

Real Protection for Virtual Environments

DATA PROTECTION

APPLICATION AVAILABILITY

DISASTER RECOVERY

LifeKeeper® for VMware ESX Server

High Availability Clustering, Data Replication and Disaster Recovery for VMware ESX Server Virtual Machines

Key Features:

- Protects VMware ESX Server 3.0 Virtual Machines and the applications within them
- Virtual Machines may be running either Linux or Windows as a guest OS
- Automated monitoring and recovery for physical systems, Virtual Machines and applications running within Virtual Machines
- Virtual-to-virtual, virtual-to-physical and physical-to-virtual failover configuration support
- Easily configurable via JAVA-based GUI
- LifeKeeper management of individual applications and resources within the Virtual Machine
- Supports SCSI and FC shared storage, NAS, and data replication
- Integration with SteelEye Data Replication allows for complete Wide-Area Disaster Recovery of Virtual Machines

The use of virtual servers to host business critical applications is growing rapidly as IT organizations experience the significant cost savings and optimized resource utilization through server consolidation. It is not well understood, however, that the use of virtualization technologies can decrease the availability of applications and services which they host. The need for integrating an automated high availability clustering solution to monitor and protect the virtual servers becomes evident when the increased risk of failure is understood.

The potential for application failure is increased due to two factors. First, virtualization increases the scope of failures as more applications and services are placed onto a single physical machine. If this consolidated server should suffer an outage, multiple applications and business services will be unavailable. Second, the primary causes of application outage are software related; the more complex the software stack being used by an application, the higher the risk of failure. The deployment of a virtualization layer increases software stack complexity and increases the risk of application outages.

The VMware ESX Server Console OS is an example of such a virtualization layer and provides a complete operating system running directly on the host machine physical hardware. From the resources of the host machine, the virtualization layer creates a pool of logical computing resources and allocates those resources to one or more virtual machines in which a standard operating system can run.

The SteelEye LifeKeeper family of data replication, high availability clustering and disaster recovery solutions bring a complete high availability solution to virtual environments with fast and automatic failure detection and recovery of both physical and virtual servers, comprehensive monitoring and recovery for individual applications and services within the VMs and tremendous flexibility in building failover configurations from a mixture of physical and virtual machines using either shared storage or data replication.

Because LifeKeeper supports either shared storage or replicated data configurations, cluster members can be deployed across distant network connections to provide total assurance against outages at your primary data center. SteelEye Data Replication for Linux and Windows gives continuous data protection across either LANs or WANs using a highly optimized change-only replication engine. With a real-time copy of your data at a remote site, recovery from a data center catastrophe can take minutes instead of days.

With SteelEye LifeKeeper, your VMware ESX Server environment is completely protected.



Real Protection for Virtual Environments

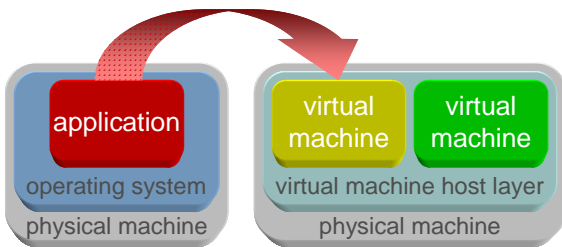
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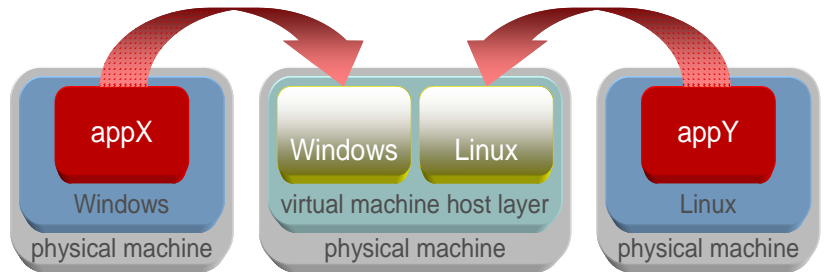
LifeKeeper® for VMware ESX Server

LifeKeeper operates in VMware ESX Server virtual machines in the same manner as on physical systems to provide management of individual applications, databases and critical services residing within the virtual machine. LifeKeeper supports physical-to-virtual, virtual-to-virtual and virtual-to-physical types of failover configurations with a nearly limitless range of more complex configurations possible from these simple building blocks.

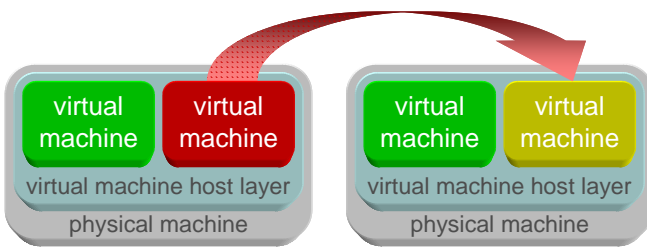


The diagram to the left shows an example of a physical-to-virtual failover configuration. Here, a physical, non-virtualized system serves as the primary server for an application with failovers occurring to a backup ESX Server virtual machine. This type of configuration is most useful to allow a single physical system, running multiple VMs within it, to serve as the backup for multiple other physical systems while still providing for fencing between the individual application resources. This is an adaptation of a many-to-one cluster, an example of which is shown below.

In this configuration we have two physical systems, one running Linux and the other running Windows, being backed up by a single physical system. On this backup system are a number of VMs with each acting as a failover target for some physical machine within the cluster. Allowing a single physical server to act as a standby system for both Linux and Windows applications removes the need to dedicate a physical server to each separate OS environment, thereby potentially reducing the cluster hardware requirement. In essence, you can use this approach to build a "failover appliance" which acts as the failover target for all physical servers within your IT infrastructure.



LifeKeeper also supports virtual-to-virtual recovery actions. In its simplest form, each virtual machine on a primary server can be paired with a backup VM on a different server for failover purposes to provide complete protection for applications against failures in either virtual or physical systems. LifeKeeper monitors the complete application stack running within the VM and automatically moves applications across systems to the backup VM as needed to maintain availability. Numerous combinations of virtual-to-virtual failovers are possible including moving between VMs within the same physical server and cascading recovery across multiple VMs residing on multiple physical servers.



SteelEye LifeKeeper delivers REAL protection for VMware ESX Server environments with complete monitoring and automated recovery of all pieces of your application stack. Relax, you're LifeKeeper protected.

About SteelEye Technology®



SteelEye is a leading provider of application and data availability management solutions for business continuity and disaster recovery on Linux and Windows. The SteelEye LifeKeeper family of software products enable enterprises of all sizes to ensure continuous availability of business-critical applications and data on industry standard servers and storage systems. SteelEye software products are available worldwide and may be purchased directly from SteelEye or through the SteelEye international network of business partners.

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