

# Oracle Database: the Industry's Choice for Oracle's Siebel Applications

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## **EXECUTIVE OVERVIEW**

Oracle dominates the market for databases supporting enterprise business applications, such as the Siebel CRM suite. This paper covers the business and technology factors driving customers to choose Oracle for their Siebel deployments.

Siebel Applications were originally developed on Oracle Database, and both organizations have a deep relationship at the technical level. Oracle Database team's assistance during incorporation of new database features, performance testing, bug fixing and customer problem escalations has been invaluable to the large number of Siebel customers running on Oracle Database. Years ago, Oracle implemented the industry's best concurrency model with non-escalating row-level locking and multi-version read consistency; innovative features such as self-tuning database components and enhanced indexing and partitioning schemes have maintained Oracle Database's reputation for performance and scalability for enterprise applications. And Oracle has shown itself to be a leader in database availability and security as well – an important consideration for managing critical data in a Siebel system.

## INTRODUCTION

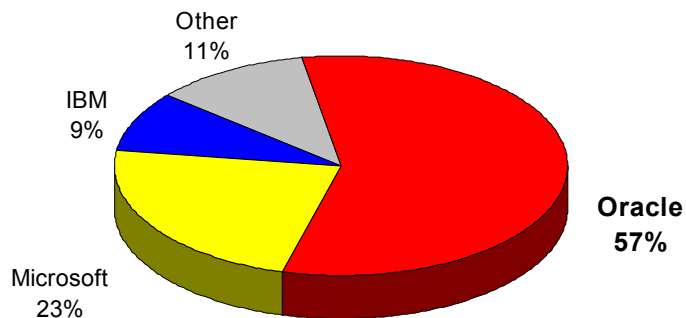
This paper covers the business and technology factors driving customers to choose Oracle Database as the underlying database for their Siebel deployments. In the following sections we discuss:

- Oracle's market position among databases for Siebel and other enterprise applications
- The adoption of new database features by Siebel Applications
- Oracle Database features important to Siebel customers in the areas of
  - Performance and Scalability
  - High Availability
  - Manageability
  - Security

## DATABASE MARKETSHARE FOR ENTERPRISE APPLICATIONS

Customers -- not ISVs -- select the database that runs their packaged applications. Independent sources concur that ERP and CRM customers continue to choose Oracle as the underlying database for their applications.

Analysts are unanimous in saying that Oracle Database enjoys dominant market share for enterprise applications, including Siebel. The following independent study supports this statement:



*Figure 1: Database market share for ERP applications. Source: AMR Research, August 2004*

As for Siebel Applications, Oracle dominates the database market both for CRM and Business Analytics applications, across operating systems:

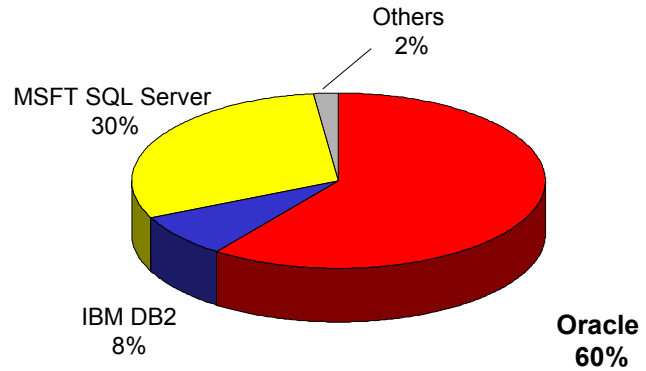
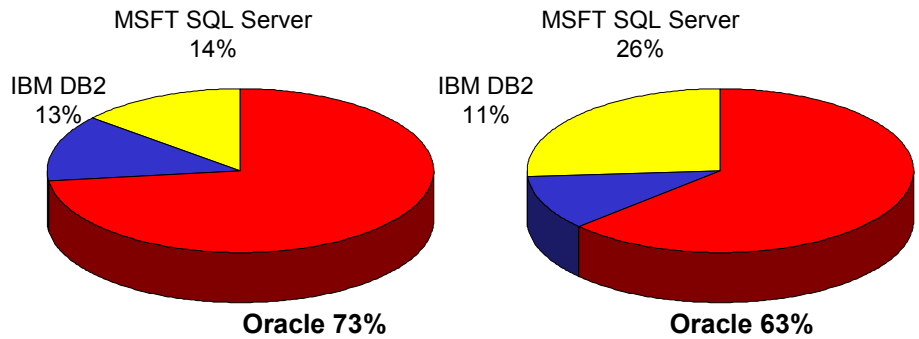


Figure 2: Database market share for Siebel CRM Applications (2005).  
Source: Oracle/Siebel



*By % of revenue derived*

*By customer count*

Figure 3: Database market revenue share for Siebel Business Analytics (2005).  
Source Oracle/Siebel

Oracle's market position has real advantages for customers considering database choices for their Siebel system. A large installed base indicates that Oracle is able to meet the database needs of Siebel customers across industries and geographies. It also means that a large group of customers has tested the Siebel-Oracle Database combination in situations that no QA group at Oracle could ever recreate. Both products have been enhanced as a result of this experience in the field. Customers choosing Oracle Database for Siebel Applications now will get the accumulated benefits of years of product testing in the real world.

### **SIEBEL-ORACLE DATABASE TECHNOLOGY RELATIONSHIP**

The development organizations of Oracle Database and Siebel Applications have worked together for several years to make sure that Siebel Applications take full advantage of Oracle Database technology:

- Performance testing of each release with the Oracle Database to ensure no degradation of response time, throughput and scalability between Siebel versions. Particular attention is paid to modules that make heavy use of the database, such as EIM, Assignment Manager and Call Center
- Fixing database bugs found during Siebel functional testing, and including Siebel enhancement requests in the database product roadmap
- Incorporating new Oracle Database features in Siebel releases
- Responding to escalated customer problems, when related to database issues

Siebel version 7.8 is fully certified with Oracle8i, Oracle9i Database and Oracle Database 10g, as well as with Oracle Real Application Clusters. Siebel 7.8 fully supports Oracle's Cost-Based Optimizer (CBO). This is particularly true for Business Analytics, where the design philosophy has been to push as much as possible of the analytical processing down to the RDBMS to fully leverage the CBO.

Siebel applications use several other Oracle features, including:

- Materialized Views
- Partitioning
- Locally Managed Tablespaces
- Automatic segment space management
- Various optimizations for performance, such as Index Skip-Scan

### **ORACLE DATABASE FEATURES IMPORTANT FOR SIEBEL CUSTOMERS**

The Oracle database has succeeded as a platform for enterprise applications because it provides the scalability, high availability and ease of management that are important for mission-critical systems. Managing a complex application like Siebel

already requires significant effort on the part of application administrators and business analysts; Customers prefer a database that will perform, scale and stay up without adding much administration overhead or technical risk. Sound architectural decisions made in early Oracle releases and a record of continued innovation have allowed Oracle to give customers this assurance.

### **Scalability**

A production Siebel system sees fluctuating user loads, contention on frequently used tables, a mix of reads and writes, and occasional heavy batch jobs. The database platform for the system needs to be able to scale easily on this mixed workload without requiring frequent and extensive DBA intervention.

### **Non-escalating row-level locking**

Oracle provides this scalability through a row-level locking<sup>4</sup> mechanism integral to the architecture of the database. Oracle allows an unlimited number of locks on table rows because these locks are stored with the row itself. In contrast, DB2 and SQL Server have implemented row-level locking using special memory structures, and must escalate the locks from row to page and even table or tablespace level as user counts and contention increase. The default Siebel installation places all tables in the same tablespace, and a heavily used Siebel system based on DB2 or SQL Server<sup>5</sup> can easily hang because of lock escalations leading to a lock on the entire tablespace. Even after extensive tuning, including moving tables into new tablespaces, the prospect of lock escalation still hangs over the system; the tuning depends on predicting which tables will see heavy usage, and in a Siebel system table usage varies unpredictably with time.

### **No Read Locks**

Not only does Oracle not limit the number of locks in the system, it also reduces the number of locks by eliminating read locks. Unlike DB2 and SQL Server, Oracle users reading a row do not acquire locks that prevent other users from updating the same row. Oracle guarantees a consistent view of data by storing data state at the beginning of a transaction in undo space; if the transaction fails, the undo space is used to roll back the database, if the transaction succeeds the database moves to a new consistent state.

### **Platform neutrality**

Oracle has always been a platform-neutral database. Oracle Database is released simultaneously on all major platforms, and the database is the same across all platforms. Oracle's support for the major Unix platforms, Windows and Linux gives customers the assurance that they can switch hardware vendors and operating systems with no penalty. SQL Server and, to a slightly lesser extent, DB2, force the customer to pick a specific operating system or hardware vendor. A Siebel system on Oracle can scale up by moving to a different, larger hardware configuration; the choices are far fewer for SQL Server or DB2 based systems.

More details about the Performance and Scalability of Oracle Database 10g can be found at <http://otn.oracle.com/deploy/performance/content.html>

### **Oracle Real Application Clusters**

Oracle Real Application Clusters (RAC) supports the transparent deployment of a single database across a cluster of hardware servers. This offers new possibilities in the area of high availability and scalability of an Oracle Database system, and also provides greater flexibility with the dimensioning of system resources.

Oracle Real Application Clusters provide full application compatibility: all types of applications can scale effectively without having to be specifically tailored for clustering environments. Migration is transparent: no database redesign or code changes are required for existing applications, no explicit application segmentation or data partitioning is required. Only Oracle Real Application Clusters provide real support for clustered configurations: full and transparent scalability can be obtained by simply adding new nodes as the demand increases.

Customers using Siebel Business Applications are increasingly demanding greater scalability and high availability to support mission-critical operations and continued business growth. Such environments are characterized by 24 X 7 operations and several thousand concurrent users. In addition, many large Siebel customers are interested in leveraging the Linux operating system to decrease the cost of deployment for mission-critical enterprise software.

Increasing the overall capacity of a Siebel Business Applications environment requires scaling in both the middle tier and database tier of Siebel's N-tier architecture. The middle tier is designed to "scale up" by adding more CPUs to a single Siebel Application Server and to "scale out" easily through the addition of Siebel Application Servers. Traditionally, the database tier could only be "scaled up" by replacing one proprietary computing platform with another more powerful platform to get more database performance. The availability of Oracle 10g Real Application Clusters (RAC) changes this paradigm, allowing the database tier to scale out through the addition of lower cost servers, including those running Linux.

Results of an investigation<sup>1</sup> done jointly by Oracle, Egenera and Network Appliance, Inc. (NetApp), show that the scale-out strategy is a viable solution for the database component of Siebel CRM solutions. Scaling from a single database node to a two-node configuration results in 80% scaling with minimal change in average response per transaction. The 4-node configuration delivers the same 80% scaling versus the single node configuration.

Based on these results, Oracle 10g RAC provides Siebel users an alternative to the traditional scale-up database strategy. A customer can start with a modest configuration consisting of 1 or 2 nodes and expect good scaling with each node added.

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<sup>1</sup> See *Scaling Siebel CRM Solutions with Oracle Database 10g Real Applications Cluster*  
[http://download.oracle.com/oowfsf2004/1635\\_wp.pdf](http://download.oracle.com/oowfsf2004/1635_wp.pdf)

Learn about Oracle Database Performance and Scalability at <http://otn.oracle.com/deploy/performance/content.html>

## **High Availability**

Oracle has a number of features designed to reduce unplanned downtime for a Siebel system. These features do not require any additional coding or testing on the part of Siebel – they are available to any user of the Oracle database.

### **Addressing system failures**

In the event of hardware failure, power failure or hardware or software crashes, Oracle Database allows for fast, predictable recovery. By setting the dynamic parameter `FAST_START_MTTR_TARGET`, the Oracle customer can specify the target time for database recovery after a failure. Regardless of transaction mix or system load, Oracle will adjust its checkpointing rate to attempt to meet the target recovery time. And during recovery, Oracle does not require users to wait for long transactions to roll back. Instead, users are allowed back on after a short roll forward phase; incomplete transactions are rolled back over time as needed.

Neither DB2 nor SQL Server provides such fast and predictable recovery.

### **Addressing Backup and Recovery**

Oracle offers a comprehensive backup and recovery tool (Recovery Manager, also called RMAN), simplifying and automating data recovery. And Oracle has optimized the tasks managed by RMAN to prevent data loss and reduce downtime during the recovery process:

- Oracle can split a disk mirror for backup purposes but still allow the database to remain online for both reading and writing. DB2 and SQL Server, on the other hand have to suspend write I/Os while splitting disk mirrors
- Oracle allows damaged archivelog files to be scavenged using Oracle LogMiner™, recovering some of the potentially lost transactions. Neither SQL Server and DB2 can recover corrupt archivelogs
- During point-in-time recovery, Oracle permits querying the database without terminating recovery. This is useful for determining if the failure affected critical data or non-critical structures such as indexes. This feature is unique to Oracle

### **Addressing Disaster Recovery**

Oracle DataGuard™ enables customers to create and manage transactionally consistent standby databases that can guarantee zero data loss in the event of a major disaster. With DB2 and SQL Server, on the other hand, every standby

database is a custom consulting implementation. And Oracle standby databases can be used to offload backup and reporting work from the production database.

Read more about achieving High Availability with Oracle at <http://otn.oracle.com/deploy/availability/content.html>

## **Manageability**

With every release, Oracle has included more features to automate database administration. Some features that distinguish Oracle from its competitors and are often adopted by Siebel customers to enhance the manageability of their Siebel systems include:

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- Built-in self-managing and automation: Oracle Diagnostics Pack provides a comprehensive set of automatic performance diagnostics and monitoring capabilities built into the database, while the related Oracle Tuning Pack offers an easy-to-use solution that automates the complex and time-consuming task of application tuning.
- Transportable Tablespaces: Oracle tablespaces can be moved between databases, greatly simplifying and speeding up the movement of large chunks of data by eliminating laborious export and import.
- Multiple Database Block Size: Each tablespace in Oracle Database can have a different block size, allowing the DBA to tune the schema objects for different Siebel modules for different modes of data access – tuning one tablespace for long-running complex queries returning large amounts of data, while tuning another for shorter queries with small result sets.
- External Tables: A Siebel system typically integrates with a mix of legacy and current-generation ERP and Supply Chain Management applications. Oracle's ability to expose external files as read-only tables allows for easy integration into these applications.

More details about Oracle Database 10g Manageability are available at <http://otn.oracle.com/products/manageability/database/content.html>

## **Database Security**

For almost 30 years Oracle has delivered state-of-the-art security solutions to government and commercial customers worldwide. Oracle Database 10g Release 2 continues that tradition by introducing powerful new features to address security, privacy and regulatory compliance. The emergence of identity theft as an organized criminal activity has placed new focus on the need to protect sensitive information from both insiders and those who present fraudulent credentials to gain access to sensitive information. While no single security technology will provide absolute security, IT professionals are taking steps to lockdown access to data and closely monitor the enterprise for suspicious activity. Oracle Database 10g Release 2

introduces important security features to help application developers build even more secure applications going forward. This includes Oracle Secure Backup which enables customers to encrypt data that's spooled to offline media devices, thus ensuring data remains secure and protected even if tape devices are lost or stolen.

Learn more on Oracle Database Security at

<http://otn.oracle.com/deploy/security/content.html>

## **CONCLUSION**

Oracle has a large and growing share of the market for databases used to deploy Siebel. This is not an accident – both companies invest in making Oracle technology work well for Siebel, and Oracle has a long track record of delivering the de facto standard database for enterprise applications. Siebel customers continue to choose Oracle because of the Scalability, High Availability, Manageability and Security benefits they obtain.



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