CAPABILITY BRIEF

# U.S. Army Network Cross-Functional Team (CFT)

OPEN ARCHITECTURE CONNECTIVITY ACCELERATES NETWORK SYSTEMS DEPLOYMENT

## HIGHLIGHTS

Robust TRL 9 Safety, Security, Interoperability and Network Resilience Solution

Rapid Technology Insertion, Maintainability and Extensibility Capabilities

Ideal for Integrating Manned, Unmanned and Machine-to-Machine (M2M) Systems

Easy to Deploy, Standards-Based, Layered Security for Data-in-Motion

COTS RTCA DO-178C DAL A and ISO 26262 ASIL D Certification Evidence for Mobile Platforms

Open Standards Support, Including DDS, FACE, SOSA, OMS and UCS

RTI Connext® DDS provides an open architecture connectivity framework that is fast, scalable, reliable and secure, both within the network and between land, sea, air and space-based systems.

With its interoperability, portability, loose coupling and real-time Quality of Service (QoS), the Data Distribution Service™ (DDS) standard is the preeminent foundation for the United States Armed Forces' mission-critical network systems.

Today's U.S. Army networked platforms are exponentially growing in capability and utilization. But these networked platforms are often challenged by the requirement to rapidly and reliably insert new capabilities into deployed systems and operations, many of which are limited by constrained bandwidth, lossy communications and contested operational environments.

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 U.S. armed services, agencies and collation partners
3. The ability to ensure that all data transmissions between connected Warfighters and their unmanned and machine-to-machine (M2M) robotic systems are secure at all times

RTI Connext® DDS provides an open architecture connectivity framework that is fast, scalable, reliable and secure, both within the network and between land, sea, air and space-based systems. Based on the Object Management Group® (OMG) Data Distribution Service™ (DDS) standard, RTI Connext DDS integrates with open military standards, including FACE, SOSA, OMS and UCS.

This support for open standards enables the rapid integration of both new and legacy communication assets and can form the connectivity framework for multiple proprietary and stovepiped platforms with minimum investment and rework. Connext DDS prioritizes interoperability as a primary business attribute, which promotes innovation and competition for U.S. Army Network Cross-Functional Team (CFT) capabilities. The data-centric architecture of DDS naturally enables the efficient delivery of information from multiple sources. This multi-supplier and multi-domain interoperability increases cross-service collaborative efforts, and reduces the costs of joint and multi-domain operations (MDO), as well as the total lifecycle costs and total cost of operations of networked platforms.

### OPEN STANDARDS-BASED SECURITY

RTI Connext DDS is the first solution to comply with the new DDS Security specification by OMG. These security plug-ins provide authentication, access control, encryption, data tagging and event logging, without modifying the existing DDS applications or network infrastructure. DDS security plugins are configured via XML and can be deployed dynamically into operational systems, enabling rapid responses to changes in the security threat landscape. RTI has an optional SDK for RTI DDS Secure that allows writing custom plugins, crypto modules and support for hardware such as crypto accelerators and TPMs. These capabilities ensure data confidentiality and integrity, while protecting information in multiple operational domains from unauthorized access and tampering.

### PROVEN QUALITY AND SAFETY

Connext DDS provides an accelerated path to safety certification for all safety domains – such as land, sea, air and space - with proven safety certification evidence. Connext DDS is TRL 9 software, with commercial-off-the-shelf (COTS) RTCA DO-178C DAL A (highest level) airborne systems certification evidence files audited by a third party for rapid and reliable review. In addition, RTI offers COTS ISO 26262 certification evidence for the autonomous ground vehicle systems safety certification domain, and can rapidly support other safety domains. COTS certification evidence accelerates system deployment and removes significant program risk by delivering Warfighter safety and proven quality up front.

### COMMERCIAL TOOLS ACCELERATE DEPLOYMENT

RTI Connext DDS includes a rich set of tools that accelerate application and system-level development. Debug, test, integration and system optimization productivity are boosted through the Connext tool suite. Connext tools provide the ability to visualize system modules and assess their interconnectivity and health, as well as the means to introspect and inject data.

RTI Connext DDS is proven in over 1,500 unique system designs and deployments, including:

Safety Certification

**U.S. Army**

The U.S. Army Ground-Based Sense and Avoid (GBSAA) system enables Unmanned Aircraft Systems (UAS) to safely operate in FAA-controlled U.S. National Air Space (NAS) with other commercial, private and military aircraft. Connext DDS is used to separate UAS flights from Instrument Flight Rules (IFR) and Visual Flight Rules (VFR) aircraft. The system is certified using RTI's RTCA DO-178C DAL A safety certification evidence for Connext DDS Cert.

Simplified Data Exchange Infrastructure

**NASA**

RTI Connext DDS reduces complexity for NASA's Launch Control and Data Systems through a DDS data exchange infrastructure that provides fault tolerance through passive process replication, message traceability, persistence profile and content subscription profile capabilities.

Massive Application Scalability

**Zumwalt DDG 1000**

RTI Connext DDS software coordinates and manages complex, diverse onboard hardware and software systems. These include hundreds of computers, thousands of applications and more than 10 million publish-subscribe pairs.

Ground-Air Cooperative Control

**General Atomics Aeronautical Systems, Inc.**

General Atomics' Advanced Cockpit Ground Control Stations deliver enhanced situational awareness for Unmanned Aircraft Systems, such as the Predator® and Reaper®. RTI's software accelerated the development process and the solution was delivered in less than 14 months — significantly faster than with alternative software or in-house development.

### COMPLIANCE

DUNS: 797735883
CAGE: 03FH8
NAICS Codes:

- 511210 Software Publishers
- 541511 Custom Computer Programming Services
- 541512 Computer Systems Design Services

## ABOUT RTI

Real-Time Innovations (RTI) is the largest software framework company for autonomous systems. RTI Connext® is the world's leading architecture for developing intelligent distributed systems. Uniquely, Connext shares data directly, connecting AI algorithms to real-time networks of devices to build autonomous systems.

RTI is the best in the world at ensuring our customers' success in deploying production systems. With over 1,500 designs, RTI software runs over 250 autonomous vehicle programs, controls the largest power plants in North America, coordinates combat management on U.S. Navy ships, drives a new generation of medical robotics, enables flying cars, and provides 24/7 intelligence for hospital and emergency medicine. RTI runs a smarter world.

RTI is the leading vendor of products compliant with the Object Management Group® (OMG®) Data Distribution Service™ (DDS) standard. RTI is privately held and headquartered in Sunnyvale, California with regional offices in Colorado, Spain and Singapore.

Download a free 30-day trial of the latest, fully-functional Connext DDS software today: https://www.rti.com/downloads.





Your systems. Working as one.

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