



Overview

Country or Region: United States
Industry: Financial Services

Customer Profile

Tower Group Companies, headquartered in New York City, offers property and casualty insurance products and services through its insurance company and insurance services subsidiaries.

Business Situation

This client sought not only expert-level assistance to accomplish an Exchange migration, but to also understand the underlying processes of the migration and the final configuration, as it related to its environment.

Solution

Updating to and building a clustered Exchange Server 2003 system offered Tower Group the potential to provide the high availability that's so important for its business-critical email applications.

Results & Benefits

The Henson Group successfully migrated Tower Group's existing email system over to the redundant, easier-to-manage, scaleable Microsoft Exchange 2003 clustered system.

MAJOR US FINANCIAL SERVICES FIRM IMPLEMENTS MICROSOFT EXCHANGE CLUSTER CONFIGURATION

Microsoft Exchange 2003 Cluster Deployment

“While the completion of the E2K to E2K3 migration was the primary goal for Tower Group, they also sought to understand the process of the migration and the final configuration as it related to their environment,”

Kevin Wall, Principal Consultant – Information Worker, The Henson Group, Inc.

When Tower Group learned that Microsoft was discontinuing support for their Exchange 5.5 email servers they looked to The Henson Group to bring in the latest in redundant email technology.

BUSINESS SITUATION

The genesis of this engagement at Tower Group Companies was actually a previous successful Microsoft Exchange Server 2003 Cluster Deployment for Rothschild, Inc., one of the world's leading independent investment banking groups.

Subsequent to that successful migration, completed in early 2006, two key IT executives exited Rothschild in succession — under amicable circumstances and not related to the Exchange initiative — to accept comparable positions at Tower Group Companies. Almost immediately, the two envisioned replicating the successful Exchange migration they shepherded while at Rothschild.

Similar to Tower Group's situation, Rothschild sought to migrate from Microsoft Exchange Server 5.5 to Microsoft Exchange Server 2003, due to the discontinuation of support. In 2005, Microsoft announced that it would no longer offer free support for Exchange 5.5 in 2005 and planned to discontinue support for Exchange 5.5 in 2007. (In 2005, customers were able to receive free security related fixes, but had to pay for all other support downloads. This year, customers must pay for all support downloads and Exchange 5.5 will reach the end of its product life in 2007.)

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related to their environment," says Kevin Wall, THG Principal Consultant and Project Lead.

"The previous consulting company that helped them implement E2K left the environment in a non-standard configuration that confused the Tower Group Exchange administrators when it came time to troubleshoot an issue," Wall adds. "A comprehension of the specific configuration for E2K3, installed correctly, was a secondary goal they were able to reach with THG's assistance."

While Rothschild had actually affected a partial migration to Exchange Server 2000 and subsequently to Exchange Server 2003 in a production environment that was plagued by significant issues with stability, Tower Group was not that far along and required assistance in the entire migration process.

Similarly to Rothschild, Tower Group sought the implementation of a back-end database management storage solution that was not only highly available, but also one that could replicate data to a disaster recovery site.

To achieve pre-conceived objectives for improving and enhancing Tower Group's messaging infrastructure, The Henson Group was approached to migrate to the latest version of Exchange Server, but based on a Server Cluster architecture.

Server Clustering provides failover support for applications and services that require high availability, scalability and reliability, such as Exchange. With clustering, organizations can make applications and data available on multiple servers linked together in a cluster configuration.

Deploying a cluster eliminates a single point of failure, so when an Exchange Server is not available, then another server is firstly aware, and secondly has the capability of taking over the down server's role and the email flow continues unabated.

This deployment was targeted for users throughout Tower Group Companies' various core businesses. Tower Group Companies, headquartered in New York City, offers property and casualty insurance products and services through its insurance company and insurance service subsidiaries.

The Company's two insurance company subsidiaries are Tower Insurance Company of New York (offering commercial insurance products to small to medium-size businesses and personal insurance products to individuals) and Tower National Insurance Company. Its insurance services subsidiary, Tower Risk Management, acts as a managing general agency, adjusts claims and negotiates reinsurance terms on behalf of other insurance companies. (For more

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information on this client, please visit its web site at [http://www.twrgrp.com/.](http://www.twrgrp.com/))

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However, clusters are much more complex than single-server Exchange deployments. For instance, it requires understanding of the requirements of clustering-hardware configurations, such as shared storage must be accessible to all nodes, so hardware that manages storage connections (e.g., array controllers, Storage Area Network—SAN—switches) must be configured to avoid contention or corruption of databases.

Meanwhile, acute attention to detail is necessary to ensure that you correctly install Windows before installing Exchange and that you install and configure Exchange in the correct sequence to work on a cluster—a process that differs significantly from installing Exchange on one server.

The Henson Group offers a full-service Messaging unit staffed by experienced Microsoft Certified consultants, usually specializing in multiple technologies.

The Henson Group is consistently ranked at or near the top of Microsoft's official Resource Directory for Microsoft Certified Partners for Exchange server messaging infrastructure projects (<http://directory.microsoft.com>).

This group is led by Mike Stacy and Kevin Wall, both former high-level Exchange experts at Microsoft that resigned their positions to join the company in late 2005. Stacy's and Wall's field experience includes very challenging projects for major Fortune 100 U.S. companies, global conglomerates, U.S. federal departments and agencies, and industry leaders across many verticals.

Inside Microsoft, Stacy and Wall demonstrated their leadership on many occasions. For instance, they conceived and developed the popular "Exchange Health Check" for Microsoft customers. (Since arriving at THG, they have enhanced that program, which is now offered to clients.)

The Henson Group also achieved Microsoft's Advanced Infrastructure Solutions Competency by demonstrating expert-level Exchange-related abilities, maintaining a roster of Microsoft Certified Consultants with applicable experience, and producing numerous client references to objectively testify to its abilities.

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SOLUTION

“Although the initial implementation consisted of a fairly small amount of users, this is another instance of how Microsoft Clustering and Exchange Server 2003 can help provide high availability regardless of the size of the environment,”
“Providing this kind of reliability, along with proper scoping for hardware and disk configuration, is important to any organization.

Clusters are groups of servers configured to work together to provide the image of a single server. Microsoft Outlook clients access Exchange running on a cluster via the Exchange Virtual Server (EVS).

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Windows Server 2003 includes enhancements that make setting up and deploying a cluster much easier than under Windows 2000 Server, however, using a consultancy such as The Henson Group with specific field experience is often preferable due to complications that may arise.

“Microsoft’s Exchange clustering solution easily scales to fit the needs of an organization, with only subtle differences in the methods in which it is implemented,” Wall says. “This allowed THG to take the experience gained from other larger clustering implementations, and provide Tower Group with the same kind of server availability that a company ten times their size would have in place.”

To identify key facets of Tower Group Companies’ messaging infrastructure, The Henson Group performed exhaustive Discovery.

Tower Group’s Active Directory domain structure consisted of the forest root TowerGroup.corp. The domain is in Windows 2000 native-mode with a mix of Windows 2000 and Windows Server 2003 domain controllers. In order to take advantage of the RPC/HTTPs feature of Exchange Server 2003, Windows Server 2003 had to be installed.

In addition, it was discovered that the Active Directory server processor ratio to Exchange process ratio was 1:1 in the environment. It was recommended that for every four Exchange processors in the environment, there was at least one Active Directory processor.

Tower Group Companies had Exchange 2000 implemented within the Exchange Organization. The organization was in mixed mode. The Active Directory schema needed to be

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extended in order to install Exchange Server 2003 in the environment.

Tower Group's Exchange administrative and routing topology consisted of a single Administrative and Routing Group (First Administrative Group and First Routing Group). The new mailbox cluster and front-end server would be installed into this same topology.

The two new servers (an Exchange Server 2003 front-end and mailbox cluster) were installed into the same routing group and administrative group. As an alternative, it was suggested that the two new servers could be installed into a separate routing group since they were located in a different Active Directory site. While this would match the recommended topology for Exchange, it was not necessary, as the old servers were decommissioned shortly thereafter and would not cause a configuration issue.

According to the Microsoft Exchange Best Practice Analyzer, it was ascertained that there were 604 mailboxes in the environment. This included system, resource, and workflow mailboxes, in addition to user mailboxes. Tower Group Companies estimated that between 375 and 400 of the 604 were user mailboxes. The user mailbox size was estimated to grow between 30% and 40% per year over the subsequent three to four years. This projected growth could result in between 1,000 and 1,200 users hosted on the one Exchange Server 2003 mailbox cluster.

Current mailbox size limits were set at 1GB. This configuration was duplicated in the initial environment, and will most likely be reduced after a future project (the implementation of an archiving solution) is completed.

The majority of users accessing the new mailbox cluster were located in the New York site. The following shows the estimated breakdown of users over the next three to four years:

- Buffalo: 30 to 40 users
- Melville: up to 100 users
- Boston: 24 users
- New Jersey: 50 to 100 users
- New York: 800 to 900 users

There was approximately 4GB of public folder data in the environment. These folders were to be replicated to the new mailbox cluster after it was installed and configured through the Exchange System Manager interface.

Disk subsystem requirements are often determined based on capacity instead of performance. Exchange is a unique application, in terms of IO requirements. This is often overlooked during the deployment and installation phases of an Exchange migration. To avoid disk bottlenecks that lead to

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-Wall

client-server performance issues, the configuration of disks is absolutely critical.

Tower Group Companies' disk requirement calculations were based on the following factors:

- 1,200 mailbox users at .75 IOs per second per user (1200 is the project growth)
- 1 mailbox virtual server
- Estimated mailbox size limit of 440MB per user (based on current Tower mailbox sizes)
- Estimated mailbox size limit of 200MB per user (after archiving solution is implemented)
- 1 Storage Group with 4 mailbox stores
- Approx 144 GB, 15000 RPM drives
- 100% user concurrency
- 66% Read Weighting
- Fluff Factor of 1.1 (fluff factor allows for extra space consumed by deleted item retention and any unexpected increases in database size)

And, Tower Group Companies also considered using a different vendor for anti-spam and anti-virus, eventually opting for Message Labs to replace its Message Screen service.

RESULTS & BENEFITS

As with the Rothschild engagement, The Henson Group duplicated its success in this project in the very challenging area of Exchange Server Clustering.

The physical placement of the A/P cluster was in the disaster recovery site in Secaucus, New Jersey. Current production users were migrated to the new cluster using the Mailbox Move Wizard that is available within Active Directory Users and Computers.

Backup operations are currently performed with Veritas Backup Exec, with differential backups taken Monday through Thursday, and full backups taken on Friday.

Also, a Full backup is taken on a monthly basis outside of the normal backup process. Backup throughput and completion is an intermittent issue in the current environment, so additional testing will be done to properly scope the needs for the new environment. The transaction log growth throughout the week is factored into the disk requirements referenced earlier in this document.

Since Tower Group Companies migrated within a single Exchange organization, the migration process required more detailed planning on administrative tasks, rather than the technical process itself.



About The Henson Group

Founded by former Microsoft engineers in 2000, The Henson Group is an award-winning Microsoft Gold Certified Partner specializing exclusively in deploying Microsoft technologies, official product training, and strategic consulting for overcoming today's business challenges.

The preferred solution provider for many major US and international corporations, The Henson Group is designated an official "Go To" partner for most major products, consistently ranked within the top three consultancies in Microsoft's partner directory (found at: <http://directory.microsoft.com>), holds a seat on the national Microsoft Partner Advisory Council, has direct ties to the product groups, and offers a price guarantee that assures the highest quality service at an unbeatable value.

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Steps were taken to ensure that all public folders were replicated to the Exchange 2003 system.

Mailbox users will access folders on their default public folder store first. If a replica exists on two servers, one user may see a different view of the folder than another user before replication completes.

"This was why it was important to move users in groups or departments so that the wait time for replication to complete is not as significant of an impact," Wall explains.

They consist of at least two servers connected by a network, a method for each server to access the other's disk data, and

special cluster software like Microsoft Cluster Server (MSCS). The special software provides services such as failure detection, recovery, and the ability to manage the servers as a single system.

Clusters are beneficial for three reasons. First, availability increases because MSCS can automatically detect the failure of an application or server, and quickly restart it on a surviving server. Users only experience a momentary pause in service.

Second, manageability increases because MSCS lets administrators quickly inspect the status of all cluster resources and easily move workload around onto different servers within the cluster. This is useful for manual load balancing and to perform "rolling updates" on the servers without taking important data and applications offline.

And third, scalability increases because "Cluster-aware" applications can use the MSCS services through the MSCS Application Programming Interface (API) to do dynamic load balancing and scale across multiple servers within a cluster.

When a cluster is recovering from a server failure, it uses one of three techniques to allow the surviving server get access to the failed server's disk data. One is using Shared disks. The earliest server clusters permitted every server to access every disk. This originally required expensive cabling and switches, plus specialized software and applications.

Today, standards like SCSI have eliminated the requirement for expensive cabling and switches. However, shared-disk clustering still requires specially modified applications.

This means it is not broadly useful for the wide variety of applications deployed on the millions of servers sold each year. Shared-disk clustering also has inherent limits on scalability, since DLM contention grows geometrically as you add servers to the cluster.

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