

# Employing Lethal GCE C2 in the 2025 Fight

Back to the future

by Mr. Robert Sholtis & Maj Jon Wagner

**T**echnological advancements on the battlefield, as well as an evolution in how we fight, have driven a requirement to change the way that we conduct command and control (C2). Never before have we experienced a greater demand for shared situational awareness, a growing common operational picture, or a need for mission type orders. What we have experienced, however, is the process for adopting and integrating new techniques, tactics, and procedures. While the Corps has continued to materially modernize, innovations increasing resiliency, driving electromagnetic discipline, and facilitating trust in subordinates will further enable an asymmetric advantage over our peer adversaries. It is imperative that commanders at all levels refresh themselves in the fundamentals of C2, understand technological advancements, and identify efficient

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methods to tighten decision making and empower subordinate commanders. Near-term success on the battlefield will not reside with commanders who can envision a fight in 2030 but rather belong to the organizations which most adeptly adopt and capitalize on new and existing capabilities.

## Going Digital

In April 2003, the Marine Corps, along with coalition forces, penetrated hundreds of miles toward Baghdad, sometimes with very limited communications. Digital fires, while on the move, were not yet perfected for numerous

reasons. For instance, the Corps utilized systems like the Mounted Data Automated Communication Terminal over a line system such as the Enhanced Position Location Reporting System. Yes, our Corps had employed digital systems for years prior to this, but never in such a mobile and distributed fashion. However, when at the quick halt, commanders were able to almost instantaneously transform a HWMV into a combat operations center (COC)—whether it was a jump, forward, or even a main. Speed, combined with increased shared situational awareness, proved lethal to Saddam's forces.

By early 2005, our focus had shifted to stability operations, which required us to rely on smaller maneuver elements with increased dispersion between larger forces. Frequently traversing through adjacent areas of responsibility generated an increased requirement for shared situational awareness. Accordingly, the proliferation of blue force trackers, command and control personal computers, and other fires, logistics, and collaborative systems facilitated the ability to share information. In response, an urgent universal need statement was submitted. It requested a modular, scalable structure known as the unit operation center. It reflected the change of times as battalion commanders began to increase the density of C2 systems to a capability greater than their



**Two NOTM HWMVs during a communications field exercise at Camp Lejeune. (Photo by Cpl Justin Updegraff.)**

regimental commanders possessed only just a few years prior. Additionally, as displacement requirements reduced on the battlefield, it wasn't long before the terms "jump" and "forward" became less defined and exercised.

### Combat Operations Via the CAPSET IV

As the approved acquisition objective grew for the unit operation center, the system was renamed the COC. Almost ten years later, this naming convention has all but replaced the doctrinal term COC. Likewise, this term often refers to the fielded systems vice the actual center where combat actions are planned, briefed, and commanded. The growing role in C2 systems within battalions and regiments is also having unintended consequences. For instance, in order to make the approved acquisition objective for the COC capability sets (CAPSETs) sustainable, the decision was made to remove the requirement for power generation and replace it with an organic unit power capability. The decision made complete sense fiscally and conceivably meant that the Marine Corps would be able to reduce the number of generator models. However, unintended effects materialized from that decision. Now, COC CAPSET-equipped battalions must plan for lift requirements and coordinate with combat engineer battalions to ensure a generator mechanic is in place prior to any COC displacement. It is true that the CAPSET IV increases situational awareness and reduces latency in the digital kill chain, but what is its applicability to the next war?

### From Forward Operating Bases into Degraded and Reduced Signature Operations

"In the future, we predict command posts will have to move every 30 to 60 minutes to be survivable." This statement was made by MG John Morrison, USA, Commander, Cyber Center of Excellence, during the Association of the U.S. Army's annual meeting in October, 2017. He continued,

We've already seen what's happened over in Europe. Those command posts that did not move rapidly were tar-



***It's anticipated that command posts will have to displace every 30 to 60 minutes in the future. Our C2 systems will need to be flexible and ready to displace so as not to become an easy target for enemy fires. (Photo by SSgt Rubin Tan.)***

geted through non-kinetic and then eventually very, very kinetic long range precision fires and the casualties were catastrophic.

Accordingly, the Marine Corps has begun to modernize its COC concept so that it does not become an easy target for enemies and to ensure survival in future conflicts. As a consequence, the GCE is now forced to depend on the CAPSET IV and is disadvantaged by the three hours it takes a battalion to fully establish their COC using that system. Faced with this dilemma, Lt-Col Darryl G. Ayers, CO, 3d Bn, 2d Marines, directed a size, weight, and power reduction of the battalion forward COC footprint through the local development of a C2 support structure that was assembled with two Polaris MRZR. This setup is equipped with a radio architecture that supports all of the mission-critical digital functionality needed in a battalion forward. Furthermore, this innovation directly ties to the requirement, signed by the Deputy Commandant, Combat Development & Integration, for a network-on-the-move (NOTM) for each battalion, mounted on an "MRZR-like" vehicle.

While the "NOTM MRZR" will do well to support requirements in the

missions mentioned above, there will also be one NOTM, mounted on a joint light tactical vehicle, per battalion. With the NOTM wideband satellite communications and terrestrial radio links, redundant transmission paths enable mobile forces to collaborate, access information, and exchange voice, video, email, chat, and common operational picture information while on the move. NOTM is also becoming the digital battlefield hub of both the battalion and regiment. For example, items such as the secure communication controller will allow almost instantaneous radio interoperability with coalition forces and are being planned in future NOTM upgrades. A requirement for an agile network gateway link is also being developed by the Combat Development & Integration team, which will allow for MAGTF common handheld users to digitally connect with fixed-wing air platforms during fire support missions. The NOTM is concurrently developing a multi-band satellite communications capability that will provide commanders with X-, Ka-, and Ku-bands. Furthermore, a commander may decide—based on threat and communications requirements—to operate a COC out of the CO's vehicle, a NOTM variant, or a full CAPSET IV. Fortunately, the continu-

ing advances in C2 to be fielded in the next few years will provide flexibility and resiliency magnified by the speed to conduct effective C2.

This combination of pre-2005 speed and maneuverability, combined with most of the functionality from the CAPSET IV, will enhance a unit's ability to shoot, move, and communicate. With the added radio capability projected to be fielded in 2021, network resiliency, reliability, and flexibility will continue to optimize kill-chain requirements. For example, if given permission, each squad leader and above within the battalion could have access to any intelligence, surveillance, and reconnaissance asset within a unit's network. Additionally, systems like Joint Battlefield Command-Platform will only serve to further speed up kill-chain actions. However, if the GCE desires to maximize the capabilities offered, commanders must truly analyze how each of these assets can enhance traditional requirements on the future battlefield. Furthermore, commanders must ask themselves how each of these systems could be used against us. Will the enemy have the capability to target our increased electromagnetic spectrum signal? Merely possessing a higher density of mobile C2 will not be an end in itself.

## Do Speed and Mobility Ensure Survivability?

A recent DESERT SCIMITAR 2017 after-action report identifies concerns with increased capability.

C2 is a complex system, just as complex as warfare itself, with innumerable variables and constraints. As in war, each new problem is unique, and no single C2 configuration will work for each situation.

Our C2 must first take into account our constraints and the enemy's capabilities. Furthermore, once a C2 configuration is decided, each impacted variable has unique mitigation challenges of its own.

Marine Corps Force 2025 will significantly increase the lethality of C2, but the GCE has only begun to scratch the surface in this regard. The *Marine Corps Operating Concept* (Washington, DC: HQMC, September 2016), clearly articulates that

***"Marines are innovators and the history of the Marine Corps is replete with examples of innovation out of necessity."***

***—Gen Robert B. Neller***

We must acquire the offensive capabilities to raise and detect enemy signatures across the spectrum, quickly and accurately assign meaning to what we observe, and rapidly take action to exploit any opportunity.

It also states,

Marines must understand that controlling physical terrain is no longer a sufficient condition for battlefield success; we must also navigate the landscape of knowledge and perception.

The *Marine Corps Force 2025* initiative and the MAGTF information environment operations are effective steps in the direction to integrate the multi-dimensional fight, bringing tools to the MEF that will significantly increase the lethality of the MAGTF overall.

## The MIG and the GCE Battalion

In preparation for the future multi-dimensional fight, each MEF is developing an integrated capability that fuses cyber, electronic warfare, information operations, and intelligence into a more lethal structure. This organization, called a MEF Information Group (MIG), is driven by our peer competitor's abilities to disrupt, spoof, and monitor the MEFs' activity through spectrum and information monitoring. How the MIG supports the GCE at each echelon in every phase of the battle has not yet been defined. To maximize the capability of this new organization, the GCE must begin to efficiently analyze and articulate how the employment of these preexisting capabilities will be improved on the battlefield.

Working with the MIG, the GCE must be trained and equipped to meet the demands of a future operating environment characterized by complex terrain, technology proliferation, information warfare, and the need to shield friendly signatures. We must also remain conscious of the fact that there will be times when peer threats

will disrupt the network or the MIG may not have the capacity to support. During those periods, capabilities, permissions, and authorities planned at the MIG will often not be accessible to the infantry battalions engaged in conventional fighting.

There are several actions that every unit within the GCE should do to begin planning for this eventuality. We should:

- Review *MCWP 3-40.5, Electronic Warfare*, and develop tactics, techniques, and procedures for their unit-specific mission-essential tasks and table of equipment.
- Contact the MIG within our respective MEFs and request support for information operations, electronic warfare attack, and similar support needed in order to train to those tactics, techniques, and procedures.
- Become experts in radio antenna propagation, utilizing low-power directional antennas.
- Conduct exercises operating solely on intent until mission-critical information can be successfully passed (such as a fires mission).

## Conclusion

As industry and uniformed leadership dedicate time to developing a view of what the future battlefield will look like, it is important not to lose sight of the immediate fight. It is ultimately the commander's responsibility to ensure that he is fully versed in the applicability of recent technological advancements. Meshed networks, artificial intelligence, and new supporting command structures all represent positive steps to ensure success on the future battlefield. They will be fruitless, however, without the proper leadership to efficiently employ them in a manner that facilitates quicker decision making and empowers subordinates.

