

## VM-Aware Intelligent Infrastructure Optimized to Power Hyper-V

Tintri VMstore is designed from the ground up for virtualized environments and the cloud. Global enterprises have deployed hundreds of thousands of VMs on Tintri storage systems, supporting business critical applications such as Microsoft SQL Server, Exchange, SharePoint, SAP, VDI, and Active Directory.

VMstore is optimized for superior performance and reliability in Hyper-V environments. With native Microsoft Server Message Block (SMB) 3.0 and integration with Microsoft System Center Virtual Machine Manager (SCVMM), VMstore enables key capabilities for enterprise workloads such as Transparent Failover and High Availability (HA).

Consolidate your Hyper-V applications onto scalable, performant, and easy-to-use intelligent infrastructure. When the data that drives your Hyper-V applications resides on VMstore, your operations are dramatically simplified. Go from pilot to production with a few clicks of a button. Enjoy a simplified administrative experience so you can focus on your business. Experience Different!

### Integration With ODX

To simplify deployment, VMstore supports auto-discovery of hosts. VMstore also offers VM-level visibility and control, which dramatically enhances user experience when virtualizing mission-critical Microsoft enterprise applications and helps accelerate private cloud deployments. You can easily create Hyper-V file shares and VMs on Tintri VMstores. Windows local and remote offloaded data transfers (ODX) allows efficient and direct data transfers on and within VMstores. VMstore supports local and remote ODX with SMB 3.0 for fast and space efficient VM clones. Figure 1 shows an example of a virtual machine deployed within seconds on a VMstore with ODX.

Step	Name	Status	Start Time	End Time
✓ 1	Create virtual machine	Completed	5/7/2015 1:35:10 PM	5/7/2015 1:41:19 PM
✓ 1.1	Create virtual machine	Completed	5/7/2015 1:35:13 PM	5/7/2015 1:35:14 PM
✓ 1.2	Deploy file (using Fast File Copy)	Completed	5/7/2015 1:35:50 PM	5/7/2015 1:35:56 PM
✓ 1.3	Deploy file (using LAN)	Completed	5/7/2015 1:35:56 PM	5/7/2015 1:35:56 PM
✓ 1.4	Change properties of virtual machine	Completed	5/7/2015 1:35:56 PM	5/7/2015 1:36:06 PM
✓ 1.5	Fix up differencing disks	Completed	5/7/2015 1:35:56 PM	5/7/2015 1:35:56 PM
✓ 1.6	Install VM components	Completed	5/7/2015 1:36:08 PM	5/7/2015 1:36:46 PM
1.6.1	Start virtual machine to install VM components	Not started		
1.6.2	Stop virtual machine	Not started		
✓ 1.7	Customize virtual machine	Completed	5/7/2015 1:36:46 PM	5/7/2015 1:40:46 PM
✓ 1.7.1	Deploy file (using LAN)	Completed	5/7/2015 1:36:46 PM	5/7/2015 1:36:46 PM
✓ 1.7.2	Create virtual floppy drive with sysprep file	Completed	5/7/2015 1:36:47 PM	5/7/2015 1:36:47 PM

Figure 1 – ODX (Fast File Copy) completed in seconds



### Manageability

- Visibility – Root cause latency across storage, host, network and hypervisor
- Actionable – Real-time, per-VM analytics and historical data to troubleshoot and resolve issues
- Automation – Set and forget, end-to-end via PowerShell and REST API

### Performance

- Per-VM isolation, VM-level QoS with max and min IOPS guarantee
- <1ms latency – With all-flash you get sub-millisecond latencies and predictable performance at high loads
- Utilization - no more over provisioning. Fully utilize capacity and curb the VM sprawl

### Value

- Efficiency – 6x smaller storage footprint and 60x annual management reduction
- Concurrency – Multi-hypervisors running on the same box, at the same time
- Scale – Up to 32 VMstores and over 100,000 VMs managed through one single pane of glass

## VM-Level Data Management

Per-VM snapshots and clones – with no performance impact – can be scheduled automatically by default. Since all data services can be performed on an individual VM, we can guarantee quality of service (QoS) with no spillover to other VMs. (More details can be found in the white paper, [Quality of Service \(QoS\) With Tintri VM-Aware Storage](#).) Additionally, space-efficient clones are created within seconds on VMstores with local and remote ODX.

VMstore SyncVM accelerates test and development and simplifies disaster recovery with efficient copy data management, without moving any data blocks over network, regardless of the VM size and with no loss of performance history. Built on VM-awareness, VMstore ReplicateVM supports per-VM replication, reducing up to 95% in WAN utilization after deduplication and compression. In addition, VM-level visibility and management can help improve user experience and accelerate the deployment of business critical applications and private cloud deployments in a virtualized data center.

## Ease of Deployment

Tintri has taken additional steps to ensure easy configurations with fewer clicks to set up your Hyper-V environments. For example, multi-channel is supported natively with SMB 3.0. In-flight encryption provides secure access to VMstore's per-VM data services while Windows Management Instrumentation (WMI) encryption secures the control path.

"Running Hyper-V on VMstore has been an excellent experience. We performed a very long test run to make sure we could easily create our file shares and VMs on the new platform," said Luke Schwingler, System Administration Manager at MetaBank.

## Getting Started

Tintri VMstore is the only storage platform that supports concurrent hypervisors. You can run multi-hypervisor workloads on the same system, at the same time. This is very useful if you have mixed workloads or plan to migrate to Microsoft Hyper-V without the need to add storage. You can grow and scale your Hyper-V deployments based on your timeline and budget. VMstore for Microsoft Hyper-V supports Microsoft HA implementations such as SQL Server AlwaysOn Availability Group (AAG) and Exchange Database Availability Group (DAG). See the [Tintri VMstore Microsoft Hyper-V Best Practice Guide](#).

"We can move our VMs up to the Azure Cloud and back as needed. There are huge advantages for anyone willing to switch hypervisors," said Tim Starkenburg, Systems Administrator for Life-Science Innovations.

Experience Different! For more information on how Tintri VMstore can turbo-charge your business success through a simple, Intelligent Infrastructure, visit [tintri.com/vmstore](http://tintri.com/vmstore). Or better yet, contact your Tintri representative or infrastructure partner and request a demo of VMstore for Hyper-V.

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