BENEFITS

* Meet business continuity service level agreement targets for critical applications by protecting against planned and unplanned downtime.
* Enable continuous access to business-critical data by ensuring data protection and data availability through reliable redundancy and fast recovery.
* Simplify the installation, monitoring, and management of data recovery across your business by using productive management tools.

## INCREASING AVAILABILITY

KEY FEATURES

* Recover corrupt data pages from a mirror server with enhanced database mirroring features.
* Take advantage of failover clustering enhancements in Microsoft SQL Server 2008 R2 and Windows Server® 2008.
* Add new nodes to a peer-to-peer replication solution without taking applications offline.
* Use Resource Governor to proactively control workload prioritization.

*Our applications are running at the 5 nines. We’re enjoying 99.999 percent uptime, which really helps to keep our business running.*

Mediterranean Shipping Company1

## Database Mirroring

Increase availability by providing a standby copy of your database. Improve availability during upgrades by performing a rolling upgrade to sequentially upgrade the participating database instances in a database mirroring session. Increase availability of the primary server by using a database snapshot as a source for reports on the mirror server to provide point-in-time reporting capabilities.

## Failover Clustering

Enable seamless failover capabilities to protect against CPU, memory, or other non-storage hardware failures by sharing disk access between nodes and restarting SQL Server on a working node in the event of a failure. Increase scalability with support of up to 16 nodes in a single failover cluster. Support for rolling upgrades enables you to sequentially upgrade the database servers that are members of a failover clustering configuration.

## Peer-to-Peer Replication

## Increase scalability, availability, and processing capacity by configuring applications to use different peers and to fail over to another peer in the event of a peer failure. Protect against accidental conflicts with SQL Server 2008 R2 conflict detection. Increase availability by dynamically adding a new node to an existing topology.

## Log Shipping

## Use log shipping with two or more instances of SQL Server to automatically back up, copy, and restore transaction logs on standby servers.

## Online Index Operations

Increase the performance and availability of mission-critical applications by creating, dropping, and rebuilding indexes while they are still online and available to applications.

## Partial Database Availability

Provide access to undamaged database files if secondary non-primary data files are unavailable due to isolated hardware or disk failures.

## Optimized Locking

Prevent writers from blocking readers and readers from blocking writers by using snapshot isolation.

## Dynamic Configuration

Add memory and processing power to supported systems without having to restart SQL Server by using Hot-Add Memory and Hot-Add CPU.

## Resource Governor

Control resource utilization to prioritize key workloads with Resource Governor. Ensure that mission-critical database workloads are not adversely affected by other database activity.

## Table and Index Partitioning

Limit the impact of I/O-intensive activities such as data loading, backup and restore, index rebuilding, and index defragmentation by breaking large tables and indexes into smaller partitions.

## Backup and Restore

Use backup compression to improve restore times and reduce the size of backup volumes. Use piecemeal restore to restore a database in stages and make critical data available sooner.

## Fast Database Recovery

Fast recovery makes databases accessible more quickly after a system failure or during the failover recovery process. Fast recovery ensures partial availability during restore and database page checksum operations.

## ENABLING DATA PROTECTION

*We had a mirrored copy of the 2-terabyte database with a clean version of the page, and SQL Server 2008 restored the page in a matter of minutes—actually, before we even noticed the error message.*

CareGroup Healthcare System2

## Automatic Recovery of Corrupt Pages

Protect against page corruption by using SQL Server 2008 R2 to automatically fetch the mirror version of a corrupt page from a partner server.

## Enhanced Backup and Restore

Use mirrored backup sets to increase protection by concurrently backing up databases to multiple backup devices. Create checksums on backup media to verify subsequent restore operations.

## Checksum on Data Pages

Detect damaged database pages quickly, regardless of how the damage occurred, by using checksums on data pages.

## Data Protection Manager

Protect business-critical data and lower TCO by using centralized servers that are powerful and easy to use. Support lossless recovery by reapplying the surviving logs on top of the recovery point.

## IMPROVING MANAGEABILITY

*From Enterprise Manager in SQL Server 2000 to Management Studio in SQL Server 2008, Microsoft has always provided great database management tools. The Oracle tools, many of which are Java-based, just seemed more cumbersome to use.*

Tyler Technologies3

## Enhanced Failover Clustering

Take advantage of easier setup and improved diagnostics and management of failover clustering with Windows Server 2008 R2. Key features include a simplified setup process, failover cluster management snap-in, PowerShell, Read-Only APIs, network prioritization, and enhanced security.

## Enhanced Tools

Database Mirroring Monitor allows monitoring of mirrored database sessions to verify and troubleshoot data flow. Eliminate misconfigured failover clusters by using the Cluster Validation Tool, which includes best practices tests. Easily visualize and manage peer-to-peer replication topology with the Topology Viewer. Use Replication Monitor to monitor the status of replication agents, warnings, latency, and performance.

## Dedicated Administrator Connection

Connect to a server that appears to be unavailable by using the high-priority Dedicated Administrator Connection.