

CAPABILITY BRIEF

Connex Observability Framework

SUPPORTING FULL-STACK OBSERVABILITY FOR RTI CONNEXT 7.1

HIGHLIGHTS

Monitor Connex[®] and non-Connex technologies with the same Observability tools

Monitor the performance and health of the distributed system from a holistic, centralized view

Reduce system downtime by identifying and localizing problems

Increase the quality and speed of design, development, testing and deployment

Scale the observability telemetry pipeline as systems become more complex

How do you ensure that your applications are running smoothly and reliably, in the face of increased system complexity and dynamic environments? The Connex[®] Observability Framework supports full-stack observability for today's mission-critical systems, providing concrete business value by picking up where traditional domain-centric monitoring tools end.

APPLICATIONS NEED FULL-STACK OBSERVABILITY

Technological innovations are being implemented on previously unimaginable timelines, resulting in unprecedented transformation. Projects that used to take a year or more now have to go live within months or even weeks. IT, Performance and Reliability engineering teams face a growing challenge as the technology landscape becomes increasingly complex, making it harder to track application behavior, performance, and health and identify and resolve problems before they adversely impact the user experience.

The difficulty lies in the fact that traditional domain-centric monitoring tools weren't built to deal with this level of dynamic and diverse behavior, and often can't provide the end-to-end view that is needed. There are four particular instances where applications need full-stack observability to realize real-world benefits:

Mission-Critical Systems Operating on Unpredictable Networks

In this scenario, applications can benefit from full-stack observability to gain a comprehensive view of how the system is performing and where issues may be occurring. This can help

teams detect and resolve issues quickly, thus improving system availability and reducing downtime.

Product-as-a-Service and Ensuring Product Availability

The success of selling a Product-as-a-Service relies on maintaining product availability for customers. Full-stack observability can help teams monitor the entire system in real time, from infrastructure to application, to ensure that the service is operating as expected and that customers consistently have a positive experience.

Highly Complex Systems with Multiple Points of Failure

Highly complex systems with multiple points of failure demand full-stack observability, because it allows teams to monitor and analyze data from multiple layers of the application stack. This can help teams identify issues more quickly and pinpoint precisely where they are occurring, significantly reducing the time to resolution and avoiding the possibility of a system-wide outage.

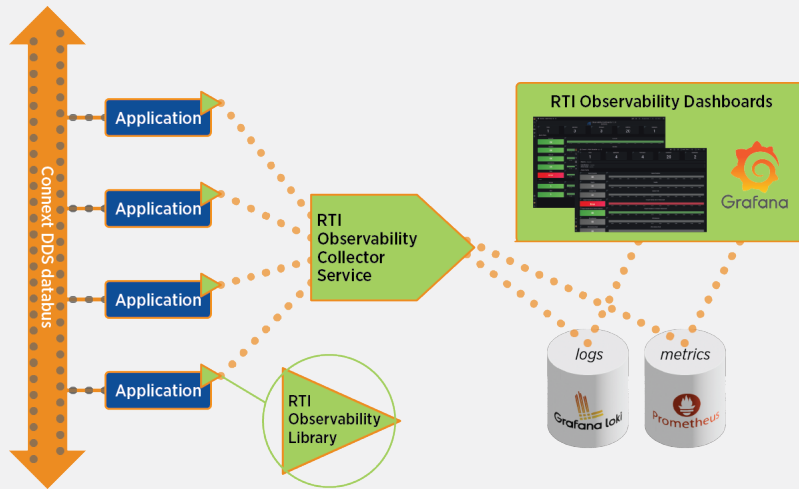
Proactive Performance Monitoring

The ability to monitor performance metrics continuously across the entire application stack means that teams can detect and address performance issues before they impact end-users.

CONNEXT OBSERVABILITY FRAMEWORK (EXPERIMENTAL)

Supporting full-stack observability is now possible using the Connex Observability Framework, which is powered by RTI's extensive domain expertise. Introduced in Connex[®] 7.1, the Connex Observability Framework enables real-time monitoring and analysis of the Connex DDS databus. Businesses can gain unprecedented insights into the health and performance of their applications through the framework, enabling them to deliver unmatched application experiences. With customizable dashboards, metrics and alerts, the Connex Observability Framework enables businesses to quickly identify and diagnose issues, optimize performance and ensure the reliability of their distributed systems.

The Connex Observability Framework provides metrics and logs that provide actionable insights into the Connex databus. Users can then observe trends and identify significant changes by plotting metric values over time. Logs record low-level contextual information, making them helpful in investigation of specific issues and failures. The framework supports integration with observability backends such as Prometheus[®] for metrics, Grafana[®] Loki for logs, and visualization front ends such as Grafana (see figure).



REAL-WORLD OBSERVABILITY BENEFITS

Overall, any application that relies on multiple systems or components can benefit from observability. For example, by monitoring their Connex databus, teams can identify performance issues, security risks, and gain insight into how changes in one part of the application impact other parts, leading to better collaboration and effective troubleshooting.

Prioritize Issues Based on User and Business Impact

Enables users to identify patterns in user behavior and detect when a problem is impacting business, to quickly identify and address the most pressing issues.

Optimize Infrastructure Cost and Performance

Enables teams to identify areas where infrastructure is underused or overburdened, allowing businesses to optimize system resources and save money.

Modernize the Handling of Application Security

Enables real-time detection and mitigation of security risks by identifying anomalous behavior and potential attack vectors, and by responding to security incidents.

Continuous Integration/Continuous Development (CI/CD) Monitoring

Allows for continuous monitoring of the entire pipeline, enabling teams to identify and address issues in real-time, ensuring safe deployment of code changes in CI/CD environments.

CONNEXT OBSERVABILITY FRAMEWORK FOR END-TO-END VISIBILITY

As a key capability for Connex 7.1, the Connex Observability Framework helps teams combine data from multiple layers of the application stack to gain deep, end-to-end visibility across the entire application ecosystem, enabling teams to make data-driven decisions and optimize the user experience for customers.

ABOUT RTI

Real-Time Innovations (RTI) is the largest software framework company for autonomous systems. RTI Connex[®] is the world's leading architecture for developing intelligent distributed systems. Uniquely, Connex 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 Connex software today: <https://www.rti.com/downloads>.

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