

# ORACLE TUXEDO

## KEY FEATURES AND BENEFITS

### FEATURES

- Distributed transaction processing
- Metadata driven application development
- Extensible integration infrastructure
- Advanced security
- High scalability
- XA two-phase commit
- Replicated service framework
- Robust fault management
- Clustering support
- Performance metrics monitoring
- MQ Series adapter
- Data collection and reporting
- Data-dependent routing
- Application parallelization
- SOA Support
- Oracle RAC Integration

### BENEFITS

- Optimize transactions and ensure data integrity across all resources regardless of access protocol.
- Automatically track transaction participants and ensure all resources are updated properly.
- Process multiple transactions simultaneously on different, distributed nodes.
- Keep applications running through planned and unplanned downtime by eliminating single points of failure.
- Flexibly process or defer transactions to allow distributed applications to work asynchronously.
- Dynamically replicate distributed applications throughout the network to maximize performance and reliability.
- Dynamic application provisioning support further improves reliability and availability

*In its third decade of reliable performance across thousands of deployments, Oracle Tuxedo is one of the world's most respected high-end computing platforms. It combines the peace of mind that comes from years of reliability, performance, and maturity with the latest service-oriented architecture (SOA) standards and technologies needed to make your mission-critical application a first-class participant in your environment. Whether you're modernizing an existing C or C++ application, re-hosting a mainframe COBOL application, or building a new SOA service with extreme transaction processing needs, Oracle Tuxedo remains the dependable choice.*

### The Engine for High-Throughput and Mission-Critical Applications

In today's environment of information technology (IT) consolidation, worldwide utilization, and constant availability, organizations need an enterprise application server that can

- Deliver thousands of transactions per second with sub-second response time, scaling linearly and dynamically with variations in the load
- Provides SCA based, metadata driven application development model
- Provide standards-based mainframe, Application-to-Transaction Manager Interface (ATMI), Common Object Request Broker Architecture (CORBA), and Web services interoperability for integration ease and faster time to market
- Modernize COBOL, C, and C++ applications through transparent, bidirectional SOA integration
- Help customers reduce the cost of maintaining mission-critical enterprise systems by providing a platform that supports migrated mainframe applications
- Run on a wide variety of platforms, from economical desktops to the largest and most powerful data centers

Oracle Tuxedo provides a solid foundation for application services, with strong reliability and transaction integrity, ultra-high performance, linear scalability, and configuration-based deployment. As the distributed transaction-processing platform of choice, it provides the operational backbone of the world's leading companies—running many of their largest mission-critical systems, including core banking services, airline reservations, brokerage services, e-commerce operations, and telecom services. Oracle Tuxedo keeps these systems up and running even when deploying new application services, scaling server configurations to handle additional workload, or failing over within or across data centers.

### Highly Reliable Distributed Transaction Processing

Oracle Tuxedo provides a service-oriented infrastructure for efficiently routing, dispatching, and managing requests, events, and application queues across system processes and application services. With virtually limitless scalability, it manages peak transaction volumes efficiently, improving business agility and letting IT organizations quickly react to changes in business demands and throughput. Oracle Tuxedo optimizes transactions across multiple databases and ensures data integrity across all participating resources, regardless of access protocol. The system tracks transaction participants and supervises an extended addressing (XA) two-phase commit protocol, ensuring that all transaction commits and rollbacks are properly handled.

Distributed Transaction Processing Features and Benefits	
Distributed transaction management server	Optimizes transactions and ensures data integrity across all participating resources, regardless of the access protocol
XA two-phase commit	Automatically tracks transaction participants and ensures that all resources are updated properly or exercises a rollback, ensuring data integrity despite component failures
Multiple messaging models	Supplies synchronous, asynchronous, and conversational messaging APIs for heterogeneous platform support
Transaction queuing	Provides flexibility in processing or deferring transactions to allow distributed applications to work together asynchronously
Event brokering	Provides a transactional event system based on the publish-and-subscribe programming model

### Widely Extensible Integration Infrastructure

The Oracle Tuxedo SOA lets enterprises develop composite (or hybrid) end-to-end solutions that combine the availability and scalability of Oracle Tuxedo with the extensibility of Java. Customers can extend Oracle Tuxedo applications to

- Java clients via Oracle Tuxedo Jolt
- Microsoft .NET clients via Oracle Tuxedo .NET workstation client
- Web services and Service Component Architecture (SCA) support via Oracle Service Architecture Leveraging Tuxedo (SALT).
- Bidirectional Enterprise JavaBeans integration with Oracle WebLogic Server and other JCA compliant application servers via Oracle Tuxedo JCA Adapter
- Heterogeneous, mediated messaging with Oracle Service Bus

Oracle Tuxedo supports many different connectivity and interoperability standards, so companies can use its applications and services across heterogeneous environments. The domains architecture supports interoperability among different messaging and transaction-processing applications running in separate environments, networks, geographic locations, and companies as well as across application server platforms—including Oracle WebLogic Server and Oracle Service Bus—and mainframes running IBM CICS or IMS TM. With Oracle SALT, Oracle Tuxedo services can transparently call external Web services as if calling another Oracle Tuxedo service, and external applications can transparently call Tuxedo services through standard web service interface. In addition to basic Web services protocols,

Oracle SALT complies with most primary Web services specifications, including WS-Addressing, WS-Security, WS-Atomic-Transactions and WS-Reliable Messaging. Oracle SALT also provides a Service Component Architecture (SCA) container. SCA programming model enables component reuse, multi-container support, and ability to focus on business logic. Support of SCA programming model on top of Tuxedo will render the ability to more effectively manage service lifecycle, including systematic re-use of existing services in composite applications based on SCA, as well as runtime discovery of service signature. SCA support will render Tuxedo-based applications (those commonly written in C/C++ and COBOL) interoperable with other enterprise applications written in Java, .NET, etc, a significant benefit to customers.

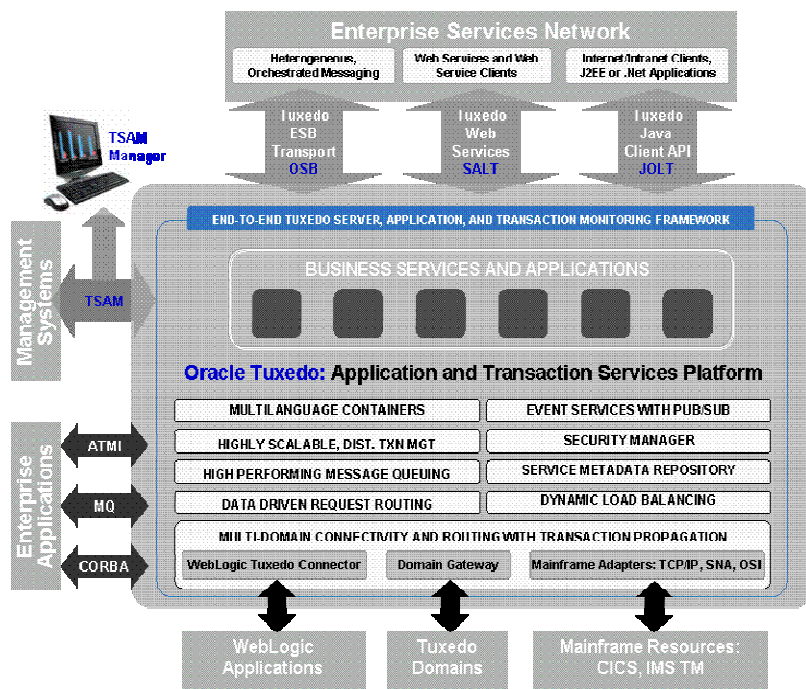


Figure 1: Oracle Tuxedo integration architecture.

Oracle Tuxedo is critical to all non-Java applications. Coupled with Oracle WebLogic Server, Oracle Tuxedo provides an end-to-end language support infrastructure connecting enterprise applications to the Oracle Service Bus infrastructure layer for complete SOA support.

Integration Infrastructure Features and Benefits	
Oracle WebLogic Tuxedo Connector	Provides bidirectional, peer-to-peer, cross-platform interoperability with transaction and security propagation for data integrity
Oracle SALT	Provides a bidirectional, high-performing, easy-to-use, configuration-driven model that accesses existing Oracle Tuxedo services as standard Web services using SOAP over HTTP
Native transport to/from Oracle Service Bus	Provides bidirectional connectivity to/from Oracle Service Bus without any coding, including security and transaction propagation
Oracle Tuxedo JCA Adapter	Provides bidirectional, peer-to-peer, cross-platform interoperability with transaction and security propagation. Hot-pluggable with any JCA compliant application server.
XML buffer and parsing	Supports XML message parsing, conversion to/from Tuxedo buffer types and routing to other applications based on XML contents
Oracle Tuxedo interoperability	Supports standard IOP with other object request brokers properly implementing the appropriate CORBA standard
C#, .net client API	Provides access to Oracle Tuxedo applications from Microsoft .net infrastructure

### Advanced Security

The comprehensive security features incorporated in Oracle Tuxedo include authentication, authorization, auditing, and Secure Sockets Layer (SSL)-based link-level encryption when deploying applications across networks. Oracle Tuxedo also provides a plug-in framework to support a public key infrastructure (PKI), digital signatures, message encryption, and third-party security products for networked applications—enabling it to work within existing corporate security standards. The default authentication plug-in uses Lightweight Directory Access Protocol (LDAP) support to enable authentication across diverse LDAP environments, including Microsoft Active Directory, Sun LDAP, and IBM SecureWay LDAP with an IBM RACF back end.

### Unsurpassed Scalability and Reliability

For companies that need to increase the accessibility of existing applications via Web services; consolidate enterprise transactions and messaging; and migrate mainframe applications to a compatible, proven application platform, the multilanguage, “build to scale” application platform of Oracle Tuxedo provides a proven mission-critical infrastructure.

At the heart of Oracle Tuxedo is a high-performance, highly reliable messaging engine that provides guaranteed “exactly once” delivery. This engine provides synchronous, deferred synchronous, and conversational messaging APIs—all transparently, whether in one machine, a cluster of related machines, or across independent Oracle Tuxedo domains. Using data-dependent routing, Oracle Tuxedo can route messages based not only on priority and context, but also message content. This enables efficient transaction processing and ensures the highest level of performance and flexibility for a company’s most critical messaging solutions.

Using a replicated services framework that can automatically spawn additional services based on real-time system loads and throughput, Oracle Tuxedo ensures the highest reliability and performance for the most demanding mission-critical

applications. Certification with Oracle Clusterware improves the availability of existing and new applications. Because Oracle Clusterware is also certified with Oracle Real Application Clusters (Oracle RAC), integration between Oracle Tuxedo and Oracle Real Application Clusters is significantly enhanced. Oracle Tuxedo ensures constant access to applications, continually monitoring components for application, transaction, network, and hardware failures. With robust operations, administration, and maintenance (OA&M) services—that can stop and restart application services automatically—Oracle Tuxedo eliminates single points of failure, so applications are always available when and where customers and partners need them.

<b>Scalability and Reliability Features and Benefits</b>	
Scalability increases	Increase to MAXSERVICES limit
Application parallelization	Allows applications to handle requests in parallel and process multiple transactions simultaneously on different, distributed nodes
Replicated service framework	Dynamically replicates distributed applications throughout the network to maximize performance and reliability
Robust fault management	Minimizes downtime and keeps applications running through planned and unplanned downtime by eliminating single points of failure
Automated load management and balancing	Provides automated service replication based on real-time system loads and dynamically balances requests across all available resources, ensuring consistently high throughput
Data-dependent routing	Routes messages based on their context, content, or time of day and enables efficient transaction processing and prioritization
Advanced message queuing paradigm	A flexible in-memory or disk-based message queuing mechanism for high performance, reliable, asynchronous message delivery
Clustering support	Full support for Oracle Real Application Clusters

### **Oracle Tuxedo System and Application Monitor**

Oracle Tuxedo System and Application Monitor (TSAM) is designed for end-to-end transaction and services monitoring. It enables users to set and monitor response-time service-level agreements (SLAs), investigate the performance and behavior of live application services, and improve capacity planning through utilization metrics for all components of the Oracle Tuxedo infrastructure.

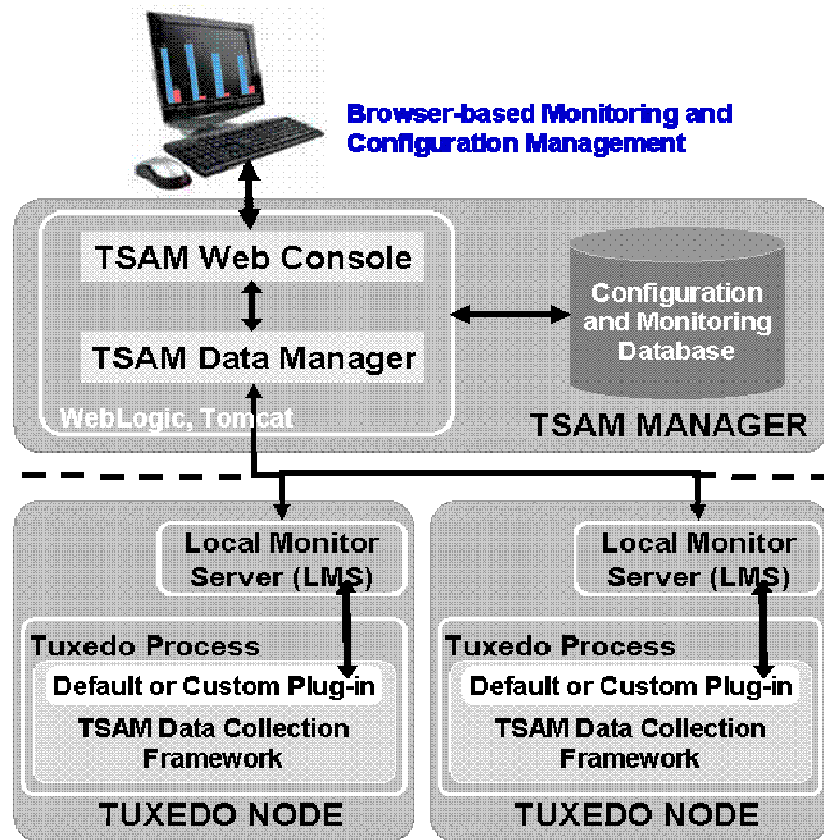


Figure 2: Oracle TSAM facilitates the collection of performance data and system statistics to help lower downtime and maintenance costs.

With Oracle TSAM, users can monitor live application requests, service activities, XA transactions, and throughput of Oracle Tuxedo servers. Users can set and monitor alerts on application request and service execution times; number of messages queued on interprocess communication queues; and the health of Oracle Tuxedo domains, servers, gateways, and other components. Oracle TSAM alerts trigger events in the Oracle Tuxedo event server, which enables user-defined services to be associated with the alerts. Users can also query statistics on service performance, system performance, and specific application patterns with data on the service call tree.

Oracle TSAM Features and Benefits	
Tracing features	Offers finer granularity of trace points, trace requests across domain boundaries, and global transaction identifier correlation across domains
Performance metrics monitoring	Includes end-to-end response time, generation of events when response time or queue depth threshold is reached, complete service metrics, dynamic control of service metrics, and gateway and bridge metrics
Data collection and reporting	Provides distributed data collection, centralized reporting, and monitoring and local control of data collection

**RELATED PRODUCTS AND SERVICES**

Oracle Tuxedo delivers a robust platform to run high-volume applications across distributed, heterogeneous computing environments, enabling transactions that stretch from customer-facing, business-critical applications to back-office processes, across any system, anywhere in the world.

**RELATED PRODUCTS:**

- Oracle Tuxedo Application Runtime for CICS and Batch
- Oracle Tuxedo Application Rehosting Workbench
- Oracle Tuxedo JCA Adapter
- Oracle SALT
- Oracle TSAM
- Oracle Tuxedo Mainframe Adapters
- Oracle Tuxedo Jolt
- Oracle Service Bus
- Oracle WebLogic Server

Extensible monitoring plug-in framework	Enables collection of performance metrics using the provided default plug-in; also enables custom development of plug-ins for collection
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**Resource Management**

Oracle Tuxedo helps manage resource utilization to ensure that there is sufficient capacity for all activities running on a given application instance. Requests are dynamically routed to available network assets to optimize transaction success.

Robust integration capabilities enable organizations to leverage existing technology investments while maximizing resource utilization.

Resource Management Features and Benefits	
MQ Series Adapter queue	Connects bidirectionally with MQ Series; provides bidirectional transaction-context propagation and XA two-phase commit protocol
Advanced security	Authentication, authorization, auditing, and encryption (LLE, SSL) standards support that ensures data privacy when deploying Oracle Tuxedo applications across networks
Security enhancements	Integrates with Microsoft Active Directory server, supports Novell eDirectory, provides Advanced Encryption Standard support for password encryption and SSL implementation
Security plug-in framework	Enables out-of-the-box plug-in for Kerberos support, PKI, digital signatures, and third-party security integration
CORBA	Allows organizations to use their existing investments in CORBA applications and lets third-party object request brokers bootstrap authenticate, and access Oracle Tuxedo CORBA servers
ATMI	Provides an X/Open API that supplies a consistent API for C, C++, and COBOL across all BEA Tuxedo platforms

**Driving Business Results with Oracle Tuxedo**

Oracle Tuxedo helps IT organizations align more closely with business processes and transform from reacting to driving business impact. With its mainframe-class performance levels, expanded SOA enablement and Web extensibility, and standards-based interoperability in a multi-language environment, Oracle Tuxedo simplifies distributed transaction processing and high-performance message switching and routing for any application development. It's the key to improving business productivity, efficiency, and agility.

**Contact Us**

For more information about how your organization can leverage the power of Oracle Tuxedo, please visit [oracle.com](http://oracle.com) or call +1.800.ORACLE1 to speak to an Oracle representative.



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