

DEPARTMENT OF THE NAVY
SBIR/STTR TRANSITION PROGRAM
SPOTLIGHT

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Fuse Integration: Helping the Navy Achieve Real-Time Fleet Readiness Through Real-World Experience

By Julie Scuderi

As military veterans, the founders of Fuse Integration (Fuse) know firsthand that far too many Department of Defense (DoD) communications and network solutions are disconnected from the mission requirements of users at the tactical edge. Take, for instance, a common occurrence of a network outage. Fixing a problem like this at home would entail calling a tech support specialist, who would meet with the user at home to diagnose and resolve the issue. Now, imagine a Navy ship stationed in the middle of the Pacific Ocean. Common protocol would be for a subject matter expert (SME) to fly to the nearest port city and then hop on a helicopter to get out to sea just to determine the problem, which, many times, might be a simple line configuration issue: days of travel for a two-minute diagnosis.

Fuse, a warfighter-focused engineering and design firm that provides innovative defense communications and networking solutions, recognized the Navy's need to streamline this process and developed its Tactical Technologies Toolset (T3) through the Navy Small Business Innovation Research (SBIR) program (contract N00039-15-C-0226). It is a means to share real-time configuration information with the shore facility, enabling the SME to troubleshoot in real time.

“A lot of legacy systems were built by engineers who never talked to the actual users



U.S. Navy photo

T3 has secured over \$20 million in Phase III awards, which included successful installation on three U.S. Navy ships during the Trident Warrior 16 at-sea exercise, and another 12 Navy ships this year.

of the system,” says Rebecca Unetic, director of strategy at Fuse. “The Sailor could have five different needs, but the system may only fit one of those needs. The goal of our company is to build products and solutions that deliver what our warfighters actually need to make their jobs easier. As systems and networks get more complex, the Sailors are given more responsibility, and we want to enable them to make the best decisions as quickly as possible. That’s where Fuse is focused.”

T3 is a remote network monitoring and management solution for multi-domain operations. Presenting an enterprise view of distributed fleet networks and systems, T3 provides commanders and decision-makers with an intuitive layout of tactical data link (TDL), network, and radar settings and status. Practical graphics and design of the

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interfaces support easy understanding of what's happening, even for those who are not network engineers. In Phase II of the project, T3 and Fuse joined the Navy SBIR/STTR Transition Program (Navy STP) and the experience helped set the stage for the resulting Phase III success.

“The Navy STP gave our company the benefit of creating publicly releasable information about our system that's gone through government approval,” recalls Unetic. “It made us more comfortable to market the solution in a variety of different ways. It's normally really hard to get through PAO approval on your own, so the Navy STP gave us a key advantage. Also, the market research helped us expand our view of the T3 tool and opened our eyes to other opportunities, such as whole-ship monitoring.”

T3 went on to garner \$20 million in Phase III awards, which included successful installation

on three U.S. Navy ships during the Trident Warrior 16 at-sea exercise where the secure, end-to-end network architecture was successfully demonstrated in an operational environment. T3 is slated to be installed on another 12 Navy ships this year. The technology was also awarded a \$3.9 million contract from NAVWAR to update the existing T3 software to interface seamlessly with the C2P Tech Refresh System.

T3 was given a large stage when it was demoed at the Mobile Unmanned/Manned Distributed Lethality Airborne Network (MUDLAN) Joint Capability Technology Demonstration (JCTD), a pre-milestone A activity sponsored by all four services and Office of the Secretary of Defense. During the event, Fuse, along with several other Navy SBIR and Navy STP companies, addressed six critical Joint Aerial Layered Network (JALN) requirements, which were initially identified in 2011 and had not been demonstrated in a single configuration to



Photo courtesy of Fuse Integration

“Design for the User” is one of Fuse Integrations’ core values. The company proudly manufactures its products in the United States out of its headquarters in San Diego.

date by any of the individual services. During the MUDLAN demo, Fuse added internet protocol (IP) network management to the initial T3 baseline, including the ability to directly control individual radios and to remotely address configuration changes on the airborne nodes from the ground on command.

Based in San Diego, Fuse is enjoying tremendous success in the government sector. CORE[®], which debuted alongside the T3 tool in the 2018 Navy STP, is supporting technology advancement in both the Navy and Air Force. CORE is a ruggedized, minimized size, weight, and power (SWaP) networking solution designed for missions where lives are on the line. The technology reliably connects airplanes, ground vehicles and ships with ground operations across secure and unclassified networks in rugged conditions. CORE's TDL and IP networking platform contains fully ruggedized physical components for military operations and provides unmatched flexibility for system software and hardware. CORE has been awarded multiple Phase III contracts from NAVAIR including a \$10 million Rapid Prototype Project.

“A lot of the focus for us is how we approach software development,” says Unetic. “We work alongside the end user

to figure out the pain points. We want to ensure we make things easy for them; find them a better solution. In this case, it was the means for commanders and decision-makers to visually understand the problem and communicate that back to shore.”

Although nearly every technology developed

by Fuse has dual-use potential and applicability, right now the company is choosing to focus on its core mission of providing solutions to U.S. warfighters. They are finding applicability across the Navy as they see a need for what they have developed.



Photo courtesy of Fuse Integration

Fuse, a warfighter-focused engineering and design firm that provides innovative defense communications and networking solutions, was founded by military veterans who know full well the challenges warfighters face on a daily basis.

“We provide real-time fleet readiness,” states Unetic. “It comes down to the questions of ‘How can I have a better understanding of my ship? Is my ship ready for the mission I need it to complete?’ Right now, there is a delay getting information from the ship to the people who can do something about it. We are working on decreasing that timeline. And there are several programs that are ramping up to provide greater insight into shipboard and operational systems that will benefit from what we’ve already built and developed through Navy SBIR.”

For more information, visit the company’s website at www.fuseintegration.com.