

RTI Database Integration Service

HIGHLIGHTS

- Real-time data capture in a RDBMS
- Real-time notifications of table changes
- Bidirectional integration
- Caching of high-rate data streams before storage
- Database replication

RTI Database Integration Service (formerly RTI Real-Time Connect) provides bidirectional integration between RTI Data Distribution Service and a relational database management system (RDBMS), storing published data and publishing database updates. Applications include:

- Real-time data capture in a relational database for online or offline analysis and data mining
- Distribution of centrally managed system configuration information
- Real-time notification of database updates to embedded devices
- Real-time database replication for high-availability

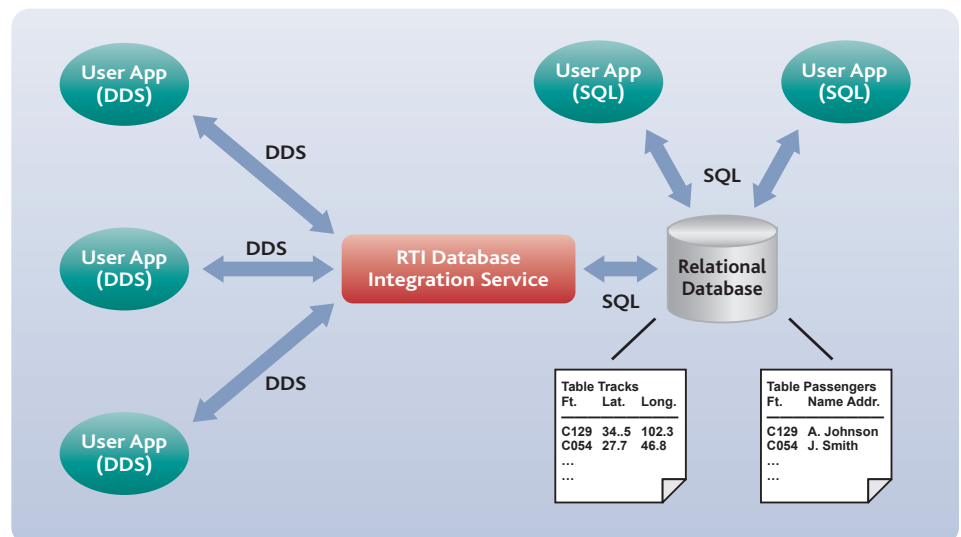
RTI Database Integration Service does not require a dedicated database. A general-purpose database, such as Oracle or MySQL, can be employed to provide persistent storage to disk or in-memory storage for fast data access. This allows the database to be used as a log for real-time messages and data.

RTI Database Integration Service also provides a remote database access solution for embedded systems, which typically lack the resources to host their own local database. Embedded applications that use RTI Data Distribution Service can read and update a remote database using RTI Database Integration Service as a bridge.

Application Scenarios

Capturing Real-Time Data in a DBMS

RTI Database Integration Service captures real-time data streams published via RTI Data Distribution Service into one or more tables in a [in-memory] RDBMS. When new values arrive, the service stores the data in the appropriate table in the database. Mapping the structure of the real-time data to the equivalent SQL table schema is done automatically by the service with no user configuration necessary.



Storing Published Real-Time Data in a Relational Database



Remote Real-Time Notification of Table Changes

RTI Database Integration Service notifies remote applications, including those running in embedded devices of time-critical changes in the database. New table values are sent automatically as the payload of the notification.

Bidirectional Integration

RTI Database Integration Service provides bidirectional dataflow between embedded real-time applications and a relational database. This approach can typically be used to create a closed-loop system. Sensory data is collected, processed, and analyzed in a disk-based or in-memory database. The resulting analysis creates state changes that are fed back to remote sensors and devices to control their behavior and mode of operation.

Real-Time Database Replication

By running multiple RTI Database Integration Service instances on different nodes connected to different databases, changes made by applications to a table on one node can be automatically replicated to tables on all of the other nodes. RTI Database Integration Service can be used to perform real-time table replication between distributed databases with minimal latency—even with high update rates.

Scalability and Availability

RTI Database Integration Service is highly scalable and can meet demanding throughput, availability and fault tolerance requirements.

RTI Database Integration Service employs a multithreaded architecture that takes full advantage of multi-core processors. Running with a single thread, RTI Database Integration Service used in conjunction with Oracle TimesTen In-Memory Database can capture over 28,000 messages or data updates per second. When taking advantage of four cores, throughput grows to over 100,000 transactions per second.

Multiple copies of RTI Database Integration Service can run in parallel on different hosts in the network. To maximize throughput, each instance can be responsible for a discrete set of messages and data. For high availability and fault tolerance, multiple instances can process the same messages and data.

Supported Databases

- Oracle Database
- Oracle TimesTen in-memory database
- MySQL

ABOUT RTI RTI provides high-performance integration middleware for real-time systems. RTI is the leader in the rapidly growing market for DDS compliant middleware with more than 70% market share and 10x more designs than any other supplier. A broad range of industries leverage the company's software and integration expertise, including aerospace, defense, finance, industrial control, intelligence, medical, power generation and transportation.

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