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Global 2013

Command and Control in an A2/AD Environment

Overview

The Chief of Naval Operations' (CNO's) annual Title 10 War Game (also known as "Global"), is conducted at the Naval War College (NWC) and has become a primary venue for exploring emerging concepts. This year's effort is a continuation of the NWC War Gaming Department's examination of the Air-Sea Battle (ASB) concept. The 2012 Global War Game concluded that current command and control (C2) structures at the operational level of war may be inadequate to effectively execute cross-domain operations as envisioned by the concept. While the ASB concept outlines the need to command and control 'cross-domain operations' which are joint, networked and integrated, no organizational structure is proposed. The concept only suggests that any suitable structure must be capable of tight, real-time coordination.

At the direction of the CNO and the ASB Office, the 2013 Global War Game explored C2 of combined forces while executing cross-domain operations in a high-intensity Anti-Access/Area Denial (A2/AD) environment. This event followed two workshops conducted earlier this year: a C2 Requirements Workshop held in the spring and an C2 Options Workshop held in the early summer. The results of both events informed the design and development of the capstone event.

The 2013 Global War Game was conducted in September and brought together 72 players, 39 observers, and 19 flag officers and general officers from the joint and international community to examine and refine candidate C2 systems (consisting of both organizational structure and functional process). Three candidate C2 systems were examined, consisting of a traditional model using functional component commanders, and two novel approaches developed during the C2 Options Workshop: one based on a "Domain Commander" and another based on a "Cross-Domain Commander."

In order to address the mutually agreed upon objectives established by the ASB Office and the Naval War College, the following central research questions guided the design and development of the game: Which of the three candidate C2 systems is best suited to command and control combined forces engaged in cross-domain operations in a high-intensity A2/AD environment, and why?

Game Design & Mechanics

This one-sided, seminar style, scenario-based game divided players into one of three combined operational planning teams formed to support the geographic combatant commander of a fictional region. Within this region, tensions between the antagonistic Red and their regional neighbors continued to escalate over a series of four notional vignettes. These vignettes were used to help critically examine and drive improvements to the candidate C2 systems. Each planning team was assigned one of the three candidate C2 structures at the beginning of the event: Player review of these structures was guided by a common set of criteria derived from the *Joint Operational Access Concept (JOAC)* and Milan Vego's *Joint Operational Warfare Theory and Practice.* These criteria were later refined through the C2 Requirements Workshop and a Flag and General Officer Survey. The resulting criteria consisted of the following:

- Unity of Effort
- Flexibility
- Simplicity
- Resiliency
- Operational Integration
- Cross-Domain Synergy

In addition to identifying command relationships and authorities, each planning team examined how their respective C2 systems facilitated four key processes of interest:

- Deliberate and dynamic targeting
- Intelligence tasking, collection, processing, exploitation, analysis, production, dissemination and integration
- Integrated air and missile defense
- Sustainment

Using the six criteria, players identified strengths and weaknesses of their C2 system. Based on the criteria-driven weaknesses identified, players then made initial changes to the structure (command nodes and authority links) and processes (roles and responsibilities) in order to mitigate weaknesses. Players then addressed a series of specific questions which highlighted particular challenges associated with each of the vignettes and incorporated additional changes, as needed. All participant-generated changes to the C2 system - along with the associated strengths and weaknesses - were captured in the game tool developed specifically for this event. At the end of each vignette, players completed individual surveys to assess the performance of their C2 system using the six criteria.

Following the fourth vignette, players prepared their final C2 system brief for the Peer Review Plenary, as well as a brief for the participating flag and general officers to demonstrate how their system evolved over the course of the game. During the Peer Review Plenary, the players received feedback regarding their systems and used Analytical Hierarchical Process software to collectively weight the six criteria for use during the final plenary session. The players then reviewed the feedback they received and revised their C2 system brief accordingly. Similarly, after receiving presentations on the Global'13 project and candidate C2 systems, the flag and general officers collectively weighted the six criteria as well.

During the final plenary, each team presented their final C2 system brief, which was followed by a brief question and answer session to clarify the functionality of these systems. Using the Analytical Hierarchy Process software, both the players and the Flag and General Officers conducted individual pair-wise comparisons of the candidate C2 systems using the weighted criteria established the day before. These results were used to stimulate a facilitated discussion regarding the C2 systems and their attributes. Web-IQ threaded-discussion software and ethnographers were used to capture discussions during this session.

Resulting C2 Options

Option A: Domain Commanders

Option A uses domains (maritime, air, land, space, and cyber) as its organizing principle. Domain commanders are responsible for gaining, maintaining, and exploiting access within their assigned domain and denying the enemy from doing the same. They exercise operational control (OPCON) over joint and combined forces rather than relying on support relationships between functional components.

Forces are allocated based on the anticipated need to project power through given domains, the threats to forces operating in those domains, and the need to disrupt, destroy, and defeat those same domain threats. Cross-Domain Operations Centers located within each domain commander's staff headquarters use Integrated Tasking Orders to provide direction to supporting Combined Joint Task Units (CJTU) and control/coordinating instructions for CJTUs from other domain commanders which are operating in the same physical domain (e.g., space deconfliction, water space management, fire control measures, etc.). The CJTU is a tailored, coalition force that includes multi-domain capabilities and has either a common mission or geographic focus. CJTU's provide the requisite C2 structure to enable assigned units to be effectively employed when adversary efforts degrade traditional reachback communications paths.

Option B: Cross-Domain Commanders

Option B focuses on organizing joint effects under cross-domain commands which are subordinate to the Combined Joint Task Force (CJTF) and are tailored to execute their assigned line of operation in a particular campaign plan.

Known as "Cross-Domain Commanders," each sub JTF-level headquarters controls an array of joint capabilities and operates much like a mini-CJTF. The independent nature of each Cross-Domain Commander allows them to operate autonomously, limited only by the extent of their authorities and the capabilities of their assigned forces. Individual Cross-Domain Commanders are empowered to task and organize their forces as required in response to changes in their assigned lines of operation and associated missions.

All forces are either assigned OPCON to an Cross-Domain Commander or are available for tasking directly by the CJTF. When additional theater assets or assets from outside the joint operating area are required by a Cross-Domain Commander, they are assigned under the tactical control (TACON) of the requesting commander. Shifting TACON of units among Cross-Domain Commanders as the situation dictates provides for flexibility as the campaign unfolds and operational requirements dictate. This system relies on functions and processes being delegated to the lowest level possible within the organization to enable their accomplishment when degraded communications inhibit guidance from above.

Option C: Functional Commanders

Option C evolved from a functional component commander approach to C2, with changes incorporated to improve cross-domain operational effectiveness. Maritime, air and land component headquarters are transformed into combined/joint organizations, and similar sub-CJTF component commanders for information warfare/dominance and logistics are incorporated to provide improved C2 in those areas. This model also incorporates the concept of utilizing CJTUs, in this case at the sub-functional component level, to effectively leverage the capabilities of joint and combined forces in a specific area of operations, particularly when operating in a communications-challenged environment. Cross-domain effectiveness is further enhanced by implementing Cross-Domain Coordination Elements - sized and tailored appropriately - at the CJTF, functional component, and CJTU levels.

The Way Ahead

The game results will be analyzed and provided to the ASB Office in the form of an Executive Brief and Game Report which will be presented directly to the CNO and ASB Executive Committee.

The game's findings will be used to inform the development of a revised C2 system and supporting Concept of Operations (CONOPS) that will be examined and refined during the Global War Game at NWC in September, 2014. The resulting CONOPS will then be used as the basis for the development of a related tactics, techniques and procedures document which will be examined in follow-on gaming and exercise events.

About the War Gaming Department

The mission of the War Gaming Department (WGD) is to conduct high quality research, analysis, gaming, and education to support the Naval War College mission of preparing future maritime leaders and helping to shape key decisions on the future of the Navy. It strives to provide interested parties with intellectually honest analysis of complex problems using a wide range of research tools and analytical methodologies.

WGD is located within the Center for Naval Warfare Studies at the U.S. Naval War College in Newport, Rhode Island. It was first established in 1887 by Lieutenant William McCarty-Little. The views expressed in this work are those of the War Gaming Department and do not represent the policy or position of the Department of the Navy, Department of the Defense, or the U.S. government. This work was cleared for public release; distribution is unlimited.

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