CAPABILITY BRIEF

RTI Connext Drive for Telematics

ENABLING REAL-TIME TELEMATICS APPLICATIONS WITH CONNEXT DRIVE

HIGHLIGHTS

A transport-independent and data-centric solution for the most advanced telematics applications

Delivers reliable and secure communication with low latency and high throughput over mobile and wide-area networks (WAN)

Enables automatic discovery and peer-to-peer connectivity without multicast and across NATs

Includes tools to accelerate design, development, testing and integration

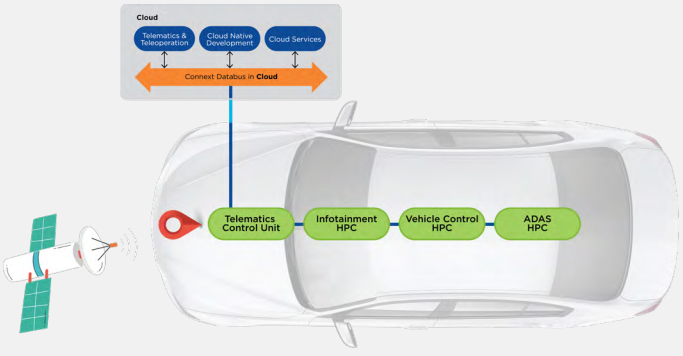
Vehicle manufacturers and suppliers are racing to develop mobility solutions that can take full advantage of today's global telecommunications infrastructure. RTI Connext Drive® is the first software framework designed for demanding systems that require high-fidelity real-time communication for telematics applications, even over diverse mobile, wide-area and public networks.

ENABLING DATA-CENTRIC REAL-TIME TELEMATICS APPLICATIONS

Until now, supporting wide-area telematics has been very time-consuming and costly. Unlike systems deployed on local area networks (LANs), many WAN solutions have struggled to adapt to the constraints and complexity of public infrastructure and disruptions caused by roaming and unstable network connectivity. Auto manufacturers have an increasing need for reliable, secure and non-intrusive communication for telematics operations, as well as analysis of real-time data and events at high data rates and fidelity, even over unpredictable mobile and wide-area networks.

In the past, each deployment required customization for its specific network topology and service providers. Today, a data-centric and network-agnostic architecture is not only desirable for reliable connectivity, but is also rapidly becoming a necessity for manufacturers of electric and autonomous vehicles.

Connext Drive enables the development of modular applications that are easy to deploy over diverse network types and configure for deployment-specific environments. It provides developers with the ability to deliver over-the-air updates, add capabilities and take advantage of new technologies such as 5G. Connext Drive can help manufacturers accelerate time-to-market, while maximizing long-term agility throughout the product lifecycle.



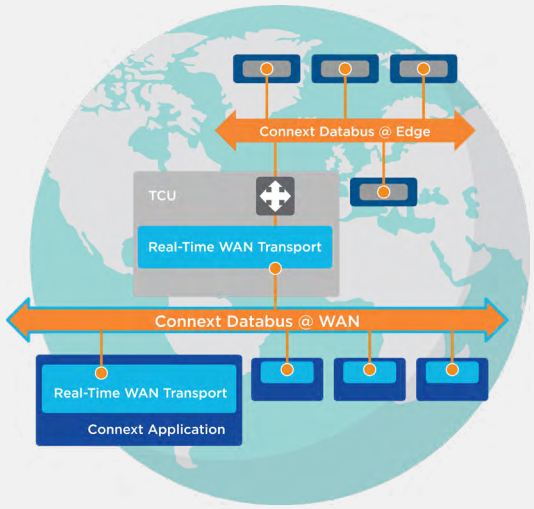
MANAGING ROAMING CHALLENGES

The era of the Smart City and sensor-based data capture has begun, presenting a challenge for any vehicles moving through connected city zones. As vehicles move, their connectivity must also shift across a diverse set of network infrastructure types, which can translate to a lack of control for the connected vehicle applications. Though modern telematics control units (TCUs) and head units provide connectivity leveraging a wide range of technologies — such as Wi-Fi, cellular and V2X — the challenges of transitioning between them and handling roaming can negatively impact performance.

Connext Drive solves this challenge by establishing connections and reconnections over user datagram protocol (UDP) in real-time, which enables connected vehicles to move seamlessly across networks (both cellular and Wi-Fi) and handle different roaming scenarios automatically, so that the entire process is transparent to the user.

THE BENEFITS OF EDGE AND CLOUD-BASED COMMUNICATIONS

Edge and cloud deployment scenarios provide a cost-effective and readily-available communications channel for telematic applications, especially teleoperations and continuous validation. The edge enables unique functionalities, such as low latency, that the limitations of the cloud do not support. Yet the edge presents a set of challenges by itself, given the complexity of technologies and the need for local infrastructure. Since the cloud is a shared resource, it can be difficult and expensive to guarantee dedicated bandwidth for individual endpoints. Meanwhile, the absence of deterministic bandwidth introduces latency that can result in large transmission delays between endpoints. In addition, unbounded latency can add risk for assets and safety. However, there is a way to make cloud-based communications work to a manufacturer's advantage.



Because Connext Drive enables consistently secure communications across public and private networks with ultra-low latency, it can accommodate the demanding communications requirements of cloud-based applications. This opens the door to reliable access to live data streams, such as video, from the peripheral sensors, radar and cameras. At the same time, it includes all the necessary platform integration tools to interface easily with today's market-leading cloud services providers.

THE NEED FOR TELEOPERATIONS

One of the future advantages of autonomous vehicles (AVs) is the predicted enhanced safety aspect through accident avoidance and freedom from human error.

AVs offer additional benefits, including compelling economics that can result from driverless vehicles. The big wins are in city planning (few parking garages), automated 24/7 delivery, shared robotaxis and more. To deliver on its promise, AVs must be able to handle corner cases: to keep moving whenever there is construction or an accident scene around which they don't have the ability to navigate.

High-speed connections could allow a remote operator to actually drive the vehicle, aka "live" teleoperation. This requires live communications to the operator and low-latency control signals back to the AV, which in turn requires a very fast, reliable, delay-free and pervasive network such as 5G.

To support future-proof vehicle development, Connext Drive offers new capabilities that simplify the development and configuration of both current and evolving teleoperation applications. These features can help accelerate the development of modular applications, without requiring software changes to support diverse network types.

RTI: DRIVING INNOVATION IN TELEMATICS

RTI is active in many of the leading consortia working to solve critical problems and accelerate modern telematics:

COVESA Accelerating the future of connected vehicles SOAFEE

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 1,800 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 Drive software today: https://www.rti.com/downloads.

Your systems. Working as one.

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