

Microsoft Exchange Server 2007

AT A GLANCE:

Microsoft® Exchange Server® is the most powerful and flexible messaging system on the market. The IT infrastructure for Exchange needs to be equally powerful and flexible. No matter how much Exchange grows and changes, the LeftHand Networks® SAN can easily accommodate it. No more add-on products, complex procedures, high-priced consultants or months of training; change, scale and protect the storage environment on the fly to accommodate whatever the Exchange user community throws at it.

INTRODUCTION

Microsoft Exchange Server (“Exchange”) is the most popular messaging system in the world with over 400,000 companies and 500 million mailboxes deployed. Exchange Server 2007 expands the system’s capabilities in areas such as collaboration, mobile computing and unified messaging; moves that are sure to increase Exchange’s role as a central component of corporate IT infrastructure.

From an IT perspective, Exchange has grown into a central repository for many kinds of data, and thus the amount of storage it consumes steadily (or sometimes not so steadily) grows. As Exchange has become central to most information worker’s jobs, the “mission criticality” of the system has grown as well, mandating data protection from a wide variety of failure scenarios. Exchange constitutes the major application that most companies manage on behalf of their employees.

Storage management has always been a challenge with Exchange falling into three main areas: capacity, performance and data protection.

Capacity management for Exchange centers primarily on up-front planning and after-the-fact growth management. Exchange databases grow organically as the systems use expands; something that unified messaging, mobile computing and collaboration have accelerated. Exchange grows in big chunks, as when an acquisition leads to the addition of new mailboxes to a system. Customers consistently cite re-provisioning storage as the primary pain point in dealing with changes to an existing Exchange environment leading to the expenditure of both time and money.

Performance management can also be a challenge as Exchange is notoriously I/O bound; resulting in long wait times for the server during normal email operations in Outlook. From a storage perspective, adequate performance is usually a matter of having

sufficient “spindles”, or disk drives, in the storage subsystem to meet the I/Os per second (IOPS) requirements from the Exchange servers. Re-provisioning storage to accommodate changing performance needs results in system downtime, complex architectural changes and data loss as administrative errors inevitably occur.

Continuous data protection secures Exchange data from loss and protects the email system from down time. Data protection needs to accommodate logical loss due to errors, software defects or malicious attacks, and from physical loss due to component failures within the IT infrastructure. Most companies rely on tape backups entailing backup windows with unacceptable potential data loss and unacceptable time to recover. This is leading to the fast adoption of disk-based backup products that address some of the problems, but usually lead to a dizzying array of expensive add-on products that are overly complex to manage.

What is needed is a storage subsystem that is flexible enough to meet a variety of initial demands and adaptable enough to accommodate both performance and capacity changes. In addition, the ideal storage system is highly available, does not lose data due to downtime and supports self-recovery – all without costing an arm and a leg or requiring an army of storage experts to manage.

SOLUTION OVERVIEW

An iSCSI SAN from LeftHand Networks is the best storage option for an Exchange environment.

1. A LeftHand SAN is easy to manage. There is no specific expertise in array management or storage networking required. It leverages the existing Windows and IP expertise with implementations requiring less than half a day.
2. The SAN is easy to change and expand as the Exchange environment changes or grows. Changes require no down time and can address both capacity and performance. Automation lowers the risk of costly administrative errors.
3. Never outgrow the storage environment. The SAN scales to any size Exchange environment on the fly. There are no expensive “fork lift” upgrades – ever!
4. The SAN is highly optimized for Exchange’s random read/write IO. This ensures the highest performance possible from a set of disks and minimizes the dollars per IOPS for the system.
5. Construct a highly available storage environment that survives virtually any set of component failures to keep running without affecting the Exchange users.

6. Easily apply data protection features as needed for specific storage groups without downtime.

How does LeftHand do all of this? Based on our patented SAN/iQ® storage management software, a LeftHand SAN is comprised of multiple “storage nodes,” each of which is a self-contained server with 6 to 15 drives. The set of storage nodes are clustered together to create a virtual storage array or storage pool from which iSCSI volumes are created. SAN/iQ load balances volume data across the storage nodes within a cluster and replicates individual blocks to different storage nodes using a technology called “Network RAID” (nRAID). The storage subsystem scales by adding additional storage nodes to the cluster. Existing volumes are automatically re-balanced to accommodate the new nodes - increasing both the capacity and the performance of the storage cluster. A performance bottleneck relating to the storage subsystem can be immediately resolved by adding an additional node to the storage cluster. No re-planning or re-configuration. No downtime. No storage expertise required.

Additionally, nRAID provides the same level of protection between storage nodes as disk RAID provides between disks in a RAID array. Thus, if any part of a nodes fails (e.g. disks, CPU, network connections, power), other copies of the data within the SAN ensure that the data volumes are still available. In addition, due to the method by which nRAID creates data replicas, multiple nodes can fail without interruption of service. In fact, (here comes the really cool part) physically locating half of the storage nodes in one location and the other half in a different location allows the system to suffer the complete failure of a location (a failure of half the storage nodes) and still keep running! There are no additional products to buy, nothing extra administratively to do. Simply put half of the nodes in a different location and have instant, multi-site failover capability. Combine this with a Microsoft Cluster Server environment for the Exchange databases and have a complete HA Exchange environment – all at a price never thought possible.

Beyond the key features mentioned above, SAN/iQ has a rich set of additional storage management features, including:

- Thin provisioning
- Live snapshots

- Remote snapshots between SAN/iQ clusters
- Volume Shadow Copy Service (VSS) support
- Online upgrades of SAN/iQ
- Automated volume growth
- Automated snapshot capacity management
- iSCSI network load balancing (via Microsoft 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 SAN/iQ SAN - no ala carte feature pricing. In short, a LeftHand SAN is the best storage for running an Exchange environment.

THE POWER OF EXCHANGE AND LEFTHAND NETWORKS SAN/IQ

LeftHand Network’s SAN/iQ provides a cost-effective, easy-to-manage, highly scalable and highly available iSCSI storage environment for use with Exchange. The SAN/iQ storage infrastructure easily expands with the addition of new mailbox stores, users, capabilities or entirely new storage groups. SAN/iQ is flexible enough to allow Exchange to start small on a two node SAN and scale alongside the business to a forty node, multi-site SAN without once reconfiguring existing volumes or taking the Exchange system offline. Try that with any other storage system!

ABOUT LEFTHAND NETWORKS AND MICROSOFT

LeftHand Networks and Microsoft have a strong partnership and work together to provide scalable IT and business solutions for the mid-tier market. LeftHand is a Microsoft Gold Certified Partner, a Managed ISV Partner and a Microsoft Storage Partner. LeftHand is also contributing storage systems to the SQL Server Customer Lab at Microsoft Corporate Headquarters, where the two companies collaborate on joint customer deployments, performance testing and best practice development.



OEM Hardware Solutions



ABOUT LEFTHAND NETWORKS

At LeftHand Networks, we deliver physical and virtual SANs that are easy-to-install, easy-to-manage and designed to perform optimally in today’s global data centers. LeftHand Networks pioneered IP-based SANs in 2001, and its innovative SAN products are engineered to deliver the highest availability and scalable performance, with integrated enterprise-class features.

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