

IBM and storage virtualization

Virtualization solutions can be implemented in the storage network, in the server or in the storage device itself. IBM's storage virtualization solution is SAN-based, which helps allow for a more "open" virtualization implementation. Locating virtualization in the SAN, and thus in the path of I/O activity, helps provide a solid basis for policy-based management. And, IBM's focus on open standards means our virtualization solution supports freedom of choice in storage-device vendor selection.

Conclusion

Storage virtualization solutions should aim to:

- Simplify storage management
- Contain IT complexity and costs
- Extend on-demand flexibility and resiliency to your IT infrastructure

See the following section on factors to consider when selecting a storage virtualization vendor.



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IBM TotalStorage Virtualization Family
for an on demand world



Storage Virtualization Tutorial

Learn about storage virtualization, its benefits and what it can mean for your business and storage infrastructure

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What is storage virtualization?

Storage virtualization is an intelligent “layer” or abstraction that pools storage from multiple storage devices into a common storage pool. Often part of a storage area network (SAN), virtualized storage appears as one device to the server-operating systems and can be centrally managed and provisioned from a single view.

Storage virtualization benefits

The evolution from direct-attached storage (DAS) to SANs resulted from increasing company data loads and the need to add cost-effective storage capacity while still providing flexibility for future growth. SANs helped overcome many storage challenges, but also created a new layer of complexity. Storage devices from different vendors didn’t necessarily interoperate well on the SAN. Management could be tedious and require additional resource attention. Needed infrastructure changes were often difficult to implement, and had a high impact on operations.

Storage virtualization aims to “mask” SAN complexity by aggregating multiple storage devices into a common managed “virtual” storage pool and isolating servers from the physical storage. Storage virtualization can enable customers to:

- Add a storage device without requiring server and network reconfiguration
- Remove and change storage-volume definition and assignment from one storage device to another to help meet service-level requirements
- Aggregate hard disk drives of different speeds and sizes, and from different vendors
- Dynamically reallocate storage space. For example, virtualization allows a server requiring additional storage to find unused space on another storage device. Conversely, a server requiring less storage reallocates the space back into the storage pool.

What this can mean for your business

If you’re a CIO, storage virtualization can help reduce IT cost and complexity while helping to improve your business responsiveness.

Improved storage administrator

productivity. Since virtualization makes multiple network-attached storage devices appear as a single device, management can be simplified and require less dedicated-resource time for individual subsystems.

Maximized storage utilization.

A common storage pool allows unused capacity across the SAN to be dynamically allocated where it’s needed. This can help improve storage-resource utilization and overall SAN performance.

Better business responsiveness.

New applications, storage capacity and storage devices can be added with little or no network downtime. This helps mission-critical business applications remain available around-the-clock.

What this can mean for your storage infrastructure

If you’re an IT or storage administrator, storage virtualization can help improve your operational efficiency, infrastructure flexibility and availability.

Simplified day-to-day management.

Virtualization helps eliminate the need to manage multiple-device interfaces, commands and service-level requirements across your SAN. This can help reduce device-specific training time and costs.

Reduced service outages.

Virtualization helps bring advanced storage-management functionality, like advanced copy services, to the entire SAN and not just to individual devices. Backup and restore operations, as well as data migration and hardware and software upgrades can be handled non-disruptively, improving data availability.

Dynamic resource allocation.

Virtualization enables dynamic allocation and management of storage resources either manually or via automated, customizable policies. This allows for smooth growth in changing workload conditions.