IBM DB2 versus Microsoft SQL Server

Product	Microsoft SQL Server	IBM DB2 Universal Database
Platforms Supported	Single platform support only - Windows	Cross Platform support allows DB2 to run on the appropriate platform preferred by the customer – Windows, Linux, AIX, Sun-Solaris, HP-UX, OS/400, z/OS, even handheld systems like Pocket PC, Palm and Symbian
Availability and Failover	Microsoft has support for four-node failover, only on Windows 2000 DataCenter Server operating system. Advanced Server and NT Server support only two-node cluster failover	DB2 can take advantage of the AIX platform scalability, and supports up to 32 nodes for cluster failover.
Application Development	SQL Server supports the Microsoft .Net framework, which is a an architecture only for the Windows environment	DB2 allows customers to choose the development environment that is right for them, including J2EE, C++, .Net, Visual Basic ADO/RDO, Python, PHP, Rexx or a Web Services environment
Security	On January 25, 2003, the SQL Slammer worm spread across the internet and temporarily disabled many websites running on top of Microsoft SQL Server.	IBM has a long history of designing systems for mission critical applications. While no system is absolutely secure, IBM spends a great deal of effort ensuring that DB2 is designed to help secure corporate data and systems.
Database Comparative Cost of Ownership(CCO)	Even though Microsoft does have less expensive licensing costs, Magic Market Research points out that "a la carte telephone support significantly increases cost over the lifetime of the project.	According to Magic Market Research in their January 2003 study, IBM DB2 "offers a consistently superior CCO over Microsoft and Oracle. DB2 was 7% to 36% less expensive to own and operate over a 5 year period than SQL Server. For more information go to: http://www-3.ibm.com/software/data/highlights/db2tcoreports.html

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First Steps to Winning Against Microsoft SQL Server

Awards: Of Microsoft's two touted awards for SQL Server's Business Intelligence offerings this year--Intelligent Enterprise Magazine's 2003 Dozen and DM Review Magazine's Top 100 Business Intelligence vendors for 2002, SQL ranked sixth and third respectively, while competitor IBM's DB2 and BI platform respectively ranked third and first in those same categories.

Market Leadership: Overall, DB2 ranked number 1 in marketshare. SQL Server was a distant third. SQL Server's market leadership extends only to Windows platforms, and even that might be questionable if Microsoft's OLAP revenues were separated from database revenues.

Single Platform: SQL 2000 is only good for users who want to run on a Windows platform. If one does not want to run on a Windows platform, he or she cannot consider SQL Server as a potential database.

Scalability and Data Warehouse Benchmarks: DB2 has achieved the world's first 10 terabyte TPC-H benchmark--a benchmark result with which SQL Server will not be able to compete because of its inability to handle the larger databases. This disproves Microsoft's claims that SQL Server 2000 has as good or better scalability as DB2.

Availability and Failover: Microsoft is touting its support for four-node failover and claiming in its literature that DB2 does not support this capability. In reality, HACMP supports 32 nodes for cluster failover, while Microsoft's Cluster Server supports 4-node failover only on Windows 2000 DataCenter Server operating system. Advanced Server and NT Server support only two-node cluster failover.

Management: SQL Server's self-managing and tuning software does not allow DBA access to many of the capabilities they need to configure themselves. DB2 Version 8.1's Configuration Advisor, Health Monitor, Health Center, and others are more than a match for SQL Server's management software. They provide much the same self-management capabilities with visual and graphical interfaces that reduces a DBA's time spent managing, while allowing mission critical DBAs who are smart enough to know what they want to configure and have a special need, to still access and configure the parameters of interest to them.

Graphical Management Tools and Wizards: Of course, DB2 does not support Microsoft's Visual Studio 6.0 for management tools since Visual Studio is a Microsoft proprietary product. DB2 Version 8, however, has as many graphical management tools and wizards as Microsoft has.

Continuous Availability: Besides supporting online index reorganization, which Microsoft also supports, DB2 V8.1 offers online, in-place table reorganization that is aimed at reducing both planned and unplanned outages. This is a DB2-unique technology and is very important to customers with large amounts of data and very large tables who may not be able to afford to make a copy.

Standards and Open Systems: IBM is the standards leader covering Web Services or otherwise. Microsoft supports mainly its own standards for Windows environments.

Heterogeneous Database Support: SQL Server's support for heterogeneous databases is very limited, especially compared to DB2 and DataJoiner, which natively access all or most of a foreign database's capabilities and provide functional compensation for DB2 functions lacking in the foreign database. SQL Server's heterogeneous database support is even limited when it comes to supporting syntax of its own products because it depends on an OLE Provider for heterogeneous support.

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Distributed Query: SQL Server's Distributed Query does not fully support relational capabilities or object relational capabilities from a linked server and what it does support may not be done transparently. Often tools and shrink-wrapped application have to be aware of the distribution. None of this is the case with DB2.

Query Optimization: SQL Server 2000 provides very limited query optimization, especially compared to DB2's query optimization algorithms, and especially for distributed, heterogeneous databases.

Federated Databases: SQL Server 2000's support for federated databases lacks many of the ease-of-use features that customers need and have come to expect from Microsoft. DB2's federated database support is more mature and still evolving.

Intra-DBMS Reliability and Availability: Features like MSCS-based standby server and log shipping increase the manageability burden and affect performance.

Integration Through XML: Microsoft's vision of SQL Server as an integration tool through XML and other XML-related standards requires that users purchase not only SQL Server 2000, as well as SQLXML, but also the entire .NET Framework, which is not yet generally available. DB2 is integrating its DB2 RDBMS capabilities with XML, which is scheduled for release in mid-2003.

Business Intelligence: SQL Server's leadership in bundled, integrated Business Intelligence (BI) translates only to a possible leadership in one of BI's three components--namely OLAP (now renamed Analysis Services in SQL Server 2000). BI's other two components--namely data warehousing and data mining are considered to be DB2's and IBM's strengths, according to data warehousing benchmarks and other analysts (e.g., Green Hills Analysis and more). The only reason that IBM's DB2 is not also the leader in OLAP is because that honor went to Hyperion Solutions's Essbase and so was not double counted as a DB2 capability. Analysts such as Business Intelligence Ltd. admit that they are more lenient with Microsoft, for which they do not separate SQL Server's OLAP functionality from its RDBMS capabilities. If they did, Microsoft might not be a marketshare OLAP leader, but it might not yet be the RDBMS marketshare leader even on Microsoft's own Windows platform.

Business Intelligence and Data Warehouses: DB2 is unique in providing multidimensional clustering at the physical storage level. This allows DB2 to store data and cluster it in many dimensions at the same time. With most data warehouses, it is not absolutely certain how people are going to query it. Hence, this ability to organize and cluster data and indexes across multiple dimensions results in significant improvement in query performance as well as significant reduction in data maintenance overhead.

Single Software Stack: Both Microsoft and IBM provide a complete application infrastructure that includes operating system, clustering, message queuing, web servers, DBMS, and application development tools. However, the IBM product suite is available across a variety of platforms, from SMP to clustered environments, including the Intel and turnkey midrange platforms, to suit a wide range of customer requirements for scalability, reliability, flexibility, and ease of use. The IBM customer can choose among these platforms and still be assured of a consistent software stack across platforms. The Microsoft software stack, in contrast, is limited to the Wintel platform.

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