Oracle Coherence is an in-memory data grid solution that enables organizations to predictably scale mission-critical applications by providing fast access to frequently used data. Data grid software is middleware that reliably manages data objects in memory across many servers. By automatically and dynamically partitioning data, Oracle Coherence ensures continuous data availability and transactional integrity, even in the event of a server failure. It provides organizations with a robust scale-out data abstraction layer that brokers the supply and demand of data between applications and data sources.

The Oracle Coherence Advantage

Performance – Oracle Coherence solves latency problems and drives dramatic increases in performance by moving data closer to applications for efficient access. In-memory performance alleviates bottlenecks and reduces data contention, improving application responsiveness.

Reliability – Oracle Coherence is built on a fault-tolerant mesh that provides data reliability and consistency. Organizations can meet data availability demands in mission-critical environments with Oracle Coherence support for data tolerance and continuous operation. The reliability of the data grid minimizes the need for applications to compensate for server and network failures, streamlining the development and deployment process.

Scalability – Oracle Coherence enables applications to scale linearly and dynamically for predictable cost and improved resource utilization (the processing power of the grid scales linearly with data capacity). For many applications, it offers a straightforward approach to increasing the effective capacity of shared data sources. Oracle Coherence handles continually growing application loads without risking data loss or interruption of service.
• Write-behind Caching
• Parallel grid-wide agents, data processing, and calculation
• Parallel query, cache indexing and explain plans
• Real-time continuous query
• Transaction Management
• ACID Transaction Guarantees
• WorkManager support
• Invocation Service
• WebLogic Portal P13N cache integration

GRID EDITION FEATURES
• WAN Support
• Support for cross-platform Real Time clients
• Elastic Data

BENEFITS
• Fast, reliable access to application data
• Near in-memory speed access to data, regardless of storage medium
• Enables in-memory data analytics and event processing
• Reduces load on shared data sources
• Optimized for scaling-out on commodity hardware
• Tera-scale support for in-memory data grids
• Native integration for Oracle’s WebLogic Server and WebLogic Portal
• Native Integration for Glassfish Server
• Automatically detects and corrects service disruptions
• Integration with Transactional Applications
• Tighter integration with WebLogic (XA Support)
• Improve Application Responsiveness
• Server Consolidation
• Optimized for Oracle’s Engineered Systems - ExaLogic
• Pluggable Authentication Framework
• Integration with F5’s BIG-IP® Local Traffic Manager™
• Integration with F5’s BIG-IP SSL Acceleration™

Oracle Coherence at Work

Caching – Applications cache data in the data grid, avoiding expensive requests to back-end data sources. The shared data cache provides a single, consistent view of cached data. Reading from the cache is faster than querying back-end data sources and scales naturally with the application tier.

Analytics – Applications query and analyze data in memory, leveraging the massive parallel capabilities of the data grid. Oracle Coherence provides out-of-the-box support for searching, aggregating, and sorting data, with support for custom analytical functions. It parallelizes operations across the entire data grid, ensuring that server failures or slowdowns do not affect calculation results.

Transactions – Applications manage transactional data in memory inside the data grid. A combination of unparalleled scalability and performance makes Oracle Coherence optimal for extreme transaction processing workloads. Its best-of-breed in-memory replication and guaranteed data consistency mean that it is suitable for managing transactions in memory until they are persisted to an external data source for archiving and reporting.

Events – Applications respond in real time to data changes throughout the data grid. Every transaction can potentially trigger many events, each of which may need to be processed in a matter of milliseconds. Oracle Coherence provides event-handling technologies capable of handling intense event rates, including server-side stream processing and interactive technologies such as “continuous query” for real-time desktop applications.

Oracle Coherence Editions

Standard Edition is focused primarily on distributed caching usage, and provides
• Seamlessly manage data across memory and disk-based devices
• Intelligently distribute and manage client connections
• Simplify the configuration of large-scale environments

ORACLE DATA SHEET

unlimited access for Data Clients

Enterprise Edition offers all the features of Standard, and adds features for data management, like parallel queries, parallel processing, WorkManager, and transaction support. All cluster members must be licensed. Clients that connect to the data grid through tcp (extend clients) are free, but cannot do Real-Time functionality (event listeners, near cache, continuous query cache).

Grid Edition offers all the features of Enterprise, and adds features for WAN networking and .Net and C++ Real-Time Clients. In Grid Edition, only storage-enabled cache servers and proxies need be licensed. All data clients, Real-Time Clients, and Compute Clients (storage-disabled cluster members) are free.

Oracle Coherence Clients

Oracle Coherence extends the power of the data grid to a wide range of applications hosted either within or external to the data center via a suite of Oracle Coherence Clients. Coherence enables real-time access to both Java and cross-platform applications by providing native clients for Java, C++ and .NET with transparent data conversion to and from Java, C++ and .NET data types, including custom application user types.

The current suite of Oracle Coherence Clients includes:

• Data Client - Stateless Data Grid client for use anywhere. May be used with all Coherence Server Editions.

• Real Time Client - Stateful Data Grid client, configured as an Extend/TCP client — The real time desktop client. May be used only with Coherence Grid Edition.

• Real Time Client configured as a Compute Client - The server-class client providing key manageability, monitoring, Quality of Service, and performance capabilities. May be used only with Coherence Grid Edition and supported only in Java environments.

Contact Us

For more information about Oracle Coherence, please visit oracle.com or call +1.800.ORACLE1 to speak to an Oracle representative.
Oracle Coherence enables in-memory data management for clustered applications and application servers. Coherence makes sharing and managing data in a cluster as simple as on a single server.

RELATED PRODUCTS

To make Cloud Application Foundation possible, Oracle brings together key industry-leading technologies:

- Oracle Coherence
- Oracle WebLogic Suite
- Oracle WebLogic Server
- Oracle JRockit
- Oracle Enterprise Manager
- Oracle ExaLogic Elastic Cloud
- Oracle Tuxedo
- Java Technology