

MANAGING MICROSOFT EXCHANGE IN A 24-BY-7 BUSINESS WORLD

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VERITAS ARCHITECT NETWORK

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Introduction

Keeping Microsoft Exchange servers available and online 24 hours a day, seven days a week, is an enormous challenge for IT administrators; and a crucial component for business success. Fast and efficient online communication between employees, customers, and business partners is now critical to all business activities.

Increasing reliance on electronic business communications is placing greater demands on the servers and infrastructure hosting Microsoft Exchange. Any interruption to email availability can mean disaster for the business.

The efficient management of an enterprise-class Microsoft Exchange configuration requires an advanced storage management solution that delivers high server availability, fast recovery in the event of a failure, and effective administration tools. This white paper details the VERITAS approach to addressing availability, recoverability, and manageability for Microsoft Exchange databases and services.

Microsoft Exchange Challenges: Availability, Recovery, and Management

Exchange server downtime can cripple an organization's ability to communicate with customers, partners, and employees. Outages, whether planned or unplanned, directly impact business revenue and productivity. Taking steps to minimize downtime is a fundamental priority for the Exchange Administrator.

All systems require maintenance. The explosive growth in email use has resulted in a corresponding increase in the quantity of data being stored on Exchange servers. Configuring, adding, and expanding storage to accommodate this growth is a significant component of an Exchange administrator's job. Scheduling periodic downtime to grow Exchange transaction logs - before they fill up and bring the database down - for example, is a fact of life for IT administration staff, but a problem for business users. While the administrator is performing upgrades users lose access to the system.

The 24x7 availability demands placed on Exchange also frustrate the backup process. As the volume of data increases so too does backup elapsed time. Shrinking backup windows and longer backups result in a headache for administrators.

Facing data corruption and virus issues is a daily concern for the Exchange administrator. But straightforward recovery of the Exchange databases – which can take hours at best, and always results in the loss of transactions added since the last backup - is no longer sufficient. Business users expect downtime during recovery to be minimal with no data loss.

Configuring and managing an Exchange server requires technical proficiency in both Exchange software administration and storage management. Of these two disciplines, storage management can be the most demanding. A common rule of thumb within the IT world dictates that for every dollar spent on storage \$7 will be spent on storage management. Exchange is no exception to this rule. Managing disk storage for Exchange configurations is a labor-intensive, tedious, and frequently error prone process. Tools that automate storage management are essential to the efficient administration of Exchange servers.

The VERITAS Solution

VERITAS Edition™ for Microsoft Exchange gives administrators a unique suite of technologies to meet the demands of Exchange storage management. Configuring, expanding, and otherwise tuning Exchange storage configurations can be performed online using logical volumes on dynamic disks. The

highly available, high-performance storage configurations, achieved with VERITAS technologies, reduce the need for downtime during routine administrative tasks. And because VERITAS products work with a wide range of disk subsystems, administrators gain a powerful and flexible solution, free of hardware and application restrictions.

Automated, High Performance Data Protection

Protecting data volumes with a well-designed backup strategy is an essential component of any enterprise Exchange configuration. VERITAS FlashSnap™ and Hot Snapshot solve the problem of continually shrinking backup windows using flexible, point-in-time data volume copies.

VERITAS FlashSnap™ automates the creation of snapshot copies with minimal impact on the production Exchange system. After splitting the snapshot from the production volumes, snapshot data is backed up, either locally or via remote mount of the volume to a backup server. Because the backup process accesses only snapshot data performance and availability of the production server are unaffected. After the backup has completed VERITAS FastResync technology efficiently synchronizes the snapshot volume with production data by copying across only changes made since the volumes were split.

VERITAS Hot Snapshot technology splits production and snapshot volumes without requiring a dismount of Exchange storage groups. This gives business users continuous availability of Exchange data during the backup process.

Hot Snapshot runs the Microsoft-supplied Exchange database validation tools against each snapshot to ensure physical data integrity. If any corruption is identified the snapshot is rejected and the data must be resynchronized and split again. Hot Snapshot also guarantees logical data consistency. When a recovery is initiated the Exchange ESE database engine reapplies transactions from the logs backed up at the same time as the snapshot data. Any transactions that were incomplete at the time of the volume split will be brought to a logically consistent state, simulating a clean dismount of the volume.

One-Step Recovery

When failures inevitably occur business users expect the Exchange administrator to recover data as quickly as possible. Lengthy outages to Exchange can significantly impact the business.

VERITAS Edition™ for Microsoft Exchange Quick Recovery allows administrators to create multiple hot snapshot images of Exchange storage groups for rapid recovery of Exchange data. The snapshot images remain on the Exchange server, along with transaction logs backed up at the time of the snapshot. During a recovery data can be returned to either a consistent state that represents the time of the last snapshot, or to a point-in-time immediately before the failure - using both snapshot and reapplied transaction logs. Restoring volumes directly from disk significantly reduces the time needed to bring Exchange back online.

Automated Notify and Respond

Running out of space is one of the most common and problematic storage-related failures. Rapid or unanticipated growth in Exchange storage can quickly overload the transaction logs. If the logs become full Exchange continues to operate but prevents database updates, effectively disabling the system for business users.

VERITAS Edition™ for Microsoft Exchange addresses out-of-space conditions by providing user-defined storage growth management policies. VERITAS policies monitor space utilization and notify the Exchange administrator when a volume reaches a pre-set percentage full. The administrator is then

able to schedule action to avert a problem before the volume is out of space. The sophisticated VERITAS software is also able learn patterns of normal storage growth. Once learned, any abnormal change in usage will trigger administrator notification, and the appropriate steps can be taken to address the problem.

VERITAS also supports an optional automatic growth feature that dynamically adds storage to a logical volume when it reaches a set threshold. When used in conjunction with policy notification, the VERITAS software is able to alert the administrator to potential problems and then take corrective action if the situation continues to worsen. Spike detection algorithms prevent unnecessary automated allocations during mailstorms. If the software perceives an unusual amount of storage growth the administrator is notified and the automatic growth feature is turned off.

Improve Availability

No matter how carefully the Exchange environment is configured it is difficult to anticipate every possible scenario that can cause a failure. Administrators must always be prepared for situations in which a single point of failure can affect Exchange availability or performance. VERITAS Edition™ for Microsoft Exchange addresses the single-point-of-failure issue using a combination of dynamic multipathing and hot spares.

The Dynamic Multipathing (DMP) option adds fault tolerance to disk storage by making use of multiple paths between a server and a disk in a storage array. If a path to a disk fails, DMP will automatically transmit data to and from the disk over an alternate path. Dynamic Multipathing is also used for load balancing to improve overall subsystem performance.

Another VERITAS technology that provides high availability in the event of disk failure is the ability to utilize a hot spare. A hot spare is an extra, unused disk drive that is part of an array disk subsystem. This disk is maintained in standby mode. If a disk failure occurs, the hot spare replaces the failed drive without interrupting the system. VERITAS Edition™ for Microsoft Exchange automatically reserves extra disks for use as hot spares.

Wizard-Driven Optimization of Exchange Storage

Microsoft Exchange 2000 gives administrators the ability to segment Exchange servers into multiple storage groups, with each storage group capable of hosting multiple databases. This flexibility helps administrators manage large Exchange configurations, by distributing the workload throughout the storage subsystem and by providing flexible control of storage group policies. However, this added flexibility increases management complexity. Each database defined to Exchange requires storage to be configured and managed. Determining the optimal storage configuration for each database can be time consuming and complicated.

VERITAS Edition™ for Microsoft Exchange provides a storage configuration wizard to guide administrators through the process of configuring Exchange storage. The wizard automatically discovers Exchange storage and prompts the administrator for various environment parameters and requirements. Based on the input data the VERITAS software recommends, installs, and configures an optimized Exchange storage environment. The optimized configuration can then be deployed across multiple Exchange servers in the enterprise, saving the time required to configure each server.

Centralized Exchange Storage Management

VERITAS Edition™ for Microsoft Exchange provides enterprise-wide, multi-vendor storage management from a single administration console. An easy-to-use graphical user interface - the VERITAS Enterprise Administrator™ (VEA) - simplifies installation, management, and administration

tasks and enables centralized management of storage devices from multiple vendors. This boosts administrator productivity and efficiency, and reduces the overall cost of Exchange storage management.

Software wizards guide the administrator step-by-step through daily operational tasks, identifying repeatable processes that can be automated and suggesting best practices to be implemented. By reducing the number of manual processes necessary to manage Exchange storage, many problems that result from human error are eliminated.

VERITAS Edition™ for Microsoft Exchange allows on-the-fly changes to the Exchange storage configuration: storage resources can be added, expanded, and moved without impacting end user access to Exchange functionality; disks can be added and rescanned while Exchange remains online and available; and data can be aggregated across heterogeneous RAID arrays, or JBODs, to provide maximum fault tolerance. These features ensure optimal performance of Exchange storage resources. In addition, VERITAS Edition™ for Microsoft Exchange supports heterogeneous storage hardware environments, offering organizations protection for existing storage hardware investments and freedom of choice for future storage purchases.

Summary

The growing emphasis on online communications for every facet of business activity is highlighting the need for enterprise-class solutions to email management and administration. VERITAS Edition™ for Microsoft Exchange offers a comprehensive storage management solution for enterprise Exchange configurations.

With a solid reputation for innovative storage management solutions, VERITAS has the experience and expertise necessary to guide enterprise customers through the complex tasks of deploying new technologies. VERITAS customers gain, not only a sophisticated world-class storage management solution for Exchange, but also a partner with the technology, vision, products, skills, and resources to power Microsoft Exchange 2000 solutions in today's highly competitive economy.

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