GRIDSTORE

vmOptimized™ Storage for Hyper-V

All traditional storage suffers from the I/O blender that severely impacts application performance in virtual environments. Introducing Gridstore 3, optimized for Windows Server 2012 Hyper-V. Its patented Server-side Controller™ Technology (SVCT) completely eliminates the I/O blender by providing per-VM optimizations that accelerate and prioritize application I/O in virtualized environments. Finally, tight integration with System Center enables admins with the option of single-pane-of-glass management—increasing control, monitoring and automation when using Virtual Machine Manager (VMM) and System Center Operations Manager (SCOM). With all this, Gridstore takes Hyper-V storage to a whole new level.

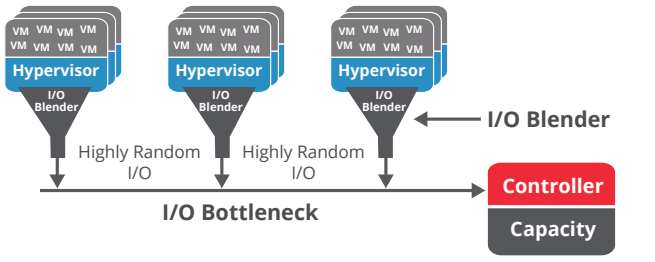
Benefits

- Accelerates Hyper-V apps
- Eliminates wasted time chasing performance problems
- Increases VM density

Microsoft GOLD CERTIFIED Partner

The I/O Blender

Before virtualization there was a one-to-one relationship of an application running on a physical server with its underlying storage. Whether direct attached, or a Fibre Channel SAN, the OS would efficiently optimize I/O before it left the server and the storage was then optimized to that I/O pattern.



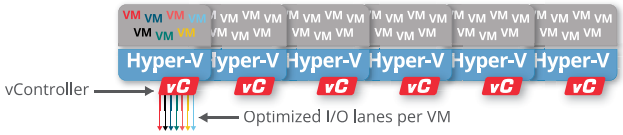
However, when the physical machine is moved into a virtual environment, the clean optimized I/O from the OS is mixed in with ten, twenty or even thirty other virtual machine I/O streams, resulting in highly random un-optimized I/O. This is the I/O blender and its impact can be a 10X performance drop.

In a traditional storage architecture, all of this I/O is hitting a single controller at the end of the wire. The storage controller has no idea where the I/O is coming from, who it's for and how to optimize it ... this single controller is one size fits all—it can only optimize in the way it thinks is best for itself. As a result, performance is compromised for every application because the storage can't single out any of the VMs or optimize for a certain I/O pattern because the I/O is blended together.

The I/O blender is really the result of two different architectures, with the traditional storage architecture being designed two decades before the rise of virtualization. Traditional storage was simply not designed for virtualization. Making traditional storage faster through over-provisioning or all-flash storage arrays simply masks the underlying architecture mismatch while adding significant cost to your virtualization effort. Traditional storage has become the most expensive and complicated component in virtualization.

The Solution: Optimized Storage for Hyper-V

Gridstore is storage built from the ground up to accelerate applications in virtual environments. Gridstore's patented Server-side Virtual Controller Technology (SVCT) matches the virtualization architecture and eliminates the I/O blender completely. By virtualizing the storage controller (vController™) and moving it directly into the host, it can isolate, optimize and prioritize I/O for each VM before it leaves the server.



- **vmOptimized Storage**
  Accelerates I/O for every application
- **TrueQoS**
  Guarantees performance of your most important apps/VMs
- **GridScale**
  Massively parallel performance that scales without loss

OEM Powered

The power of the vController

A vController is a small-footprint driver that operates in the server and presents a local SCSI device to the hypervisor. The vController performs three separate tasks to accelerate application I/O:

1. **Isolate I/O:** Channels the I/O into separate lanes on a per-VM basis.
2. **Optimize I/O:** Detects the I/O signature of the application and self-optimize the I/O pattern.
3. **Prioritize I/O:** Applies VM QoS policies to allocate resources to each VM I/O channel.

Isolate I/O per VM: By operating within the server, the vController is in a unique position to isolate and optimize I/O for each VM. This is the critical first step to eliminating the mixing of I/O patterns caused by separate VMs. With SVCT, I/O is isolated and put into separate I/O channels that run from the hypervisor across the network into matching I/O channels per VM operating on the storage nodes. This creates a unique lane for each VM without any mixing of I/O from the application through to the underlying storage.

Optimize I/O: Every application has an optimum I/O pattern. By isolating I/O from each VM at the server, vControllers can detect and self-optimize each application's I/O pattern at the source, resulting in accelerated application performance.

Prioritize I/O: Traditional storage arrays wait until the I/O hits the array to implement QoS, where it is too late to prioritize. TrueQoS™ leverages the server-side virtual storage controllers to prioritize I/O before it leaves the server, eliminating the performance impact of "noisy neighbors" (a VM that consumes all storage resources at the expense of other VMs). It then coordinates with the storage node controller to continue the prioritization of I/O all the way to the disk. By creating a coordinated, end-to-end storage QoS solution, Gridstore ensures that the most important applications are guaranteed the resources they need to run optimally. TrueQoS also makes it simple and automated to enforce QoS priority levels designated for VMs in Microsoft System Center.

The Results

Gridstore accelerates applications in virtualized environments by delivering storage that perfectly matches the virtualization architecture. By eliminating the fundamental architectural mismatch that legacy storage systems suffer from in virtualized environments, Gridstore is uniquely designed to optimize application performance, guarantee performance for your most important applications, and scale without compromising performance.

GRIDSTORE

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