

The Voice of Military Communications and Computing

Military Informatics Technology

Inside:
DISA Contracts Guide

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Physical Access ☆ DISA Research Agreement ☆ DISA Testing and Evaluation
Initial Entry Comms ☆ Service-Oriented Architecture

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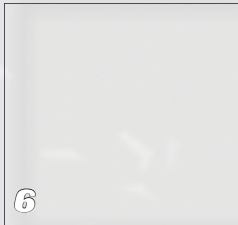


Access for the Future

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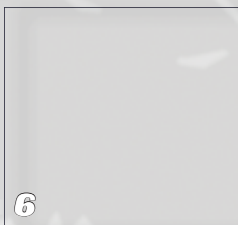


Early Entry Comms

The Joint Communications Support Element assembles communications packages based on commercially available technologies with an eye toward ever smaller, lighter and more capable packages.

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A person in camouflage military uniform is shown from the waist down, carrying two large, rugged, black and green hard-shell cases. The cases are stacked, with the black one in front and the green one behind. The person is wearing white combat boots. The background is a plain, light-colored wall.

Early Entry Comms

JOINT FORCE IS READY TO PROVIDE C2 SUPPORT FOR CONTINGENCY OPERATIONS ANYWHERE IN THE WORLD ON SHORT NOTICE.

By Tom Marlowe, MIT Correspondent

With small hotspots developing around the world today, the U.S. military must be prepared to deploy small or large teams of warfighters to locations globally on short notice. When those warfighters arrive in theater, they must be prepared to connect to both classified and unclassified information in remote areas to maintain situational awareness and command and control (C2) communications.

Enter the Joint Communications Support Element (JCSE), an organization under the Joint Enabling Capabilities Command of Joint Forces Command.

“We are essentially the Department of Defense’s 911 for contingency com-

munications,” said Army Colonel John Morrison, JCSE commander.

“We are on an 18-hour notice to provide en-route, initial entry, early entry and scalable C2 support for a designated joint task force or joint special operations task force headquarters anywhere in the world,” he continued.

To take advantage of the best of industry innovations, JCSE assembles communications packages based on commercially available technologies with an eye toward ever smaller, lighter and more capable packages. JCSE draws upon active duty servicemembers, Guardsmen and Reservists to deploy with this equipment where needed to set up commu-

nications networks that provide secure access to warfighters in the field.

Those JCSE team members work to meet the requirements of a joint task force commander, turning requirements into reality almost immediately. The key to accomplishing such feats lies in systems that are modular and scalable, Morrison explained.

JCSE depends on an Everything over Internet Protocol (EoIP) architecture to make that happen. For example, JCSE has an initial entry package, a network-in-a-box that is so portable that it fits in an overhead bin, Morrison remarked. JCSE was able to make the initial entry package small and easy to deploy because



of its EoIP architecture, which is simple and widely recognized due to the availability and accessibility of IP communications.

“It brings us that much closer to industry,” Morrison added. “As things change in industry from a communications perspective, we are able to rapidly apply those new technologies to meet immediate operational requirements. The basis of the initial entry package is using that Everything over IP architecture. We have since deployed that globally. We are leading the Department of Defense toward this and providing a foundation for the rest of the department to transition to it over the next several

years as well.”

EARLY ADOPTER

JCSE is well ahead of the rest of DoD in the adoption of EoIP, which the service components are not scheduled to transition to until sometime after 2010. JCSE has become one of the leading early adopters of the technology, blazing a path for other organizations to follow.

For JCSE, EoIP must be scalable. The element must support anything from one user, such as a distinguished visitor to the United States, all the way up to a 1,500-man joint task force halfway around the world.

“We don’t want to scale from one to 1,500 and have to constantly change out boxes. We just want to have it be truly modular and scalable so that we can build up to the user density that we must have,” Morrison observed.

The initial entry package, relying on EoIP, meets those requirements. Warfighters can expand it to support 40 users as an early entry package as required. Then they could expand the early entry package to support 300 users as a medium package. All the while, network operations remain seamless and transparent to military users while the size of the package expands sequentially to support the necessary number of users.

In addition, JCSE has established a global infrastructure that allows other early adopters of the technology to deploy and get up and running immediately.

About two years ago, JCSE supported perhaps 25 or 30 users globally—and they were all members of the command. Today, more than 190 users rely upon JCSE communications capabilities, and slightly more than half of them belong to the organization. The JCSE will comprise less than half the users of its systems by the summer, Morrison estimated.

“JCSE supports users across the spectrum,” he said. “Those users may be inside Special Operations Command, but they also extend to all of the regional combatant commands as well. Our mission set is to be able to walk in just about every kind of contingency world that is out there. That is one of the truly unique things about the element. We have a very broad mission as opposed to focusing on one specific geographic region or one specific type of task.”

The spectrum of users depending on JCSE relies upon its expertise in providing access to both classified and unclassified networks in one package—a feat of design that must meet stringent specifications.

“The way we have designed our packages is that they ride a single converged IP backbone,” Morrison said. “However, the networks remain completely separate and secure in accordance with the established policies out there. There are other applications of this technology that fit lesser security policies, but we are at the high end. We have the highest level of security assurance with the way we have



Caption Needed.

configured our package.”

NETWORKING MADE SIMPLE

PacStar began working with JCSE several years ago on a project involving a standard from the Defense Information Systems Agency called the Deployable Voice Exchange.

“When we started working together, they became interested in our capability from an integration standpoint and also our capabilities around our IQ Core Software and what that could do to enable some of the other packages they were designing,” said Jeff Sinclair, PacStar vice president of sales.

The company’s IQ Core Software is a graphical user interface that simplifies configuration management of network systems in the field, enabling non-technical personnel to set up complex communications systems.

JCSE tapped PacStar to collaborate on a re-engineering project for the initial entry package, which then consisted of a couple of large transit cases that required several men to carry. The goal was to make it more compact—to the size where today one man can carry it and store it with ease. The goal was to bring the weight down to less than 35 pounds.

“Within that package, some of the challenges involved working both classified and unclassified missions. They needed to be able to provide Internet access to both the NIPRNet and SIPRNet networks,” Sinclair said.

DoD requirements stipulate that physical separation must occur between components that handle NIPRNet and SIPRNet access to ensure information assurance, Sinclair noted. A classified user is prohibited from using the same router or switchboard as an unclassified user. To meet that specification, the initial entry package requires two separate enclaves to provide access to the separate networks.

“We had our technical team—our software engineering team, mechanical engineering team and network engineers—get together and have these collaborative sessions with the JCSE technical lead, both in their lab in their facilities at MacDill Air Force Base, Fla., and at our facilities in Portland, Ore.,” Sinclair said. “We defined very clearly what their requirements were and set out to design a system that could meet every part of their design requirements.”

That led to the now-smaller initial entry package and its commercial counterpart—the PacStar 4100.

“The process speaks to both the flex-

ibility of JCSE and the fact that their mantra is pushing communications, leading technologies out in the field to support the warfighter. They have to jump at a moment’s notice,” Sinclair declared. “We set out to turn this whole engineering effort and delivery into a production unit within six months. That is light-years ahead of what typically encompasses a design cycle of sitting down with an initial design engineering review, prototype, pilot and then full production. So we squeezed something that is typically an 18- to 24-month cycle into six months.”

The PacStar 4100 supports network access via Broadband Global Area Network, INMARSAT, or regular Ku-band communications. A single interface provides access to any of these options through a BGAN modem. The unit comes with three routers: for SIPRNet, NIPRNet and a convergence router for virtual private networking as well as local and wide area networking. They are based on the Cisco 1861 ISR routers that have been taken down to the board level and redesigned and repackaged so that they could fit in the form factor that the JCSE required.

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