DATASHEET

RTI Connext Drive

THE FIRST AUTOMOTIVE-GRADE SAFETY-CERTIFIED DATA-CENTRIC
COMMUNICATIONS FRAMEWORK FOR NEXT-GENERATION VEHICLES

HIGHLIGHTS

Supports communication libraries that are certified to the highest functional safety standards (ISO 26262 ASIL D)

Over-WAN communication to enable connected vehicle use cases that demand real-time response

Automotive-grade software framework and native Software Development Kit (SDK) to develop communication networks for both electrical and autonomous vehicles

New DDS-based Toolkits that provide seamless communication between DDS and ROS 2, AUTOSAR Classic and AUTOSAR Adaptive

RTI Connext Drive® offers an accelerated path to production by enabling the highest level of functional safety for in-vehicle communications. OEMs implementing Next Gen E/E Zonal Architectures, ADAS, Simulation environments and Telematics applications can reduce their costs and time-to-market, while improving overall product performance.

FIRST AND ONLY AUTOMOTIVE-GRADE SAFETY-CERTIFIED DATA-CENTRIC FRAMEWORK

To stay competitive in today's market, autonomous and electric vehicle designs are becoming increasingly complex. As new vehicles continue to change and evolve, the smartest way to address that complexity is through software. This is particularly true when automotive manufacturers need to provide over-the-air-updates and add new features to vehicles on a daily or weekly basis, once the vehicle is out on the road. However, without the right software architecture in place at the design stage, the process of building in new functionality and obtaining vital certification for production-ready vehicles can easily become protracted and costly.

There is a better way: RTI Connext Drive delivers a standards-based framework that manages complex data distribution for real-time connectivity across platforms for autonomous systems. Connext Drive is built on Data Distribution Service (DDS™), the proven connectivity standard for Next-Generation Electrical/Electronic (Next Gen E/E) Zonal Architectures and

the one used by AUTOSAR Adaptive and ROS 2 for autonomous vehicles. This standards-based approach delivers enhanced performance and massive scalability, while lowering risk.

With Connext Drive, automotive manufacturers now have the capabilities required to deploy Next Gen E/E Zonal Architectures and explore telematics applications or vehicle telemetry. Connext Drive offers a common development paradigm to safely and securely develop Advanced Driver-Assistance Systems (ADAS) and connected car systems, reducing both time-to-market and the overall complexity of software architecture.

Connext Drive is the first — and only — software that can integrate DDS, ROS 2, AUTOSAR Classic and AUTOSAR Adaptive, which allows automotive companies to work with the standard or standards that best meet their needs at different points in the development cycle. Connext Drive also includes a software framework and native SDK for developing and integrating autonomous drive applications and building in automotive-grade security.
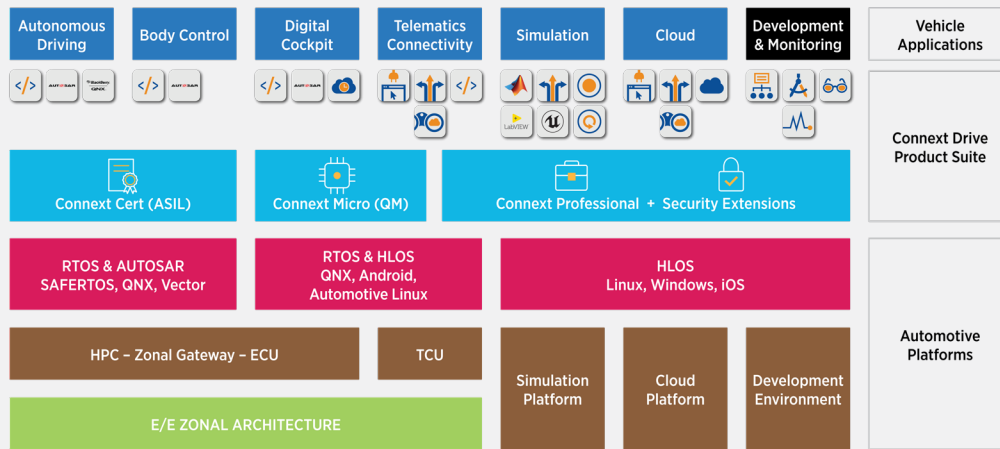
Figure 1. Connext Drive Architecture Stack

CONNEXT DRIVE FEATURES

Connext Drive's unique features improve the safety, security and reliability of autonomous vehicles:

Bridges the Platforms Gap: Connext Drive seamlessly connects between DDS and AUTOSAR Classic/AUTOSAR Adaptive. New RTI Integration Toolkits rapidly bridge development environments and eliminate the need for custom code.

Safety Certification Pathway: Safety certification of software is the only mechanism to guarantee autonomous road vehicles. Connext Drive is ASIL D TÜV SÜD-certified to meet the Safety Life Cycle requirements set forth by ISO 26262. Connext Drive includes all the necessary Safety artifacts and Safety Manual, which can significantly reduce Functional Safety Life Cycle efforts for system integrators, reducing risk, time and project costs.

Future-proof and Flexible: Customers can embrace change effortlessly with Connext Drive. With the new platform-independent ASIL D TÜV SÜD-certified software, there is no need for recertification if the vehicle OS or network interfaces changes. Developers can use the same framework from prototype to production.

Real-Time WAN Transport for Connected Vehicles: Connext Drive's UDP-based Real-Time WAN Transport enables low latency and high throughput communications. Connext Drive seamlessly provides secure discovery and communications that meet the rigorous cybersecurity requirements of connected vehicles. Connext Drive supports shared memory, LAN, WAN and internet transports, allowing peer-to-peer and vehicle-to-cloud communications over complex and unreliable networks.

Enhanced Performance: With support for the latest Object Management Group® (OMG®) DDS-XTypes™ standard, applications benefit from network bandwidth savings, enabling flexibility for multiple Quality of Service (QoS) strategies. An optimized Dynamic Data implementation delivers enhanced serialization performance.

Efficient High-Bandwidth Data Distribution: Connext Drive enables rapid communication with throughput of over millions of messages per second using a data-centric databus, which allows data to flow when and where it's needed: securely, at scale and with ultra-low latency.

Full Redundancy: Any sensor, data source, algorithm, compute platform or even network can be easily duplicated to provide higher reliability. The data-centric design allows the system to resolve this redundancy naturally.

Updated DDS Security: Connext Drive is compliant with the latest OMG DDS-Security™ specification v1.1 and supports the latest OpenSSL v1.1.1. The latest updates to the RTI Security Plugins also support loading keys from an SSL engine to more easily integrate best practice key storage.

To learn more about Connext Drive, visit: **rti.com/drive**.

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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