



Bridging the IT/OT Divide with RTI Connex

RTI Connex[®] is the world's first real-time data streaming platform for autonomy and intelligent physical systems. Unlike traditional message-centric middleware that forces a trade-off between edge reliability and cloud elasticity, Connex bridges the IT/OT divide by providing a unified data space that extends from the sensors to the customer. Trusted in the most demanding industries, Connex provides the foundation for software-defined systems.

HIGHLIGHTS

- » Provides a **unified data model** that replaces fragile “glue code” and custom gateways with a single source of truth that spans sensors, edge devices, and cloud.
- » Drives **zero-cost integration** by making systems “data-aware,” which helps teams dramatically reduce the time and expense of software integration.
- » Enables **adaptive performance** to dynamically prioritize high-value data based on real-world network conditions, ensuring critical decisions happen in milliseconds, not minutes.

The Executive Challenge: Data Silos vs. Decision Speed

Enterprises today are often data-rich but insight-poor because their most critical information is trapped at the “Edge.” Information Technology (IT) thrives on cloud agility and centralized analytics, while Operational Technology (OT) prioritizes sub-second reliability, safety, and physical uptime.

This **IT/OT divide** creates a fragmented environment where real-time field data cannot reach enterprise AI models & applications without massive, bespoke engineering efforts. For an executive, this manifests as the “**Integration Tax**”: a prohibitive cost in time and capital that stalls innovation and prevents autonomous systems from scaling.

RTI Connex: The Data Streaming Platform for Autonomy

Bridging the IT/OT divide isn't just a technical upgrade; it's a competitive necessity. Organizations that solve this integration challenge can monetize field data into new revenue streams and achieve operational efficiencies that were previously cost-prohibitive.

There are two key ways Connex can help customers achieve new efficiencies through adaptive cloud data streaming and real-time edge data streaming. This approach involves using Connex to leverage physical AI with your physical edge data and dynamically adjust how you stream that data based on the value, cost and application.

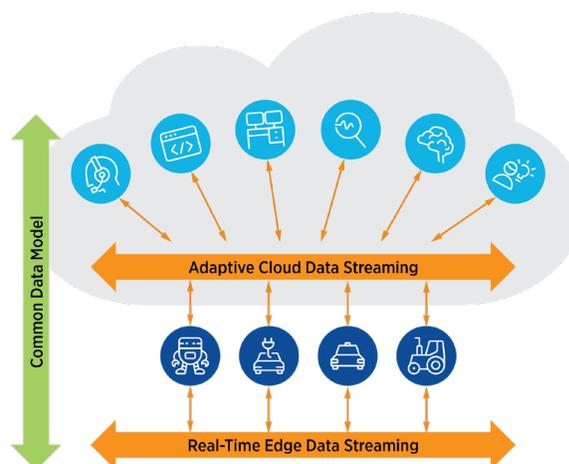


Figure 1: Unifying sensors, edge and cloud into a single, intelligent system.

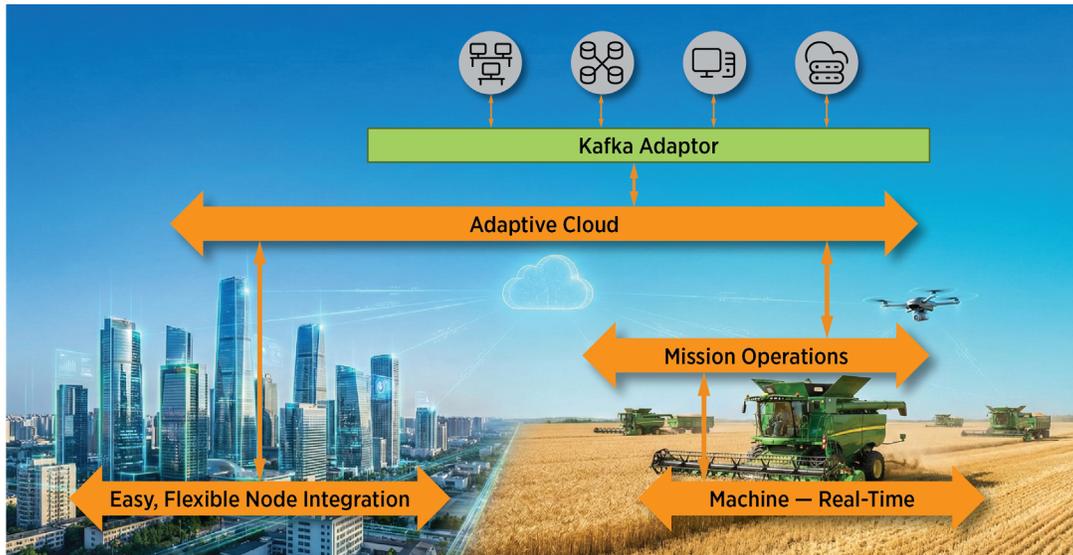


Figure 2: Build for the performance needs at different layers of an Operational System.

Enabling Physical AI and Autonomous Operations

The shift toward **Physical AI** — where AI interacts with the physical world in real-time — requires more than just data access; it requires **data flow**. While cloud AI (such as Generative AI) often processes static data at human speeds, physical AI (used in surgical robotics or autonomous fleets) must model the real world in milliseconds.

Connex enables this by providing the **software-defined infrastructure** necessary for:

1. **Legacy Modernization:** Seamlessly grafting modern cloud capabilities onto 20-year-old “brownfield” assets via intelligent routing services.
2. **Digital Data Twins:** Managing virtual models that synchronize with physical assets regardless of intermittent connectivity.
3. **Data Harmonization:** As a data-first architecture, the system is designed around the data, and the data model reflects the real world. This establishes an excellent “single source of truth” for any system, cloud or edge, that needs to access data from many different sources.

Strategic Synergy: RTI Connex & Kafka

While Kafka excels as the “central nervous system” for cloud-scale analytics and business logic, it was not built for the disparate, embedded, and broker-free requirements of the autonomous edge. Combining Connex with Kafka creates a complete edge-to-boardroom pipeline. Connex handles the “unstructured chaos” of real-world device communication at wire speed, while the

RTI Routing Service Kafka Adaptor streams enriched edge data directly into Confluent for enterprise-wide analytics. Together these technologies allow customers to monetize field data into new revenue streams, getting the right data (current highest value) to the right place, at the right time.

One System. Total Autonomy.

Built to optimize and support performance needs at each different layer of the Operational System, Connex provides a data-centric solution for bridging the IT/OT divide. This approach also allows teams to shift resources from the software plumbing to more easily pursue value creation and new innovations.

Based on the Data Distribution Service (DDS™) standard, RTI Connex provides the reliable and proven foundation to turn disconnected data silos into a single, intelligent system that works as one, empowering you to innovate without limits.

Why RTI?

RTI combines decades of technical expertise with industry-leading software and tools to help teams develop smarter systems, faster. We are the key infrastructure for 300 types of autonomous vehicles, many software-defined cars, 500+ defense systems, huge power plants, air-traffic control, medical patient monitoring, imaging, and robotics. Our customers trust and rely on RTI software, which is running in more than \$1T of total deployed systems worldwide. Learn more at www.rti.com.

ABOUT RTI

RTI is the real-time data-streaming company for intelligent distributed systems. RTI Connex® software is the critical nervous system for over 2,000 designs across Aerospace and Defense, MedTech, Automotive, and Robotics.

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