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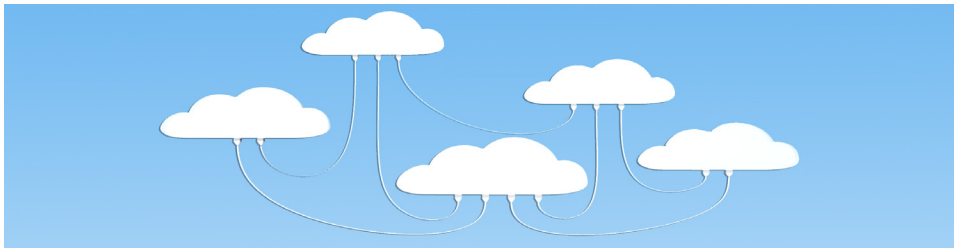
Data Sheet

Optimizing VDI Storage Using NexentaStor

New Functionalities, Improved Optimization, Cost-efficient Growth Plan



NexentaStor Delivers

As the leading open storage provider, Nexenta's VDI storage solutions deliver a fully supported, out-of-the-box, hardware independent, commercial software package that runs on industry standard x86 servers. Nexenta overcomes the limitations of conventional legacy VDI storage solutions by dramatically minimizing random IOPS through:

- ZFS functionality to buffer write operations
- Inline compression of data
- Managing initial log-on boot storm issues through separate SSD caching of read / write operations
- Providing image management and provisioning with unlimited cloning capabilities
- Creating comprehensive back-up and recovery with unlimited snapshots
- Minimizing amount of needed storage through inline deduplication

VDI Storage Challenges

As Virtual Desktop Infrastructure (VDI) solutions from Citrix, VMware, and Microsoft have matured, a new trend has emerged—instead of provisioning a single OS environment per seat, administrators now provision multiple virtual machines (VMs) per user. Scaling the number of VMs increases the demand for storage capacity and I/O performance, requiring organizations to cope with greater complexity and cost as they expand legacy storage.

Provisioning VMs within cloning and capacity limits can prove challenging. For some pooled desktop VM implementations, each VM requires two different types of stored files: persistent storage for OS images and temporary storage for caching running desktop sessions. Some block-level SCSI storage devices restrict the number of VMs (stored as files) that administrators can create per file system, impeding cloning and provisioning efforts.

Scaling the number of VMs drives the need for greater I/O performance. Traditional, proprietary storage solutions can exhibit poor performance under write-intensive workloads unless storage architects add expensive write caches or mirrored volumes with costly high-speed disks. For this reason, traditional storage solutions can have extremely high "per-seat" costs.

Adding capacity can be an arduous task if devices must be manually configured and appended to existing storage volumes. Some systems are limited in the types of devices they support, and can't easily leverage new technologies, such as solid state disks (SSDs). If storage resources support multiple protocols (e.g., CIFS, NFS, iSCSI, and Fibre Channel), they often are managed separately, making it hard to track usage and optimize utilization. As a result, strategic applications don't always get the resources they deserve.

The NexentaStor Solution

Recognizing these challenges, Nexenta Systems takes an OpenStorage approach that effectively counters the high cost, poor performance, and management complexity of traditional VDI storage.

Nexenta's core OpenStorage solution, NexentaStor, achieves similar efficiencies while providing enterprise-class performance and manageability. It functions as both a storage array and a virtualization appliance that abstracts legacy and commodity storage devices, pooling resources and presenting them at the file or block level to virtualization servers. In VDI deployments, NexentaStor can deliver superior I/O performance—especially for write-intensive VDI workloads—at massive savings over traditional storage solutions.

NexentaStor coalesces storage management across virtualization servers, protocols, and devices, including SSDs. From a single interface, administrators can concurrently manage Citrix, VMware, and Microsoft Hyper-V environments, delivering unified storage resources across different protocols and I/O channels.

VDI Best Practices

The following recommendations for deploying NexentaStor in VDI applications blend common-sense principles with best practices from existing customer deployments:

- Apply SSDs to host temporary storage for virtual machines as much as cost parameters allow, taking advantage of ZFS compression (and not deduplication) in NexentaStor.
- Configure multiple channels and sufficient bandwidth to all storage devices.
- Deploy multiple high-speed network interfaces to avoid bottlenecks between the virtual hosts and the NexentaStor appliances.
- Mirror and/or stripe to meet availability requirements or, for extreme availability requirements, consider the NexentaStor HA Cluster Plug-in.
- Design back-up and disaster recovery plans that take advantage of NexentaStor's ability to replicate storage and VMs rapidly, implementing NexentaStor plug-ins to replicate across appliances and sites as needed.
- Activate the Nexenta Virtual Machine DataCenter (VMDC) Plug-in to optimize visibility and manage NexentaStor unified storage most effectively, all the way down to the VM level.

Feature Improvements

Based on the power of the ZFS technology, NexentaStor offers superior price/performance over traditional storage solutions for VDI, overcoming limitations of many traditional storage solutions and supporting a virtually unlimited numbers of files, file systems, and snapshots.

NexentaStor leverages commodity, heterogeneous storage to deliver an economical yet high-performing solution for write-intensive VDI workloads, especially when SSDs are deployed to further reduce write latencies.

In addition to building a solution with a low "per-seat" cost, NexentaStor takes the complexity out of managing VDI storage, allowing administrators to govern pooled storage across almost any disk technology and protocol.

To further simplify management in virtualized environments, Nexenta's VMDC Plug-in manages storage for Citrix, VMware, and Microsoft hypervisors from a single console. VMDC also allows rapid VM cloning, appliance and VM migration, and replication that is based on policies for each VM.

For the most recent information on this and other Nexenta plug-ins, please visit us at: nexenta.com

VDI with ZFS Technology

ZFS is engineered to revolutionize data management and address short comings of legacy file systems.

Unlike earlier file systems, ZFS integrates volume management functions and virtualizes devices into a single shared storage pool, from which NexentaStor can configure data volumes that consume pooled space as needed.

- Virtually unlimited file system scalability
- Inherent storage virtualization
- Increased data integrity
- Accelerated write performance
- Unlimited snapshot and cloning
- Deduplication & Compression

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Nexenta Systems is the leading supplier of enterprise-class OpenStorage solutions. Its flagship software-only platform, NexentaStor, delivers high-performance, ultra-scalable, cloud- and virtualization-optimized storage solutions.

Nexenta Systems, Inc.
444 Castro Street, Suite 320,
Mountain View, CA 94041 USA
www.nexenta.com
www.facebook.com/nexenta
twitter.com/nexenta