



## **Simplifying Microsoft Exchange with Symantec Enterprise Vault and NetApp**

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### **Executive Summary**

Many organizations today are consolidating messaging systems (e-mail) with Microsoft® Exchange or upgrading to Exchange 2007 from older versions. Other companies are migrating from Lotus Notes to Microsoft Exchange based on their policies of standardizing on Microsoft platforms. This technical report discusses how such migrations in conjunction with Symantec® Enterprise Vault™ messaging data have become mission critical.

NetApp storage solutions provide advanced data management that can help reduce the risks associated with a large-scale software migration and reduce ongoing operational costs by reducing storage costs and facilitating server consolidation. The combination of NetApp technology and Symantec Enterprise Vault simplifies the migration process for a wide range of migration scenarios.

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## 1. Purpose and Scope

The purpose of this technical report is to educate the reader about simplifying the Microsoft Exchange migration by using NetApp storage solutions with the Symantec Enterprise Vault configuration.

For detailed procedures on how to install and configure Microsoft Exchange Server and Symantec Enterprise Vault products, refer to the product documentation supplied with your release of software and hardware. This applies as well to the SQL Server™ and Microsoft Exchange Servers required for a complete demo or production environment.

This paper describes simplifying migration of Microsoft Exchange Servers by using NetApp and Symantec Enterprise Vault products.

**Note:** Enterprise Vault also supports several other messaging applications, including IBM Domino and Microsoft SharePoint® portal. Additional information regarding Enterprise Vault support for these applications can be found on the [Symantec Enterprise Vault Web site](#). These topics are not covered in this document.

## 2. Introduction

Many organizations today are replacing legacy mail systems such as GroupWise and ccMail with Microsoft Exchange or upgrading to Exchange 2007 from older versions. Other companies are migrating from Lotus Notes to Microsoft Exchange to benefit from lower management and infrastructure costs and to leverage the power of the Microsoft platform.

Whatever the driver for moving to Exchange 2007, all migration projects face three major challenges:

- Long project duration
- Considerable infrastructure and other resource costs
- Increased business risk

Because e-mail is the most business-critical application in many organizations, reducing the risks associated with migration is paramount. Potential loss of valuable business data and downtime of the entire e-mail system if something goes wrong are major areas of risk that must be managed. Recent regulatory changes mandating the retention of e-mail for set periods for many institutions raise the stakes even further. Technologies that can reduce the duration of projects, simplify infrastructure requirements, and ensure the success of migration can play a huge role in managing these risks.

Proper selection of storage systems and software can have a dramatic impact on the migration process by facilitating migration testing, accelerating data movement, simplifying infrastructure through storage and server consolidation, and improving data management processes.

A significant portion of the time, effort, and costs associated with a migration project can be attributed to the physical amount of e-mail that has to be migrated. Reducing the volume of data to be migrated is one of the simplest ways to reduce the overall risk and minimize coexistence time, which in itself is a major load on administration and support resources.

Standard Microsoft Exchange or third-party migration tools manage the typical migration process. Many migration projects at some point run parallel mailboxes in the legacy system and in Exchange 2007. The immediate consequence is that the storage space consumed by e-mail can be doubled for the duration of the migration. Even after the completion of the migration, the amount of storage consumed is likely to be significantly higher.

Microsoft Exchange Server 2007 architecture requires new hardware resources, because it supports a 64-bit operating platform. Without Symantec Enterprise Vault, migration of older Exchange Servers to Exchange

Server 2007 requires new hardware, resulting in increased cost of migration. Using Symantec Enterprise Vault lowers the cost of migration over the same configuration used with an e-mail archival and compliance solution, even after data migration to the new Exchange Server.

Migration tools themselves operate largely on a MAPI basis, where there is no provision for single-instance messaging. MTA was used in Exchange 2003 as a mechanism to handle message transfer. If a message is sent to 50 people on the same database, and they are all moved to a new database (on the same or a different Exchange Server), single instancing is preserved. See <http://support.microsoft.com/kb/175481>.

### **3. The Benefits of NetApp and Symantec Technology in Managing Exchange Migrations**

Combining technologies from NetApp and Symantec can deliver substantial benefits for companies that are migrating to Exchange.

Symantec Enterprise Vault is a total archiving system for Microsoft Exchange. Enterprise Vault streamlines and reduces the ongoing cost of information storage for the enterprise without compromising information availability.

NetApp storage systems provide reliable, low-cost, disk-based storage that works in conjunction with Enterprise Vault. The addition of NetApp SnapLock® Compliance or SnapLock Enterprise software can ensure regulatory compliance and adherence to corporate best practices. NetApp storage systems integrate easily into complex environments and provide shared access to UNIX®, Windows®, Linux®, and Web data while simultaneously supporting Fibre Channel storage area networks (SANs), IP SANs (iSCSI), and network-attached storage (NAS). Advanced data management features that are common to both NetApp NearStore® and FAS systems simplify data management in today's dynamic IT environments.

Utilizing Symantec Enterprise Vault in conjunction with NetApp NearStore to archive existing e-mail data before migration provides the following benefits:

- Significantly reduces the amount of data that must be migrated, so migration occurs more quickly with less administrative burden.
- Provides built-in mechanisms to ensure regulatory compliance; NetApp SnapLock software running on NetApp storage system is designed to guarantee that e-mail data cannot be altered or deleted during the compliance period.
- Utilizes NetApp primary storage as the storage repository for the new Exchange environment.

### **4. Using Symantec Enterprise Vault and NetApp Storage System During Migration**

The following five main components must be accommodated during migration from the legacy e-mail system.

- Mailbox profile
- Mailbox content
- Personal folder content
- Public folder content
- Address books, both personal and corporate

Of these, mailbox content is the area where Symantec and NetApp provide the greatest benefit. Implementing Enterprise Vault in conjunction with NetApp NearStore near-line storage minimizes the

amount of e-mail to be moved. This in turn reduces the time required to perform migration and minimizes the total storage requirement during and after the migration. In the process it is possible (and desirable) to rationalize personal folder file content, thereby removing yet another risk area. This is accomplished through the Enterprise Vault PST Migration utility by importing personal folder file content from the desktop to the NetApp NearStore system.

When migrating Exchange versions, Enterprise Vault and NetApp NearStore can be used before, during, and after migration to minimize storage costs and migration time and reduce project risk. By using Enterprise Vault, the size of the Exchange message store can be reduced ahead of the physical migration. Experience shows that the content to be moved can be reduced by 50% or more by moving older items out into a separate Enterprise Vault repository on NetApp NearStore storage. Enterprise Vault is Exchange version independent and has its own method of single instance and compression. Once in Enterprise Vault, data does not need to be converted when the organization moves to Exchange 2007. It remains accessible to the user in exactly the same seamless way as before and if required can still be restored to Exchange in the correct native format.

There are four basic approaches to Enterprise Vault-assisted migration. The choice of approach depends on how the organization views e-mail archiving in relation to the migration project—whether it is part of the project or a separate project of its own. The merits and considerations of each possible choice are described in the following sections.

## **5. Archive All Existing E-Mail Content Prior to Migration**

Enterprise Vault is deployed in the source environment with Exchange 2000 and Exchange 2003. It is used to archive all e-mail from both public and private (mailbox) stores to a NetApp NearStore system. Enterprise Vault and NetApp FAS are then deployed in the target environment. This reduces the project effort to primarily the migration of personal address books and mailbox profiles, since there are no mail items or e-mail shortcuts to migrate. Required tasks include:

- Archive all content from the source environment. Migrate mailbox profile and address books to the target environment. Archive all PST files from the source environment.
- Provide access to archived mailbox and PST content via Enterprise Vault Archive Explorer.
- Utilize ongoing archiving in the target environment with access to archived content via both Archive Explorer and shortcuts in mailboxes.

This process yields significant reductions in time, effort, risk, and cost, since data migration accounts for significant costs during a migration project. The cost savings are due to messages achieved. The user maintains ongoing access to historical e-mail without the need to move that mail into Exchange Server.

### **Minimizing Mailbox Content to Be Moved**

Enterprise Vault and NetApp storage are most commonly used during migration to minimize the amount of mailbox content migrated between the source and target environments without archiving the entire contents.

Consider the configuration of Enterprise Vault being deployed in both the source environment and the target environment. In this scenario, Enterprise Vault is used ahead of migration to aggressively archive content from the mailbox into the Enterprise Vault repository stored on a NetApp NearStore system. With this approach, unlike the first method, either all or a percentage of the content is archived from the source environment and is replaced with seamless shortcut links in the mailboxes and public folders. The data

migration effort is then focused on moving the residual shortcuts and any percentage of content left behind. The tasks are as follows:

- Archive a percentage of the content from the source environment based on age or mailbox quota. Archive all PST files from the source environment. All archived content is stored on NetApp NearStore near-line storage.
- Migrate mailbox profiles, residual content, archive shortcuts, and address books to the target Exchange environment by utilizing NetApp FAS storage.
- Provide access to archived mailbox, public folder, and PST content via Enterprise Vault shortcuts created in mailboxes and also via Enterprise Vault Archive Explorer.
- Utilize ongoing archiving in the target environment with access to archived content via both Archive Explorer and shortcuts in mailboxes.
- The common setting applied in this approach is to archive anything older than 30 days. Residual shortcuts are left behind for all the archived content; however, this can be adjusted—for example, anything up to a year old. These policies typically reduce the source mailbox and public folder content by around 80% and significantly reduce the data migration effort, with the added benefit of providing seamless access to content archived from the source environment in the target mailboxes.

As with the previous method, this approach represents a significant reduction in time, effort, risk, and cost of the migration process.

If shortcuts are created only for items of a certain age—for example, those less than a year old—then Archive Explorer can still be used to access content, together with the other search interfaces in Enterprise Vault.

## 6. Protecting Investment in Exchange

In instances where companies have already begun their Exchange migration project or are migrating content from legacy mail systems, it may not be possible or appropriate to introduce a new technology into the legacy environment. In this case, Enterprise Vault and NetApp storage can be introduced solely into the Exchange environment to streamline mailbox management according to best practices.

This may result in increased physical storage requirements for the migrated data in the target environment. Enterprise Vault can be used to minimize the operational impact of this duplicated data by reducing the physical storage requirements through archiving and recreation of lost single-instance data. The process is seamless to users, who have their original items replaced with shortcuts.

Prior to introducing Enterprise Vault and NetApp storage for the Exchange migration is another scenario. Enterprise Vault is deployed only in the target environment, along with NetApp storage, according to the following steps:

- Migrate mailbox profiles, mailbox and public folder content, and address books from the originating Exchange system or legacy e-mail system to the transition storage group in the target Exchange environment by using the Microsoft migration wizards or similar tools. If a company does not require a transition storage group strategy, use data migration configuration.
- Archive all PST files from the source environment to the archive deployed in the current environment. SID history is required to map permissions. Enterprise Vault has the ability to find all PST files and archive the messages into the Exchange system. It also provides the administrative capability to disable the archiving of items into PST files. This configuration helps to maintain the

compliance of messages as well as protecting the mission-critical data going out of the company's messaging environment.

- Aggressively archive content from mailboxes and public folders in the transition storage group until archiving thresholds are reached.
- Move the archived mailboxes and public folders into the target storage group on the NetApp FAS for fragmentation elimination and storage consolidation.
- Provide access to archived mailbox and PST content via Enterprise Vault shortcuts created in mailboxes and also via Enterprise Vault Archive Explorer.
- Implement archiving in the target environment with access to archived content on the NetApp NearStore system via both Archive Explorer and shortcuts in mailboxes.

Enterprise Vault should then be configured to archive from these mailboxes constantly and aggressively to NetApp NearStore, perhaps under a 30-day policy as discussed earlier. The archiving services would run every 15 minutes during the migration to archive content quickly into the target environment as it arrives from the Exchange migration wizards, again with shortcuts replacing the original items. After a mailbox has been migrated, the resulting archived mailbox is transferred to the target storage group, where it is consolidated and any fragmentation eliminated.

The migration of PST files can be undertaken independently from the mailbox migration, further reducing risk. In addition, use of the Enterprise Vault Web-based Archive Explorer can eliminate the need to populate the new target mailboxes with residual shortcuts for the migrated PST content, as discussed previously.

In short, this approach, while not reducing the amount of time taken to perform the migration, does minimize the risk and the storage and associated costs of managing the migrated content. This is because the messages are archived onto the Enterprise Vault system, reducing the Exchange data prior to migration. The method is to archive the messages from the Exchange Server to Enterprise Vault and then migrate the Exchange Server with a minimal amount of data. Once the migration is complete, Enterprise Vault archived items can be moved back to the Exchange Server or be archived in the Enterprise Vault environment with the ability to restore the messages from the archives.

## **7. Deployment of Enterprise Vault and NetApp Storage after Migration**

Finally, Enterprise Vault can help in instances where companies have already completed their Exchange migration projects and as a result are struggling with large private and public databases, together with the associated impact on backup and recovery times.

The primary concern is to reduce the size of the Exchange databases quickly and, if necessary, cap them to control growth. The goal is to provide a defined service-level agreement (SLA) on Exchange, a predictable backup and recovery strategy, and ongoing reductions in associated storage costs. Mailbox quotas can be used to cap mailbox sizes, but this approach is highly intrusive for the end user and may result in corporate records being lost. The introduction of an archiving policy working with a mailbox quota provides the ability to control Exchange growth and is completely nonintrusive to the end user, preserving long-term access to important Exchange content. An example archiving policy using this model might constrain mailbox sizes by archiving at 75% of a mailbox quota of 100MB, thus effectively capping Exchange at 75MB multiplied by the number of mailboxes, with an effective mailbox size governed by the amount of storage allocated to a mailbox archive. The following steps describe the process:

1. Mailbox content has already been migrated to the target environment.
2. Archive all PST files from the source environment to the archive deployed in the current environment. SID history is required to map permissions. Initially, archive content aggressively from mailboxes and public folders in the target environment until the quota archiving thresholds

are reached. Then modify the ongoing archiving in the target environment to a nightly schedule with access to archived content via both Archive Explorer and shortcuts in mailboxes.

3. Provide access to archived mailbox and PST content on the NetApp NearStore system via Enterprise Vault shortcuts created in mailboxes and also via Enterprise Vault Archive Explorer.
4. As before, the migration of PST files can be treated as a separate project and undertaken independently from the archiving of mailboxes to reduce risk and the cost of storage. If the PST files are protected by password, such passwords must be provided; or use the password cracking feature during the PST migration or ingestion.

## 8. Using NetApp FAS Storage in the New Exchange Environment

Although the use of Symantec Enterprise Vault and NetApp NearStore can reduce the duration and complexity of the migration process and some of the infrastructure costs, there are still substantial business risks during migration. Ongoing infrastructure costs can also be significant. Utilization of NetApp storage systems as primary storage for the new Exchange environment further alleviates business risks and reduces infrastructure and ongoing management costs.

Implementing a centralized FAS storage system for Exchange makes it possible to:

- Completely test the migration before going live.
- Consolidate on fewer Exchange Servers to simplify infrastructure and reduce cost. Enterprise Vault on NetApp reduces the primary storage on the Exchange Server. This primary data is then archived onto secondary storage. By reducing the primary storage requirement, this configuration results in a lower number of Exchange Servers with increased messaging growth.
- Improve Exchange data management.

### Migration Testing

Full migration testing is made possible through a unique feature of the NetApp architecture. A NetApp FlexClone® volume is a writable, point-in-time image of an existing volume. A FlexClone volume writes only incremental updates to disk, minimizing the physical storage required by the clone without altering the original volume. This makes it possible to test a new Exchange environment by using production data without duplication of data or risk of corruption before going live.

A FlexClone volume of each Exchange volume can be created, and these FlexClone volumes can be used to test the migration without altering the original data. This makes it possible to validate the migration, identify gaps, understand the impacts, and fine-tune the process so that no surprises occur when the new environment goes live. Parallel operation can be reduced or eliminated, because the new system can be fully tested and validated. This technical report did not test with FlexClone in order to understand the effect on latency and performance impact on the production environment.

### Consolidating Servers

One of the biggest causes of complexity in many Exchange environments is the proliferation of Exchange Servers. Many companies have added more servers when what they really needed was additional or centralized storage. The result is Exchange environments with hundreds of small servers that make management a nightmare and the prospect of upgrading almost unthinkable.

Implementing Symantec Enterprise Vault and NetApp NearStore In the Exchange Server environment makes it possible to significantly reduce the number of Exchange Servers required. For instance, if 50% of

the data is archived, then 50% less storage is needed, and servers deployed solely for the purpose of added storage capacity can also be eliminated.

Implementing centralized storage with NetApp FAS systems allows the number of servers to be reduced even further. Centralized NetApp storage ensures that all Exchange Servers have adequate storage capacity and I/O bandwidth to support the maximum number of users so that server counts can be reduced to the absolute minimum, eliminating complexity and reducing both infrastructure and administrative costs. Regular archiving can be used to limit future growth.

### **Improved Exchange Data Management**

The combination of archiving with Enterprise Vault to reduce active Exchange data and the advanced features of NetApp FAS systems running SnapManager® for Exchange can greatly simplify ongoing data management tasks in an Exchange environment. Exchange volumes can be dynamically expanded with no disruption to the software. SnapManager for Exchange is a VSS-based application that can be used to direct the Exchange migration process; it provides a comprehensive data management solution that simplifies configuration, backup, and restore operations for Exchange databases. SnapManager software provides near-instantaneous hot backups and rapid restores to increase the availability, scalability, performance, and reliability of Exchange environments.

### **Recommendations for Migration**

Successful and painless migration to Exchange depends on many factors, and the process is never completely risk free. Using Enterprise Vault, NetApp NearStore, and FAS storage to assist in the management of Exchange content can be a critical success factor, dramatically reducing the risks associated with storage, administration overhead, and user transparency.

Here are some of the factors to consider in planning your migration to Exchange environment.

- The perception of project risk in relation to migration
- The availability of storage to contain migrated e-mail content
- The availability of backup technology to protect migrated e-mail content
- The time needed to perform the migration.
- The status of the migration project: not started, in progress, concluded
- The budget available to perform the migration

In a normal migration scenario, the benefits of Enterprise Vault, NetApp NearStore, and NetApp FAS systems are easily justified in terms of project time, storage cost, and resource cost savings, together with a general reduction in overall project risk. Later in a migration project, the benefits are more focused on storage cost savings, although significant risk can be avoided through thorough testing facilitated by NetApp FlexClone volumes.

The use of these technologies can be justified purely by the risk, cost, and timesavings associated with the migration, repatriation, and consolidation of PST file content into an archive that is seamlessly accessible by Windows users.

Every Exchange deployment is unique, but by selecting appropriate technologies from the various elements described in this paper, it is possible to create a migration plan that minimizes risk, reduces infrastructure and management costs, and rationalizes the ongoing management of Exchange data.

## 9. Appendix

This section contains additional information regarding the required patches and references for further reading available in the NetApp technical library section.

### 9.1. Operating System Required Patches

Installation of applications and Exchange Server migration requires installing SnapDrive® software to address storage management issues. The SnapDrive tool allows managing the storage with the ability to scale the storage as well as the ability to back up the data very quickly.

This section lists the hotfixes that must be installed before configuring the NetApp storage system by using Fibre Channel Protocol and SnapDrive software. The Microsoft support team provides these patches directly to its customers.

If you install and configure local drives by using SnapDrive in a Fibre Channel Protocol environment, the following Windows hotfixes are required on Windows 2003 SP1 server:

- [Q916531-hbaapi](#)
- [Q916048-storport](#)
- [Q913648-vss](#)
- [Q912593-classnpn](#)
- [Q910048-ntoskrnl](#)

### 9.2 Additional Reading

Several relevant technical reports are available in the library section of the NetApp Web site:.

- [TR-3578: Microsoft Exchange Server 2007 Best Practices Guide](#)
- [TR-3598: Protecting Exchange Server 2007 with NetApp SnapManager for Exchange](#)
- [TR-3565: Exchange Server 2007 Performance Characteristics Using NetApp iSCSI Storage Systems](#)
- [TR-3500: Implementing Symantec Enterprise Vault with NetApp Storage Systems](#)
- [TR-3541: SnapManager 4.0 for Microsoft Exchange: Best Practice Guide](#)
- [TR3635: Symantec Enterprise Vault Data Protection with Network Appliance Storage Systems](#)
- [TR-3500: Deployment Guide: Symantec Enterprise Vault with NetApp Storage Systems](#)
- [TR-3501: Implementing Symantec Enterprise Vault™ with Network Appliance SnapLock](#)
- [TR-3383: File System Archival With Symantec Enterprise Vault and NetApp Storage Solution](#)

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