

FEATURE GUIDE

GeoCluster®

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Introduction

GeoCluster® extends the capabilities of clustering in Windows Server by eliminating the need for shared storage, ensuring the availability of clustered data by removing the shared storage as a single point of failure, and enabling true stretch clustering by providing a way to store data on each node and keep it up-to-date with real-time replication.

Features

Windows Server Failover Clusters without Shared Storage

Windows Server Failover Clusters Without Shared Storage With GeoCluster you can enhance the availability of your clustered applications by removing the shared disk single-point-of-failure. GeoCluster works in conjunction with Windows Server Failover Clustering to provide highly available applications by allowing the configuration of separate storage on each of the cluster members. Windows Server Failover Clustering natively requires that the clustered disk resources be on a shared disk subsystem; should the disk storage fail for any reason, the entire cluster becomes unavailable. Maintaining separate storage removes the risk of cluster or application failure due to a single disk failure. GeoCluster ensures that the data on the active member node and disk is replicated to the other member nodes in the event the server or application fails over.

Long Distance Clusters

With SCSI distance limitations, cluster members are physically limited in the distance that they can be separated since they all have to connect to the same shared-storage devices. Because GeoCluster removes the requirement for shared storage, the cluster members can be separated over long distances. With this ability you can provide disaster recovery and high availability in a single solution. Should a failure occur at one of the sites the applications will failover to an active member, and since that member has its own copy of the data, the application will be current and immediately available.

Hardware Independent

Storage configurations for use with Windows Server Failover Clustering often require additional hardware for implementing clusters. With GeoCluster, a failover cluster does not require a shared-disk storage unit and can be configured using any storage regardless of vendor, type or interconnect (SCSI, FC, etc.), allowing the use of existing servers and storage. The only requirement is that the drives being replicated have the same name/letter and be of the same size on both the source and targets.

Continuous Byte-level Replication

Asynchronous replication ensures that applications are not impacted by the replication process, as can be the case with synchronous replication. GeoCluster uses patented Double-Take replication technology to capture data for processing, but does not keep it from updating the local disk. (With synchronous replication the local disk is not updated until AFTER the replicated data has been written/committed to the target disk and the corresponding acknowledgement has been sent back to the production server.) GeoCluster allows applications to process data as it normally would and simply captures the changes for replication in the background. GeoCluster copies only the byte-level changes to files, not entire blocks or files, thereby reducing overhead on the servers and the network. Our byte-level replication ensures that all transactions are captured and written in order on the target.

Application Support

GeoCluster provides support for all Windows Server cluster-aware applications, including Hyper-V. If an application is cluster-aware it generally means that it is designed and tested by the original manufacturer to be monitored by and moved between cluster nodes as needed. GeoCluster uses the Windows Server Failover Clustering API to provide native support for cluster-aware applications to ensure full functionality and compatibility.

Microsoft VSS Support

GeoCluster integrates with Microsoft Volume Shadow Copy and automatically creates disk-based snapshots of clustered data at appropriate times to ensure that the server has a usable copy of shared data, regardless of the circumstances.

Online Pending Logic

GeoCluster protects your data from potential corruption by stopping a cluster from failing over to a node that is suspect. If the target is suspect, the Online Pending state provides the option to verify data on the target before putting it online, revert to the last known good state on the target, or force the resource offline.

File Share Witness Support

Microsoft Cluster Service's File Share Witness is now an option for quorum management. (File Share Witness is only available for 2-node clusters.)

Intelligent Compression

GeoCluster® and Double-Take® are the only host-based replication solutions that provide multi-level intelligent compression. GeoCluster provides four options for data compression to allow custom configurations. These settings can be set for each IP pair connection defined within the management console, allowing further customization by server, data, and/or network.

Email Alerts

For optimal protection and availability, GeoCluster can provide event notifications via email. Email alerts can be configured with different recipients for each GeoCluster server, each having their own level (informational, warning, error) of events of which to notify. The email message includes useful information in the subject line, server name where the event occurred and the error level and code. Administrators can quickly manage these events via email clients by sorting or filtering by event. By providing immediate and at-a-glance updates of the GeoCluster environment, administrators do not have to continually monitor the GeoCluster management console to ensure everything is operating smoothly.

Management Console Server Filtering

Server filtering allows administrators to create custom server views within the management console. Views are created by individual login ID showing each administrator only the servers with which they are concerned.

Product Update Checking

To help ensure customers are aware of the latest available version of GeoCluster, the installation process performs an online check for the latest update and displays a list of updates that can be immediately installed. The update check is also available via the management console, allowing administrators to check for updates whenever they choose. GeoCluster determines what updates/patches are installed and verifies that these are included before presenting options for download. Any update that does not include all the patches already installed will not be listed.

Majority Node Set

Windows Server Failover Clustering needs to maintain quorum devices in order to know when a cluster member owns a resource. Because GeoCluster splits up the storage resources unbeknownst to Windows Server, GeoCluster would have to perform additional processing and replication in order to provide the quorum resources needed. Windows Server can be configured to maintain quorum on its own even when using non-shared storage devices. This removes additional work from GeoCluster and allows the clustering application to handle this on its own. This feature allows for a much tighter integration with GeoCluster. GeoCluster is the only product on the market to take advantage of Majority Node Set.

Integrated User Interface

GeoCluster replication set configuration is integrated in the Windows Server Failover Clustering Administrator, further simplifying ease of management. The Double-Take management console can be used for advanced monitoring of connections and events within GeoCluster.

Uses Existing Networks

Like Double-Take, GeoCluster does not require a private network for replicating data. Usually existing networks are sufficient, allowing you to implement lower-cost data protection solutions and reducing the overall cost-of-ownership. This also removes any restrictions and additional costs for future network changes by using any IP network. Double-Take can also run on a private network should you want to isolate replication traffic.

Task Command Processing

Like Double-Take, GeoCluster allows you to insert commands into the data stream for execution at different points during its regular processing. Tasks like automatically initiating backup of target servers are possible. Via in-band commands, you can ensure all files on the target are in sync with each other (i.e. log and data files), pause writing on the target (allowing source changes to still be transmitted and captured) and initiate the backup. Once the backup is complete, the task command can enable writing on the target.

One-to-Many Replication

Windows Server 2003 and 2008 allow up to eight nodes in a cluster. To ensure that all nodes in a cluster can allow failover from any other member node it is crucial that the data is available on all nodes. GeoCluster allows each cluster member to replicate data to any or all members of the cluster, ensuring that the data is available and current in an outage.

Open-File Mirroring and Replication

GeoCluster doesn't require applications to be restarted when additional replication sets are configured. Applications remain online and active while GeoCluster is at work, minimizing impact on productivity. Unlike many products, GeoCluster is able to process open files and ensure they are fully replicated without taking the files offline.

Unlimited Disk Queuing

GeoCluster is designed to handle spikes in the data rate-of-change even if the network connection to the target server is not sufficient to handle all of the data all at once. GeoCluster continues to filter all file changes and queues them while transmitting to the target as quickly as possible. Queuing ensures that all transactions are replicated to the target without data loss.

Verification

Although GeoCluster has numerous checks to validate that the data on the target is an exact replica of the source, there is also a Verification option which can be run (either scheduled or immediately) that verifies the target is in sync with the source and creates a report. This is useful when there is a brief outage, if services are stopped, or if updates are made directly to the target. You can choose to just report on any differences or have all differences corrected.

SNMP Counters and Traps

GeoCluster allows you to integrate with your enterprise management frameworks and forwards both replication statistics and events via SNMP, allowing simplified management by administrators.

Full Command-Line Control

Double-Take allows all GUI functions to be controlled from the commandline, either via scripts or individual commands, giving you greater flexibility and automation capabilities.

Reports and Statistics

GeoCluster provides reports and statistics about the replication environment, which shows exactly what is happening on a GeoCluster server - all from a single interface. Reports include what has been replicated last, how much has been replicated, failovers and downed systems among other useful statistics for ensuring adequate data protection.

64-bit Support

GeoCluster supports both 32-bit and 64-bit operating systems running on 32-bit or 64-bit hardware.

(NEW) Microsoft Server™ 2008 Support

GeoCluster for Windows Server 2008 offers full support for Windows Server 2008 Failover Clustering.

Microsoft Windows® Certified

GeoCluster has been certified on Windows 2000 Advanced Server and Datacenter and on Windows Server 2003 Enterprise and Datacenter. GeoCluster will run seamlessly in your environment with no Windows compatibility issues.

About Double-Take® Software

Headquartered in Southborough, Massachusetts, Double-Take® Software (Nasdaq: DBTK) is a leading provider of affordable software for recoverability, including continuous data replication, application availability and system state protection. Double-Take Software products and services enable customers to protect and recover business-critical data and applications such as Microsoft Exchange, SQL, and SharePoint in both physical and virtual environments. With its unparalleled partner programs, technical support, and professional services, Double-Take Software is the solution of choice for more than ten thousand customers worldwide, from SMEs to the Fortune 500. Information about Double-Take Software's products and services can be found at www.doubletake.com.

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