Military Ground Combat Vehicles

USING OPEN ARCHITECTURE TECHNOLOGIES TO ACCELERATE
MOBILE GROUND SYSTEMS DEPLOYMENT

HIGHLIGHTS

Data-centric, Zero-Trust software connectivity framework

Support for GCIA, MOSA, CMOSS, AUTOSAR Adaptive and ROS 2 / ROS-M standards

Cross platform, interagency, and multi-national data-in-motion capabilities in shared network environments

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

Rapid technology insertion, capability integration, maintainability and data extensibility capabilities

Commercial ISO 26262 ASIL D certification evidence

Facilitates Modular Open Systems Approach (MOSA)

RTI Connext® delivers military-grade connectivity for open GCIA, MOSA, CMOSS and other software-defined vehicle designs. It provides fast, scalable, reliable and secure connectivity between manned and autonomous platforms. Integrating with vehicular software standards, Connext enables rapid insertion of novel technologies and functionalities.

CONNECTIVITY FOR NEXT GENERATION MILITARY GROUND COMBAT VEHICLES

The next generation of military ground combat vehicle designs have evolved into software-defined platforms that require optimized flow of mission and vehicle data. These vehicles run on low latency, high-reliability networks that connect and control the performance, efficiency and safety of key mobility, protection and lethality systems in real-time. These systems need to rapidly scale across manned and autonomous vehicles and be able to integrate capabilities from both legacy and newer platforms.

To meet these intelligent data-centric requirements, military ground vehicles must be able to:

1. Acquire, consolidate and integrate operationally relevant on-vehicle and off-vehicle capabilities while increasing mission readiness and reducing operational costs

2. Provide support for open GCIA, MOSA and CMOSS standards

3. Enable secure, reliable vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) communications that facilitates manned-unmanned teaming at the speed of combat

Connext supports open architecture military ground systems by providing fast, scalable, reliable and secure connectivity between manned and autonomous platforms. Based on the Object Management Group (OMG®) Data Distribution Service (DDS™) standard, Connext is the software foundation for existing vehicular software standards such as GVA, NGVA, AUTOSAR Adaptive, ROS 2 and ROS-M, and aligns with current modernization programs using VICTORY and CMOSS.

Through this standards-based integration and support, Connext delivers rapid integration and mission-readiness while increasing the maintainability of vehicle assets. Connext enables rapid reconfiguration for different mission roles while improving vehicle reliability and reducing operational training time. The Connext connectivity framework enables program managers to integrate the GCIA, MOSA, CMOSS and commercial standards such as AUTOSAR and ROS 2 into both new and legacy vehicles, ensuring a smooth transition to a modern vehicle data architecture.

Connext includes a rich set of tools that accelerate module- and system-level development, debugging, testing, integration and optimization. RTI tools provide the ability to visualize system modules, view interconnectivity and system health as well as to record, replay, introspect and inject data into military ground vehicle systems.

STANDARDS-BASED SECURITY FOR DATA-IN-MOTION

RTI Connext enables systems integrators to design military vehicle components that facilitate security, without compromising the ability of the crew 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, platforms and formations.

Connext is the first commercial solution to comply with the open DDS standard security specification. Connext's security plugins provide crew authentication, role-based access control, 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 and platforms from unauthorized access and tampering.

STANDARDS-BASED AUTOMOTIVE/AUTONOMOUS SAFETY

RTI Connext Drive® delivers a standards-based framework that manages complex data distribution for real-time connectivity across software-defined automotive and autonomous platforms, including support for interoperation with AUTOSAR Adaptive and ROS 2, bringing the full capabilities of Connext to create seamless integrations of these automotive ecosystems.

Connext Drive is designed to meet the Safety Lifecycle requirements set forth by ISO 26262 ASIL D. Connext Drive includes all the necessary Safety artifacts and Safety Manual, which can significantly reduce Functional Safety Lifecycle efforts for system integrators, reducing risk, time and project costs. Connext Drive provides a proven path to the certification needed to put autonomous and electric vehicles into production and on the road.

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 novel technologies, and critical capabilities with minimal system impact and re-testing. 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.

"We are giving our customers a complete solution of armored vehicles with integrated systems and subsystems, all based on the NATO Generic Vehicle Architecture (NGVA) and smart vehicles. We see RTI Connext as an integral part of every solution that we are implementing within the next generation armored vehicles."

Military Vehicle Protection Developer
RTI Customer

COMPLIANCE

- DUNS: 797735883
- CAGE: 03FH8

NAICS Codes:

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

INDUSTRY CERTIFICATION:

- DO-178C DAL A: Avionics Functional Safety

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

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