



Overview

Country or Region: United States

Industry: Financial Services

Customer Profile

Merrill Lynch is one of the world's leading wealth management, capital markets and advisory companies, with offices in 37 countries and territories and total client assets of approximately \$1.5 trillion.

Business Situation

Merrill Lynch wanted the assurance that in the event of a disaster, the SQL database would failover properly to a secondary site.

Solution

Server Clustering provides failover support for applications and services that require high availability, scalability and reliability, such as LCS 2005. With clustering, organizations can make applications and data available on multiple servers linked together in a cluster configuration.

Results & Benefits

The failover site cluster implementation acts as the standby cluster that contains a recent copy of the production data but does not service any client/server requests unless a failover process is executed for the LCS front-end pool. In the event a site failure, the standby cluster is ready to assume responsibility for LCS operations.

FINANCIAL SERVICES GIANT TURNS TO THG TO IMPLEMENT SAFEGUARDS TO ITS MICROSOFT LIVE COMMUNICATIONS SERVER SOLUTION

MERRILL LYNCH

SQL Server Backend Failover for Live Communication Server

Microsoft Gold Certified Partner The Henson Group, Inc. (THG) provide highly specialized services to achieve SQL Server 2000 Backend Failover for Live Communication Server 2005, functionality that is not easily configurable, for financial services giant Merrill Lynch.

BUSINESS SITUATION

Merrill Lynch is one of the world's leading wealth management, capital markets and advisory companies, with offices in 37 countries and territories and total client assets of approximately \$1.5 trillion. Merrill Lynch has two core businesses – Global Private Client and Global Markets & Investment Banking Group, offering a range of services for private clients, small businesses, and institutions and corporations.

As an investment bank, Merrill Lynch is a leading global trader and underwriter of securities and derivatives across a broad range of asset classes and serves as a strategic advisor to corporations, governments, institutions and individuals worldwide. *(For more information on this client, please visit its web site at <http://www.ml.com/>.)*

In terms of its advisory services, effectively communicating sensitive investment advice in real-time is crucial for viability. Merrill Lynch currently operates a highly customized solution that leverages Microsoft Live Communications Server 2005 (LCS 2005) to electronically transmit market alerts and other data to financial analysts.

LCS 2005 delivers instant messaging (IM) as part of a scalable, enterprise-grade solution offering Merrill Lynch enhanced security, seamless integration with other Microsoft products, and an extensible, industry-standard development platform. *(For more information on LCS 2005, please visit this web site: <http://www.microsoft.com/office/livecomm/>.)*

Because Merrill Lynch operates an enterprise with tens of thousands of employees, and also wanted to take advantage of a clustered architecture, the company opted for LCS 2005 Enterprise Edition is ideal.



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Merrill Lynch's LCS 2005 Enterprise Edition consists of a pool of servers connected to a separate, shared SQL Server database. This two-tier architecture enables Merrill Lynch to deliver substantial improvements in availability, scalability, performance, and data recovery such as:

- **SQL Server-based logging.** Searchable IM conversation logs based on SQL Server allow for future reference or for use in regulated environments.
- **Two-tier architecture.** Enterprise Edition enables two new server roles: a front-end pool of Enterprise Edition servers for handling client connections and a back-end database server (using SQL Server) for storing user data.
- **Data recovery.** Enterprise Edition uses SQL Server to store user data. SQL can be clustered and/or backed up for improved data safety using standard SQL data recovery processes.
- **Availability.** Enterprise Edition uses two-tier server architecture that enables users to find and connect to the next available Enterprise Edition server, even if one or more have failed.
- **Scalability.** In large deployments, numerous individual Standard Edition home servers may be necessary to manage users and direct traffic. With Enterprise Edition, all user data is stored in a central SQL Server, allowing the ability to add more Enterprise Edition front-end servers to handle the increasing load and capacity.

However, at issue was not the core functionality afforded by LCS 2005, which in fact today provides the financial services company with the capabilities envisioned in solution planning and deployment.

Instead, what Merrill Lynch lacked was fail-over support for its SQL Server back-end. In other words, Merrill Lynch wanted the assurance that in the event of a disaster, the SQL database would failover properly to a secondary site. Due to the nature of its business where timelines of communications is paramount, such Disaster Recovery (DR) functionality is critical.

It should be noted that Merrill Lynch's IT infrastructure was not compromised at any point. Rather, all business-critical applications implemented under the auspices of the IT operations at Merrill must meet varying criteria under a formal Service Level Agreement (SLA), which stipulates such DR protection as this solution envisioned was mandatory, not optional.

Merrill Lynch approached Microsoft, which handed the opportunity to Microsoft Consulting Services (MCS). MCS, in turn, recruited The Henson Group as a sub-contractor.

However, while LCS 2005 does offer various configurations for fail-over and other DR-related activities, this particular scenario is not one of them. Therefore, Merrill Lynch approached Microsoft, which handed the opportunity to Microsoft Consulting Services (MCS). MCS, in turn, recruited The Henson Group as a sub-contractor, based on its extensive experience with LCS 2005 and other messaging technologies.

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

The Henson Group also achieved Microsoft's Advanced Infrastructure Solutions Competency by demonstrating its 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.

What this meant for Merrill Lynch was that The Henson Group had the resources, project experience, and proven technical ability to achieve its objectives.

SOLUTION

Server Clustering provides failover support for applications and services that require high availability, scalability and reliability, such as LCS 2005. With clustering, organizations can make applications and data available on multiple servers linked together in a cluster configuration.

Deploy a cluster eliminated a single point of failure, so when an LCS 2005 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.

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

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

More pertinent to this instance, though, was the need for configuration of the SQL cluster to effectively fail-over to a secondary site, in the event of a disaster.

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The supported recovery process for the LCS backend database involves a simple backup/restore procedure through the SQL 2000 Enterprise Manager. In order to implement this configuration in a highly available, site failover solution there are several strategies that can be implemented:

1. Use the SQL 2000 Enterprise Manager to perform a simple, point-in-time backup and restore of the SQL backend database to a recovery server in a failover site
2. Implement a geographically dispersed cluster solution with Microsoft Cluster Server (MCSC) in order to provide multiple site SQL database services
3. Implement a combination of the point-in-time backup process and Microsoft Cluster Server (MCSC) to achieve a redundant, near real-time failover in the event of a site failure.

For the Live Communication Server component of the Merrill Lynch Communication System (MLCS), The Henson Group recommended the third option.

This is also known as a 'standby cluster' solution since two separate cluster implementations (one in production and one in a failover location) can contain nearly identical data at the same time.

As configuration prerequisites, Windows Server 2003 Enterprise Edition has been installed in the same configuration on the nodes of the failover cluster as it is on the production nodes of the SQL LCS and The Henson Group checked to see if any post-installation hotfixes or updates were identical.

THG also confirmed that Microsoft Cluster Server (MSCS) has been installed on the failover nodes of the cluster in the same configuration as the production nodes of the SQL LCS cluster and that any post-installation hotfixes or updates were identical.

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BENEFITS & RESULTS

The Henson Group achieved Merrill Lynch's objectives for this engagement.

The failover site cluster implementation acts as the standby cluster that contains a recent copy of the production data but does not service any client/server requests unless a failover process is executed for the LCS front-end pool. In the event a site failure, the standby cluster is ready to assume responsibility for LCS operations.

About The Henson Group

A **Microsoft 2008 Partner of the Year**, The Henson Group is a "Gold Certified Partner" founded by former Microsoft engineers in 2002, specializing in enterprise deployments and .NET development of Microsoft products that overcome today's business challenges.

The preferred solution provider for many US and international corporations, The Henson Group leverages direct ties to the Microsoft product groups, is a preferred sub-contractor of Microsoft Consulting Services, and is recognized among the top US consultancies in Microsoft's partner community (**Microsoft's "Solution Finder"**).

With this configuration, the standby SQL cluster receives the recent copy of the production database through regular, automated backup/restore procedures of SQL Server 2000.

The frequency of the backup/restore procedures from the production SQL cluster to the failover site, standby SQL cluster can be determined by Merrill Lynch.

Based on The Henson Group's recommendations, this process occurs at least once a day so that the standby cluster contains a recent copy of the production database. However, Merrill Lynch also has the flexibility to have this process performed multiple times during a single day so that the standby cluster database is near up-to-date with the production database.