



LiveData, Inc.  
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## LiveData RTI

**Real-Time.** Designed from the ground up for bi-directional, real-time data integration from disparate data sources.

**Flexible.** Data is instantly available for real-time monitoring, analysis, storage or reporting. LiveData RTI can be configured purely for real-time monitoring or can easily store data in an industry standard RDBMS for historical analysis.

**Reliable.** Proven reliability in mission-critical, 24/7 applications such as power system management and utility compliance monitoring. LiveData RTI supports online application update and backup to minimize downtime.

**Scalable.** Supports tens of thousands of devices, including any combination of data sources, data sinks, data stores, presentation clients or other LiveData servers in a distributed configuration. LiveData RTI was designed for real-time scaling – e.g., it efficiently optimizes read requests and merges separate requests when the data source is busy.

**Easy-to-use.** Extensive out-of-the-box features enable rapid creation of user-friendly applications. For example, one-button creation of bi-directional links to MS Excel allows users to perform extensive data analysis through a familiar spreadsheet interface.

**Economical.** Replaces multiple complex and expensive middleware products – such as message brokers, message buses, enterprise application integration servers, workflow applications, rules engines, analytical tools and application servers – with a single, easy-to-use solution.

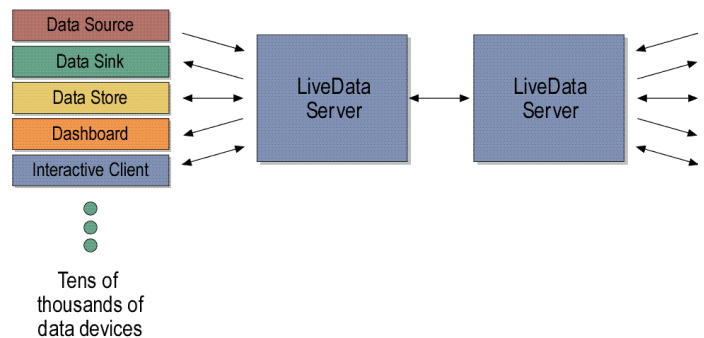
**Standards-based.** Easily and seamlessly connects to any data device using industry standards such as SOAP, XML, XSLT, HTML, HTTP, SQL, ICCP, COM, .NET and others.

## LiveData RTI

LiveData Real-Time Integration is a flexible, reliable and scalable platform for rapidly deploying applications that require real-time integration of disparate data.

When conventional solutions can't meet stringent latency requirements or handle tens of thousands of devices simultaneously, LiveData RTI is the answer.

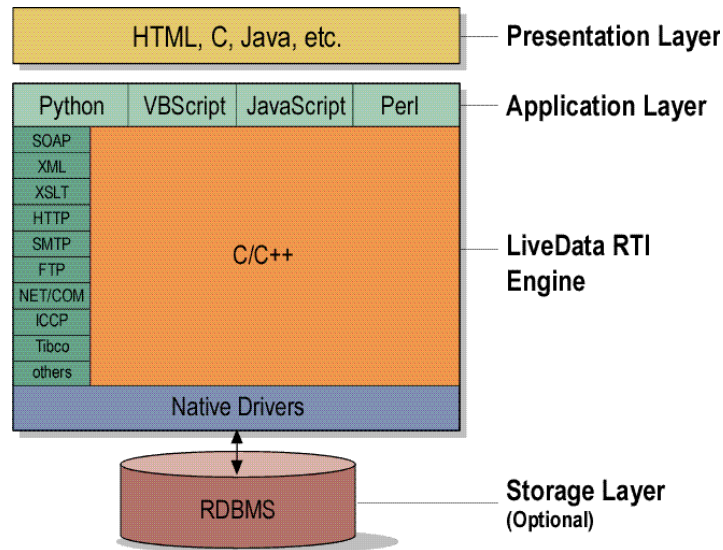
Unlike database management systems that are optimized for processing queries on static data sets, LiveData RTI is designed to manipulate data flows in real time. With LiveData RTI, data is instantly available where you need it, and in the form you need it in, for real-time monitoring, analysis, storage or reporting.



*LiveData RTI integrates, manipulates and distributes data across up to tens of thousands of disparate data devices.*

## LiveData RTI Architecture

LiveData RTI is based on a scalable three-tier architecture with a high-performance, real-time data engine at its core. It's designed for maximum flexibility, scalability and reliability using an object-oriented approach that leverages industry standards.



*LiveData RTI Architecture.*

### LiveData RTI Engine

The LiveData RTI engine is based on a bi-directional, model-driven architecture, which is optimized for manipulating high volume, real-time data flows.

**Flexible, Model-driven Architecture.** Able to support tens of thousands of devices simultaneously, the model-driven architecture provides a flexible platform for integrating disparate data types and ensures compatibility with new and existing devices, communication protocols and data standards. LiveData RTI supports read, write and bi-directional communication modes, schema-based data definitions and emerging meta-model languages such as BPEL.

**Industry Standard Data Interfaces.** LiveData RTI includes the widest array of data interfaces available and supports industry standards such as SOAP, XML, XSLT, HTML, HTTP, SQL, ICCP, COM, .NET, OPC, RS-232 and others. And LiveData RTI's model-driven architecture easily incorporates emerging standards and enables rapid development of custom data interfaces.

**Online Update.** The LiveData RTI engine is designed from the ground up for real-time operation. Administration and configuration are performed through an online interface using a declarative text-based configuration language that supports online updates to existing data flows *and* adding new data devices on the fly without disturbing existing ones. LiveData RTI even efficiently optimizes read and write requests and merges separate requests when the data device is busy.

**Multi-platform.** The LiveData RTI Engine is inherently multi-platform and is available for both Microsoft Windows and Linux platforms.

## Data Storage

For applications that require historical reporting or more sophisticated data management functions such as archiving, recovery and rollback, LiveData RTI supports industry standard relational database management systems (RDBMS) from Oracle, Microsoft, IBM, SAP and others, using native drivers to ensure high performance. The RDBMS may be co-located on the LiveData RTI server, or distributed for higher performance.

## Applications

LiveData RTI applications contain data and device definitions coupled with business process logic. They can range from simple data routing applications that bring real-time data instantly to the required device (or client), to sophisticated analytic workflows that include business process logic and complex statistical calculations.

End-users can modify existing LiveData RTI applications or create their own custom applications using popular scripting languages such as Python, VBScript, JavaScript or Perl.

LiveData offers a range of packaged applications for shop floor control, reliability monitoring, energy distribution management, generation control, substation automation, energy trading and outage management. LiveData is continually adding new applications and can easily create custom applications to meet new and unique customer requirements.

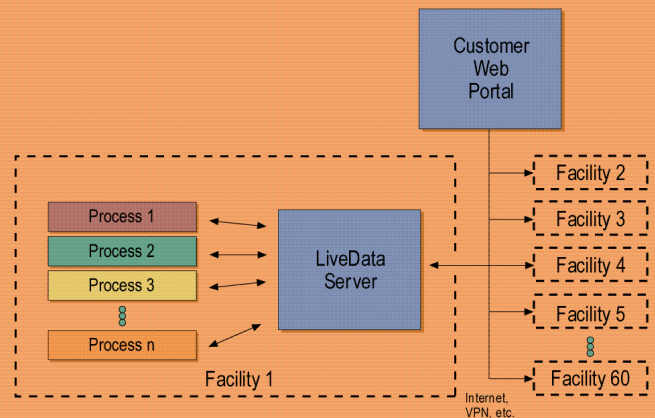
## Presentation Clients

Interactive client applications such as web-based dashboards and sophisticated visualization tools can be created using any number of standard technologies, including HTML, C++, C#, Java and Visual Basic.

LiveData RTI includes web portal templates that provide a unique approach to bringing real-time data directly to standard browsers. No plug-ins are required – LiveData RTI's web portal interface eliminates the need to download Java applets or ActiveX objects and struggle with resulting security issues. LiveData RTI web portal templates leverage browser-side XML processing and enable customers to easily customize views of any given page depending on user, group, or role.

## Application Example: Enterprise Device Management

LiveData RTI is uniquely suited for Enterprise Device Management applications. Its real-time data aggregation, data cleansing, and data access control capabilities, combined with its flexible presentation layer, make it just the right platform for quickly collecting, analyzing and displaying real-time process information.



*LiveData easily integrates data from devices in multiple facilities to provide a single interface for real-time process monitoring.*

In this Enterprise Device Management example, LiveData RTI servers located in each of sixty geographically dispersed locations monitor, control and record data from laboratory devices managing dozens, or even thousands of processes in each location.

Since LiveData RTI servers seamlessly communicate with each other over the Internet, VPNs or other private networks, data from any process is instantly available to customers over a single, secure web portal regardless of which facilities are currently hosting their processes.

With the LiveData RTI web portal there are no applets to download or plug-ins to install and LiveData RTI's on-line update capability enables new devices or processes to be added at any time without disturbing existing processes.



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## LiveData Applications

LiveData RTI provides granular control to the application developer to ensure real-time performance even for the most demanding applications. For example, developers can control maximum data flow rates for individual data sinks and set intelligent flow control parameters for queue-based devices to prevent actions from occurring based on non-current data.

LiveData RTI's advanced real-time functionality, reliability and scalability make it uniquely suited for Enterprise Device Management, industrial process monitoring and control, hospital patient monitoring, automated laboratory device control and data collection, and other applications that require:

**Monitoring.** Integrate data from tens of thousands of devices concurrently, e.g., monitor the voltage from electric meters and continuously report the total power load to operations dashboards.

**Alerts.** Continuously calculate statistical parameters from real-time data streams such as stock transactions or patient monitoring devices to provide alerts (e.g., via screen or pager) when predetermined limits are reached.

**Control.** Provide feedback to external devices to control processes or device parameters, e.g., voltage regulators, thermostat settings, laboratory equipment, or patient monitoring devices.

**Synchronization.** Synchronize data between disparate data devices using incompatible protocols, data standards or update models, e.g., maintain synchronization between a message-based transaction processing system and a business intelligence application or a web-based application and legacy monitoring systems.

**Reporting.** Store and retrieve historical data. Utilize a wide array of graphing and charting options for analysis including output to popular reporting systems and analysis tools.

LiveData is based in Cambridge, Massachusetts, and supplies product-centric solutions to Fortune 1000 utilities, manufacturers, major power providers, and state and national governments. Our solutions include shop floor control, reliability monitoring, energy management, distribution management, generation control, substation automation, energy trading floors and outage management. For more information, call 617.576.6900 (in the USA or Canada, call 1.800.570.6211), e-mail [info@livedata.com](mailto:info@livedata.com), or visit us at [www.livedata.com](http://www.livedata.com).