

NexentaStor on Cisco UCS Servers

Simple, fast, and flexible. The Software-Defined Data Center for **CloudStack** and **OpenStack**

Cisco Unified Computing System[™] (UCS) unifies computing, networking, and management into a single integrated architecture. UCS provides a great platform for cloud automation suites from providers like OpenStack and CloudStack as it offers a scalable and flexible cloud orchestration platform.

But Cloud environments have many storage challenges – scalability, security, IOPS, density, cost/performance, and efficiency or hardware utilization rates. NexentaStor[™], the leading Software-defined Storage solution in the market, specifically targets these issues to provide an optimal storage solution for cloud architectures.

NexentaStor is a full featured NAS/SAN software platform that can be installed on any standard commercial hardware like UCS to provide data-intensive storage cloud services and enable broad access to user data. NexentaStor unifies storage for block (FC, iSCSI) and file (NFS, CIFS, SMB) access protocols across active/active controllers delivering a complete suite of data services: unlimited snapshots, clones, thin provisioning, inline deduplication, compression, and replication across all-HDD, all-SSD, and hybrid configurations.

When NexentaStor is married with Cisco UCS, you get an integrated system that will accelerate your transition to the cloud in the software-defined data center.



Highlights

- **Highly Scalable and Highly Secure**
Built on ZFS providing unparalleled security with unlimited snapshots and large memory caching
- **Utmost Flexibility**
Unifies storage across block and file on all-SSD, all-HDD, or hybrid; integrated wizard automatically applies best practices when configuring pools for fast provisioning
- **Performance and Efficiency**
Industry leading compression cuts footprint 50%; memory caching via ARC dramatically improves performance
- **High Availability**
Active/Active High Availability solution with transparent failover for NAS and SAN. Failover times are minimized to less than a minute.
- **Chef and Puppet integrations**
Provisioning primary storage in cloud architectures can be automated using Enterprise Chef[™] a cookbooks, using the Knife API plug-ins.

Additional Key Features

Replication

Auto-sync is NexentaStor’s periodic asynchronous data replication service for backup, disaster recovery, and archiving. Auto-sync improves management and control through compression and deduplication of transferred data and delivers recovery point objectives (RPOs) as low as a few seconds.

Automated Tuning

Automation engines like Chef/Puppet allow for tuning settings to be deployed simultaneously to multiple systems. Tuning targets include both physical and virtual storage settings within the arrays as well as throughout the rest of the stack.

Automated Deployment

In the interest of making it easy to create, configure, and manage storage pools, NexentaStor has a wizard in the GUI that enables an administrator to select preferred characteristics of the storage pool (e.g.: number of cache devices and width of a RAID set) which then automatically determines an optimal pool layout and applies it. This can save significant time deploying large systems/environments.

Fault Management Architecture

FMA allows IO to continue in the face of hardware that has not yet failed but is not performing well with intermittent disk problems. NexentaStor embeds intelligence to detect and handle drive issues thus minimizing their impact and keep IO flowing.

Reference Architectures for Cloud

	Small	Large
Servers	2 x Cisco UCS C240 M3 Rack Servers	2 x Cisco UCS C240 M3 Rack Servers
CPUs	2 x 4-core 2.4GHz Intel® Xeon® E5-2609	2 x 4-core 3.3GHz Intel® Xeon® E5-2643
DRAM	96GB (12 x 8GB) DIMMs	256GB (16 x 16GB) DIMMs
Boot Drives	1 x UCSC RAID-11 C240 RAID Card 2 x 1TB 7.2k-RPM SAS 2.5" HDD	1 x UCSC RAID-11 C240 RAID Card 2 x 1TB 7.2k-RPM SAS 2.5" HDD
NIC	Built-In Quad-Port 1Gb Ethernet	Built-In Quad-Port 1Gb Ethernet
PCIe Cards	2 x Intel X520 10Gb DA/SFP+ NIC 2 x LSI 9207-8e SAS HBA	2 x Intel X520 10Gb DA/SFP+ NIC 2 x LSI 9206-16e SAS HBA
JBODs / Back-End	2 x DataOn DNS-1640 2U-24 bay, 2.5" SAS/SATA JBOD (for example)	2x DataOn DNS-1660 4U-60 bay 6G 3.5" SAS/SATA JBOD (for example)
HDDs/SSDs	44 x 2.5" HDD	228 x 3.5" HDDs
Read Cache		2-4 x 400GB SAS MLC
Write Cache	2 x 100GB write-optimized SSD	8 x STEC ZeusRAM
Software	NexentaStor HA Cluster Plugin PS Installation	NexentaStor HA Cluster Plugin PS Installation

For more information, please contact:
sales@nexenta.com

Nexenta Systems
455 El Camino Real
Santa Clara, CA 95050
nexenta.com
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