MAS 90® for SQL Server™

Pre-Release Technology White Paper

Sage™ Software, Inc.

Table of Contents

Why Microsoft ò SQL Server 7.0 for MAS 90?

At Sage Software, Inc., we take pride in offering the best possible software solutions for small to medium-sized businesses. Our charter for MAS 90 is to provide customers with broad and deep application functionality built on rock-solid database and operating system platforms. But most important of all, we want to simplify technology for our customers, so that they can enjoy all the benefits of the latest technologies without the headaches. Our customers want to focus on running their businesses, not their computers.

Microsoft SQL Server 7.0 represents the culmination of significant initiatives from Microsoft in terms of ease of use, scalability and data management. SQL Server 7.0 has been designed for smaller businesses that cannot afford to spend a lot of time maintaining their computer systems. Thus, MAS 90 and SQL Server 7.0 represent the perfect marriage of products for medium-sized businesses.

MAS 90 and SQL Server 7.0 represent the perfect marriage of products for medium-sized businesses.

The MAS 90 for SQL Server implementation has been thoughtfully designed to take advantage of the SQL features beneficial to accounting/business software. SQL Server 7.0 combines the power of a relational database with the ease of use that businesses need. Pairing SQL Server 7.0 with the functionality and flexibility of MAS 90 provides a high-performance, cost-effective accounting software system.

The following sections focus on just a few of the features of SQL Server 7 that are beneficial for growing businesses:

Tuning Wizard

Perhaps the most significant feature of SQL 7.0, the Tuning Wizard monitors server usage history, and makes recommendations to optimize performance. SQL Server 7.0 allows a company to make full use of the capabilities of its hardware – without having to do anything!

An important feature of the Tuning Wizard is SQL 7.0's dynamic memory management. This program automatically allocates additional memory and reduces locks as user load increases.

The dynamic space management feature also assures that the database will never run out of room and require manual expansion. Instead, the database grows dynamically as transactions are added. Similarly, when historical data is purged, resulting in fewer records, the database will automatically shrink, freeing up disk space for other uses.

These features mean businesses running on SQL 7 function smoothly, without interruption or the need for a database administrator on staff.

Query Optimizer

SQL Server 7.0's intelligent query finds the fastest way to perform requests.

Another way SQL Server 7.0 boosts the performance of hardware is with the query optimizer. The Optimizer finds the optimum plan for complex queries. As a result, data is retrieved faster, speeding up report output and inquiries to enhance productivity and customer service.

Backup/Restore

To avoid costly setbacks in the event of power failure or other system interruption, an effective backup and restore routine is essential for every business. SQL 7 backs up and restores data more efficiently than ever before. Backups can also be performed while the system is on-line without significant performance degradation.

Business Applications and Appropriate Technology

The software on which a business is run – whether for accounting, distribution, and/or industry-specific business applications – is mission-critical. While new technologies are proliferating at a faster and faster rate, it is not always necessary or desirable to adopt them for your business computer platform.

Implementing new technologies is an important business decision that should improve a process or solve a problem.

How do you decide which new technologies to adopt? And when is the right time to adopt them? These are some of the most important business decisions you can make. Implementing the right technologies at the right time can reduce costs, increase productivity, and give your business a competitive edge. Implementing inappropriate technology

can result in system downtime, frustration, and business losses.

Industry Standard

You certainly don't want to change technologies often, so one of the best ways to select a new technology is to pick an industry standard. Industry standard ensures that the product will continue to be enhanced and developed in the future, providing you with a simple, inexpensive upgrade path. Industry standard also means that it will be easy to acquire the skills to operate the system, whether by hiring consultants and new staff, or training current employees. Microsoft SQL Server is clearly established as an industry standard, with over 6.5 million licenses sold.

Industry standards are proven technologies that have already been in use at successful businesses – lowering the risk of implementing inappropriate technology.

Rapid Deployment

You want to focus your efforts on running your business, not running your computers, so appropriate technology means a product that installs quickly and smoothly, and requires minimal upkeep. SQL Server 7.0 is the first relational database that has been designed with ease-of-use functions such as the Tuning Wizard and English Query. The SQL Server 7.0 database also installs quickly and easily, so consulting costs are kept to a minimum.

Road Tested

It's always a good idea to acquire products that have been in the market for a while and had time to mature. That way the kinks have been worked out, and a knowledge base has been built to help you trouble-shoot problems. Now in its fifth year of availability, SQL Server is a road-tested, industry standard database more than equal to the task of running mission-critical business applications. Combine SQL Server's capabilities with market-leading MAS 90, which has maintained an impressive set of accounting business rules for over 10 years, and you have an incredibly stable, proven platform on which to run your business.

Microsoft SQL Server is a road-tested, industry-standard database fully equal to the task of running mission-critical business applications.

Open Architecture

Access to information is the name of the game. Any technology you acquire today simply must allow you to access your data with your tool of choice – through industry-standard ODBC (Open Database Connectivity). One of the biggest benefits to companies adopting SQL is the availability of the data for querying outside the accounting system. With SQL 7.0, OLAP services are built in, so the MAS 90 database can be queried in multiple dimensions. OLAP data cubes may be analyzed in Excel® 2000 pivot tables.

SQL Server Benefits

In previous sections, we've discussed the benefits of SQL Server 7.0, and offered some guidelines for adopting appropriate technology. In this section, we'll discuss some of the general features of Microsoft SQL Server, and how these features translate to benefits to your business.

RDBMS

SQL Server is a proven RDBMS for small to medium-sized businesses.

Microsoft SQL Server is a Relational Database Management system. There are other RDBMS on the market, but Microsoft SQL Server is designed and priced for smaller businesses, giving small to medium-sized companies the tools they need with reduced maintenance costs and ease of use. A relational database provides a secure container for important data, as well as a built-in language for efficient data access and controls.

Performance, reliability, scalability and access to information are the important benefits of an RDBMS. Each version of Microsoft SQL Server has built upon the features that provide these benefits.

Performance

Database performance (speed) is essential for any growing business. With a high-performing system, staff productivity is maximized, and frustration from trying to extract information quickly in response to management requirements is minimized.

Microsoft SQL Server is designed to provide optimum performance even during peak load times or as you add more users to the system. The query processor extracts data quickly and efficiently, returning it to the accounting system with minimal delay, for fast lookups, expeditious transaction posting, and speedy report output.

Reliability

Data integrity is critical for businesses. The computer system needs to run smoothly without interruption, and in the event of power failure or other system interruption, must be able to recover quickly with minimal loss of data.

The commit/rollback features of SQL Server make it possible to easily roll back and re-post when an interruption has occurred. Robust backup/restore and mirroring systems are also included to further protect your data. Backup functions can even be performed while the database is in use.

Scalability

Smart businesspersons know that companies must grow in order to continue to prosper. One of the more painful aspects of growth can be updating your computer systems to accommodate larger numbers of users, higher transaction volumes, and multi-processor systems. Microsoft delivers a single database engine that scales from a laptop computer running Windows 95/98 to terabyte symmetric multiprocessor clusters running Windows NT® Server Enterprise Edition.

Access to Information

Using ODBC, the SQL data is readily available for access using the reporting tool of choice. ODBC can also be used to write back additional information used by custom applications into the database beyond that which your standard business software has created.

MAS 90 and SQL Server

MAS 90 for SQL Server takes advantage of the features of SQL beneficial for accounting/business software

The MAS 90 for SQL Server implementation has been thoughtfully designed to take full advantage of the SQL features beneficial to accounting/business software.

Jeff Fiddelman of ECS Solutions, a top MAS 90 reseller and early SQL test site based in New York City, reports: "SQL Server 7.0 features the power of a relational database combined with the ease of use and deployment our customers need. Combining SQL Server 7.0 with the deep functionality and flexibility of MAS 90 accounting, distribution, and manufacturing applications brings together two best-of-breed products. Together they provide a powerful, high-performance, cost-effective business solution, giving medium-sized companies enterprise-level power and functionality at an affordable price."

Commit/Rollback

The commit/rollback feature maintains data integrity.

One of the most important benefits of SQL Server for accounting systems is the ability to commit transactions to the database one at a time, tracking the steps in the posting process. If an interruption occurs, the process can then "roll back" to a point in time before the interruption occurred. In this way, the integrity of the MAS 90 data is maintained – invoices stay in balance, subsidiary ledgers match the general ledger, and audit trails remain intact.

Stored Procedures/Triggers

The chief benefit of stored procedures and triggers is that these program commands are executed at the database level. Since the commands and associated data do not have to travel across the network to be executed, performance is enhanced. MAS 90 for SQL Server is also engineered to execute commands at the server, rather than on the client workstation. The combination of MAS 90 and SQL Server provides a top-performing product in terms of processing speed for posting, reports, and queries.

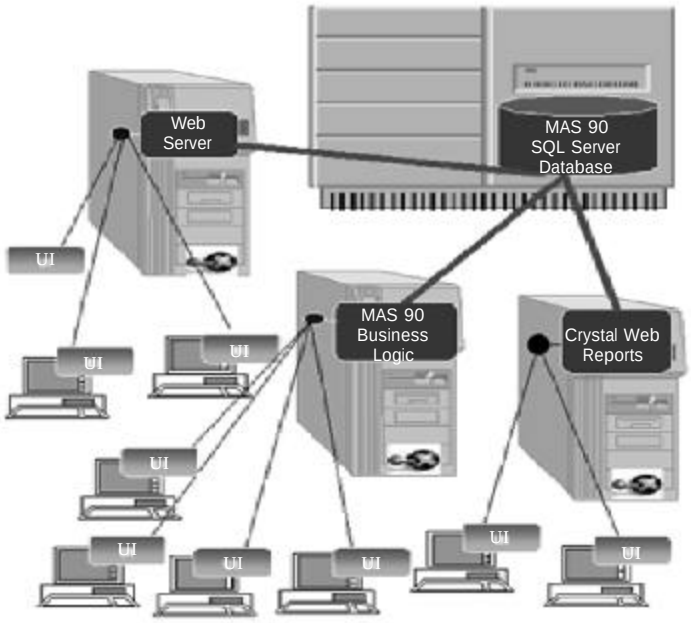
Three-Tier Architecture

MAS 90 for SQL Server features classic three-tier client/server architecture. Three-tier architecture provides the greatest flexibility in configuration for performance and control,

because program components are divided into layers that can reside on separate machines.

The first tier is the Microsoft SQL Server database, which holds the data and some of the deepest business logic. The next layer is the application program logic. For performance purposes, this layer should also reside on a server – either the same server as SQL Server or a separate machine. The top layer is the user interface.

Ideal three-tier architecture calls for a thin client in order to provide top performance on wide-area networks or across the Internet. MAS 90 for SQL Server provides a thin client which delivers only the graphical user interface (or screens) and requested date to populate it. The chart below is a graphic representation of three-tier architecture.



MAS 90 for SQL Server three-tier client/server architecture.

UI = User Interface

Concurrency

As more and more users access a database, the issue of record locking and updating becomes more critical. If two users are accessing the same customer at the same time, whose changes will be recognized by the system? Ideally, you would not want the second user to be prevented from accessing the record, which would adversely affect employee productivity.

Proper concurrency control operates a set of rules to maximize multi-user access while maintaining data integrity and control. This feature of SQL Server is particularly beneficial to accounting systems such as MAS 90, where many users may be entering transactions simultaneously.

Data Security

SQL Server stores all your mission-critical data in one secure container

With SQL Server, mission-critical data is stored in one secure place, where only those with specific user privileges can access it. Using Role-Based Security, users can be given access to specified portions of the database for reporting and querying, while other sensitive data, such as payroll information, can be protected.

Data Warehousing and DTS

The MAS 90 data is stored in SQL Server in a format designed for optimum performance for the accounting system. Certain forms of data analysis, such as sales profitability analysis across multiple parameters (product line, division, department, or even salesperson), require a different view of the data.

SQL Server 7.0 includes the ability for you to use DTS (data transformation services) to build an OLAP data cube (see glossary) out of your MAS 90 data. This cube can then output information to Excel pivot tables, providing managers with powerful alternative views of their sales data.

Summary

SQL Server 7.0 combined with MAS 90 business applications is an extremely safe, reliable, and robust platform on which to run any business.

MAS 90 for SQL Server offers the best of **two** worlds – world-class business applications running on a world class database. With these two important tools, medium-sized businesses can enjoy power, flexibility and functionality equivalent to enterprise-level systems in an affordable, quickly deployed and easily maintained system.

Hardware and Software Requirements

- Windows NT Server 4.0 with Service Pack 5.

- Refer to SQL Server documentation for SQL hardware requirements. Customers wishing to run MAS 90 on SQL Server will need to purchase SQL Server through established Microsoft channels, and install the SQL Server software prior to the MAS 90 installation.

Certification Training

MAS 90 resellers planning to sell MAS 90 for SQL Server must meet the following requirements before they will be authorized:

1. The following Microsoft certification exams will need to be passed by the class attendee *before* you attend Sage's MAS for SLQ Server class:

Windows NT 4.0 Server (Exam 70-067)
TCP/IP (Exam 70-059)
SQL Server 7.0 (Exam 70-028)
We also highly recommend Windows NT 4.0 Enterprise (Exam 70-068)

2. Attend Sage MAS 90 for SQL Server class, and receive a passing grade on the assessment test.

Recommended Reading

Microsoft Certified Professional – MCSE+I Requirements:
http://www.microsoft.com/mcp/certstep/mcsein.htm

Microsoft SQL Server
http://www.microsoft.com/sql/default2.htm

Microsoft SQL Server 7.0 Administrator's Companion by John Fronckowiak, Marcilina Garcia and Edward Whalen, ISBN # 1-57231-815-5.

Glossary of SQL Terms

Throughout this document, there are references to technical terms which may be unfamiliar to people who have not worked with relational databases. The following terms are frequently used when working with SQL databases:

Concurrency control – In a DBMS, managing the simultaneous access to a database. Concurrency control

prevents two users from editing the same record at the same time, and is also used with serializing transactions for backup and recovery.

ODBC (Open DataBase Connectivity) – A database programming interface from Microsoft that provides a common language for Windows applications to access databases on a network. ODBC is made up of the function calls programmers write into their applications and the ODBC drivers themselves. ODBC supports SQL and non-SQL databases. Although the application always uses SQL to communicate with ODBC, ODBC will communicate with non-SQL databases in its native language.

OLAP (On-line Analytical Processing) – Decision support software that allows the user to quickly analyze information that has been summarized into multidimensional views and hierarchies. For example, OLAP tools are used to perform trend analysis on sales and financial information. They can enable users to drill down into masses of sales statistics in order to isolate the products that are the most volatile.

Traditional OLAP products, also known as multidimensional OLAP, or MOLAP, summarize transactions into multi-dimensional views ahead of time. User queries on these types of databases are extremely fast, because most of the consolidation has already been done.

A relational OLAP (or ROLAP) tool extracts data from a traditional relational database. Using complex SQL statements against relational tables, it is able to create the multidimensional views on the fly.

A database OLAP (or DOLAP) refers to a relational DBMS that is designed to host OLAP structures and perform OLAP calculations.

Rollback – A database management system feature that reverses the current transaction out of the database, returning the database to its former state. This occurs when some failure interrupts a half-completed transaction.

Stored Procedures/Triggers – A stored procedure is an SQL program that is stored in the database. It is executed by calling it directly from the client, or from a database trigger. When the SQL procedure is stored in the database, it does not have to be replicated in each client, saving programming

effort. A trigger is an SQL procedure that is executed when a record is added, updated or deleted. A trigger may also execute a stored procedure. Triggers and stored procedures are built into DBMSs used in client/server environments.

56 Technology Drive
Irvine, CA 92618-2301
800-854-3415
www.sage.com

5M90900 99-953/0999