



FIELD ENGAGEMENT

CECOM Integrated Logistics Support Center IT Radio Logistics Assistance Representatives and SEC Software Support Representatives participate in a motor pool terrain walk hosted by 210 Field Artillery Brigade at Camp Casey, Korea. CECOM team members provide on-the-spot guidance in support of the Brigade's Joint Battle Command – Platform Mounted Mission Command – Software readiness event. (Photo by Gaby Waters, CECOM SEC)

ADAPTIVE *EDGE*

CECOM SEC's continuous integration and continuous delivery approach to readiness.

by Kevin Deegan

Software readiness is critical to American warfighting efforts. That's why the Pentagon is laser-focused on enhancing readiness in a cyber-contested battlespace—it is essential for responding effectively to threats, deterring adversarial aggression and protecting American interests and spaces.

Diplomatically, this is far from a new fight.

Rewind to October 2020. At that time, the U.S. Army Communications-Electronics Command (CECOM) Software Engineering Center (SEC) at Aberdeen Proving Ground, Maryland, was forging a path to establish strong and dynamic software readiness, in part via the CECOM Software Repository. This one-stop hub consolidated the software releases for over 70 commands, control, communications, computers, cyber, intelligence, surveillance and reconnaissance (C5ISR) systems. Now, the repository serves as the authoritative, continuous-delivery source of system updates and files for operational units. This end-to-end pipeline repository also holds units accountable for having the latest software, which is critical for Army lethality and preparedness. This was the first effort of many to modernize legacy delivery methods while also shortening the delivery path of critical software to tactical network systems.

The digital domain that can decide the outcome of a war is ever-changing. As Gen. Dwight D. Eisenhower once said, "Plans are worthless, but planning is everything."

In the cyber realm, it's always a new fight.

TACKLING SOLDIER CHALLENGES

Meeting the demand for Soldier readiness means that CECOM SEC can never sleep. Continuous integration and continuous delivery (CI/CD) methodology enables CECOM SEC to rapidly deliver stakeholder requirements while adhering to legacy maintenance policies.

Traditional military policies were designed with hardware in mind—vehicles, equipment or weapon systems—but software can be deployed in mere minutes. Legacy maintenance policies do not neatly accommodate software constantly being tested, updated, fixed or deployed digitally.

Deployment complexity for tactical network systems is also due to the Army's use of various networks with hectic connectivity challenges, different policies and several classification levels. Soldiers who require software patches are often located in austere environments, adding to the disarray.

To meet this challenge, CECOM SEC provides electronic software delivery through the continuously integrated C5ISR Software Repository. And yet ensuring that Soldiers have the most up-to-date software isn't the only obstacle on this fast-track highway: How does the Army effectively train Soldiers on continuously updated software?

CECOM SEC is smoothing this obstacle with another CI/CD tactic: embedded training, which starts with meeting users where they are.

“The training needs to be considered as early as possible in the development life cycle,” said John Fry, CECOM SEC’s field integration branch chief. “You need to have an understanding of what Soldiers already know and what they can figure out.”

Sticking to its Soldier-tailored CI/CD approach, CECOM SEC is now building training directly into some systems. Embedded training allows Soldiers to learn software while actively using it instead of relying on external programs or solutions that can be costly and create downtime. Training occurs during workflow through a strategic user interface that integrates automated prompts, tool tips, pop-ups and interactive walkthroughs.

Encouraging units to learn by doing results in faster readiness, adaptability and operational efficiency.

From beginning to end, CECOM SEC is focused on meeting the needs of Soldiers in the field.

“CI/CD brings the user up front. We understand their environment, what the challenges are—and that gets fed into the development process—so systems become less maintenance-heavy, more user-friendly, with the capability still fully intact,” said Fry.

FROM DEVELOPMENT TO DEPLOYMENT

CECOM SEC is the tip of the spear in the field. Fry’s team consists of Software Readiness Officers (SROs) embedded with every division and corps in the Army. Whether in a company



MAINTAINING SOLDIER READINESS

Soldiers assigned to 3rd Brigade, 10th Mountain Division monitor footage from an Anduril Ghost-X Medium-Range Reconnaissance drone during exercise Combined Resolve 25-1 at the Joint Multinational Readiness Center, Hohenfels, Germany, on January 15, 2025. Embedded training allows Soldiers to learn by doing, resulting in operational efficiency and enhanced readiness. (Photo by Sgt. Chandler Coats, 5th Mobile Public Affairs Detachment)

or a member of division staff, these readiness officers are in the field daily, providing crucial technical support and ensuring that Soldiers are equipped with the latest patches. As the Army elevates users by integrating them into the development process, SROs stay closely engaged with the user community by supporting the entire software life cycle from development to deployment through ongoing user feedback, maintenance requirements and cyber updates. They support Army users and the software centers by ensuring operational readiness, while integrating digital modernization.

CECOM SEC validates that software capabilities are met before release by performing test runs with units in the field. Testing the software from a configuration and interoperability standpoint is key because of the challenges of the units' extreme environments. Staying informed at the earliest level of development allows CECOM SEC to make the most informed decisions early, resulting in prioritized fixes and improved user experiences.

In today's landscape, the Army views readiness partially through a prism of data-centric comprehensiveness that allows units to rely on real-time information for better decision-making. Data integration allows Fry's team to help units visualize their cyber health. Accessing, aggregating and visualizing it in a way that makes sense to decision-makers is critical for divisions that, for example, need to be prepared to speak to relevant indicators during logistics readiness reviews (LRRs).

CECOM SEC has been working with the United States Army Forces Command (FORSCOM) over the past year to help them create live data for their LRR. Typically chaired by the FORSCOM G-4 and corps and divisional commanders, the LRR is a comprehensive evaluation to assess and improve logistics readiness across units. For example, SROs embedded at Fort Bragg, North Carolina, work closely with FORSCOM headquarters to ensure that all data is uniform across divisions. The focus is on key areas such as equipment maintenance, supply discipline, property accountability and overall logistical support to confirm unit preparedness for deployment and sustained operations.

"Our tools are used at echelon, so FORSCOM commanders are leveraged the same real-time authoritative data for software maintenance accountability as a field maintenance shop," said Fry.

CECOM SEC's Data Analytics Readiness Team, in collaboration with SEC's Technical Services Directorate, recently created a Power BI decision support tool that provides senior Army leaders with real-time visual representations of critical programmatic

data. The tool presents budget allocations, acquisition milestones and equipment deployment timelines in a central and assessable environment.

CONCLUSION

"The data environment in the Army is changing," said Fry. "We want to engage in and be able to leverage data sources from multiple entities, and we have to have a collaborative effort with folks within and external to CECOM to enhance unit readiness."

The battlespace evolves, but CECOM SEC sees it keenly. Adapting to Soldiers' needs—with a strong emphasis on meeting units where they're at—remains a core focus in the foreseeable future.

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