

SteelEye High Availability, Data Replication and Disaster Recovery

SteelEye provides world's leading modular and scalable solutions that enable both high availability clustering and data replication automatically and transparently in Linux, Windows and virtual environments. Solutions are recognized and certified by numerous international vendors.

Reliability for Mission Critical Environments

Clustering is typically used to secure critical systems in case of a sudden failure. Additionally, high availability clustering enables customers to perform maintenance efficiently without downtime.

SteelEye solutions protect pro-actively, long before an actual failure would happen. In LifeKeeper high availability solution every cluster node monitors each other's health, thus assuring access to critical information 24x7x365.

- ▶ Eliminate "Single-Point-Of-Failure" (e.g. no quorum device)
- ▶ Contains multiple heartbeats and redundant paths to the data
- ▶ Maximum downtime 53 minutes / year
- ▶ Run multiple applications in the same cluster
- ▶ Maximize use of servers, no cold backup servers
- ▶ Certified up to 32 nodes and heterogeneous servers in same cluster
- ▶ Supports shared storage: NAS, SCSI, Fibre Channel, iSCSI
- ▶ Supports data replication without shared storage both in Linux and Windows environments (LAN/WAN)
- ▶ Includes CDP (Continuous Data Protection) functionality
- ▶ Supports geographically distributed environments
- ▶ Intuitive Java GUI with SNMP compatibility
- ▶ Highly cost effective solution. E.g. in Windows environment SteelEye doesn't require Enterprise/Datacenter Edition (OS, SQL, Exchange)

Support Center for Northern Europe and CIS

Nordicmind is SteelEye's authorized Competence and Support Center, covering Scandinavia, Baltic Countries, Russia and Ukraine. In addition to expert level support services, we will assist all customers and system integrators in planning, configuration, deployment and training.

Nordicmind has delivered over 700 high availability and disaster recovery solutions. Customers represent all industry verticals covering telecommunication, finance, media, healthcare and governmental departments.



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SteelEye has a robust set of solutions to protect Windows, Linux and Virtualized environments:

- ▶ Data Replication (LAN/WAN)
- ▶ High Availability Clustering
- ▶ High Availability Clustering with Data Replication
- ▶ Multi-Site Clustering and Disaster Recovery

See page 2 for further information.

LifeKeeper High Availability Clustering

LifeKeeper core software provides normal IP failover and file server clustering, which itself can be sufficient for many requirements.

LifeKeeper Application Recovery Kits (ARK) provide application-centric monitoring and recovery. No modifications are required to clustered applications.

Application and Infrastructure Recovery Kits (ARKs)

In addition to below pre-packaged application recovery kits, LifeKeeper can practically support any application by Generic Ark (scripting) or with LifeKeeper Extender.

Linux ARKs (10/2009)

- | | |
|--|-----------------------------|
| ▶ Apache | ▶ NFS Server |
| ▶ DB2 | ▶ Oracle |
| ▶ Device Mapper Multipath (DMMP) | ▶ Postfix |
| ▶ DRBD | ▶ PostgreSQL, Postgres Plus |
| ▶ HDLM | ▶ PowerPath |
| ▶ HP Secure Path | ▶ Rational ClearCase |
| ▶ IBM SDD | ▶ Samba |
| ▶ Informix | ▶ SAP |
| ▶ Logical Volume Manager (LVM) | ▶ SAP DB / MaxDB |
| ▶ Multisite Clustering | ▶ SAP Netviewer |
| ▶ MySQL | ▶ SDD Multipath |
| ▶ NEC iStorage StoragePathSavior (SPS) | ▶ Sendmail |
| ▶ Network Attached Storage (NAS) | ▶ Software RAID (md) |
| | ▶ Sybase |
| | ▶ WebSphere MQ |

Windows ARKs (10/2009)

- | | |
|----------------------|-----------------|
| ▶ IIS | ▶ Microsoft SQL |
| ▶ Microsoft Exchange | ▶ Oracle |

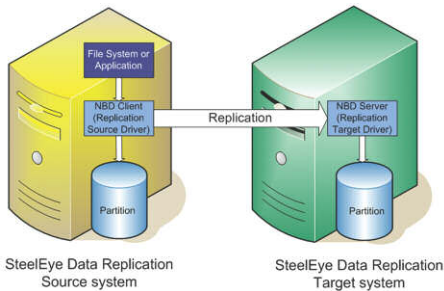
LifeKeeper Licensing Principle

Licensing is always per server (node). Licensing is not depended on the number of CPUs for example.

Each server in the cluster requires LifeKeeper software license. It does not matter, if it is physical or virtual server.

LifeKeeper Application Recovery Kit (ARK) license is needed in each of those nodes, where that particular application (or service) is running or will be transferred into in case of failure situation.

Robust Solution Scenarios with Technological Superiority



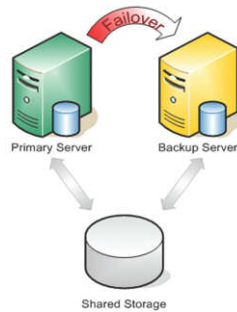
Stand-alone Data Replication

When only replication / mirroring is needed without high availability, SteelEye provides sophisticated replication products both for Linux and Windows environments.

- ▶ One-to-One, Many-to-One or One-to-Many over LAN/WAN
- ▶ Includes CDP (Continuous Data Protection) functionality
- ▶ 9 Compression levels

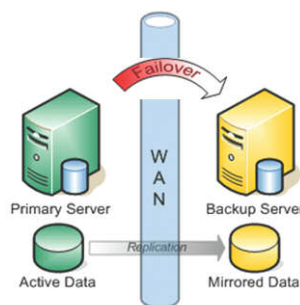
High Availability Clustering with a Shared Storage

- ▶ Max downtime 53 min / year
- ▶ Run multiple applications in the same cluster
- ▶ Certified up to 32 nodes and heterogeneous servers
- ▶ Supports shared storage: NAS, SCSI, Fibre Channel, iSCSI



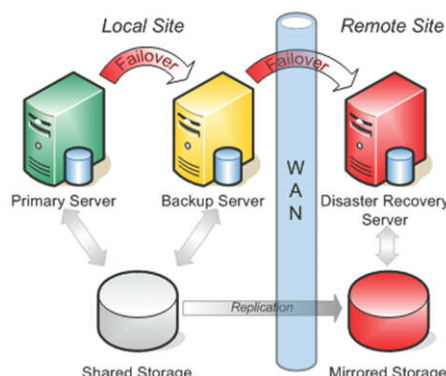
High Availability Clustering without a Shared Storage

By combing SteelEye Data Replication with LifeKeeper HA clustering, you can have high availability also in non-shared storage environment over LAN/WAN.



Multi-Site Clustering with Disaster Recovery

Replicate local high availability cluster to a remote disaster recovery site.



LifeKeeper for Virtualized Environments

SteelEye's virtual server protection solution supports both Linux and Windows virtual machines in same way as with physical machines, providing high availability to individual applications, databases and critical services inside the virtual machine.

- ▶ Supports physical-to-virtual, virtual-to-virtual and virtual-to-physical types of failover configurations
- ▶ Protects applications and data within either the host OS or Linux and Windows guest OS.
- ▶ Provides continuous data protection of virtual machines across either LAN or WAN connections to ensure disaster recovery.
- ▶ Supports clusters built with any combination of physical and virtual servers.

Supported virtualization environments (10/2009):

- ▶ Citrix XenServer
- ▶ Microsoft Virtual Server
- ▶ Microsoft Hyper-V
- ▶ Oracle VM
- ▶ Red Hat KVM
- ▶ VMware ESX, VI

Windows Server Failover Clustering & Replication



SteelEye DataKeeper Cluster Edition is an add-on to Windows Server Failover Clustering (WSFC) and Microsoft Cluster Service (MSCS). It enhances Microsoft's cluster solution by enabling multi-site clustering and advanced data replication and disaster recovery.

- ▶ Managed through native WSFC/MSCS interface (MMC)
- ▶ Continuous real-time host-based block-level replication of data
- ▶ Highly optimized for WAN deployments with 9 levels of compression, WAN acceleration and Bandwidth Throttling
- ▶ Synchronous, Asynchronous, Snapshot
- ▶ Physical-to-Virtual, Virtual-to-Virtual, Virtual-to-Physical
- ▶ Local and Remote Targets / Full Read Access to Target
- ▶ Storage independent replication
 - Does not require new or matching storage subsystems
 - Utilize existing storage
 - Replicate from SAN to SAN, Local to Local, SAN to Local, Local to SAN
- ▶ No issue with in-use or orphan files
- ▶ Intent Log (Journal) minimizes the resynchronization time after failover
- ▶ Supports any application and 32/64-bit platforms
- ▶ CLI and SNMP Alerts
- ▶ Replicates running Hyper-V Virtual Machines enabling quick-migration and live-migration
- ▶ Incremental synchronization of large database and email repositories (to avoid full resynchronizations)
- ▶ Supports standard NTFS file system and existing IP networks
- ▶ Fraction of the cost of array based replication