CAPABILITY BRIEF

Pan-Domain Capabilities

USING A PROVEN MOSA PLATFORM TO ACCELERATE
PAN-DOMAIN CAPABILITIES (PDC) SOLUTIONS

HIGHLIGHTS

Data-centric, Zero-Trust real-time connectivity framework for military networks

Multi-domain data-in-motion in shared network domains

Robust TRL 9 safety, security, interoperability and resilience network solution

Rapid technology insertion, maintainability and extensibility capabilities

Standards-based, transport-independent layered security that is easy to deploy for real-time data-in-motion

Supports both legacy and new network infrastructure

Commercial RTCA DO-178C and EUROCAE ED-12C DAL A certification evidence

Facilitates Modular Open Systems Approach (MOSA) standards adoption

RTI Connext® improves both performance and system affordability by providing rapid interoperability with other sea, land, air, space and cyberspace multi-domain, multi-service systems, based on our rich, real-time Quality of Service (QoS) capabilities and loosely coupled architecture. RTI works with the world's leading military network systems to provide the highest levels of safety, security and reliability for mission-critical command and control within DDS-based open architecture systems.

Today's military networked platforms are growing exponentially in capability and utilization, while taking on the additional burden of supporting multiple services, agencies and mission partners. These network platforms are challenged by the requirement to insert new 'plug and fight' capabilities rapidly and reliably into deployed systems to support joint and multi-domain operations (MDO), many of which are limited by constrained bandwidth, lossy communications and contested operational environments. such as Delayed/Disconnected, Intermittently-Connected, and Low-Bandwidth (DIL) in Dispersed and Denied Operations.

Meeting these operational demands requires three core competencies:

1. The ability to develop and acquire open and scalable network connectivity capabilities that support unyielding network bandwidth and security demands

2. The ability to rapidly integrate diverse military network assets for global armed forces, agencies and coalition partners, with innovative, state-of-the-art technologies

3. The ability to ensure that all data transmissions between connected warfighters and their unmanned, autonomous and machine-to-machine (M2M) robotic support systems are secure at all times

Based on the Object Management Group® (OMG®) open Data Distribution Service (DDS™) standard, RTI Connext enables the rapid integration of both new and legacy communication assets and can form the connectivity framework for multiple secure networks with minimum investment and rework. Connext provides an open architecture connectivity framework that is fast, scalable, reliable and secure, both within the network and between sea, land, air, space and cyber systems.

Connext prioritizes interoperability as an imperative for Canadian Armed Forces (CAF) and enables global coalition partners to jointly participate and deliver force multiplying capabilities against global adversaries.

This interoperability is the foundation of deployable PDC operations that must integrate sensor and radar data to drive intelligence for efficient command and control of soldiers, weapons, adaptive squad architectures, unmanned and autonomous systems, and other command and control vehicles/nodes/effectors.

The data-centric architecture of DDS naturally enables the efficient delivery or separation of secure information from multiple sources and directly supports the U.S. Department of Defense (DoD) Data Strategy that directs all DoD leaders to "treat data as a weapon system and manage, secure, and

use data for operational effect."[1] This multi-supplier and multi-domain interoperability increases cross-service and coalition collaboration efforts, while reducing the total lifecycle costs and total cost of operations (TCO) of networked platforms.

STANDARDS-BASED SECURITY FOR DATA-IN-MOTION

Connext is the first commercial solution to comply with the open DDS standard security specification. Connext's security plugins provide participant authentication, role-based access control per topic of data, encryption, data tagging and event logging, all without modifying the existing DDS network infrastructure. Connext ensures data confidentiality and integrity, while protecting data-in-motion information across multiple security domains from unauthorized access and tampering. Connext enables systems integrators to design PDC components that facilitate security, without compromising the ability of various people and systems to collaborate. This is accomplished by creating data-centric "Zero-Trust" security networks that can apply fine-grained authentication and encryption to individual data elements, enabling the sharing of network resources across multiple security domains.

COMMERCIAL RTCA DO-178C AND EUROCAE ED-12C DAL A CERTIFICATION EVIDENCE

Connext offers commercial RTCA DO-178C and EUROCAE ED-12C DAL A certification evidence audited by a third party for rapid and reliable review by airworthiness authorities and other safety certification professionals. This evidence contains all documentation required for achieving airworthiness and safety certification by aviation certification authorities, including certification plans; test and verification plans and results; design documents; tests and test results; and the software accomplishment summary. The availability of this evidence as

a commercial product vastly reduces military program safety certification costs and risk.

POWERFUL PARTNER ECOSYSTEM ENABLES RAPID SYSTEMS DEPLOYMENT

RTI's avionics partner ecosystem consists of microprocessor manufacturers, COTS board vendors, MBSE and SysML design tools, real-time operating system (RTOS) suppliers, graphics driver providers, control design tools vendors and HMI graphic design tool suppliers that couple COTS certification evidence with their products. Complete open standards-based solution stacks can be quickly assembled with confidence, freeing up PDC application software teams to deliver competitive advantages over all adversaries. These solution stacks enable a range of PDC deployments, including strategic systems like AEGIS and IBCS, and tactical systems where Connext transports and manages information from multiple sensors into a Battalion Tactical Operations Center.

PROVEN TECHNOLOGY WITH RAPID INSERTION AND MAINTENANCE CAPABILITIES

Connext is built upon a loosely-coupled, publish-subscribe architecture, enabling robust application domain partitioning and accelerated update of critical technologies with minimal system impact and re-test. Connext is a peer-to-peer data connectivity framework designed as a safety-critical, cyber-physical network architecture. Connext also includes a rich set of tools that accelerates module and system-level development, debugging, testing, integration and optimization. Currently, RTI connectivity frameworks are used in 1,800 design wins and over 70 global command and control systems.

COMPLIANCE	DUNS: 797735883 CAGE: 03FH8	NAICS Codes:	• 511210 Software Publishers • 541511 Custom Computer Programming Services • 541512 Computer Systems Design Services

[1]Source - U.S. DoD Data Strategy: https://media.defense.gov/2020/Oct/08/2002514180/-1/-1/0/DOD-DATA-STRATEGY.PDF

ABOUT RTI

Real-Time Innovations (RTI) is the infrastructure software company for smart-world systems. Across industries, RTI Connext® is the leading software framework for intelligent distributed systems. RTI runs a smarter world.

RTI is the market leader in products compliant with the Data Distribution Service (DDS™) standard. RTI is privately held and headquartered in Silicon Valley with regional offices in Colorado, Spain, and Singapore.

**Your systems.
Working as one.**

CORPORATE HEADQUARTERS

232 E. Java Drive, Sunnyvale, CA 94089
Telephone: +1 (408) 990-7400
info@rti.com

rti.com
rti_software
rtisoftware
company/rti
rti.com/blog
connextpodcast