefully examine the total force to determine the proper balance required to support the early stages of the A2/AD fight.

At the same time, all of the services will have to reexamine the materiel requirements needed during this phase of the battle. As an example, the need for such items as the MGM–140 Army tactical missile system will be much higher in an A2/AD fight than in Iraq and Afghanistan.

Suppression is far from assured. During Operation Desert Storm, despite U.S. air supremacy and the allocation of hundreds of air sorties, Iraq was able to employ Scud tactical ballistic missiles throughout the ground war. In a similar fashion, the United States was never able to fully suppress actions against its LOCs in either Iraq or Afghanistan.

To cope with this reality, the joint force must adopt a combined strategy of active defense, dislocation, dispersion, and redundancy, which, like suppression, will have a decided impact on sustainment.

Active Defense

Active defense, as used in this article, is the kinetic measures used to

defend the force from A2/AD threats. These measures include integrated air defense to defeat the theater missile threat, naval convoy systems to protect ships from submarine and surface combatants, naval countermine warfare to allow freedom of access to critical ports, and enhanced convoy protection to defeat insurgents and special operations forces.

Each of these measures will significantly affect the sustainment effort. Defense of the theater from ballistic and cruise missiles requires the early deployment of air defense artillery (ADA) and the units required to sustain them, which increases the requirement for ready EAB sustainment units. More significant, however, is how ADA asset availability limits the overall concept of support.

In an A2/AD scenario, instead of being limited to the physical capacity of the infrastructure, LOCs will be limited to places that can be de-fended. Such limitations narrow the options available to the joint force, restricting the flexibility and speed with which it can be deployed and supported. The requirement for naval convoy operations will delay the arrival of materiel as ships are marshaled into protective convoys, thus increasing the requirement for safety stocks to account for the delays caused by convoy operations.

Keeping a higher level of safety stocks on hand will require additional supply units to warehouse the resulting increase. This will increase the requirement for EAB supply units much earlier in the fight, which will add to the need to reevaluate both the total force and its Active-Reserve mix.

Countermine operations will generally slow down the discharge of cargo and, in turn, require increased safety stocks and more supply units to support them. In the worst case, if countermine operations fail, SPODs may have to be temporarily aban-doned, driving the joint force to execute a joint logistics over-the-shore operation.

Never the preferred option for the discharge of cargo, joint logistics over-the-shore will further slow the flow of resupply. It will increase the requirement for safety stocks and significantly delay deployment as specialized boats and port support units are deployed to the theater.

The danger to convoys from the threat of insurgents and foreign special operations forces will require the early deployment of dedicated convoy protection assets. Attacks by these hybrid forces may also affect the ability of units in the theater to contract logistics support.

Although contractors have proven effective in Afghanistan and Iraq, they may not be willing to face the danger presented by highly trained special operations forces. They certainly will not be willing to contract their services if protection is not
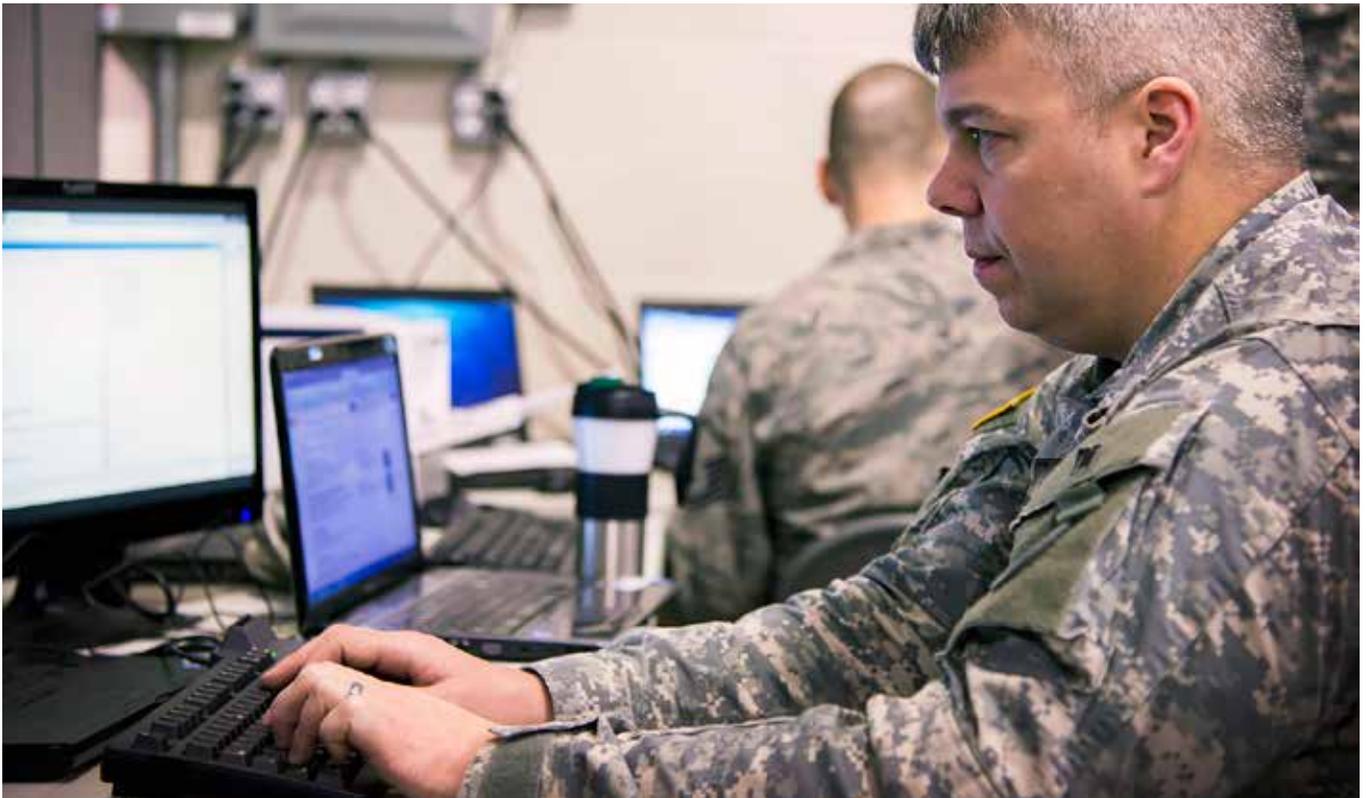
Chief Warrant Officer 2 Christopher Ravis, a member of the Ohio National Guard Computer Network Defense Team, practices cyber defense operations during exercise Cyber Shield 2015 on March 20, 2015, at Camp Atterbury, Indiana. (Photo by Staff Sgt. George Davis)

Sgt. Scott Swain, right, and Sgt. Ricardo Aquino, both supply sergeants for the 2nd Cavalry Regiment's field artillery troop, defend a hilltop as a 16th Sustainment Brigade logistics supply column passes by during exercise Saber Junction 15. (Photo by Capt. Henry Chan)

provided. In either case, the threat to convoys operating on the LOCs will require more units earlier in the flow.

Dislocation

Supplementing the first two approaches is the passive strategy of dislocation. The threat of long-range ADA systems and tactical ballistic missiles will force the dislocation of strategic airfields, bases, and ports to points farther from the zone of conflict.

For example, The S–400 air defense system recently sold to China by Russia will allow China to strike aerial targets anywhere on the island of Taiwan or in North Korea. The system will also be able to reach targets as far away as India, Vietnam, and South Korea.

To cope with such threats, APODs and flight corridors will need to be displaced farther from the zone of conflict, extending the LOCs. The presence of tactical and ballistic missiles will have a similar impact on the sustainment enterprise. The dis-placement of APODs, SPODs, and supplies out of range of these missiles will require larger and earlier deployments of EAB transportation units to support the LOCs.

Dispersion

Another passive strategy to deal with the A2/AD threat is the dispersion of both units and materiel. This affects the sustainment enterprise in two ways. First, combat commanders will seek to minimize risk to the force by distributing combat formations over a larger area. Instead of one air base with multiple squadrons, multiple air bases will have one or two squadrons.

Second, instead of having a large concentration of materiel in one place, as seen in Iraq and Afghanistan, materiel will need to be dispersed into smaller, more numerous groups to avoid catastrophic loss. Loss of economy of scale caused by both of these strategies again requires the earlier deployment of a larger number of EAB sustainment units.

Redundancy

Finally, to cope with the A2/AD threat, the sustainment enterprise must build greater redundancy into its operations. Against a determined, capable A2/AD adversary there will inevitably be losses and delays. Even with our best efforts, interruption of the distribution chain will be inevitable. The sustainment enterprise must increase safety stock quantities at both the unit and wholesale levels to ensure uninterrupted support of combat operations.

For example, brigade combat teams (BCTs) might be required to subsist for days without resupply because of losses of materiel or disruption of the distribution system at the wholesale level. To counter this danger, the amount of materiel carried by the BCT will have to be increased to allow for these periods of isolation.

Increased redundancy requires the deployment of more sustainment units earlier to manage the increase in safety stocks. It also requires an increase in the number of sustain-

ment assets in the combat units to transport and manage the additional materiel needed to cope with the A2/AD environment. This is the exact opposite of the Army 2020 redesign in which internal sustainment capabilities in the BCTs are significantly reduced.

Effects on the Enterprise

The total impact of all A2/AD countermeasures on the sustainment enterprise requires significant changes in our current operations and force structure.

First, the A2/AD environment will call for significantly more EAB sustainment formations earlier to support the A2/AD fight, manage a significant increase in safety stocks, and cope with longer, more dangerous LOCs. These requirements necessitate an increase in the availability and readiness of EAB sustainment units currently found mostly in the Reserve component.

To address these challenges, the Army will have to increase the number of EAB sustainment units available and reexamine the current balance of Active and Reserve forces. Recent changes under Army 2020, such as the establishment of combat sustainment support battalions dedicated to BCT support, have led to an Active structure with few Active logistics units available to provide the increased general support or support to nondivisional units required in an A2/AD environment.

This leaves the joint force dependent on early deploying Reserve units to support the increased requirements. Resourcing, training, and legal challenges inherent in the early mobilization of the Reserve make this an uncertain strategy requiring a careful relook at the type and number of Active sustainment units.

Second, the Army must reconsider the logistics staying power of its combat formation in light of the A2/AD threat. Even with our best efforts, disruption of the distribution chain is a real possibility. To ensure continuity of effort, combat units must be able to subsist for extended periods of time without resupply. This requires significant logistics capability built into each combat unit.

Current force structure changes under Army 2020, such as the removal of significant fuel, water, and transportation capacity, make the BCT more, not less, dependent on the distribution system. The Army should reexamine its combat units' current logistics capabilities to make sure they are able to operate in an environment where the distribution of materiel cannot be guaranteed.

Finally, the Army must refocus its sustainment training and planning activities to account for the A2/AD environment. Counter-A2/AD strategies such as suppression, active defense, dislocation, dispersion, and redundancy are not revolutionary, but they do require a different mindset than the more permissive sustainment environment that we have been accustomed to since World War II.

This is especially true of the assumptions we make about the sustainment enterprise's mission command systems. Effective cyberattacks against our networks will eliminate much of the efficiency in asset visibility and order processing that we have come to depend on. The Army must be prepared to operate over an isolated or fragmented system in which units will have to continue sustainment activities with only limited information.

Even given the security of our network, the sustainment enterprise will have to refocus its training to account for a more distributed environment with much longer, more dangerous LOCs that are subject to interdiction. It will make the distribution of support a constant challenge.

There is no question that A2/AD is real and has the potential to cripple the joint force through asymmetric means. Given that, the joint force and the sustainment enterprise are hardly powerless in the face of the threat. Using a combination of suppression, active defense, dislocation, dispersion, and redundancy, the sustainment enterprise can counteract many of the impacts of A2/AD, but not without significant changes to how the force is structured and how it operates.

These changes will include increases in the total number and readiness of sustainment units, increases in the inherent capabilities of combat units to support themselves without constant resupply, and changes in how we train and plan for operations. Without these changes, the Army may find itself facing the nightmare scenario of being unable to deploy, reinforce, or support itself and the joint force.

> "Finally, to expand its ability to rapidly place U.S. land forces anywhere in the world, the Army must develop tactics and procedures that incorporate the emergent presence of anti-access and area-denial threats."
>
> *—The Army Vision:*
> *Strategic Advantage in a Complex World*

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