

Storage for Databases

Tags: [data store](#)

Databases are everywhere these days. We use them when surfing the internet, dialing a friend's number, going to a doctor, even when doing the shopping. Each database contains records describing a part of reality. A lack of access to a database, due to a failure or exhausted resources may lead to very painful financial losses. System administrators must take all possible precautions to ensure availability and integrity of database and underlying storage.

Storage for databases constitutes a set of compatible software and hardware where database files are stored. Compatibility must be carefully tested to ensure eliminating bottlenecks and the possibility of data corruption. Failure-free work in high load conditions and the redundancy of vulnerable components must be provided. Such a set must meet the highest standards in terms of performance and reliability, to ensure continuous and fast access to important data.

Hardware

The requirements for hardware used in database implementations are very high. The need to ensure uninterrupted work has the highest priority – therefore performance and reliability are the basic criteria for choosing the hardware components. Here is the basis for most implementations:

- A server platform with two quad-core CPUs for high transaction rate
- H/W RAID controller with support for RAID10, [RAID5](#) or [RAID6](#) for data safety and the best performance
- Enterprise class SAS drives for fast data access and reliability
- 10GbE NIC for high speed network connection or multiple 1GbE NICs for link aggregation or MPIO
- Redundant power supply for system reliability
- A large amount of memory for caching

Software

Software solutions used in database implementations need to allow for maximum utilization of the hardware capabilities. Additionally, it has to ensure uninterrupted access to data, good backup process support and efficient recovery - if needed. Here are the general requirements:

- Ability to enhance interface throughput with MPIO and link aggregation support
- Support for encrypted protocols and access control features like iSCSI CHAP support and IP white lists for protection of important data
- Synchronous Volume Replication
- Support for SAS RAID controllers for high performance and data safety
- Built-in, SNMP based monitoring system and E-mail notification for system monitoring

We recommend using [Open-E DSS V7](#) as the storage management software for database implementations. More information about requirements for various storage solutions can be found in the [system requirements](#) section.

Related content

Solutions

- [Open-E DSS V7 Active-Active iSCSI Failover \(How-To\)](#)
- [Open-E DSS V7 Active-Passive iSCSI Failover \(How-To\)](#)
- [Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster \(without bonding\) \(How-To\)](#)

Blog posts

- [RAID 5? RAID 6? Or other alternative?](#)
- [What are RAID 1, RAID 1+0 and RAID 0+1](#)

Webinars

- [Open-E DSS V7 Active/Active Setup](#)
- [Active-Active HA Cluster Solution: Double Performance with Zero-Single-Point-of-Failure setup | German version](#)
- [Active-Passive and Active-Active HA Cluster Comparison with Performance Benchmark](#)
- [Storage Solutions with iSCSI Auto Failover to install your Virtual Machine](#)