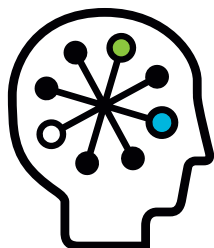


# HP LeftHand SANs and Microsoft® Exchange Server 2007

Solution brief



## At a glance

Microsoft Exchange Server 2007 requires an IT infrastructure as powerful and flexible as it is. Because the HP LeftHand SAN can change and scale on the fly while continuously protecting data in the Exchange environment, it can meet that requirement, accommodating whatever new challenges come along. There are no add-on products, no complex procedures, and no need for high-priced consultants or months of training.

## Introduction

With over 500 million mailboxes deployed at more than 400,000 companies, Microsoft Exchange Server is the most popular messaging system in the world. Now, with expanded capabilities in collaboration, mobile computing, and unified messaging, Exchange Server 2007 is sure to expand its role as a central component of corporate IT infrastructures.

Exchange has grown into a central repository for many kinds of data, and thus the amount of storage it consumes has also grown. As Exchange has become central to most information workers, the mission-criticality of the system has grown as well, mandating data protection from a wide variety of failure scenarios. However, storage management—which encompasses three main areas: capacity, performance, and data protection—has always been a challenge with Exchange.

**Capacity management** challenges for Exchange center primarily on upfront planning and after-the-fact growth management. Exchange databases grow organically as the system's use expands—a factor accelerated by unified messaging, mobile computing, and collaboration (or when, for example, an acquisition leads to new mailboxes). Because it leads to expenditures of both time and money, users consistently cite the re-provisioning of storage as their primary pain point in dealing with changes to an existing Exchange environment.

**Performance management** can also be a challenge, because Exchange is notoriously I/O bound. The result is long wait times for the server during normal e-mail operations in Outlook. Adequate storage performance is usually a matter of having sufficient “spindles” (disk drives) in the storage subsystem to meet the I/O per second (IOPS) requirements of the Exchange servers. Re-provisioning storage to accommodate changing performance needs results in system downtime, complex architectural changes, and—because administrative errors inevitably occur—data loss.

**Continuous data protection** secures Exchange data from loss and protects the e-mail system from downtime. Most companies rely on tape backups, which entail backup windows—but the potential data loss and recovery time that come with tape backup are unacceptable to many. This has led to the adoption of disk-based backup products, which address some of these problems, but often require a dizzying array of add-ons that are both expensive and overly complex to manage.

What is needed is a storage subsystem that is both flexible enough to meet initial demands and adaptable enough to accommodate both performance and capacity changes. In addition, the ideal storage system would be affordable and highly available, would not lose data due to downtime, and would support self-recovery—all without requiring an army of storage experts to manage.

### **Solution overview**

An iSCSI SAN from HP LeftHand SAN is an ideal storage option for an Exchange environment because:

- It is easy to manage, requiring no specific expertise in array management or storage networking. It leverages your existing Windows® and IP expertise with implementations that require less than half a day.
- It is easy to change and expand as the Exchange environment changes or grows. Changes can address both capacity and performance with no downtime. Automation lowers the risk of costly administrative errors.
- It scales on the fly, so you will never outgrow your storage. There are no expensive “forklift” upgrades—ever.
- It is highly optimized for Exchange’s random read/write I/O. This extracts greater performance from a set of disks and minimizes the dollars per IOPS for the system.
- It allows you to construct a highly available storage environment that survives virtually any set of component failures to keep running without affecting the Exchange users.
- It is easy to apply data protection features as needed for specific storage groups without downtime.

Based on our patented HP SAN/iQ® Software, the HP LeftHand SAN is composed of multiple storage nodes, each a self-contained server with eight to 12 drives. These storage nodes are clustered together to create a virtual storage array—or storage pool—from which iSCSI volumes are created. HP LeftHand SAN load-balances volume data across the storage nodes within a cluster, and using a technology called network RAID (nRAID), replicates individual blocks to different storage nodes. The storage subsystem scales with the addition of more storage nodes to the cluster. Existing volumes are automatically rebalanced to accommodate the new nodes, increasing both the capacity and the performance of the storage cluster. A performance bottleneck related to the storage subsystem can be immediately resolved by adding a node to the storage cluster. No replanning, reconfiguration, downtime, or storage expertise is required.

Additionally, nRAID provides the same level of protection between storage nodes that disk RAID provides between disks in a RAID array. Thus, if any part of a node (e.g., disks, CPU, network connections, power) fails, other copies of the data within the SAN keep the data volumes available. Because of the method nRAID uses to create data replicas, multiple nodes can fail without interruption of service. In fact, physically locating half the storage nodes in one

place and the other half in another allows the system to suffer the complete failure of one location (i.e., of half the storage nodes) and still keep running. There are no additional products to buy—and nothing extra to do administratively; simply locate half the nodes in a different place to get instant, multi-site failover capability. Combine this with a Microsoft Cluster Server environment for the Exchange databases, and you have a complete high-availability Exchange environment—all at a very attractive price.

HP LeftHand SANs have a rich set of additional storage management features, including:

- Thin provisioning
- Live snapshots
- Remote snapshots between clusters
- Volume Shadow Copy Service (VSS) support
- Online upgrades of HP SAN/iQ Software
- Automated volume growth
- Automated snapshot capacity management
- iSCSI network load balancing (via Microsoft Multipath I/O [MPIO])
- Central SAN management console with administrative access rights
- Full iSCSI security and server authentication

All of these features and more are included in the base HP LeftHand SAN; there is no a la carte feature pricing. In short, an HP LeftHand SAN is an ideal storage infrastructure for running an Exchange environment.

#### **The power of Exchange and HP LeftHand SAN**

HP LeftHand SAN provides a cost-effective, easy-to-manage, highly scalable, and highly available iSCSI storage environment for use with Microsoft Exchange. The HP LeftHand SAN infrastructure is easy to expand with the addition of new users, capabilities, or mailbox stores—or entirely new storage groups. HP LeftHand SAN is flexible enough to allow Exchange to start small on a two-node SAN and then scale, along with the business, up to a 40-node, multi-site SAN without once requiring reconfiguration of existing volumes or needing the Exchange system to be taken offline.

## HP Services

Partner with HP Technology Services to boost availability and avoid costly downtime by mitigating technology-related business risks. To help take the worry out of deploying, supporting, and managing your HP LeftHand SAN solution, we've designed a portfolio of service options that are as flexible, scalable, and affordable as our storage. For more information, talk with your HP sales representative or HP-authorized Channel Partner, or visit:

[www.hp.com/hps/storage](http://www.hp.com/hps/storage)

## HP Financial Services

HP Financial Services provides innovative financing and financial asset management programs to help you cost-effectively acquire, manage, and ultimately retire your HP solutions. For more information, please contact your HP representative or visit:

[www.hp.com/go/hpfinancialservices](http://www.hp.com/go/hpfinancialservices)

## To learn more

For more information on HP LeftHand SANs, visit:

[www.hp.com/go/p4000](http://www.hp.com/go/p4000)

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4AA2-5243ENW, April 2009

