

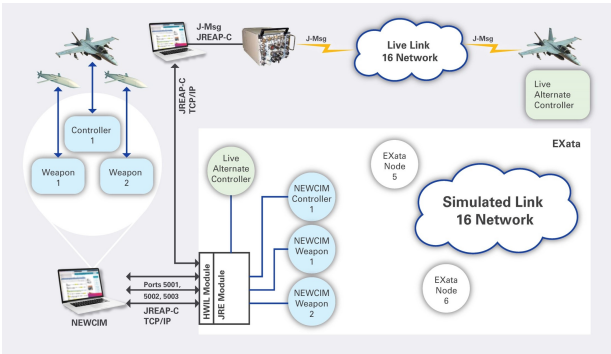
Department of the Navy SBIR/STTR Transition Program

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NAVWAR

Topic # N08-225
Airborne Networking Live/Virtual/Constructive (LVC) Environment Model Enhancements
Scalable Network Technologies Inc

WHO

SYSCOM: NAVWAR
Sponsoring Program: Multifunctional Information Distribution System (MIDS)
Transition Target: Naval Air Warfare Center Training Systems (NAWCWD) China Lake
TPOC:
(619)524-1582
Other transition opportunities:
NAVAIR, PMA-298, US Air Force, MDA
Notes: MIDS - Multifunctional Information Distribution System
JTRS - Joint Tactical Radio System
LVC - Live Virtual and Constructive
PEO - Program Executive Office
CERDEC - Communications Electronics Research Development and Engineering Center
AMRDEC - Aviation and Missile Research Development and Engineering Center
CDID - Capability Development Integration Directorate



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WHAT

Operational Need and Improvement: Scalable Network Technologies is working with the Multifunctional Information Distribution System (MIDS) Program Office to provide a robust, scalable Airborne Comprehensive LVC Operational Network Environment (CLONE) as part of the Joint Network Emulator (JNE) library of military waveforms to enable predictable communications in all physical and cyber warfighting domains. This effort addresses an operational need for a fast, flexible and high fidelity simulation capability that can accurately model current and future airborne networks.

Specifications Required: This project will result in an Airborne Comprehensive LVC Operational Network Environment (CLONE) which will enable more efficient and comprehensive future airborne network modeling, simulation and emulation. This capability will provide a better representation of the operation of the airborne networks under a variety of scale, mobility, terrain, environmental and tactical operating conditions. Also, the Airborne Comprehensive LVC Operational Network Environment (CLONE) will support an interface to live equipment and provide expanded constructive MIDS JTRS capabilities.

Technology Developed: Scalable's Network Digital Twin technology enables customers to develop, plan, test and deploy wired, wireless, acoustic and optical networks in a high fidelity, physics-based simulation environment from undersea-to-space. This project will deliver a comprehensive live/virtual/constructive operational network environment that combines application layer models, standards-compliant external interfaces to live radio hardware, tactical message generation and consumption capability, and functional interfaces to external simulation systems. Enhancements delivered by this project will enable much faster and more flexible airborne network simulations, including support for advanced messaging, external time control and simultaneous use of multiple medium access control sublayers.

Warfighter Value: The capability delivered by this project will enable predictable communications in all physical and cyber warfighting domains, enhancing future integrated fires and cooperative engagement capabilities for all airborne network capable platforms including tactical aircraft, ships and submarines. At the conclusion of this project, warfighters will directly benefit through significantly improved command, control and communications enabled by greatly enhanced LVC multi-domain (undersea-to-space) communication and network simulations with cyber effects.

WHEN

Contract Number: N68335-20-C-0619

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Scenario Specific Partitioning	Low	Integration Testing/Demonstration	TRL 6	March 2021
StatsDB Enhancement	Low	Integration Testing/Demonstration	TRL 6	March 2021
Support Non-IP Frame	Low	Integration Testing/Demonstration	TRL 6	March 2021
Support External Time Control Object	Low	Integration Testing/Demonstration	TRL 6	November 2021
Support Multiple MAC Models	Low	Integration Testing/Demonstration	TRL 6	November 2021

HOW

Projected Business Model: The Airborne Comprehensive LVC Operational Network Environment (CLONE) will provide analysis under realistic operational conditions. The identification and resolution of potential performance issues which may adversely affect mission assurance will provide significant value to mission and network planners. The Airborne Comprehensive LVC Operational Network (CLONE) capability developed by this project will allow current and future customers to plan and deploy reliable networks with minimal expenditure in terms of time and resources.

Company Objectives: Scalable Network Technologies objectives are to enhance the speed and flexibility performance of the current airborne networking LVC environment model and to enable it to support advanced messaging, external time control and simultaneous use of multiple medium access control sublayers.

Potential Commercial Applications: Scalable Network Technologies has a well-established technology transition path via incorporation of the Airborne Comprehensive LVC Operational Network Environment (CLONE) capability into the Joint Network Emulator (JNE), which is already being used by a broad swath of DoD customers. Current JNE users include NAVWAR, PEO C3T, CERDEC, AMRDEC, CDID, Ft. Gordon and the Army Operational Test Command. Additionally, many other DoD customers, such as Naval Air System Command (NAVAIR) China Lake, use Scalable's Network Digital Twin software. Many of these DoD customers require a high fidelity capability to analyze the end-to-end performance of advanced applications running on airborne networks.