

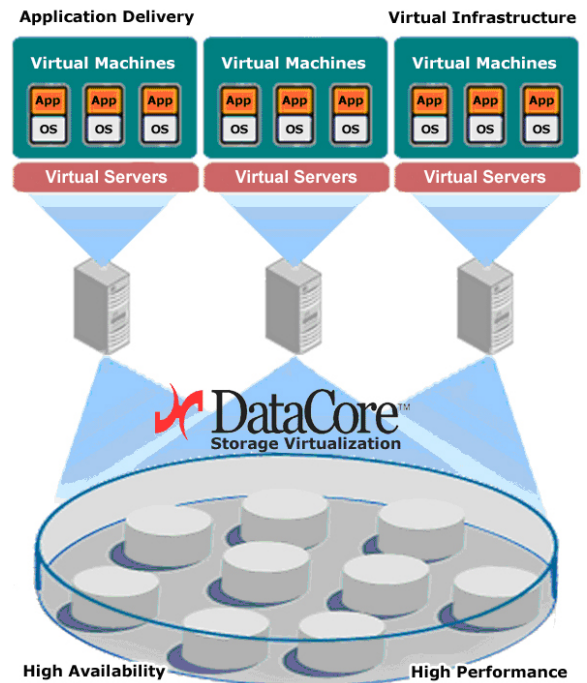
Virtualized SANs for Virtual Servers

Storage Virtualization Finds Its Mojo in the Server Consolidation Market

"DataCore has made it easy for either an IT department or an IT integration partner to set up a SAN that can serve physical or virtual machines (VMs). What's more, the software can run within a physical environment, such as a blade server, or in many of the top VM environments, including VMware, Xen, Microsoft and others," said Jack Fegreus, president, Open Bench Labs. "The beauty of DataCore's software is that it is completely portable. At a time when many sites are testing multiple VM environments before standardizing on a particular vendor, providing sites with the ability to mix-and-match among many flavors of virtual or physical servers makes DataCore's VM SAN packages a uniquely powerful tool."

Storage Virtualization and Virtual Servers

Storage virtualization, pioneered in large part by DataCore in the late 90's, was developed first for the high-end, data center market. It quickly gained notice, offering these heavy data users more control over the management of their data and choice of storage hardware than they had ever had before. This software, designed to "look like" physical storage to application servers (hence, "storage virtualization"), also attracted the attention of the major hardware vendors such as IBM, EMC and Hitachi who, while sometimes publicly embracing its virtues, also recognized that the heterogeneity, performance improvement and high-end features offered by storage virtualization solutions opened their accounts to competition from other high-end, mid-range, and even commodity, storage hardware vendors. Although through the early years of the decade storage virtualization continued to develop and advance, the clamor over these solutions quieted as the economy slowed and stalled, and the storage industry heavyweights held the line against the intrusion of lower-cost, storage hardware into their primary markets.



By that time, however, the commoditization of the server market had progressed to the point that the server market was ready to accept server virtualization as an alternative to traditional, name-brand hardware-dominated, one-to-one server implementations to achieve efficiencies in the deployment and management of its server investments and resources. This laid the foundation for the virtualization revolution currently underway.

Today, the benefits of having a "Virtual Infrastructure" – utilization, flexibility, hardware independence – and the savings that these benefits provide, are broadly understood and accepted

Go Virtual: [New, Portable, Feature-Packed VM Starter SAN](#) – Runs on VMware, Microsoft VS, Oracle VM, SUN VM, Virtual Iron and Citrix XenServer Virtualization Platforms, or Hardware Servers or Blades.

ANCHORS AWAY! Changing Requirements Demand Flexibility and Software Portability

“Certainly the biggest anchor on the virtualization of enterprise infrastructures has been the physical configurations and complex mapping schemes of storage subsystems and network topologies,” said Ziya Aral, CTO and Chairman, DataCore Software. “It is here that the uniqueness of the DataCore solution becomes readily apparent – with DataCore, the storage server is of the same genus as the applications it serves. Both strain to slip their hardware bonds in the desire to achieve true portability.”

in the server market. VMware claims millions of users worldwide. Citrix, Oracle and Microsoft have come out with their own virtual server offerings to join the fray, and a sub-industry of complementary vendors, resellers and service providers has grown up around the major server virtualization products. It is within this market that storage virtualization has quickly reemerged as a vital infrastructure for most enterprises. There are some very practical reasons why this is so.

Server virtualization consolidates many servers onto one platform, placing many “eggs” in “one basket.” Any failure affecting a server impacts the virtual machines (VMs) on that machines and their many users. As a result, virtual servers must be supported by, fault-tolerant, data protection and by storage resources that “fail-over” to keep production applications running and users working in the event of a failure. Storage networks (whether connected with Fiber Channel, Ethernet, or both) facilitate effective storage protection and fail-over. For these reasons, VMware best practices suggest the use of a storage area network or “SAN.” Today, affordable, flexible and hardware independent, SAN storage virtualization software provides the industry’s highest level of data protection and seamless fail-over to keep production applications running in the event of a failure. Because these solutions are “open” platforms and are not restricted to a particular brand of storage hardware, they are more affordable to build and grow. Other SAN solutions (even those that claim to offer some storage ‘virtualization’) are not – because they require use of the vendor’s storage hardware products, which in many cases are not the best value or fit for the intended use.

Storage virtualization is similar to server virtualization in that it makes management and control of resources easier, which results in greater flexibility to address change readily. Storage virtualization provides a “bird’s eye view” of the entire network and the ability to manage and control it from a common point of administration. Physical changes to the storage or its connections are not required to migrate data or to allocate or redeploy storage capacity, which makes these tasks much simpler and faster to accomplish. Control of the allocation and sharing of networked storage to virtual servers is also required for server virtualization customers to get the benefit of some of the most useful features of their server virtualization solutions, such as VMware’s VMotion and Citrix XenMotion.

Another reason that server virtualization customers are quickly adopting storage virtualization is very basic: they already understand that virtual infrastructure means greater flexibility to meet change and better utilization of resources; and that means their IT budgets go further. Whether the virtual infrastructure solution they adopt is for servers or for storage, the ability to direct resource usage to the system that has existing capacity for that usage saves money. Virtual infrastructure solutions, such as DataCore’s thin provisioning, that automate the process of serving capacity and eliminate wasted space make it practical for users to fully realize these savings.

Running DataCore Software storage virtualization solutions on a Virtual Machine (VM)

Read: [Technical Considerations](#) Read: [Announcement Highlights](#)



Today, storage virtualization solutions are offered by essentially two camps: the major, storage hardware vendors and hardware-independent software companies. Solutions from major hardware vendors such as IBM and HDS are very capable, but are very expensive and (naturally enough) are tied to and dominated by their own hardware offerings. Cost of entry and the lack of “hardware independence” (one of the major benefits that can be achieved with virtual infrastructure) make these solutions less practical and less attractive to the server virtualization market.

However, full-featured and reliable, software-based, hardware independent, SAN storage virtualization software solutions, such as DataCore’s SANmelody™ and SANsymphony™, provide all the benefits of virtual infrastructure, including the freedom to choose any name brand or commodity storage hardware, and run on any standard server – **including virtual servers**. These storage virtualization software solutions also cost less, both initially and over time, as the resources they manage increase. Having found a market that has already shed the hardware-centric biases that previously constrained its adoption, SAN storage virtualization adoption is increasing rapidly and can be expected to continue at a rate that mirrors the adoption of server virtualization over the last several years. These powerful and robust solutions should be considered by all to whom the benefits of virtual infrastructures are persuasive.

For more information about DataCore SAN and storage virtualization solutions, please visit: [\[Trial Software Download and Solutions Overview\]](#).

An Illustration of the Common Benefits of Server Virtualization and Storage Virtualization

	Server Virtualization	Storage Virtualization
Benefits:		DataCore SANsymphony/ SANmelody
Lowers total cost of ownership	Servers	Storage
Higher utilization of existing resources	CPUs	Disks and Disk Systems
Hardware Independence	✓	✓
Increased operational efficiency	✓	✓
Improved manageability	✓	✓
New resources easily and quickly provisioned and migrated	VMotion, XenMotion, etc	SANmotion and Thin Provisioning
Change request response times measured in minutes	✓	✓
No downtime for hardware maintenance without waiting for maintenance windows	✓	✓