



Atomikos ExtremeTransactions®

> Ensuring data quality and consistency in a fast moving, transaction processing environment is incredibly challenging. When a crash or system failure occurs, how can you be assured of the safety of your mission critical data?

About Atomikos

Atomikos is a market leader in transaction management for XTP, SOA and open source environments. Atomikos' software safeguards your critical transactions and prevents costly data loss in the event of a system failure or crash by automating the cancellation of failed business transactions.

For more information visit our website at www.atomikos.com or contact us at sales@atomikos.com.

The Business Challenge: Manage Transactions and Protect Mission-Critical Data

Your organization operates large scale, business-critical transactional applications with multiple data sources. Your technology environment is complex, and your transaction volumes reach hundreds or thousands of transactions per second today, and a multiple of that tomorrow. Ensuring data quality and consistency in a fast moving transaction processing environment is challenging. When a crash or system failure occurs, how can you be assured of the safety of your mission critical data?

In a single database environment, recovery from failure is fairly simple. In environments with large scale applications and multiple databases, multi-system recovery is more daunting, with significant risk of data loss or duplication.

Transaction management can ensure that multiple systems commit or roll back in the same way. But many vendors recommend a solution that makes everything transactional. Atomikos takes a different path. An all or nothing approach is not the only answer. Rather, we believe that only the systems that matter need to be transactional. For XTP environments we focus on the queue + database systems. In SOA environments, the focus is on workflow complexity.

The Answer: Atomikos ExtremeTransactions® for Transaction Management

For CTOs, architects and developers in Extreme Transaction Processing (XTP) or Service Oriented Architecture (SOA) environments where data quality and performance are mission critical, Atomikos ExtremeTransactions® is a transaction management system that automates and manages both simple and highly distributed transaction processes, preventing costly data corruption in the event of a system failure or crash.

Here's how it works. Atomikos ExtremeTransactions® uses connectors to back end systems (via JDBC or JMS) and peer processes (web services, RMI services) to consistently track and monitor systems and services accessed by a transaction.

Should that transaction be cancelled, crash or timeout, Atomikos taps into its knowledge of your environment to pinpoint areas of impact, automatically cancel the transaction and roll back the partial effects in each of the systems; wiping out the effects of failure across systems, across complex transaction trees, and around the globe if necessary.

Key Benefits and Value

Improved Transaction Reliability and Data Quality

Atomikos ExtremeTransactions® can dramatically improve the reliability of your transaction processing systems and safeguard mission critical data in the event of a system crash or failure. Use of connectors ensures that Atomikos ExtremeTransactions® knows what to cancel (and in what system) in the event of timeout, cancellation or crash of a transaction even in the face of complex transaction trees and composite applications.

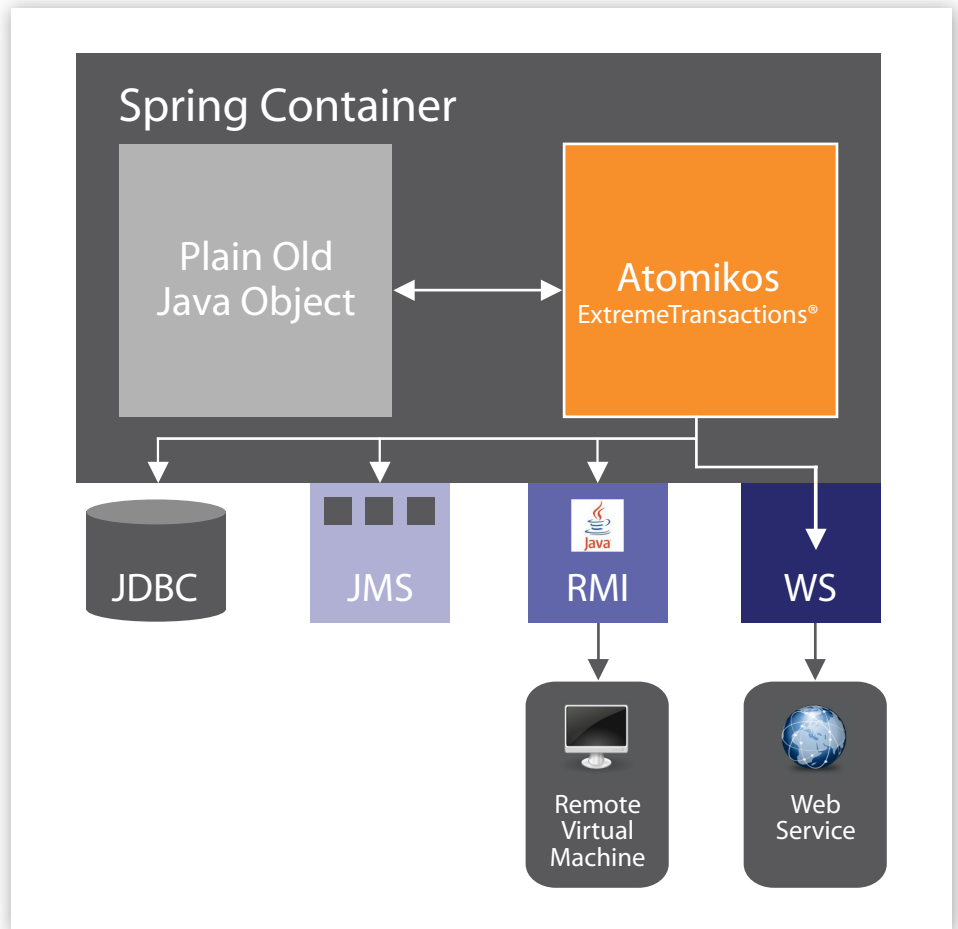
Completed transactions are persistent, and failed transactions will not result in loss or corruption of data. The effects of an incomplete transaction on systems and services accessed by the transaction are automatically cancelled, and failed transactions or even entire systems can be safely restarted. And Atomikos ExtremeTransactions® automates and coordinates system recovery on a global basis – all systems commit, or all systems roll back.

Easy to Maintain.

Focus on the Happy Path.

With Atomikos ExtremeTransactions®, systems and business processes are easier and less complex to build and maintain. Workflow complexity is reduced by half as there is no need to model complex error paths. Instead, development teams can focus on the happy path. Atomikos ExtremeTransactions® is an out-of-the-box-solution that is easily installed and implemented – it can be up and running in just a day's time. The use of this industry-proven commercial transaction management system eliminates the cost

XTP Java Stack – J2EE Without the Application Server



and burden of developing custom recovery code with its associated maintenance, testing and complexity issues.

Simple, Streamlined and Pragmatic Technology

– No Application Server Required

Atomikos ExtremeTransactions® is built to be effective. The technology is not overloaded with unnecessary features that you do not need and will never use. And you gain all the advantages of the J2EE platform, and superior application design without the need for an application server.

Next Generation Agile Enterprise Java

Atomikos' next generation transaction management software is optimized for today's Java-based technology environments, allowing you to build better quality applications, at less cost and in a shorter amount of time. For XTP environments, Atomikos offers J2EE without the need of an application server, and for SOA, its patent-pending TRY-CANCEL/CONFIRM (TCC) approach is ideal for two phase, compensation-based transactions. ISVs embedding this software into their commercial software applications gain instant compliance to reliability standards and specifications such as JTA/XA.

Scalable and Open

Atomikos ExtremeTransactions® is mature technology, field tested for a variety of configurations and large platforms, and backed by a commitment to open source. The software is perfectly scalable with no central node. The open source core, Atomikos TransactionsEssentials® is freely available from the Atomikos community for download.

Atomikos ExtremeTransactions® - Solutions for XTP, SOA and ISV/OEM Markets

Extreme Transaction Processing (XTP)

Extreme transaction processing (XTP) is a new computing model describing a scenario where applications must absorb and crunch massive volumes of fast-changing data from many sources. Not only does XTP require extremely high throughput – there must be a high level of transactional integrity guaranteed. XTP is a growing practice within financial services firms, where electronic trading operates on the absorption of large volumes of trading events and requests, and the processing of those transactions within a database.

Other industries embracing XTP include utilities for energy trading, digital media for order processing, telcos for billing and call set up and the gaming industry for billing. Most if not all of these trading applications are aimed at maximizing the number of orders processed. Orders are typically taken via a web site or customer portal and queued for back office processing, freeing up front-end availability for new orders. Queued orders are then converted into meaningful business data. Each order is interpreted and the results stored in one or more databases.

Between orders submission on the front end and the processing of an order there may be multiple storage systems and consequently many points of failure. When failure occurs in any one of these systems, orders and associated business data may be lost, or duplicated, and in a trading scenario, where dollar values of transactions can be very high, and volumes of transactions large, the potential for bottom line impact and financial loss is significant.

Industries and companies engaged in XTP need to minimize risk to the fullest extent. They turn to Atomikos Extreme Transactions® to safeguard and protect mission critical data in the event of any transaction failure.

“I can say first hand that Atomikos is the way to go if you are looking for out-of-container XA-capable JTA transactions.”

Service Oriented Architecture

Companies embracing service oriented architectures are characterized by many complex internal business processes, and growth in the number of composite applications. For instance, the seemingly simple reservation of a phone number for a subscriber/customer within a telecommunications firm involves a series of automated steps connected to a larger business process. Architects in SOA

environments have typically turned to business process execution language (BPEL) for web services to describe a business process. But BPEL also requires that for every prescribed step in the process, one must also model the reverse path in the event of error. This method of programmatically defining business processes is unwieldy, unreliable and quite brittle.

Atomikos ExtremeTransactions® offers a patent-pending Try-Confirm/Cancel (TCC) approach for managing two-phase compensation-based transactions. Regardless of the complexity of the transaction tree, or the business process, Atomikos ExtremeTransactions® maintains a total awareness of the transaction and broad system involvement, automating recovery in the event of error or transaction failure. Any error paths are taken out of the workflow and entirely handled by Atomikos.

ISV/OEM

Independent software vendors (ISVs) who must adhere to JTA or reliability standards for web services transactions also find value in Atomikos Extreme Transactions® transaction management system. ISVs are able to embed Atomikos' technology within their commercial applications allowing them to adhere to industry standards and specifications for Java transactions such as JTA/XA, build extremely reliable software products, and avoid the cost of building and maintaining their own transaction management system. Atomikos ExtremeTransactions® is industry proven and used by a large number of ISVs including Red Hat, Skyway Software, Software AG, and Webtide.

Key Features

> Supports J2EE

No need for an application server.

> Virtually Unlimited Scalability for High Volume Transaction Processing

Atomikos ExtremeTransactions® can leverage a persistent JMS queue to store transaction requests for easy load balancing and crash resilience. Transactions stored in JMS are then processed by Atomikos ExtremeTransactions®, allowing for reliable and exactly once message processing. To increase power even more, you simply add another Virtual Machine process on a separate CPU.

> Revolutionary, Patent-Pending Try-Confirm/Cancel (TCC)

Atomikos ExtremeTransactions® patent pending TCC approach is optimized for two-phase compensation-based transactions significantly reducing workflow complexity. There is no need for the modeling of error paths, making the solution ideal for Service Oriented Architectures with composite applications and complicated transaction trees.

> Java Transaction API (JTA/XA)

Defines transactions in Java™.

> Java Database Connectivity (JDBC)

Built-in connection pooling supports virtually any vendor driver and offers optimal performance.

> Java Message Service (JMS)

Enables the use of any queuing system with JMS capabilities.

> Full recovery

Recover from system crashes or restart without compromising data integrity or correctness.

> SOAP support

Transactions can span different web services.

> Read-only optimization

Minimize overhead required for read-only transactions.

> Nested (sub)transactions support

> RMI/IIOP

Services do not have to be XML/WS

> Intra-VM

Runs inside your application's Virtual Machine for maximum performance and ideal scalability.

> Integrates with Spring, any Java application or web application server

> Event-driven

Permits automatic forwarding of incoming JMS messages to your application.

> 24/7 professional support

Related Products

For system architects and developers in the open source community and software engineering educators who need basic transaction process monitoring capability, Atomikos **TransactionsEssentials®** is an open source version of our transaction management system offering basic support for JDBC/XA pools, JMS/XA pools and JTA/XA to enable functional testing of transaction processes outside of the application server. Atomikos **TransactionsEssentials®** is simple to install, implement and use and requires no additional services.

System Requirements

- This product works on all platforms.
- Java virtual machine (JVM) of version 1.4 or higher is required.
- At least 128MB of RAM is recommended.



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