Microsoft

Microsoft® SQL Server® 2008

Leaping Forward: SQL Server 2008 Compared to Oracle Database 11g
White Paper

Summary: Microsoft SQL Server has steadily gained ground on other database systems and now surpasses the competition in terms of performance, scalability, security, developer productivity, business intelligence (BI), and compatibility with the 2007 Microsoft Office System. It achieves this at a considerably lower cost than does Oracle Database 11g.

For the latest information, see Microsoft SQL Server 2008.

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Executive Summary

Microsoft® SQL Server® 2008 outperforms Oracle in the areas that matter to your business. The following summarizes some of the mission-critical areas in which SQL Server 2008 excels.

Performance and Scalability

SQL Server scales to some of the world's largest workloads, evidenced by strong industry standard benchmark results. Customers such as Unilever, Citi, Barclays Capital, and Mediterranean Shipping Company support their most mission-critical applications on SQL Server. Customers running SQL Server 2008, including large ISVs such as Siemens and RedPrairie, report excellent experiences with the latest scalability enhancements. SQL Server is recognized as Best Seller and Top Growth Best Seller by CRN Magazine.

Security

The National Vulnerability Database (NIST) reports over 330 critical security vulnerabilities in Oracle database products over the last four years. During that same period, SQL Server 2005 experienced ZERO vulnerabilities. This result comes from secure engineering processes as part of the Trustworthy Computing Initiative, comprehensive security features, and a robust Microsoft Update infrastructure. This winning combination reduces both security risks and patching downtime for customers. According to one expert, Oracle is five years behind Microsoft in patch management. Computerworld reports that two-thirds of Oracle DBAs do not apply security patches.

Developer Productivity

SQL Server works with Microsoft Visual Studio® to help provide an integrated development experience, allowing developers to work in one environment across the client, mid-tier, and data-tier. SQL Server 2008 takes a step further with new development features. In contrast, Oracle's array of tools and SDKs, assembled via acquisition, require developers to learn and work across numerous interfaces. In fact, IDC reports that Microsoft is the number one application technology platform of choice.

Business Intelligence

SQL Server is part of the Microsoft integrated Business Intelligence platform, which spans data warehousing, analytics and reporting, score carding, planning, and budgeting. SQL Server is in the Leader's quadrant in both Gartner's Magic Quadrant for BI Platforms and Magic Quadrant for Data Warehousing. SQL Server 2008 introduces more innovation with new data warehousing and business intelligence features. According to Oracle's latest price list, the company currently charges up to an additional 800% or more on top of their base database fees for similar functionalities.

Microsoft Office System Integration

SQL Server helps customers gain better business insight and make faster decisions through the product's tight integration with the familiar Microsoft Office System user interface. For example, add-ins such as Data Mining for Excel uses both SQL Server and Microsoft Office to provide insight into customer data. IDC recognizes Microsoft as the fastest growing BI tool vendor. Oracle has Microsoft Office Plug In, which includes subset of the functionalities that SQL Server provides, but charges an additional $30,000 per processor.

Total Cost of Ownership

SQL Server has a simple tiered SKU licensing model. Oracle, on the other hand, has a complex array of options and add-ins that are required to develop, deploy, and manage most large-scale applications. The SQL Server integrated development environment and easy-to-use development tools lead to improved Time to Solution and Time to Value for applications and business insight. SQL Server is highly successful in the areas of self-tuning and automated administration, resulting in a much simpler deployment and management profile than Oracle Database 11g. SQL Server is designed to work seamlessly with the rest of the Microsoft software stack, which can help provide smoother development and deployment experience and higher performance than Oracle.

Feature Comparison

SQL Server 2008 has many new features that Oracle 11g does not have as shown in the following table. A brief description of each of these features follows the table.

Feature	Microsoft	Oracle
Resource Governor	✓	✓
Partition-aligned indexed views	✓	✓
PowerShell	✓	
Policy-Based Management	✓	
Filtered indexes	✓	
Advanced sparse columns	✓	
Multithreaded partition access	✓	
Column-prefix compression	✓	
Module signing using certificates	✓	
SQL Server Data Services	✓	

Resource Governor

Resource Governor provides consistent and predictable response times to end users. Organizations can allocate resources and define priorities for different workloads so that concurrent workloads do not interrupt consistent performance to end users. Resource Governor provides SQL Server with several important advantages over Oracle. By specifying minimum CPU and memory usage, you can prioritize workloads in order to guarantee that SLAs (service level agreements) are met for particular workloads in the database. Resource Governor also enables you to limit the amount of memory per resource pool, thereby preventing runaway queries.

Partition-aligned Indexed Views

Partition-aligned indexed views enable you to create and manage summary aggregates in your relational data warehouse more efficiently and use them in scenarios where you previously could not use them effectively. Partition-aligned views improve query performance. In a typical scenario, a fact table is partitioned by date. Indexed views (or summary aggregates) can be defined on the fact table to help speed up queries. When you switch in a new table partition, the matching partitions of the partition-aligned indexed views defined on the partitioned table switch, too, and do so automatically.

SQL Server PowerShell

SQL Server PowerShell is a new provider for browsing and managing SQL Server databases, tables, and other database objects. The Windows PowerShell™ command-line interface supports more complex logic than Transact-SQL scripts to allow for more robust administration scripts. You can also use PowerShell scripts to administer other Microsoft server products so that administrators use a common scripting language across servers.

Policy-Based Management

Policy-Based Management is a new system for managing one or more instances of SQL Server 2008 by using SQL Server Management Studio. Use it to create policies to manage entities such as instances of SQL Server, databases, and other SQL Server objects on the database server. It gives database administrators (DBAs) full control of their database servers from an entirely new perspective. It is an easy-to-use and powerful tool for the DBA to use to implement standard configurations in the SQL Server environment.

Filtered Indexes

Filtered indexes enable indexing on a subset of rows in a table and provide numerous benefits. They provide space-saving and performance improvements when you insert or update content.

Filtered indexes can greatly improve data-warehousing performance. For example, you can index only the data for the current month rather than the data for an entire year. You can create more filtered indexes per table to speed up queries. The SQL Server Database Engine Tuning Advisor can

recommend filtered indexes for database tables. Filtered indexes provide support for heterogeneous table data in applications such as content management systems (Microsoft Office SharePoint® Server, for example) that have multiple properties for each data type such as a retail product catalog that has entries for books, CDs, and clothes in the same table, but the properties of these items differ. You can create filtered indexes for data according to properties or categories.

Sparse Columns

Sparse columns efficiently manage empty data in a database because they enable NULL data to consume no physical space. SQL Server 2008 sparse columns can support wide tables that have up to 100,000 columns, whereas Oracle's current limit is 1,000. Column sets support property-bag scenarios in content management systems such as Office SharePoint Server.

Multithreaded Partition Access

Multithreaded partition access enables SQL Server 2008 to improve query-processing performance on partitioned tables for many parallel plans. Furthermore, multithreaded partition access changes the way in which parallel and serial plans are represented, and enhances the partitioning information that is provided in both compile-time and run-time execution plans.

Column-Prefix Compression

Column-prefix compression is part of the SQL Server 2008 advanced page compression techniques (dictionary-page compression and column-prefix compression). With column-prefix compression, SQL Server looks for a common byte pattern at the beginning of a column across all rows on the page. If it finds at least two instances of columns that have a common byte pattern, it stores that byte pattern once on the page and refers to this byte pattern from the respective columns.

Module Signing Using Certificates

Module signing using certificates gives SQL Server the ability to sign modules such as stored procedures, functions, triggers, or assemblies, within a database. This means that you can temporarily elevate privileges without switching the user context. In addition, it is not possible to tamper with or modify the certificate (otherwise it is invalidated).

SQL Server Data Services

SQL Server Data Services is a highly scalable, cost-effective, on-demand data storage and query-processing Web service. It is built on robust SQL Server technologies and helps guarantee a business-ready service level agreement that covers high-availability, performance, and security features. SQL Server Data Services is accessible by using standards-based protocols such as SOAP and REST for quick provisioning of on-demand data-driven and mash up applications. Businesses can store and access all types of data from

origination to archival by using SQL Server Data Services. Users can access information on any device, from desktop computers to mobile devices.

Performance and Scalability

Increasingly, SQL Server is regarded as one of the fastest and most scalable database systems available. SQL Server 2008 is already setting industry-leading benchmark figures and there are numerous scalability improvements in this release.

Benchmarks

SQL Server 2008 has set numerous records in industry and partner benchmark tests. It is increasingly seen as the database system of choice for high-performance, scalable systems.

The Transaction Processing Performance Council

The [Transaction Processing Performance Council](#) (TPC) is a not-for-profit organization that defines transaction processing and database performance benchmarks, and publishes objective performance data based on these benchmarks. TPC benchmarks have extremely stringent requirements, including both reliability and durability tests, and must undergo an independent audit.

- The Transaction Processing Performance Council (TPC) is a nonprofit corporation that was founded to define transaction-processing and database benchmarks.

- The TPC-E benchmark is a new scalable benchmark that is designed to be representative of modern online transaction processing (OLTP) systems. Unlike its predecessor, TPC-C, TPC-E uses a complex but realistic database schema and requires mainstream capabilities such as referential integrity and RAID-protected storage.

- The TPC-H benchmark is a decision-support benchmark that consists of ad-hoc queries and concurrent data modifications that are designed to have broad, industry-wide relevance.

- As of April 14, 2008, SQL Server 2008 holds the record TPC-E benchmark at 1126 transactions per second (tps). SQL Server outperforms Oracle 11g at the 100-GB, 300-GB, 1-terabyte, and 3-terabyte TPC-H price/performance benchmarks.

- Oracle has heavily publicized its best price/performance TPC-C benchmark even though the TPC-E benchmark is more representative of customer needs. Previously, SQL Server held all 10 of the best TPC-C price/performance results. The Oracle result was achieved by using niche licensing and support options that are not practical in the real world. The Oracle 11g license is for only three years, compared to the unlimited lifetime of SQL Server licenses. Initially, Oracle support is free but you have to pay per incident with the license scheme that is used for the benchmark. In addition, Oracle used their Standard Edition One product, which sees little demand from enterprise customers. The best price/performance score from SQL Server is on the enterprise-level x64 Enterprise edition.

Partner Benchmarks

SQL Server has a number of significant partner benchmarks:

- SQL Server 2008 attains the world record scale on the SAP Sales and Distribution (SD) Standard Application 3-tier benchmark on a 4-processor server using industry standard blade servers with 34,000 SAP SD Standard Application benchmark users.

- SQL Server 2008 achieves unmatched performance by price.

- Unisys sets a world record for extract, transform, and load (ETL) performance by loading 1 terabyte of data in less than 30 minutes. This was achieved by using SQL Server 2008 Integration Services.

- Camstar, a leading provider of Manufacturing Execution Systems (MES) for global enterprises, reported a world record scale of 205 Manufacturing Execution System transactions per second, 14 percent higher throughput, and a 60 percent space reduction due to database compression. These results were achieved by using Camstar's MES application, SQL Server 2008, and Windows Server® 2008 compared to SQL Server 2005.

- Microsoft Dynamics AX reported record scale improvement of 70 percent in throughput, scalability, and response time. Benchmark tests demonstrate record scale, showing an improvement of up to 70 percent in throughput scalability and response time, thereby maximizing performance while minimizing database growth using SQL Server 2008 database compression.

- Microsoft Dynamics CRM reported record scale at 24,000 concurrent users with sub-second response rates. Benchmark tests demonstrate that record scale at 24,000 concurrent users with a sub-second response rate was achieved by using Microsoft Dynamics CRM 4.0, SQL Server 2008, and Windows Server 2008 for enterprise-level workload.

Scalability Enhancements

SQL Server 2008 has numerous scalability enhancements, including full support for 64-bit systems that have up to 8 terabytes of memory, high-performance NUMA-based computers, and hot-add memory and CPUs with no downtime on compatible machines. Following are some highlights of the scalability enhancements in SQL Server 2008:

- You can install passive instances on a server at no additional cost to provide high availability. This functionality is available with Oracle 11g but costs much more.

- It can be difficult to provide predictable performance for a given workload because other workloads on the same server compete for system resources. SQL Server 2008 includes Resource Governor, which enables administrators to define limits and assign priorities to individual workloads to optimize the performance of a mission-critical process and to maintain predictability for other workloads on the server. Management tools such as this are available with Oracle 11g only by purchasing options at an extra cost.

- SQL Server 2008 includes Performance Studio, an integrated framework that you can use to collect, analyze, troubleshoot, and store SQL Server diagnostic information.

- Analysis Services has numerous enhancements such as block computation and write-back on MOLAP partitions.

- The SQL Server 2008 Reporting Services engine has been reengineered to add greater performance and scalability to Reporting Services by offering on-demand processing. The reengineered engine no longer has memory-usage problems when it renders reports.

- SQL Server 2008 Integration Services includes greatly improved lookup performance that decreases package run times and optimizes ETL operations. Change data capture functionality logs updates to change tables, which helps you track data changes and ensure consistency.

Scalability Case Studies

Read about some customers who are using SQL Server today.

- bwin hosts more than 100 terabytes of data on SQL Server 2008.

- Danske Supermarket A/S manages 10 terabytes of BI data with SQL Server.

- Shinhan Bank moved from Oracle on UNIX to SQL Server on the Windows® operating system.

- The State of Alaska Department of Revenue, Permanent Fund Dividend Division hosts 7 terabytes of data on SQL Server.

- Unilever moved from Oracle on UNIX to SQL Server running on Windows.

Independent Software Vendor Support

Now that the Windows Server 2008 operating system accounts for more than two-thirds of all new server sales and SQL Server has become one of the most popular database products, independent software vendors (ISVs) increasingly see SQL Server running on Windows as the platform of choice.

ISV Case Studies

These case studies highlight ISV support for SQL Server.

Siemens tested its PLM Software on SQL Server 2008 with 5,000 users. Compared to SQL Server 2005, they experienced:

- A 50 percent reduction in the size of their database files when using compression

- A 20 percent improvement in response times

- Improved scalability

- 10 percent less CPU utilization

- 5 percent less RAM usage

RedPrairie has seen a shift from 95 percent of its customers requesting UNIX-based solutions to 70 percent of its customers requesting Windows-based solutions. RedPrairie estimates that, by using the Microsoft application platform, it can deploy its solutions for less than half the cost of using UNIX-based hardware and software.

Security

Security is essential for the protection of your intellectual property and the trust of your customers and partners. SQL Server has proven to be the market leader in database security. Compared to Oracle 11g, it has fewer vulnerabilities, robust security features at no additional cost, and a vastly better update system.

Security Features

Policy-Based Management proactively applies policies to database objects. Policies contain a collection of conditions that you can use to enforce business and security rules.

Transparent Data Encryption (TDE) encrypts and decrypts data in the database engine with no additional programming required for applications. This functionality is included with SQL Server 2008—in Oracle 11g it requires the Advanced Security option at a cost of $10,000 per processor.

SQL Server 2008 supports Extensible Key Management (EKM) and Hardware Security Modules (HSMs). These enable third-party EKM/HSM vendors to register their modules in SQL Server and provide key management that is physically separated from the database. This separation of keys from data provides a true "defense-in-depth" security solution.

SQL Server 2008 includes auditing support through the Audit object, which enables administrators to capture any or all activity in the database server and store it in a log.

Trustworthy Computing

The Microsoft Trustworthy Computing initiative ensures that software and services from Microsoft are designed to be reliable and secure, respectful of users' privacy, and supported by trustworthy and responsive companies.

The Enterprise Strategy Group (ESG) believes that the Microsoft Security Development Life Cycle (SDL) is an area of security leadership that ISVs should embrace as soon as possible.

Critical Security Vulnerabilities

The National Vulnerability Database (NVD) reports over 250 critical security vulnerabilities in Oracle's database products over the last four years. During that same period, SQL Server experienced zero vulnerability. The NVD is the United States government repository of standards-based vulnerability management data. The National Institute of Science and Technology (NIST) provides the NVD.

Update Infrastructure

Microsoft Update provides a straightforward and up-to-date patch management solution.

Oracle's patching solution is so complex that, according to Computerworld, "Two-thirds of Oracle DBAs don't apply security patches," and the same article also mentions the "excruciating pain involved" when installing Oracle patches.

According to InfoWorld, Oracle is five years behind Microsoft in patch management.

Preventing Highly Privileged Users from Accessing Data

Even if some users are highly privileged, they should not necessarily have access to all data. For example, financial and human resources records should probably not be available to senior DBAs.

SQL Server prevents highly privileged users from accessing sensitive data by using a combination of new auditing capabilities, granting individual permissions to users, module signing, TDE, HSM, and Policy-Based Management. All of these are included with SQL Server 2008 at no extra cost.

Oracle has Database Vault to control the access of privileged users. It costs $20,000 per processor and the Oracle documentation clearly states that "DB Vault does not prevent highly privileged users from directly accessing data."

Developer Productivity

An excellent database system is only as useful as the applications that are developed for it. Microsoft provides an integrated development environment that connects seamlessly with client, mid-tier, and data-tier systems. A range of new features makes SQL Server 2008 databases more accessible to developers, reduces development time, and improves performance. Oracle developers must use a wide range of tools to achieve the same goals.

The data tier is only one part of an application. Microsoft provides the most popular development environment, which is tightly integrated with the rest of Microsoft software stack and new database connectivity features.

Integrated Development Environment

To develop an application by using SQL Server, you can use the Microsoft Visual Studio® development system for client, mid-tier, and data-tier development, including all BI functions. Visual Studio is integrated with life-cycle management systems, test systems, Microsoft server products, and the Microsoft Office System.

Oracle developers must contend with three tools for database and SQL development, two tools for BI development, and another tool for client development.

The SQL Server database provides data stores from SQL Server Compact, which can run on personal digital assistants (PDAs), to the Enterprise edition, suitable for data centers.

Oracle tends to expand its capabilities through acquisition rather than development, so it has multiple underlying data stores. These include Oracle Database, TimesTen, BerkeleyDB, and Oracle Rdb. These data stores have differing architectures, which reduces both portability and developer productivity.

New Development Features

Language-Integrated Query (LINQ) is a set of extensions to the Microsoft .NET Framework libraries and to Visual C#® and Visual Basic® .NET. The extensions enable these languages to treat data as a first-class object. LINQ enables developers to write SQL Server 2008 database queries in their native programming language rather than in Structured Query Language (SQL).

The Microsoft ADO.NET Entity Framework, which is based on the Entity Data Model, enables developers to transform the relational data in database schemas into conceptual entities that they can use directly in applications. This provides an easy-to-understand conceptual model that reduces development time and simplifies maintenance. You can query the business objects that the ADO.NET Entity Framework creates by using Entity SQL or LINQ.

Some applications cannot have a permanent connection to the data source that they use. The Microsoft data platform supplies a solution by providing SQL Server Compact and Microsoft Synchronization Services to support occasionally connected solutions.

To ensure that you can store all of your data in one place, SQL Server 2008 supports relational, XML, FileStream, and data based on geographical location.

The Most Popular Application Platform

In May 2007, the IDC conducted a Mission Critical Application Platform Study of 500 North American companies that have over 1,000 employees. The study found that Windows is the most popular operating system for mission-critical applications, Microsoft .NET is the most popular application technology platform, and Microsoft has the highest customer satisfaction level of all vendors.

The Microsoft application platform uses XML and Web services to deliver the best connectivity, productivity, and interoperability solution available today.

This helps customers create a dynamic infrastructure of data management, BI, service-oriented architecture (SOA) and business processes, development, and user experience.

Business Intelligence

SQL Server 2008 has industry-leading BI capabilities and offers tremendous advances to the already extensive BI capabilities of SQL Server. Even though it is not rated as highly as SQL Server, using this functionality in Oracle would cost 800 percent more.

Gartner regards Microsoft as the highest-rated company for its success in making its BI visions a market reality. Since the Gartner report, SQL Server 2008 has extensively improved and extended the Microsoft BI offering, bringing the power of BI to everyone's desktop.

Integrated Business Intelligence

SQL Server 2008 includes a fully integrated BI solution at no extra cost. The product includes support for enterprise-level data warehousing, online analytical processing (OLAP), reporting, scorecards, data mining, ETL, and key performance indicators (KPIs).

Unlike Oracle, these solutions are fully integrated so you can develop, manage, schedule, and deploy them by using the familiar SQL Server tools.

Gartner's Magic Quadrant for BI Platforms

In Gartner's Magic Quadrant for BI Platforms, SQL Server is placed in the Leaders quadrant. Although Oracle is also in this quadrant, Microsoft is the highest-rated company for its success in making its vision a market reality, whereas Oracle is the fifth highest.

Gartner highlights the integration of SQL Server with the Microsoft Office System, having the best BI software quality of all of the mega vendors, using internal development rather than acquisition, and continued growth, as particular Microsoft strengths. Gartner also states that the Microsoft infrastructure, development tools, workflow, and collaboration capabilities are regarded more highly than those of many of its competitors.

Gartner criticizes Oracle for its multiple BI products and its product lines that are created by acquisition rather than development, which requires ongoing integration into its product suite. Oracle customers reported weaker support than the market in general, including inadequate front-line technical expertise.

Gartner's Magic Quadrant for Data Warehousing

SQL Server is placed in the Leaders quadrant of Gartner's Magic Quadrant for Data Warehousing. Gartner highlights that the use of SQL Server for data warehousing is accelerating, Microsoft offers good value for money, SQL Server scales without much effort, and worldwide support from Microsoft is extensive.

Gartner criticizes Oracle for its manual management of the optimization and storage needs in the data warehouse, its pricing and contract practices, the high renewal costs of maintenance, and the number of additional chargeable options that are required.

New BI Features

SQL Server 2008 has extended the SQL Server Business Intelligence offering with optimized cube designers, subspace computation, MOLAP write-back, Tablix, and on-demand processing and instance-based rendering in Reporting Services.

Data Warehousing

SQL Server 2008 has an extensive array of new data warehousing features including data and backup compression, partitioned table parallelism, star join query optimization, resource management, grouping sets, change data capture, the MERGE SQL statement, and scalable Integration Services.

Values for Teradata Customers

Teradata is the Microsoft ISV for Business Intelligence. By integrating the Microsoft BI solution and Teradata technologies, you can take advantage of the data warehousing and BI solutions from Teradata along with the enterprise-ready BI and performance-management solutions from Microsoft. By extending access to critical data to the decision makers who can affect business performance most, the combination of Microsoft and Teradata technologies helps organizations gain additional value from their Teradata data warehousing environment. The Microsoft/Teradata partnership ensures easier implementation of Microsoft BI solutions, faster availability, and easier adoption of new Microsoft and Teradata feature releases.

Integration with the Microsoft Office System

The Microsoft Office System is effectively the standard for desktop productivity. The integration of SQL Server data with the Office System brings the power of information to knowledge workers, reduces development time, reduces training and support costs, and increases productivity. Achieving the integration that is available at no extra cost with SQL Server 2008, would cost $30,000 per processor with Oracle.

Data-Mining Add-ins for Microsoft Office 2007

Data mining add-ins for the 2007 Office System are freely downloadable and improve the integration between the Office System and SQL Server 2008. They provide data mining, a prediction calculator, shopping-basket analysis, cross-validation, and reporting tools.

Fastest-Growing BI Tool Vendor

In the IDC report on worldwide intelligence tools vendor share, published June 2007, Microsoft was the fastest growing of the top 10 BI tool vendors. Microsoft is growing over twice as fast as both Oracle and Hyperion and already has twice the market share of Oracle and one-and-a-half times the market share of Hyperion.

Windows Server 2008

Its lower cost of ownership, increased agility, and an expansive partner network means that Windows Server 2008 meets or exceeds the capabilities of mainframe, midrange, UNIX, and Linux systems.

Lower Total Cost of Ownership

Even when it is compared to free systems such as Linux, Windows Server 2008 typically has a lower total cost of ownership (TCO) because of the support that is included, in addition to its integration and reliability.

According to the IDC, the staffing costs of managing and maintaining information technology (IT) systems typically constitute 60 percent of the overall cost, whereas software costs constitute only 7 percent of the overall cost. This is why the improved management and maintenance of Windows Server 2008 leads to a cost reduction as compared to free software.

Manageability

Windows has a suite of manageability tools that spans servers, clients, services, and applications. The integration between products is unmatched on any other operating system and leads to reduced staff costs to manage and maintain your systems.

Security

Windows Server 2008 is the most secure Windows server product ever produced, and has unparalleled levels of protection for your organization. Although it increases costs and time, Microsoft rigorously adheres to the SDL when it develops new software and security is the first consideration.

Partnerships

Windows Server now accounts for more than two-thirds of all new server sales. ISVs and independent hardware vendors (IHVs) increasingly choose Windows as their principal operating system.

Total Cost of Ownership

Not only does SQL Server have a lower license cost when compared to Oracle 11g, but its better security, reliability, and productivity gives a greater return on investment. Furthermore, SQL Server 2008 includes features that in the Oracle product would cost much more per processor in addition to the cost of the Oracle base license.

The license price is not the only criterion to consider when you compare the costs of your system. The TCO is the price that you will pay and sometimes the least expensive licenses have the highest TCO. Oracle has a higher license cost than SQL Server with many other hidden costs, whereas SQL Server includes the tools that you require at no extra cost.

Advanced Administration Capabilities

SQL Server 2008 includes a suite of advanced management tools including Management Studio, Performance Studio, Policy-Based Management, and PowerShell. With the exception of SQL Server PowerShell, these are all accessible through standardized familiar interfaces.

Oracle Enterprise Manager attempts to match this functionality with add-ins for Oracle Enterprise Manager, but these add-ins require separate licenses.

Reduced Labor Costs

Alinean, an independent IT value analyst company, has concluded that, on average, one DBA can manage over 30 SQL Server databases, whereas Oracle Database implementations require one DBA per 10 databases. The result of this is an annual total cost of administration of $2,847 for SQL Server compared to $10,206 for Oracle.

Reduced Time to Solution and Higher Performance

As previously mentioned, the tight integration of the Microsoft application platform and the improved development environment (which uses LINQ and the ADO.NET Entity Framework) increases developer productivity. Furthermore, Microsoft .NET is the preferred application development environment over J2EE.

These advantages lead to higher-performance applications, reduced time to solution, increased reliability, lower support costs, and therefore lower TCO.

Great Database for SAP

SQL Server is the best database platform for SAP implementation. Read this white paper on the details why.

SQL Server remains a low-TCO platform for SAP. A study covering 68 SAP/ERP customers unveiled by an independent firm, Wipro Technologies, shows that "Microsoft SQL Server migration pays big dividends for SAP/ERP customers." The study concludes that "Migrating an SAP/ERP environment to SQL Server can reduce unplanned downtime by over 20%…cut IT labor costs by nearly 25%…cut ongoing software support costs up to 85%." For more information, see the study.

Inclusive Functionality

SQL Server includes the functionality that you require for an enterprise database solution; Oracle charges extra for this functionality. The following table shows the software price comparison between SQL Server 2008 and Oracle 11g for a standard, single processor, quad-core server. With SQL Server, the cost remains the same regardless of how many cores your processors have. For more information about database licensing, see this white paper.

SQL Server 2008 & Oracle 11g Enterprise Editions

Legend:
- Enterprise Edition (EE)
- Mgmt Tools
- Advanced Security & Partitioning
- BI
- High Availability
- Multicore

Axis: $0, $100,000, $200,000, $300,000, $400,000, $500,000
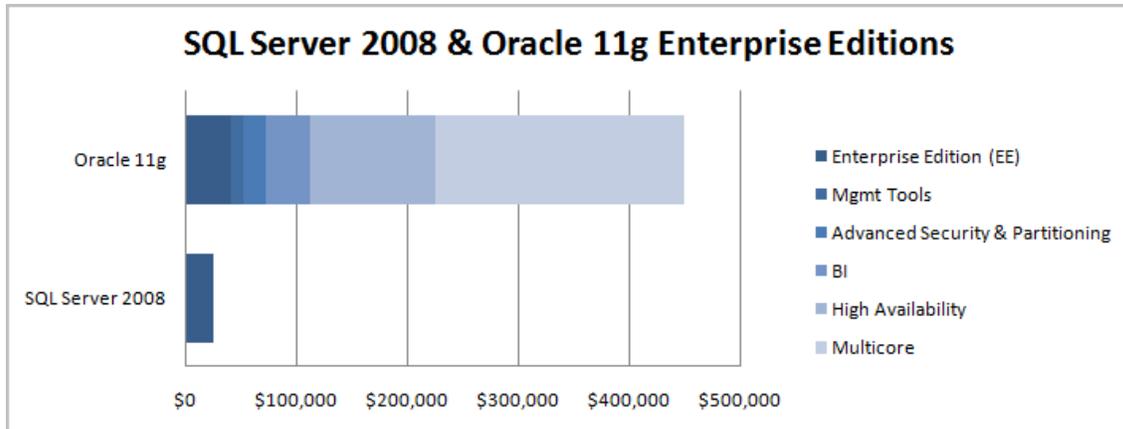
Comparison of SQL Server 2008 and Oracle 11g pricing[*]

Conclusion

SQL Server 2008 meets or exceeds Oracle 11g in every area that matters to the business. The security and reliability is unrivalled, the integration is unparalleled, and the TCO is unmatched. SQL Server provides the best solution in terms of both performance and value for money at every level from PDAs to data centers.

For more information:

Microsoft SQL Server 2008
http://www.microsoft.com/sqlserver/2008/en/us/default.aspx

SQL Server TechCenter
http://technet.microsoft.com/en-us/sqlserver/default.aspx

SQL Server Developer Center
http://msdn2.microsoft.com/en-us/sqlserver/default.aspx

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[*] The graph is based on public price lists from Microsoft and Oracle for an Enterprise Edition database SKU of one quad-core CPU license.

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