

Solution Showcase

Nexenta and HGST: Optimize IT with Storage Infrastructure Agility

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Abstract: Competing in today's digital economy demands improvements in IT agility, flexibility, and capability. In response, IT organizations have begun to modernize their storage infrastructure with software-defined storage (SDS) technology. The flexibility and agility delivered by SDS through hardware independence can offer a more optimized and effective infrastructure. Nexenta, a leader in software-defined storage, is partnering with HGST, a Western Digital brand and a leader in storage hardware innovation, to develop agile infrastructure for the demands of the modern digital business.

Overview

The scale of data that modern IT organizations are required to store, protect, and secure seems to be ever increasing. Simultaneously, the increased prevalence of digital products and services along with companies adding investment in analytics and application development have added to the pressures on both the IT organizations and the underlying infrastructure. The emergent theme is that data has value, and competing in an increasingly digital economy requires the ability to extract and leverage that value. As data drives business opportunity, however, it limits infrastructure capability and business results.

Ultimately, the IT infrastructure needs to evolve. Businesses need dramatic IT simplification, more agility, greater flexibility, and higher scalability, all without downtime. As innovations emerge—such as greater performance with all-flash storage, more cost-effective capacities with larger hard drive technology, and even the off-premises infrastructure of public cloud services—IT also requires the freedom to integrate these technologies as soon as they come available in order to help achieve a more competitive business.

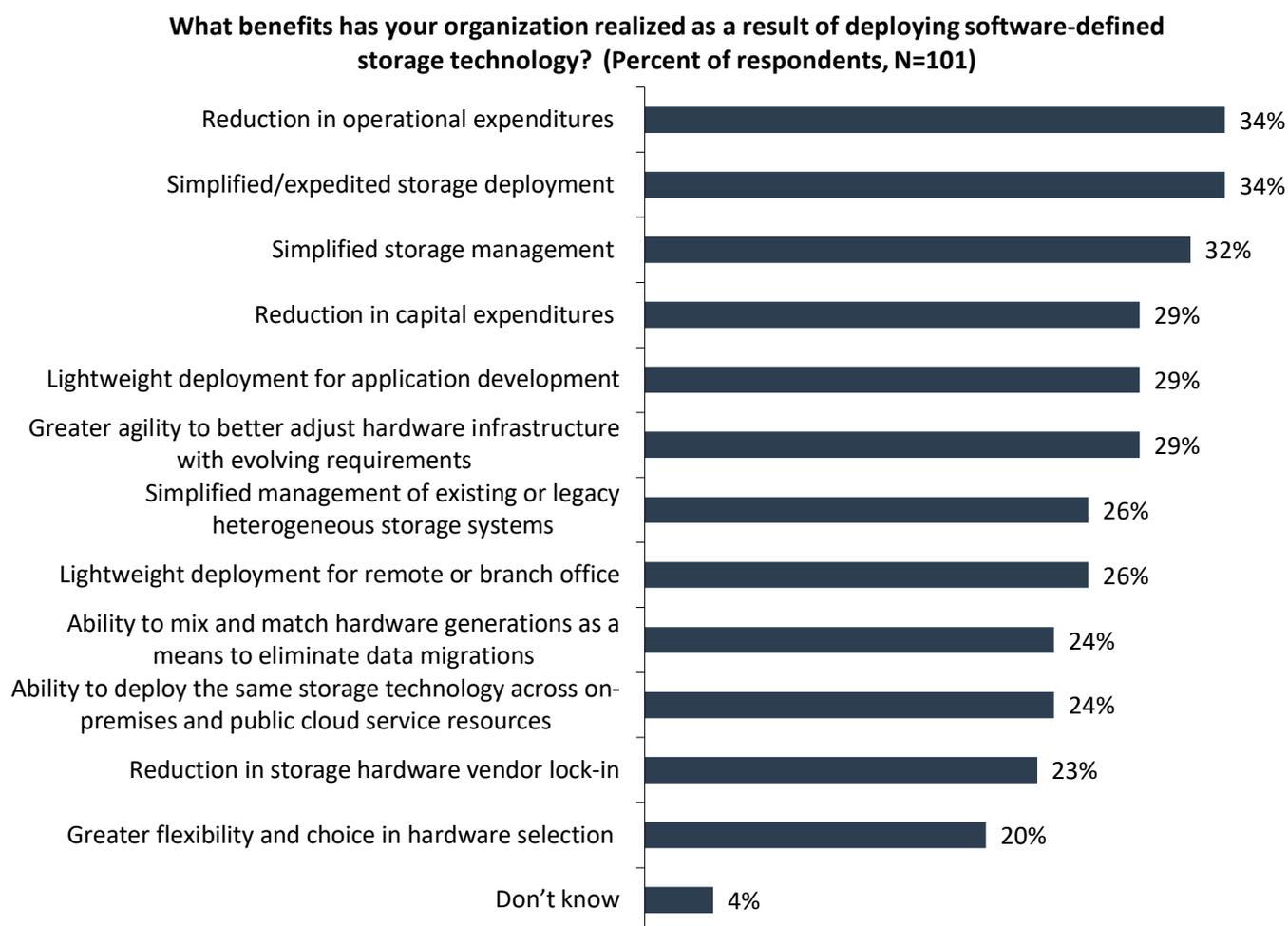
Ultimately, software-defined storage (SDS) technology can provide the agility and flexibility modern IT environments demand. Nexenta, a leader in SDS, is partnering with HGST, a Western Digital brand, to develop flexible infrastructure solutions that can serve multiple workloads simultaneously, with the ability to scale the hardware to support both incredible performance and cost-effective capacity needs.

The Potential of SDS

To better understand the state of the enterprise storage industry, ESG surveyed 303 IT professionals responsible for evaluating, purchasing, and managing data storage technologies at midmarket (i.e., 100 to 999 employees) and enterprise (i.e., 1,000 or more employees) organizations in North America. To qualify, respondent organizations had to currently be utilizing or evaluating SDS, or interested in SDS as a long-term strategy but with no formal initiatives underway yet. Of

these 303 IT professionals, 101 identified that their organization had deployed SDS and was currently utilizing the technology. These 101 storage decision makers were then asked to identify the benefits their organization had realized as a result of deploying SDS technology (see Figure 1).¹

Figure 1. Realized Benefits of Software-defined Storage



Source: Enterprise Strategy Group, 2017

The realized benefits identified in Figure 1 reveal a couple of high-level themes on how SDS technology can transform data centers, including:

- **Improve Infrastructure Agility:** Delays in infrastructure deployment and storage provisioning slow down IT initiatives, and delays in IT inhibit revenue opportunities. Roughly one in three storage decision makers reported that after their organization began leveraging SDS technology, they realized simplified/expedited storage deployment (34%), with 32% identifying that SDS delivered simplified storage management. IT organizations can respond to digital demands more quickly and simply with SDS technology, which increases the pace of infrastructure scalability and, as a result, the pace of IT.

¹ Source: ESG Research Report, [Software-defined Storage \(SDS\) Market Trends](#), February 2017. All ESG research references and charts in this solution showcase have been taken from this research report.

- **Reduce the Cost of IT:** Another result of faster deployments and simplified operations is an overall reduction to the operational cost of managing IT. One of the most commonly identified benefits of SDS was a reduction in operational expenditures (34%). When combined with the reported reduction to capital expenditures (29%), SDS offers a potential to reduce the TCO of IT dramatically.

As businesses become more digitally competitive, IT services serve as a key component in driving both business optimizations and digital revenue opportunities. Based on ESG research, SDS can enable IT to deliver services at the pace the business demands, while reducing the cost of infrastructure. The result also frees up resources, both in hardware and personnel, to allocate for new digital initiatives, such as supporting analytics or new digital offerings.

The multiple flavors of SDS technologies from vendors in the industry today each have their own specific offerings and benefits. For example, some target specific data types, such as high-performance transactional storage or high-capacity long-term archive storage. SDS innovator Nexenta offers a rich set of enterprise-level storage functionality to consolidate a variety of workloads on a single infrastructure. Combined with HGST's, a Western Digital brand, all-flash and high-capacity disk technology, the resulting solution offers an agile, cost-effective infrastructure designed to optimize any size IT environment.

The Nexenta and HGST Solution

HGST Hardware Options

HGST 2U24 JBOF Flash Storage Platform

- 2U 24 SAS SSD enclosure
- Up to six 12Gbps SAS connections
- 184TB² capacity per chassis with 7.67TB SSDs (73.7TB with four enclosures)

HGST 4U60G2 Storage Platform

- 4U 60 drive enclosure
- Up to eight 12Gbps SAS connections
- Hybrid configurations with SSDs
- 720TB capacity per chassis with 12TB drives (2.8PB with four enclosures)

Unlike some SDS technologies that can be limited to one data type, Nexenta's technology, NexentaStor, is designed for workload consolidation with support for both block and file protocols, including iSCSI, SMB, Fibre Channel (FC), and NFS. NexentaStor software is certified to work with the leading server providers, such as Dell EMC, Cisco, Lenovo, and Supermicro. NexentaStor also provides media flexibility with the ability to manage all-flash, disk, or hybrid infrastructure and then tier data accordingly.

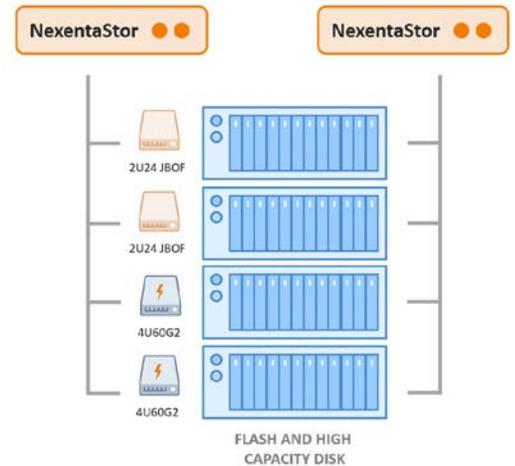
As another differentiator from other SDS market solutions, NexentaStor offers a breadth of enterprise-level storage capabilities including snapshots, clones, replication, quality of service (QoS), and inline data deduplication, along with VMware and Hyper-V integration as well as support in OpenStack and container environments. NexentaStor also supports hybrid cloud environments leveraging public cloud services with AWS. In other words, NexentaStor delivers a single data storage layer that provides consistent enterprise-level data storage for a wide variety of simultaneous workloads leveraging multiple infrastructure options, including public cloud. The level of infrastructure flexibility delivered by Nexenta provides advantages that include:

- **Enterprise-grade Agile Infrastructure:** The flexibility of SDS is incredibly valuable, but all its capabilities are essentially worthless if the resulting solution can't protect data. SDS technology must offer enterprise-level

storage capabilities sufficient to replace more traditional systems. With a long history in SDS and a rich set of functionalities, Nexenta's feature set helps ensure enterprise-level data resiliency and performance.

² One TB equals 1,000GB (one trillion bytes) and one PB equals 1,000 TB when referring to storage capacity. Accessible capacity will vary from the stated capacity due to formatting and partitioning of the drives and other factors.

- Broad and Flexible Workload Consolidation:** NexentaStor offers both the ability to tailor hardware to the specific needs of the workload environment and the agility to change the components when application demands evolve. In ESG’s research, 30% of storage decision makers interested in SDS identified eliminating data migrations as a driver of that interest. Typically, NexentaStor’s hardware agility will not impact the application, eliminating the migration requirement. In addition, Nexenta offers perpetual licenses for its software, so when that hardware has to change, you do not have to rebuy the software you already own.
- Workload Optimized and Validated Solutions:** Hardware flexibility provides tremendous value, but deployment can often be expedited when the software arrives already deployed on pre-validated hardware. Nexenta’s technology has been already validated with a wide selection of hardware vendors and HGST, a Western Digital brand. In ESG’s research into SDS, the combined hardware and software deployment model was preferred by 33% of respondents.
- Continuing Storage Innovation:** Nexenta hardware flexibility is coupled with its continued effort to validate and integrate the latest in hardware innovation. New storage building blocks are continuously being released and supported. Example hardware options on the horizon from HGST, a Western Digital brand, include a high density 4U102 JBOD that supports up to 1.4PB, a 2U24 NVMe storage server, and a 4U68 hybrid storage server supporting both HDD and SSD storage.



SDS does not negate the need for hardware innovation; rather, it opens the opportunity to better harness that innovation by increasing the pace at which it can be leveraged. To that end, Nexenta and HGST, a Western Digital brand, have partnered to deliver multiple combined hardware and software options designed to ease access to an optimized SDS-based infrastructure.

HGST Storage Platforms

Recent advances in storage media offer multiple avenues for customization. For example, all-flash storage for performance and hard drives for cost-effective capacity scale. Along these vectors, HGST, a Western Digital brand, offers two platforms designed to optimize the benefits of each media type:

- HGST 2U24 JBOF Flash Platform:** Designed for performance density, the 2U24 JBOF (or Just a Bunch of Flash) Flash Platform, supports up to 184 TB of all-flash capacity with 7.67TB SAS SSDs. With up to four enclosures per cluster, that is 737 TB of flash storage in only eight rack units (U).
- HGST 4U60G2:** On the other end of the spectrum, HGST, a Western Digital brand, also offers an enclosure designed for cost-effective capacity density. The 4U60G2 delivers up to 720 TB of capacity with 12TB drives in only 4U. With four enclosures in a cluster, that equates to 2.8PB in only 16U for substantial capacity density.

To ease the adoption of these platforms, in SDS environments, HGST, a Western Digital brand, is offering their leading hardware innovation directly to customers. Previously HGST, a Western Digital brand, technology was available only through OEM solutions or reseller partnerships. This new direct sales model helps HGST, a Western Digital brand, drive down costs and accelerate the pace of innovation delivery.

When combined with Nexenta, these hardware options can be mixed and matched to deliver an optimized infrastructure based on business need. The result delivers an IT storage ecosystem that can consolidate a wide range of workloads, with all-flash for high-performance transactional workloads such as enterprise-class database applications or virtual machine environments, or high capacity for large-scale file serving and content archive.

The Bigger Truth

As businesses become more digitally dependent, the speed at which IT services can be delivered directly impacts the time to revenue. Traditional infrastructure architectures that lock data into a specific hardware generation or silo not only limit scale, but also hinder the ability to stay current with technology innovation. With traditional systems, when new technology emerges, requirements to rebuy the software and then migrate the data in a costly, complex, and time-consuming process delay adoption. This costly cycle of rebuying the storage software functionality and then migrating an ever-increasing set of data just to stay current with hardware innovation is a losing battle that is unsustainable in the digital economy.

With Nexenta and HGST, a Western Digital brand, you can deploy a single data storage architecture that allows data access and data services to persist online as the hardware underneath evolves. The result is a more optimized and efficient infrastructure that directly reduces the TCO of IT while simultaneously speeding up operations. In addition, the ability to integrate public cloud services when and where necessary further extends the future-proof nature of the technology. In other words, with Nexenta and HGST, a Western Digital brand, the result is a more efficient and more agile business.

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