

Solving SQL Server Migration: and Management Issues: A Storage Approach



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Introduction

Microsoft SQL Server is one of the top three database management systems currently in use along with offerings from Oracle and IBM¹. Microsoft will soon be introducing its new version of the system, Microsoft SQL Server 2005, a release that Microsoft claims will be “the biggest release in SQL Server’s history”. Microsoft will increasingly focus SQL Server squarely at mission-critical enterprise applications, making efficient migration to and management of SQL Server a key issue for organizations that have already deployed or plan on deploying the system.

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This white paper discusses current challenges that organizations are having with SQL Server management and a solution offered by EMC that can make the upgrade, migration and management of this critical system more efficient and more reliable.

Background

In order to understand the issues that organizations experience with Microsoft SQL Server, Osterman Research conducted a survey with individuals who are involved in the deployment and management of SQL Server for their organizations. This survey, conducted with 104 individuals during September 2005, questioned members of the Osterman Research Survey Panel about their plans for migrating to SQL Server 2005, the challenges that they experience in managing SQL Server on a daily basis, their plans for migration and other issues. The organizations surveyed are based in North America and have a median of 2,600 employees, covering a range of 250 to 320,000 employees.

¹ *Worldwide RDBMS 2004 Vendor Shares*; IDC, March 2005

Challenges in Managing SQL Server

The survey that Osterman Research conducted for this white paper revealed a number of issues that organizations experience in managing SQL Server:

- **IT management time needs to be reduced**
When asked about the desirability of reducing the amount of IT staff time involved in managing SQL Server – including the time required for backup, restoration and migration activities – 41% of organizations indicated that this would be desirable or very desirable. The ability to reduce the number of IT staff members devoted to management of SQL Server is particularly important given the increasing number of initiatives and tasks that most IT organizations are facing.
- **Backup windows are not easy to manage**
When asked to rate the manageability of backup windows for SQL Server on a scale of “very manageable” to “getting out of hand”, one out of eight organizations indicated that backup windows were problematic, while another one-third of organizations indicated that these backup windows were moderately difficult. Interestingly, only one in six organizations responded that backup windows for SQL Server were “very manageable”, indicating that improvement is needed in managing SQL Server backups.
- **Errors and data corruption are common**
At least three out of five of the organizations surveyed have had to quickly recover a SQL database due to human error or database corruption, while nearly 30% or more of organizations have had to do so because of viruses or some form of disaster, either natural or man-made. Related to these problems is the laundry list of issues that we uncovered in this survey, including:
 - Disaster recovery problems
 - File duplication and security
 - Difficulty in migrations
 - A lack of expertise for managing SQL Server
 - Downtime
 - Unattended failover of the system
 - Keeping production and development servers synchronized on a regular basis

Two-thirds of the organizations surveyed have had to quickly recover a SQL database due to human error or database corruption, while one-third of organizations have had to do so because of viruses or some form of disaster.

The typical organization surveyed maintains an average of 16 copies of 'live' SQL data. Replication of the data housed in SQL Server is critical (and will become more so) and needs to be managed efficiently as part of an overall data management system.

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- Restoring large databases from tape
- Optimization and efficiency for large databases
- Administration time-consuming
- Shrinking maintenance windows because of stringent service-level agreements
- Reliability
- The conflict between the upper-layer applications that depend on storage resources and the lack of available or sufficient storage architectures available to satisfy them

- **There are critical needs for replication**

The typical organization surveyed maintains an average of 16 copies of 'live' SQL data in support of activities like test and development, quality assurance, reporting, data warehousing, training and other purposes. More than one-half of organizations refresh these copies at least weekly, while one in five organizations does so on a daily basis. One-half of organizations rely on custom scripting for database replication and cloning and one in five organizations needs to distribute updated SQL databases to remote locations on a more or less regular basis. Further, nearly one-half of the groups that are involved in the management of SQL Server are reliant on their storage organizations to make clones and replicas of the SQL database.

In short, replication of the data housed in SQL Server is critical and will become more so. Further, replication needs to be managed efficiently as part of an overall data management system.

- **Migration to SQL Server 2005 will not be worry-free**

The overwhelming majority of the organizations surveyed (61%) have already decided to migrate to SQL Server 2005. However, about one-half of organizations have doubts about whether or not their organizations possess the skills, bandwidth and other resources that they will need in order to successfully carry out this migration. In short, despite the fact that most SQL Server-enabled organizations will migrate to the new version of the system, most organizations are not confident in their ability to do so.

Improving Manageability, Scalability and Availability

The EMC Solution Suite for Microsoft SQL Server combines EMC's depth of experience in customer environments and industry leading technologies into proven solutions that address and support SQL Server challenges across the database lifecycle. EMC's expertise in project management and replication coupled with key partner expertise in upgrading and migrating SQL Server environments enables EMC to accelerate and lower the risk of challenges associated with the database lifecycle from upgrades and migrations to ongoing maintenance of SQL Server. The goal of the EMC approach is to provide a variety of solutions encompassing proven best practices with industry leading software tools that will aid in the replication of data housed in SQL Server databases; and hardware platforms that will make replication, backup and other activities more manageable, efficient and cost effective. Specifically, EMC is focused on offering the following capabilities:

- **Services** that will help organizations assess their infrastructure needs and plan for migration to SQL Server 2005; make database layout, design, automated replication and business continuity recommendations and provide migration and upgrade services through EMC partners.
- **Software tools**, that automate deployment and management of SQL Server 2005 including backup and recovery, automated local replication and, highly available software solutions that mirror data over any distance. EMC's replication capabilities improve IT processes by reducing the complexity of day-to-day data movement, information sharing, repurposing, and data recovery. This will reduce costs and risks, and enhance productivity.
- **Hardware platforms**, including industry leading fibre channel and iSCSI networked systems with Symmetrix , CLARiiON, and Celerra that provide cost effective, reliable and efficient storage for SQL Server data.

EMC's offerings focused on SQL Server 2005 migration are particularly interesting given that, among organizations that are planning to migrate to SQL Server 2005, nearly two-thirds are planning an infrastructure refresh as part of this migration and nearly one-half plan to work with outside consultants or

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other third-party service providers for activities such as planning, deployment or maintenance of SQL Server 2005.

Conclusion

Microsoft SQL Server is a mission-critical application used by a large and growing number of organizations. However, organizations find that managing the system can be challenging and they are looking for ways to improve its manageability, scalability and availability. Complicating this is the fact that Microsoft will soon be introducing a new version of SQL Server. Despite the fact that most organizations that currently use SQL Server plan on migrating to it, most lack the confidence that they have the in-house expertise to successfully carry out this migration. What many organizations need, therefore, is a set of services, software and hardware that can help them migrate smoothly to SQL Server 2005 and to make management of the system more efficient and reliable.

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