

FAQ NOTES:**NexentaStor 4.0.1 General Availability Announcement**

2 April, 2014

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Background – Internal Use ONLY:

On February 26th, 2014, Nexenta announced that a new major release of its flagship NexentaStor product, release 4.0.1, would be Generally Available in Q2 2014. A copy of that press release is available [here](#). Following a couple of years of development, extensive internal testing and a successful customer and partner beta program, NexentaStor 4.0.1 will be generally available on Nexenta.com on April 7th, 2014. This document provides answers to basic product and technology related questions.

Q: What is being announced?

A: A new major release, NexentaStor 4.0.1, will be generally available for download on Nexenta.com on April 7th, 2014.

Q: What is NexentaStor?

A: NexentaStor is our flagship Software Defined Storage (SDS) platform, allowing thousands of customers all around the world to transform their storage infrastructure, increase flexibility and agility, simplify management, and dramatically reduce costs without compromising on availability, reliability, and functionality.

NexentaStor delivers unified file and block storage services, runs on industry standard hardware, scales from tens of terabytes to petabyte configurations, and includes all data management functionality by default. NexentaStor is Software Defined Storage with SMARTS: Security, Manageability, Availability, Reliability, (lower) TCO, and Scalability.

Q: What are the top enhancements included in NexentaStor release 4.0.1?

A: NexentaStor release 4.0.1 is designed to meet ever more stringent enterprise customer requirements. As such, it includes a significant number of enhancements to deliver higher performance, higher reliability, higher scalability, and better functionality in the areas of Windows ecosystem support and disaster recovery configurations. Following are key highlights:

Faster Cluster Failover Times – While High Availability cluster configuration is not a new feature, NexentaStor 4.0.1 reduces HA failover times by over 50% compared to the previous release! In many cases, this is down to less than 60 seconds depending upon the specific environment and configuration. The failover time improvements apply to both block and file services although most improvements are noticed in file services, and are particularly noticeable in larger capacity configurations. With this enhancement, NexentaStor delivers higher levels of availability and close to seamless handling of controller failures.

Improved Handling of Faulty Devices – NexentaStor 4.0.1 contains a redesigned Fault Management Architecture that allows application I/O to continue in the face of non performing hardware such as Hard Disk Drives that exhibit slow responses to I/O when they are in the process of failing. Over 20 changes have been made to the code around this issue alone. With access to drive manufacturers' firmware specifications, Nexenta has built diagnostics into NexentaStor's management to enable it to optimize the actions it takes against these drives when these resources are not performing well. When a device exhibits a pattern of abnormal slow I/O responses, and NexentaStor cannot use this deep level knowledge to correct the issue, the drives are pro-actively taken out of service. This allows application I/O to proceed without being affected by the non-functioning device.

Improved Performance and Support for Large Memory Configurations – NexentaStor and its ZFS file system are designed to optimize utilization of controller memory for read caching. Aggressive data caching in memory avoids having to fetch data from slower SSD and spinning HDDs, resulting in higher read performance and lower system latency. NexentaStor release 4.0.1 has been enhanced to support 512GB of DRAM per head in a cluster. This significantly larger caching space has been shown to improve performance by up to 4x compared to previous versions of NexentaStor. 512GB also compares very favorably to the highest configurations of legacy hardware vendors like EMC and NetApp, which typically offer a maximum of 256GB of cache in their high-end unified storage offerings.

Improved Inline Data Reduction with LZ4 Compression Support – Most NexentaStor configurations leverage inline data compression for higher effective usable capacity and better performance. NexentaStor 4.0.1 introduces a new compression algorithm for inline data compression, LZ4, which delivers higher compression rates and lower CPU utilization than the LZJB algorithm of previous releases.

Support for Microsoft SMB 2.1 – NexentaStor 4.0.1 now includes standard support for the Server Message Block 2.1 protocol that is the de-facto standard for file services in Microsoft Windows environments. NexentaStor 4.0.1 includes all mandatory functionality as specified in the MS-SMB2 specification and delivers higher performance, higher reliability and simpler management of NexentaStor in Microsoft Windows environments.

Enhanced SCSI Reservation Logic – NexentaStor 4.0.1 implements improved SCSI-2 reservation logic and provides enhanced protection against cluster split-brain and storage pool cross mounts. This new logic relies on SCSI-2 reservation commands widely supported by HDD and SDD products on the market.

Improved support for Windows Server Cluster Shared Volumes – NexentaStor 4.0.1 includes a number of fixes and enhancements and adds support for Windows Cluster Shared Volumes over iSCSI and FC for Windows Failover Cluster and Hyper-V configurations.

Fully Redesigned Auto-Sync Replication Facility – All NexentaStor licenses include support for Auto-sync, periodic asynchronous replication. In release 4.0.1, auto-sync is supported between HA clusters, as well as between mixed HA and non HA setups. Configuration steps have been dramatically simplified, and replication services significantly hardened. For example, replication jobs now automatically recover from interruptions caused by disruptive events (failover, network connectivity interruptions, etc.). Support for user notifications has been added on failed or missed

jobs. Network utilization is improved thanks to inline compression of data transferred over the network and multi-connection configurations. Manageability has also been significantly improved with progress and performance reporting and the ability to reverse replication flows.

Guided Storage Pool Configuration – In the interest of streamlining creation, configuration, and management of storage pools, the NexentaStor 4.0.1 Graphical User Interface includes a new wizard that automatically applies best practices when configuring storage pools. Part of the configuration process requires the administrator to choose whether a pool should be optimized for performance (leading to mirrored configuration), balanced (leading to RAIDZ2 configurations) or capacity (leading to RAIDZ3 configurations). This can save significant time when deploying large systems.

Migration to the Illumos Kernel – NexentaStor 4.0.1 is based on a new Illumos kernel. This transition aligns NexentaStor with the active Illumos community, simplifies contributions back to the community and streamlines leverage of community driven enhancements.

Q: What is Illumos? I thought you were using OpenSolaris for your Operating System?

A: Illumos is a fork of the original OpenSolaris code that had been used by NexentaStor for its open source Operating System. As OpenSolaris completed their final build and Oracle announced waning support going forward, a community of OpenSolaris users formed Illumos to create a fork and continue development on a true open source derivative. OpenSolaris was not historically 100% open source as some drivers and libraries were property of other companies that Oracle licensed and was not able to release.

Illumos is free, 100% open source, and Unix-based with the following distinguishing features:

- ZFS – a combined file system and logical volume manager providing high data integrity for very large storage volumes.
- DTrace – a comprehensive dynamic tracking framework for troubleshooting kernel and application problems in real time
- Kernel-based VM (KVM) – supports native virtualization on processors with hardware virtualization extensions
- Fault Management Architecture (FMA) – a predictive self-healing system for automatically diagnosing problems from observed symptoms which then triggers an automated response and recovery.

More information at www.illumos.org

Q: Why are you using Illumos instead of Linux?

A: Nexenta is committed to open source and will continue to choose the path which offers the richest, most stable and secure experience for our customers. While we continue to believe that OpenZFS is a great file system for single host storage configurations on Linux, we remain committed to Illumos when it comes to large scale configurations supporting hundreds of drives and high performance file and block services. As part of building and scaling NexentaStor over the past few years, we have contributed substantial amounts of code back to the Illumos community.

Q: How can I deploy NexentaStor 4.0.1?

A: As with any major new release, we recommend using NexentaStor 4.0.1 in new deployments or new configurations.

Customers using previous versions will not see release 4.0.1 when issuing `setup appliance upgrade` on their existing NexentaStor 3.1.x configurations. Upgrading from 3.1.x to 4.0.1 is a disruptive process that requires a fresh install on the controller heads and must be handled by Nexenta Professional Services to ensure no configuration information is lost in the process. Please contact [Nexenta Support](#) for more details.

Support for seamless and non-disruptive upgrades from NexentaStor 3.1.x to 4.0.x will be added in the next maintenance update.

Q: What plugins are supported with NexentaStor 4.0.1?

A: Per the Nexenta Product Lifecycle Policy, all plug-ins are specific to a major/minor version of NexentaStor. As a result, the list of supported plug-ins for NexentaStor 4.0.1 may be different from previous versions. At 4.0.1 GA, the only plug-ins available are:

- The High Availability plug-in. This plug-in allows two NexentaStor controllers to be configured in a 2 node cluster, providing active-active file and block services. Note that binaries for this plug-in are included by default as part of any product installation. While this dramatically simplifies the task of setting up a NexentaStor HA cluster, it does not remove the need to acquire a license to enable this functionality.
- The Fibre Channel Target plug-in. This plugin allows LUNs to be exported from a NexentaStor configuration over a Fibre Channel SAN. Note that a license is required to enable this functionality.

Support for additional plug-ins may be added in the future. Please contact sales@nexenta.com with any issues or requests concerning plug-ins.

Q: What features that were targeted for release 4.0 are missing from NexentaStor 4.0.1?

A: There is small list of fixes and enhancements that we unfortunately decided to defer:

- **Microsoft Identity Management for UNIX (IDMU).** IDMU is useful to organizations with an existing Network Information Service (NIS) domain environment who want to import NIS users into Microsoft Active Directory Domain Services. While we have a work-around available to get basic IDMU functionality on NexentaStor 4.0.1 (see Release Notes and [Nexenta Support](#)), formal support for IDMU is targeted for the next maintenance update.
- **Scalable inline deduplication services.** While NexentaStor provides very effective inline data compression functionality with a new algorithm in release 4.0.1, inline deduplication continues to have severe scalability limitations in 4.0.1. For configurations such as persistent virtual desktop infrastructure that have a hard requirement on inline deduplication, we recommend leveraging NexentaConnect for inline deduplication and IO optimization as a Virtual Storage Appliance, with NexentaStor shared backend. We are actively working on redesigning inline deduplication in the next NexentaStor feature release.
- **VMware VAAI Atomic Test and Set Locking.** While NexentaStor 4.0 is certified as storage backend for VMware vSphere with both block and file services (see [here](#)), we are currently not certified for VAAI. We are actively working with VMware on this and plan to have formal support by the next maintenance update.
- **NexentaStor Management vCenter Plugin.** The vCenter Plugin for NexentaStor will provide management of datastores on NexentaStor to VMware administrators. It is currently going through QA and is expected to go GA by end of Q2 2014.

- **Infiniband network interconnect.** While we have discussed the possibility of adding support for Infiniband, we have seen the market interest for this interface diminish over the past twelve months as customers focus on Fibre Channel, 10G Ethernet and 40G Ethernet.

Q: Will I need to buy a new license to download and use NexentaStor 4.0.1?

A: If you have purchased a previous License for NexentaStor and have active Silver, Gold, or Platinum Support contract, then you are entitled to the upgrade at no extra cost. However, if you purchased Support which has expired, or if you did not purchase Support with your License, you will need to purchase Support before you can legally be entitled to the upgrade. This new version includes a new Licensing schema which will be updated during the normal upgrade process so you will need to make sure you have current licensing in place before you perform the upgrade process. As mentioned earlier, you must contact Nexenta Support to plan an upgrade from a previous version.

Q: What hardware platforms have been certified for NexentaStor 4.0.1?

A: For NexentaStor 3.x, Nexenta has been publishing component level hardware compatibility documents that allowed partners to build their own solutions. The latest NexentaStor 3.x HCL is available on your Partner portal and internally on SFDC. For NexentaStor 4.0.1, Nexenta has been focusing on certifying reference architectures and higher level configurations from Dell, SuperMicro, HP and Cisco to name a few. We have also engaged and continue to work with partners to recertify partner solutions with NexentaStor 4.0.1. The HCL document for NexentaStor 4.0 documenting this testing will be posted on Partner portals and SFDC later in April 2014.

Q: What host operating systems have been certified for NexentaStor 4.0.1?

A: For NexentaStor 4.0.1 builds on the list of operating systems supported with version 3.x for FC, iSCSI and NFS protocols. Namely Red Hat Enterprise Linux, Ubuntu, SUSE Enterprise Linux, VMware vSphere, and Windows. As mentioned earlier, NexentaStor 4.0.1 fully supports Windows Cluster Shared Volumes over iSCSI and FC, allowing seamless support for Failover Cluster and Hyper-V configurations. The new SMB 2.1 protocol was also certified with Windows Server 2008, Windows Server 2008 R2, Windows Server 2012, Windows Server 2012 R2, Windows 7 and Windows 8 clients.

Q: Will you continue to support and make available 3.1.x, or do I have to upgrade?

A: Nexenta will continue to keep the current shipping product – 3.1.5 available through the end of its natural lifecycle. We are currently working on a 3.1.6 maintenance update targeted for mid-2014.

Q: Who should I contact for any questions?

A: Nexenta OEM/Alliance Partners: partnernetwork@nexenta.com
 Nexenta Sales/Distribution Partners: sales@nexenta.com
 Nexenta Customers: sales@nexenta.com