Oracle Coherence Sales Playbook

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ORACLE

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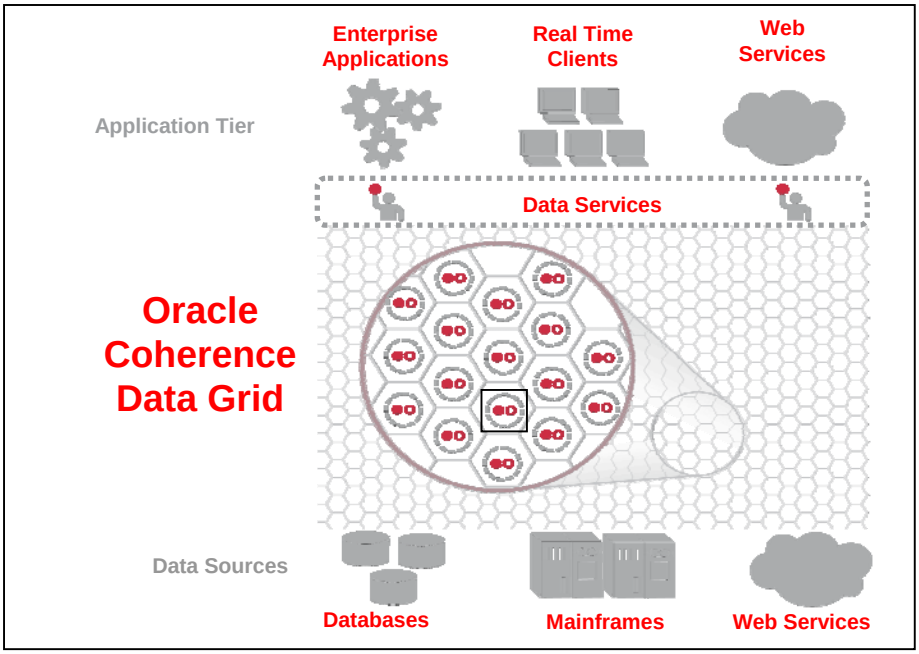
ORACLE COHERENCE SOLUTION SET

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 enables continuous data availability and transactional integrity, even in the event of a server failure. Oracle Coherence provides organizations with a robust, scale-out data abstraction layer brokering supply and demand of data between applications and data sources.



As a shared infrastructure, Oracle Coherence combines data locality with local processing power to perform real-time data analysis, in-memory grid computations, and parallel transaction and event processing. Oracle Coherence is recognized as a fundamental enabler for the rapidly growing space of extreme high-end transaction processing (XTP).

Coherence complements the Oracle database family working together with Oracle RAC as a database system of record, Oracle TimesTen for in-memory relational database access, and Oracle Berkeley DB Java Edition for disk-based cache overflow.

Oracle Coherence provides reliable data caching and user session management for Java, JavaEE, and .NET applications in a clustered environment, allowing these applications to achieve unparalleled scalability. Oracle Coherence also helps organizations offload their backend data sources, allowing applications to handle higher data volumes and improve service levels.

With broad support for all of the leading industry application servers, messaging solutions, and databases, Oracle Coherence strongly supports the "hot pluggable" strategy of Oracle Fusion Middleware.

Three server solutions define the Oracle Coherence product set:

- Coherence Standard Edition
- Coherence Enterprise Edition
- Coherence Grid Edition

Oracle Coherence Standard Edition

The Oracle Coherence Standard Edition is an entry-level product used for small-scale applications for data caching and sharing clustered data in their applications.

Oracle Coherence Enterprise Edition

Oracle Coherence Enterprise Edition is a mid-level product aimed at medium- to large-scale deployments. The focus of this product is on distributed data management for line of business applications. Organizations involved in medium-to large-scale application server deployments typically use the Coherence Enterprise Edition for its deeper integration, such as persistence and transactions, with the application server infrastructure.

Oracle Coherence Grid Edition

Oracle Coherence Grid Edition, the premier edition of the product line, is a shared enterprise-wide data services platform. Organizations typically use Coherence Grid Edition as a separate tier or core piece of infrastructure in large-scale deployments that focus on real-time analytics, transaction management, event infrastructure, and sophisticated application data-caching implementations. Unlike the Standard Edition and Enterprise Edition, the goal of the Grid Edition is to have a clustered shared service that multiple different clients can share for computation and transaction processing.

Oracle Coherence Real Time Clients

Real Time Clients enable Java, JavaEE, and .NET applications to connect to a data grid running Oracle Coherence Grid Edition. The Real Time Client provides full client access to the information and services of the data grid and acts as a bridge for platform and language interoperability. The Real Time Client is designed to also provide continuous updates of data from the backend data grid to the client environment.

The table below provides a functional overview of the Oracle Coherence solution set by product edition.

Feature	Feature Description	Standard Edition	Enterprise Edition	Grid Edition
Edition Base Features	Distributed data caching (TCMP)	✓	✓	✓
	Full data services including write-behind, transactions, analytics and		✓	✓
	Heterogeneous Client Support			✓
Connectivity	Data Clients Included	✓	✓	✓
	TCMP cluster technology	✓	✓	✓
	Multicast-free operation (WKA)		✓	✓
Management & Monitoring	Management host	✓	✓	✓
	Manageable via clustered JMX		✓	✓
Caching	Local cache, near cache, continuous query cache, real-time events	✓	✓	✓
	Fully replicated data management	✓	✓	✓
	Partitioned data management	✓	✓	✓
	Data source integration via read-through/write-through caching	✓	✓	✓
Integration	Hibernate & TopLink integration	✓	✓	✓
	HTTP session management for application servers		✓	✓
Analytics	Parallel InvocableMap & QueryMap		✓	✓
Transactions	Write-behind caching		✓	✓
	J2CA Resource Adapter		✓	✓
	TransactionMap support		✓	✓
Compute Grid	InvocationService		✓	✓
	WorkManager		✓	✓
Enterprise Data Grid	WAN support		✓	✓
	Supports Real Time Clients (sold separately)			✓
	.NET Support			✓

PACKAGING AND PRICING

The table below outlines the current proposal for pricing.

Internet Application Server Products	Named User Plus ($/NUP)	Software Update and License Support ($/NUP)	Processor License ($/Processor)	Software Update and License Support ($/Processor)
Coherence Standard Edition	80	17.60	4,000	880.00
Coherence Enterprise Edition	200	44.00	10,000	2,200.00
Coherence Grid Edition	400	88.00	20,000	4,400.00
Coherence Real Time Client	100	22.00		

SALES ENGAGEMENT MODEL

The Tangosol sales team will come in as a specialized sales team (SST) for NAS reporting to the NAS Technology Acquisition PMO (Dave Klebba) in NASA Technology. This SST will work as Solution Specialists (SS) with the Technology Sales Representatives (TSRs) and Fusion Middleware (FMW) Co-Prime reps. Tangosol SSs will be compensated via specific SS plans, and the field split will be 100% revenue / 100% non-revenue (TSR/FMW).
Over a six-month period, the greater Oracle Technology sales force, as well as Sales Consultants (SCs), will be trained on the Coherence product line. A SWAT team composed of the Tangosol SCs and supported by Development will conduct this training.

In six months, the Tangosol SST will be disbanded from the Tangosol SSs and distributed as sales reps to the three lines of business in NAS-Commercial, Public Sector, and NASA. The prime co-prime split will then continue to be TSR/FMW 100/100. The Tangosol sales director will work in a transitional role for a 12-month period."

POSITIONING

Oracle Coherence Standard Edition

Position Oracle Coherence Standard Edition as a distributed data caching solution.

Key Features

- Enables faster access by the application to frequently accessed data
- Reduces load on shared data sources in the backend data tier
- Establishes a manageable and scalable host for the application data cache
- Guarantees consistent data and data integrity in the middle tier for the applications' use
- Enables broad industry support as a plug-in cache for many popular application server ORMs and frameworks such as Hibernate, TopLink, & SPRING

What to Look for…

- Companies reaching maximum processing or I/O capabilities in their backend data tier due to increasing middleware processing

Example of Solutions

- Offloading reference data from the backend data tier to memory in the middle tier, reducing backend load
- Accelerating application business logic with frequently used data in memory

Oracle Coherence Enterprise Edition

Position Oracle Coherence Enterprise Edition as the application server caching solution.

Features

- Offloads and accelerates application servers
- Enables massive scaling of stateful Web applications
- Co-locates business logic and data for efficiency
- Processes transactional data in real time

What to Look for…

- Companies reaching maximum processing or I/O capabilities in their backend data tier

- Companies looking to significantly increase performance and/or scalability of data-intensive transaction processing or analytical applications

Example of Solutions

- Online travel booking: session state in-memory data grid
- Online insurance broker: in-memory transactional system

Oracle Coherence Grid Edition

Position Oracle Coherence Grid Edition as the shared data services infrastructure platform within the data center.

Features

- Enables highly available, reliable, transactional in-memory system
- Enables analytics through massive parallel processing across the grid
- Enables transaction rates beyond what a database can handle

What to Look for…

- Companies reaching maximum processing or I/O capabilities in their backend data tier
- Companies looking to increase performance and/or scalability of data-intensive transaction processing or analytical applications
- Companies looking for a high-performance infrastructure to allow application data sharing with low latency
- Companies interested in event-driven architecture (EDAs) or combination EDA/service-oriented architecture (SOA) and Web 2.0 technologies
- Companies with virtualization solutions such as VMware

Examples of Solutions

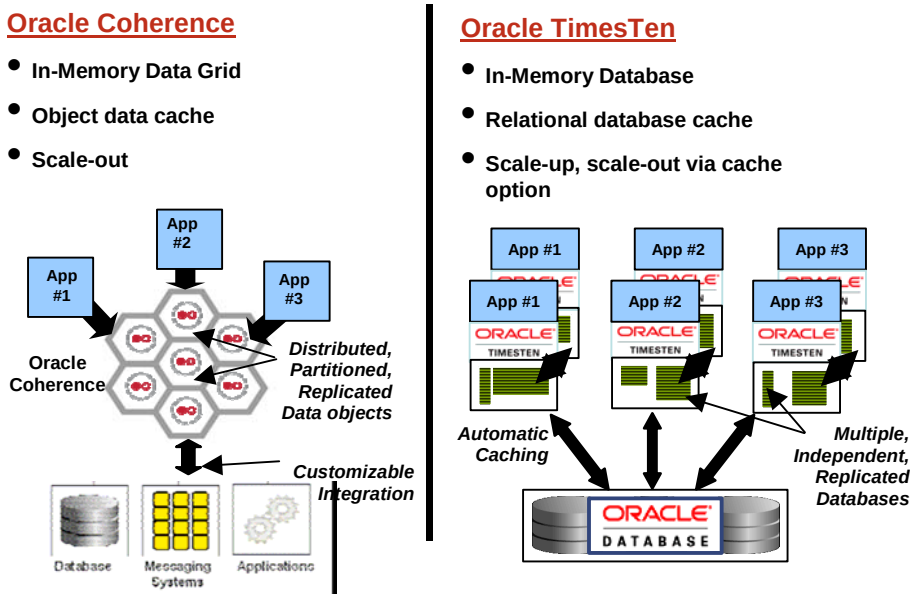
- Financial Services: Risk management (including real-time risk), algorithmic trading, order books, event feeds, matching, and reconciliation
- Travel and Hospitality: Profit-optimization engines (price discrimination, dynamic up-sell, utilization-driven pricing)
- Online Gaming: Real-time event matching

POSITIONING EXAMPLES

If	And…	Then….	Comments
Customer uses Java or JavaEE across multiple servers	Wants accelerated access to shared data across a cluster (data caching)	Position **Coherence** Standard Edition as cost-effective, entry-level solution to accelerate existing Java applications	Coherence can be used with any Java application server or standalone
Customer uses JavaEE application server	Has performance and/or reliability issues resulting from data source bottlenecks or HTTP session management problems	Position **Coherence** Enterprise Edition as a scale-out solution for data management in the application tier, offloading the database for both reads and writes	Coherence is already integrated with JavaEE servers (Oracle Application Server, IBM Websphere, BEA Weblogic, JBoss, Tomcat, etc.)
Customer has exceeded practical database capacity	Needs to handle extremely high transaction rates, with room for future growth	Position **Coherence** Grid Edition as a transaction processing data grid with scalability to hundreds of nodes	Configuring a large-scale Coherence cluster is straightforward and lends itself to time-sensitive capacity expansion
Customer is looking for shared data grid or information fabric	Consolidates access from multiple applications to multiple data sources for SOA and utility computing	Position **Coherence** Grid Edition with Real Time Clients for the shared in-memory data grid	This supports Java and .NET client applications
Customer is developing a real-time application	Needs low and predictable response time to SQL requests, high throughput, and high availability	Position Oracle **TimesTen** with the Replication option as the database of record	Oracle TimesTen provides full SQL support, high performance, and high availability
Customer owns the Oracle database or RAC	Needs high-performance SQL reads/updates to a subset of the Oracle database	Position Oracle **TimesTen** with the Cache Connect to Oracle option as a database cache	The Cache Connect to Oracle option provides high performance and maintains consistency of cached data
Customer owns the Oracle database or RAC	Needs an automatic and dynamic cache in the middle tier with a SQL interface	Position Oracle **TimesTen** with the Cache Connect to Oracle option using its transparent load feature	Transparent cache loading tailors the content of the cache to the application's access pattern

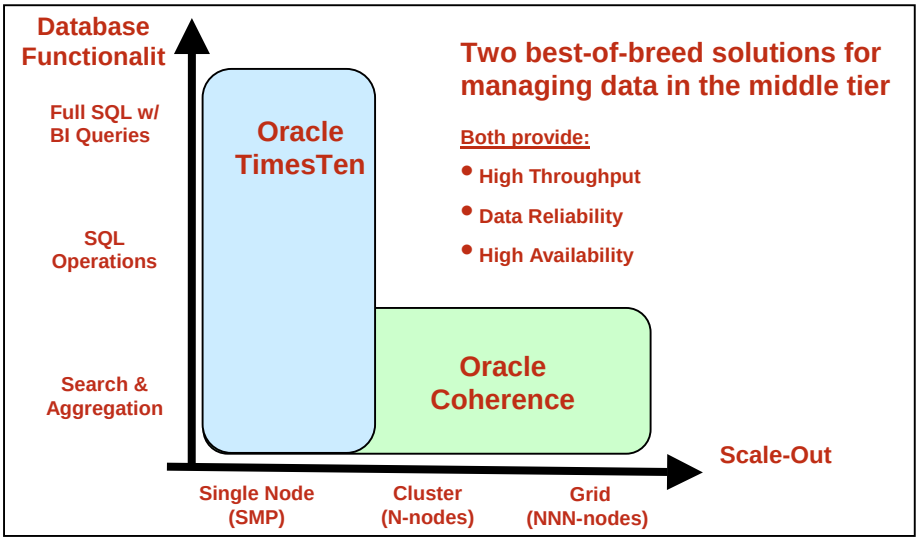
Oracle Coherence and Oracle TimesTen

Due to the in-memory nature of both products, there will be a perception that what Oracle Coherence provides and what Oracle TimesTen provides are overlapping technologies. However, these two technologies are fundamentally different and, generally, the customer requirements around implementing them do not overlap. The following diagram describes how the two products offer a complementary approach to staging data in the middle tier for Oracle customers.



The diagram below summarizes the core strengths of the two technologies:

- Oracle TimesTen offers full SQL support, the performance of in-memory data management, and tight integration with the Oracle database.
- Oracle Coherence offers scale-out, in-memory data management for extreme transaction processing in heterogeneous environments.



The table below outlines the key functional advantages of Oracle Coherence and Oracle TimesTen.

Feature / Capability	Oracle Coherence	Oracle TimesTen
Overview	In-memory distributed data access in the middle tier	In-memory **relational (SQL)** database/ cache in the middle tier
Performance	Real-time access to shared, distributed, in-memory data, with ability to attain desired response time and throughput through **scale-out**	Real-time access to mid-tier relational data or cached database tables with predictable response time and high throughput
Scalability	Dynamic scale-out using commodity servers (e.g., 2, 10, 100, 500, etc.)	Cluster of replicated servers; SMP scaling; scale-out via cache option
Data Management	Object model (objects/attributes)	Relational database (tables/rows/columns)
Flexible Data Access	Programmatic API (Java, C#, Managed C++, VB.NET, other languages)	Standard APIs (ODBC/JDBC) Standard SQL
Powerful Query Capability	Grid-based parallel queries with programmatic extensibility	SQL, including BI queries & joins
Full Database Integration	Capability via object/relational mapping (e.g., Toplink, Hibernate) or JDBC Capability supports read-through, write-through, read-ahead and write-behind strategies	Built-in caching to Oracle database & Oracle RAC. Updatable cache with automatic maintenance of consistency
Persistence to Disk	Feature managed by the application	Automatic feature

Coherence v. TimesTen: Functional Advantages

Oracle Coherence and Oracle Berkeley DB Java Edition

Coherence is pre-integrated with Oracle Berkeley DB Java Edition (BDBJE) for high-performance overflow to disk. So, if data exceeds the in-memory space available in Oracle Coherence, the data will be automatically moved to disk using BDBJE. The BDBJE implementation is very high performance and provides guaranteed data integrity. If the customer's use case for Oracle Coherence has the potential for data volumes that exceed memory, we should sell the joint Oracle Coherence+BDBJE solution. Several large financial services firms use this joint solution; in fact, they inspired us to do this integration.

Some customers may ask about the differences between Oracle Coherence and BDBJE (or Berkeley DB). The key differences are:

- Oracle Coherence provides grid/clustering/virtualization and is designed to run on multi-node systems ("scale out"). Applications do not need to know which node the data is on. High availability and on-demand scalability/efficiency is achieved with this multi-node architecture. Without Oracle Coherence, BDBJE does not have this capability.
- BDBJE stores data persistently to disk, so data isn't lost when there is a complete power outage. Oracle Coherence runs in-memory, using replication across multiple nodes to keep data safe, but will lose data if all the servers suffer a power outage. Coherence can use BDBJE to keep data safe from power outage.

In summary, use Oracle Coherence for shared memory across multiple nodes, clustered/virtualized in-memory data grids, and information fabrics. Use BDBJE for high performance on a single node, data shared from a shared disk, and persistent data. Use both together (pre-integrated joint solution) when a Oracle Coherence implementation needs to manage data overflow to disk. Use both together (customer integration) when a customer needs Oracle Coherence and also wants to persist information into local files or onto a shared disk using BDBJE.

COMPETITION

Oracle Coherence is widely recognized as the number one provider in this market. In fact, Oracle Coherence has not only defined this market, but also continues to lead with a superior technical solution. Further, Oracle Coherence has a large number of highly satisfied tier one reference customers who use Oracle Coherence technology in their mission-critical applications.

Oracle Coherence's most common competitors include Gemstone and Gigaspaces. IBM has also entered the market with technology (known as ObjectGrid) that is embedded in WebSphere XD Edition.

The table below provides some positioning and talking points for each of these competitors.

	Oracle Coherence	Competition
Architecture	Architecture is designed to plug into existing middleware solutions. It runs stand-alone, plugged into Oracle Fusion Middleware, or works directly with non-Oracle middleware.	• IBM: Often sold only with WebSphere, but could be used independently • Gemstone: Derived from a legacy object database technology • Gigaspaces: Complex technology
Customers	Oracle Coherence is proven with over 150 customers and 1,000 deployments. Oracle Coherence has many tier one customers in the most demanding industries, such as financial services, insurance, travel, online gaming, retail, and hospitality. Combined with Oracle Fusion Middleware penetration, customer references are very strong	• IBM: New product; lack of customer adoption • Gemstone: Majority of customers use old object database infrastructure rather than new positioning around in-memory data grid • Gigaspaces: Claims a few customer references—namely Virgin Records and Bank of America
Profitability/ Viability	Tangosol was a profitable, growing business prior to merging with Oracle.	• IBM: Technology is embedded in the Websphere XD Edition. IBM solution viability depends more on the success of the overall Websphere product line than of Object Grid itself • Gigaspaces: VC-backed Israeli startup; continues to require additional funding—unlikely that they are profitable • Gemstone: Largely unknown

		outside of its Smalltalk niche. Has some traction in C++
Differentiation	Not only has Oracle Coherence defined the reliable, in-memory data grid space, but also customers have used Oracle Coherence in the most demanding business scenarios, ranging from extreme transaction and data volumes to disaster recovery situations, and continue to garner successful references. Public performance benchmarks on large clusters of machines set the bar to which competitors have to reach simply to compete. Combining with Oracle's best-of-breed middleware will further differentiate Oracle Coherence for those customers wanting a best-of-breed integrated platform.	• IBM: Lack of maturity and install base; perceived coupling with WebSphere • Gigaspaces: Hobbled by reliance on Sun's JINI and JavaSpaces technology. Largely reactive to the market, mimicking Oracle Coherence positioning and using same terminology. Following the Oracle Coherence lead. • Gemstone: Similar to Gigaspaces, but with even fewer customers

CUSTOMER SOLUTIONS

Online Insurance Company – Application Data Caching Case Study

Problem

- Difficulty managing user-entered policy information on public Web site
- Persisting profiles to backend required upwards of one second – multiplied by thousands of concurrent users

Challenge

- Need to offload rapidly expanding middleware processing from core backend database processing

Solution

- Applications request data from the Oracle Coherence In-Memory Data Grid rather than backend data sources

Benefits

- 90 percent reduction of backend load = increase in capacity for new operations
- Application survived an extended backend outage with no impact

Oracle Coherence Feature Fit

- Manageable and scalable host for the application data cache
- Guarantees consistent data and data integrity
- Broad industry support as a plug-in cache

Large Financial Institution – Analytics Case Study

Problem

- Query-intensive portfolio management application required 30+ seconds to generate pages via database queries

Challenge

- Portfolio managers require rapid access to accurate information

Solution

- Applications execute all queries against the Oracle Coherence In-Memory Data Grid—from simple queries to advanced scenario modeling

Benefits

- No changes to database schema: operational cost savings
- All access to database during off-peak hours; lowered operational impact

Oracle Coherence Feature Fit

- Built-in query support
- User-defined parallel calculations
- Stable results even with server failure

Global Hospitality Chain – Transactions Processing Case Study

Problem

- Throughput challenges for rule-based, price-optimizing reservation engine due to volume of transactions exceeding backend processing capacity

Challenge

- Enable thousands of customer service representatives to maximize per-stay hotel revenue

Solution

- Use Oracle Coherence In-Memory Data Grid for all transactions

Benefits

- Moving event processing into application tier increased capacity to handle peak loads
- Application developers enabled to modify logic without impacting the database; operational cost savings and increased flexibility

Oracle Coherence Feature Fit

- Continuous availability capabilities of Oracle Coherence In-Memory Data Grid fundamental to transactional integrity

Gaming Company – Events Processing Case Study

Problem

- Matching engine supported several thousand matches per second, with intense “hot spots” on specific instruments

Challenge

- Revenue tied directly to customer activity. Need for high-throughput, low-latency solution for financial transactions

Solution

- Use event-driven architecture, treating bids as incoming events, modifying the state of bidding markets, and dispatching matched bids

Benefits

- Moving event processing into application tier increased capacity to handle peak loads
- Application developers enabled to modify logic without impacting the database; operational cost savings and increased flexibility

Oracle Coherence Feature Fit

- Co-located processing of data and events: low latency, high throughput
- Reliable once-and-only-once processing

ORACLE COHERENCE CUSTOMERS

CONTACTS AND ADDITIONAL INFORMATION

Please contact the following resources if you need assistance:

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