

## Solution Highlights

- Complements and leverages server virtualization capabilities of Microsoft Windows Server 2012 with Hyper-V
- Speeds up virtualized applications like Microsoft SQL Server, Exchange and SharePoint
- Removes disk I/O bottlenecks and dynamically balances workloads between Flash/SSD, conventional hard disk drives and cloud-resident storage
- Materially reduces the disk space necessary to achieve responsive and cost-effective hosted Virtual Desktops (VDI)
- Eliminates storage-related disruptions due to inevitable maintenance, reconfiguration, upgrades, expansion and failures
- Makes business continuity and disaster recovery practical for VDI, virtual servers and cloud environments
- Maximizes use of available disk capacity
- Well matched for environments large or small

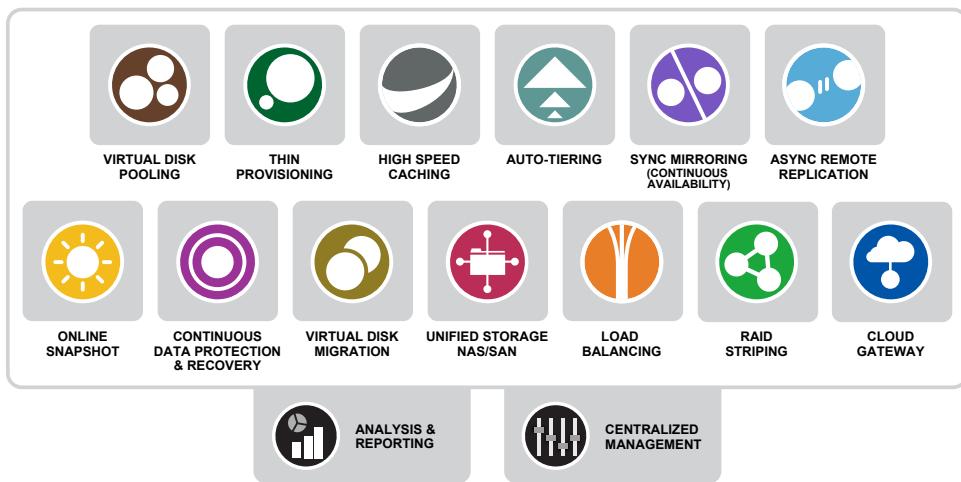
# Storage Virtualization Software Essential to Your Microsoft® Virtualization Strategy

For the fastest performance, highest availability and fullest use from your IT assets, whether on-premises or in the Cloud

The responsive, robust user experience you expect from your virtualized Microsoft environment hinges on many variables, storage high amongst them. That's especially true in highly virtualized infrastructures where the working images of desktops, apps and servers simply become stored objects – constantly in motion and constantly being reconfigured and updated. Like servers and desktops, it's clear that no one storage device can cost-effectively meet all of your current and future needs. Nor should incompatibilities between equipment and manufacturers limit your selection. Choosing among competing alternatives at major new rollout and expansion points gives you the chance to shop for the best possible value. It also gives you the chance to incorporate new technologies well suited to your needs. To this end, DataCore virtualizes storage across your entire infrastructure, empowering you to apply the most compelling combination of new storage innovations and existing resources. We help you balance business objectives against budget constraints to yield the fastest performance, highest availability and maximum utilization from your IT investments.

The DataCore™ SANsymphony™-V storage virtualization software is the perfect complement to Microsoft server, desktop, and application virtualization technologies. It offers the storage management and control intelligence necessary to realize the most effective use of your on-premises and cloud-resident IT environment.

Infrastructure-wide features work across unlike and incompatible storage devices



# SOLUTION OVERVIEW

## Business Challenges

- Performance:** Mission-critical (Tier 1) applications like SQL Server, Exchange, SharePoint, Oracle, and SAP run slowly after virtualizing them under Hyper-V despite having adequate processor and memory resources. Problems can be traced to disk I/O bottlenecks as more workloads compete for shared storage resources.
- Downtime:** Experiencing outages when expanding capacity, taking backups, resizing volumes, swapping out disk drives, upgrading equipment and migrating data to newer storage devices.
- Cost:** Finding it unaffordable to meet the low latency, highly-available, shared storage requirements for clustered servers.
- Risk:** Likely loss of critical information due to major and minor disasters that damage or impair storage hardware. Such a loss might jeopardize the organization's ability to continue IT operations and lead to business collapse.
- Waste:** Purpose-built storage devices have to be manually assigned to applications, causing valuable capacity to go unused.
- Funding:** Budget cuts impeding rollout of adequate SAN to support server consolidation and/or private/hybrid cloud initiatives.

## Use Case Scenarios

### Scenario 1:

Using Windows Server 2012 with Hyper-V to consolidate a small farm of physical servers into a compact cluster of two virtualized servers.

### Challenge:

The cost to set up a shared storage infrastructure necessary for live, virtual machine migrations and Failover Clustering between the servers is proving unaffordable. External SAN alternatives are simply too expensive.

### Solution:

Use DataCore SANsymphony-V software to virtualize the internal drives in the cluster into a virtual shared SAN. The software will provide high-availability by synchronously mirroring the drives between the two servers using a standard LAN connection. Performance speed-up is realized by leveraging surplus memory (RAM) and processing cycles (CPUs) in each server to cache read and write disk requests.

### Scenario 2:

Undergoing a large server and desktop virtualization project spanning two data centers within a metropolitan area. Using Microsoft Windows Server 2012 with Hyper-V as the underlying server virtualization platform.

### Challenge:

Remote and local users are experiencing frequent outages and very poor response from their mission critical applications, including SQL Server, Exchange, and SharePoint.

The problems have been isolated to:

- bottlenecks in the back-end disk farms
- application interruptions when making storage-related changes

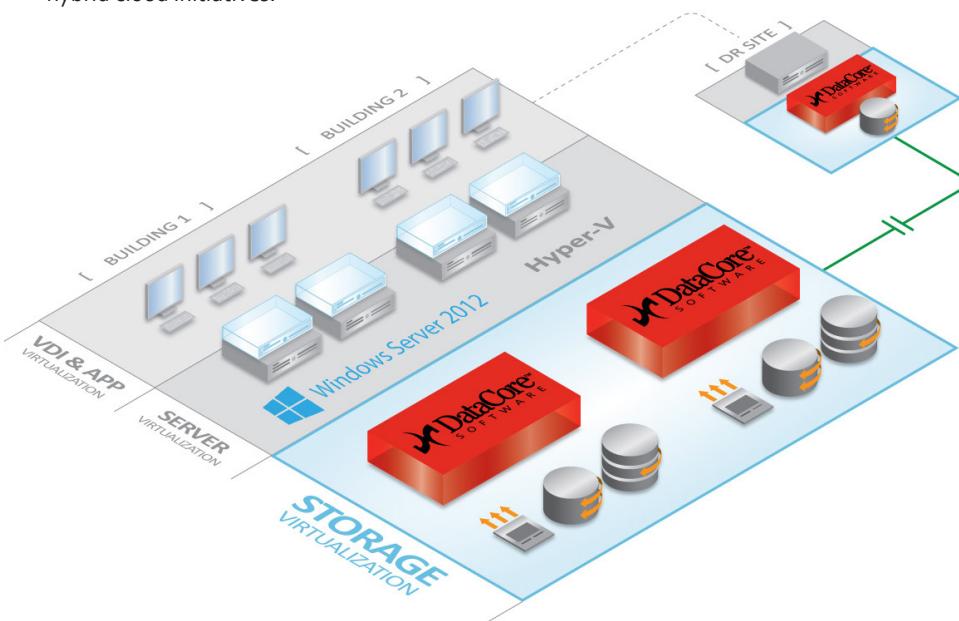
Regulatory pressures have now made business continuity a priority.

### Solution:

Place the disk farms under the control of DataCore SANsymphony-V storage virtualization software running on a pair of dedicated nodes between the hosts and the storage devices. The software will accelerate application response typically 2X to 5x using the nodes' memory and processor resources to cache the disk requests (reads and writes).

It will also optimize performance and costs by automatically balancing workloads between flash memory, SSD, and conventional storage devices using automated storage tiering. SANsymphony-V software will synchronously mirror the virtual disks between DataCore nodes at each site and complement Windows multi-path I/O (MPIO) drivers to eliminate storage-related downtime.

In order to mitigate the effects of regional catastrophes, the same DataCore software can asynchronously replicate critical volumes from these data centers to distant disaster recovery sites using standard IP WAN connections.



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