

VMware Virtual Infrastructure 3 and the GSX 3000 NetStorage Control Node: A New Paradigm for Wide Area Virtual Infrastructure and Business Continuity

Server virtualization offers a layer of abstraction between applications and the underlying physical hardware platforms on which they run. VMware provides a virtual infrastructure that simplifies management of the computing environment, allowing IT organizations to leverage resources and control costs, while responding faster to business demands. In a virtual infrastructure, users have access to a pool of logical compute resources which they can allocate to their particular needs. The administrator then manages and optimizes these resources across the enterprise.

Due to an increasingly distributed IT environment, it is vital that the virtual infrastructure span multiple data centers. However, one of the challenges of implementing server virtualization across geography (e.g., for the purposes of live load balancing) is the issue of data locality. In order for two or more sites to share compute resources on-demand, they must also be able to access each others data on-demand. YottaYotta's GSX 3000 NetStorage Control Node provides the unique capability of exporting a shared and consistent data image to all servers in a multi-site cluster, while providing local performance across thousands of miles. In addition to reducing the total cost of ownership (TCO) and increasing the overall utilization of the IT infrastructure, Government legislation and the requirement for 24x7 operations are driving enterprises to reduce both Recovery Time Objectives (RTOs) and Recovery Point Objectives (RPOs). The GSX 3000 offers Fully Active, geographically aware fail-over and fail-back, capable of delivering RTOs and RPOs of zero across the virtual infrastructure.

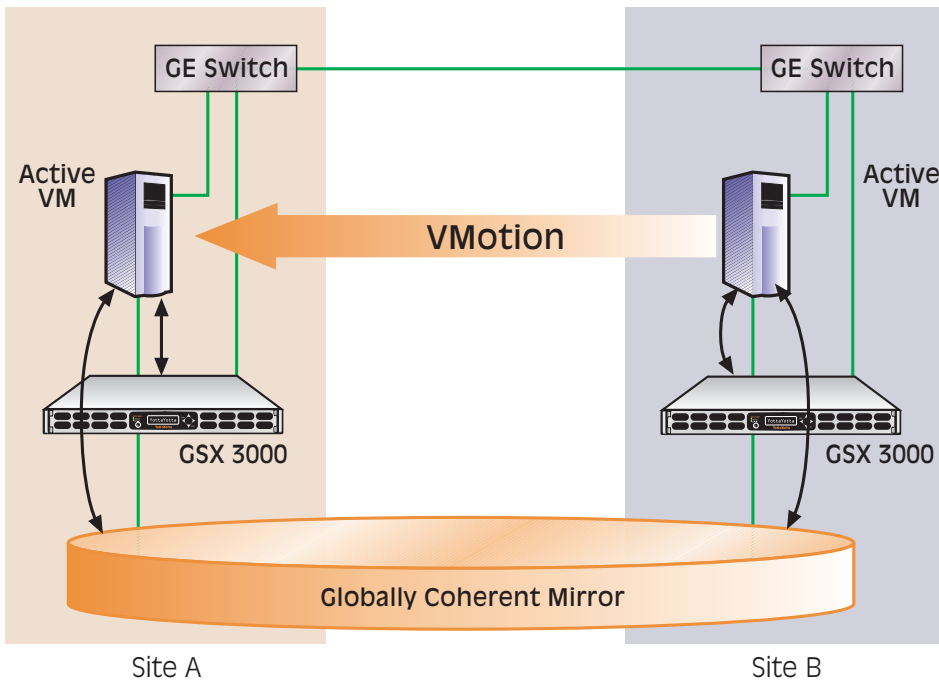


Figure 1: YottaYotta enabling Live High Priority VMotion across a geographically distributed VMware Virtual Infrastructure

Benefits:

- Implement a Wide Area VMware Virtual Infrastructure and extend virtualized services across multiple centers
- Move live virtual machines with High Priority VMotion across distributed servers with zero downtime and zero transaction loss
- Enable proactive evacuation of data center services prior to events and “follow-the-sun” migration of virtualized services for Green Computing and energy cost savings
- Provide unparalleled business continuity with Fully Active fail-over and fail-back operations capable of delivering Recovery Time Objectives (RTOs) and Recovery Point Objectives (RPOs) of zero
- Provide transparent storage subsystem fail-over with no user intervention and without the requirement for cluster node-fail-over – no disk errors are witnessed by applications
- Minimize Total Cost of Ownership (TCO), optimize resource utilization for both compute and storage infrastructure, and ensure high availability across the distributed virtual infrastructure

VMware ESX Server and the GSX 3000 NetStorage Control Node

Live High Priority VMotion Migration across a Wide Area VMware Virtual Infrastructure

In support of a Fully Active and resilient wide area virtual infrastructure, the GSX 3000 provides a globally consistent data image across geographically distributed VMware ESX Servers. In conjunction with the GSX 3000, VMware's VMotion enables administrators to move Live virtual machines from server to server – even across geographically distributed centers (see Figure 1) – with zero downtime and zero transaction loss. In addition to providing live distributed load balancing (e.g., for optimizing resource utilization and minimizing maintenance downtime), this enables the proactive evacuation of data center services prior to events (e.g., hurricanes) and "follow-the-sun" migration of virtualized services for Green Computing and energy cost savings (e.g., VMotion across multiple power grids).

Automatic Geographically Aware Fail-Over and Fail-Back

In the event of a storage subsystem failure in the virtual infrastructure, local I/O automatically fails-over to the nearest surviving mirror. Meanwhile, all NetStorage Control Nodes within the virtualized multi-site infrastructure can work in parallel to rebuild a failed storage site. YottaYotta offers transparent fail-over and fail-back with no user intervention and without the requirement for cluster node fail-over – no disk errors are witnessed by applications. When the restoration is complete, I/O automatically fails-back to the reconstructed mirror.

Built-in Continuity of Operations for Virtual Machines over Wide Area Networks

In the event of a total site failure, a cluster service automatically fails-over virtual machines from VMware ESX Servers at a failed site to ESX Servers at a surviving site with minimal interruption in service. The GSX 3000 eliminates the requirement to manually re-configure storage volumes. The new VMware environment is up and running in minutes as opposed to hours with minimal disruption. When a failed site recovers, the GSX 3000 automatically updates logical volumes at that site with any incremental changes that occurred during the site outage. Optionally, YottaYotta can also leverage data replication tools offered by hosts and storage systems, including point-in-time copy services.

Summary of benefits

- Implement a Wide Area VMware Virtual Infrastructure and extend virtualized services across multiple centers
- Move live virtual machines with High Priority VMotion across distributed servers with zero downtime and zero transaction loss
- Enable proactive evacuation of data center services prior to events and "follow-the-sun" migration of virtualized services for Green Computing and energy cost savings
- Provide unparalleled business continuity with Fully Active fail-over and fail-back operations capable of delivering Recovery Time Objectives (RTOs) and Recovery Point Objectives (RPOs) of zero
- Provide transparent storage subsystem fail-over with no user intervention and without the requirement for cluster node-fail-over – no disk errors are witnessed by applications
- Minimize Total Cost of Ownership (TCO), optimize resource utilization for both compute and storage infrastructure, and ensure high availability across the distributed virtual infrastructure

System Requirements

- Supported VMware Servers: ESX Server 2.x – 3.x



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