Faster Exchange Recovery with Symantec
Symantec Backup Exec 12.5 & Symantec Veritas NetBackup 6.5.3:
Exchange Backup & Recovery Performance Versus EMC NetWorker 7.5

EXECUTIVE SUMMARY
Microsoft Exchange is a critical application for businesses today. Problems with Exchange server will directly affect your business bottom line. Quick recovery of the Exchange database or individual folders or messages is vital to getting your business back on-line and producing revenue.

Symantec’s backup solutions deliver a significant time savings versus EMC NetWorker across a range of Microsoft Exchange backup and recovery scenarios.

TEST HIGHLIGHTS
1 Symantec solutions reduced Exchange Backup time by more than 4,000% over EMC NetWorker by eliminating the need to perform MAPI-level backups
2 Symantec can recover a 200MB mailbox up to 13x faster than EMC NetWorker using EMC recommended best practices
3 Utilizing Granular Recovery Technology (GRT), Symantec backup solutions were able to recover individual email messages up to 220x faster than EMC NetWorker
4 Because Symantec solutions require only a single pass backup to provide full disaster and granular recovery they can save storage space and administrative time

Overview
Two Options
Symantec offers a straightforward, single-step strategy for Microsoft Exchange backup and recovery.

Users considering deploying EMC NetWorker for this task have two options for deployment: 1) Traditional method, or 2) the Microsoft Recovery Storage Group method. Tests show that the Symantec offerings deliver better or competitive performance when compared with both EMC scenarios while offering a simpler approach to backup and recovery.

Symantec’s single pass backup also provides for reduced storage requirements and less administrative time because they don’t require the use of a mailbox level backup or Recovery Storage Group recovery to enable the recovery of granular data.
Test Results

Option 1: Traditional Method

In this approach, the backup and recovery solution executes its task without any intermediate involvement of any Microsoft Exchange utility in the restore of the entire Exchange database or individual mailboxes or messages.

The full Exchange database backup, performed on an Exchange 2007 database of approximately 85GB, ranged from 28 to 32 minutes across the three products tested.

In Symantec’s case, a single backup dataset can be used for both full and granular restore operations.

Note: Symantec uses a single backup as the source for all restores. For EMC, to get the best performance for mailbox and message restore, one must use a second backup, done at the Exchange Messaging API level (MAPI) to provide the source.
In EMC’s case, a second backup was required. This backup was required to allow for mailbox and message level restore and used the Exchange Messaging API (MAPI). While the initial database backup completed in 29.81 minutes, the MAPI backup required an additional 21.36 hours - making the total backup time close to 22 hours compared with ~30 minutes for Symantec. It should be noted that the EMC MAPI backup also requires additional storage space and administrative time. (See Figure 1.)

With the burden of the nearly day-long backup, does come some benefit in restore time. A mailbox that can be restored in 7 to 15 minutes using a Symantec offering can be restored in just under 2 minutes with EMC.

Similarly, a single message can be restored rapidly - in about 8 seconds for EMC, though Symantec Backup Exec runs the restore in just 22.2 seconds and NetBackup in about 2 minutes and 15 seconds - reasonable performance and without the overhead of the additional 21 hour backup. (See Figure 2.)

**Option 2:**

**Full Exchange Backup Method**

In this case, only a full Exchange database backup is used for the restore process. With Symantec, there is only one backup, so the backup time remains the same. EMC NetWorker required 29.81 minutes to create this backup, roughly between the times of two Symantec solutions. (See Figure 3.)

The Symantec restore results are also the same. With EMC, however, the restore is now a two-stage process.

First, the full database backup is restored to a Microsoft “Recovery Storage Group” (RSG) which is a clone of the Exchange database from which individual mailboxes and messages can be restored. This required 51.76 minutes.

Once the RSG was loaded with the backup, the mailbox required an additional 48.76 minutes of runtime - giving a total restore time of over 100 minutes compared to between 7 and 15 for the Symantec offerings.

The restore of a single message required an additional 29.94 minutes of runtime - giving a total of 81.7 minutes compared to between 22 seconds and 2 minutes and 15 seconds for the Symantec offerings. (See Figure 4.)

It should be noted that EMC literature promotes RSG as the recommended method for recovery.
Test Setup & Methodology

Test Environment

Testing was conducted in April 2009. In order to perform testing in parallel, three identical test environments were built. Tolly engineers verified that all hardware and software components of the base systems were identical prior to installation of the solutions under test.

Each vendor’s Exchange test environment consisted of three main servers, each running Microsoft Windows Server 2008 x64 Edition SP2. Two identical HP ProLiant DL360 G5 servers served as the
master server and the media server for the data protection and recovery software, and were equipped with dual-core Intel Xeon 5140 running at 2.33GHz with a 1333MHz FSB, 4GB RAM, 72GB SAS HDD at 10,000 RPM, and QLogic QLE2562 4GB dual-port Fibre Channel HBA. In addition to the data recovery servers, a Dell PowerEdge 1950 was outfitted to serve as a Microsoft Exchange 2007 server. This system had the same hardware as the data protection servers, with the exception of having a dual-core 2GHz processor.

Each server was connected (via Fibre Channel) to a HP SAN Switch 408, which, in turn, was connected to an HP StorageWorks 2012fc SAN outfitted with four 480GB SAS HDDs running at 15,000 RPM.

**Test Methodology**

Engineers used Microsoft Exchange Load Generator (aka LoadGen) to create an Exchange database. That database was approximately 85GB and contained 416 user mailboxes with an average size of 200MB each.

Engineers first performed a backup of the Exchange servers administered by the vendor specific data backup and recovery solution. Using the new technology developed in Backup Exec and NetBackup eliminated the need for a MAPI backup, allowing retrieval of either granular or database information from the single backup. Unlike in EMC’s solution, where to perform all the restores needed, engineers either had to run both database and MAPI backups, nearly a 22 hour procedure or perform a Microsoft Recovery Storage Group intermediate recovery step prior to restore. Next, a single email and mailbox were deleted from the working Exchange database. Once engineers verified that the data was no longer accessible to the user, a restore operation was started from the data recovery solution.

The logs generated by the data protection and recovery solution were used to measure the time required to complete the operation. A permutation of this test was also run to gather times for restoring a single 200MB mailbox, and the full restore of the Exchange database. Each test was run a total of three times and averaged to arrive at the data points used in this report.

### Backup and Recovery Solutions Tested

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<tr>
<th>Vendor</th>
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Source: Tolly, April 2009  

Figure 6
About Tolly…
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In accordance with Tolly’s Fair Testing Charter, Tolly personnel invited representatives from the competing company to review the testing. After an initial dialogue the competitor did not respond. All products were configured to use default settings.

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