

SOLUTION BRIEF



NexentaEdge™ and NexentaStor™
Intel® Xeon® Processor and
Intel® Solid-State Drive Data Center Family
Software Defined Storage

Storage on Your Terms: Nexenta Software Defined Storage with Intel

Today's technology leaders need storage solutions that seamlessly scale up and out to meet current and future business needs.

“With NexentaEdge, we are extremely excited by the addition of a distributed scale-out storage solution deployed on Linux* servers to Nexenta's portfolio, and look forward to benefiting from its scalability, performance, and industry-leading data reduction capabilities for our internal storage needs.”

Joe Little, Principal Systems Architect at Stanford University

Today's technology leaders need to tackle the big trends—cloud, big data, the Internet of Things, mobility, social media—while lowering IT spend year over year. That's a tall order. Storage cost projections are becoming unsustainable, and organizations need new, more cost-effective ways of delivering storage. Savvy storage buyers also want storage on their terms—optimized for their organization, its requirements, now and in the future.

What makes this partnership truly unique is the close collaboration of Nexenta and Intel—at the technology engineering level—so you can rest easy knowing that new and future Intel technologies will be validated by Nexenta and will provide the enterprise-class experience you need for your business.

Introducing Nexenta: A Global Leader in Open Source-Driven, Software-Defined Storage (OpenSDS)

Nexenta provides a software-only storage solution that includes a rich feature set across all block, file, and object storage needs. This enables you to deliver software-defined infrastructure for legacy and next-generation enterprise applications, virtual workloads, file service applications, and more—all while maintaining the freedom to choose which platform to run on.

This flexibility stems from our vision and emphasis on open connections with our customers and partners, including Intel-based server hardware companies like Cisco*, Dell*, Lenovo*, and Supermicro*, and from partners in networking, SSDs, HDDs, cloud platforms, application infrastructure, and business analytics—along with every other resource type that comprises your IT infrastructure.

With access to the right resources, it becomes critical to look at your current storage requirements. For example, if you're still in charge of managing drives internally, you can likely handle predictable drive failures. Many organizations also want policy-based provisioning using representational state transfer REST-based APIs or, more specifically, thin provisioning and scripted storage solutions.

Transactional Enterprise Applications	Virtual Machines	Generic File Servers
Microsoft* SQL Server*	OpenStack*	Microsoft Outlook*
Oracle*	VMWare*	Microsoft Excel*
SAP*	Microsoft Hyper-V*	Microsoft Word*
Microsoft Exchange*	Apache CloudStack*	Microsoft PowerPoint*

*Other names and brands may be claimed as the property of others.



Tiering is also often a must-have for SDS due to its ability to match data with storage types and maximize ROI. Organizations might also be looking for SDS that is independent of hypervisors. Intel and Nexenta products work together across many storage uses, whether through optimizations for thin provisioning, tiering data from Intel® SSDs down to spinning HDDs, or the use of Intel® Virtualization Technology. Together, Nexenta and Intel can help you achieve the storage solution you need, and on your terms.

Storage on Your Terms: Software Defined Storage for Your Organization

When surveying the software-defined storage technology landscape, you'll likely deploy one of three main kinds of storage technologies:

- **Scale-up**
- **Scale-out**
- **Containerized**

Each solution is easy to support with Nexenta software and commercial off-the-shelf Intel®-based hardware.

Scale-Up

Scale-up is best delivered via a software-only solution, NexentaStor™, which sits on commercial off-the-shelf, Intel®-based servers and can leverage a variety of JBODs. The end result is one or two head nodes with JBOD behind them. This solution provides REST-based management with rich APIs via front-end software to enable easy, automatic provisioning and management of storage.

In other words, Nexenta's software-only approach means this storage type is highly scalable, cost-effective, and flexible. It's an excellent option for companies running virtual machines or the legacy apps that help run their business—performance is top-notch. Plus, you can choose the most cost-effective, commercial off-the-shelf Intel-based servers for your needs.

Scale-Out

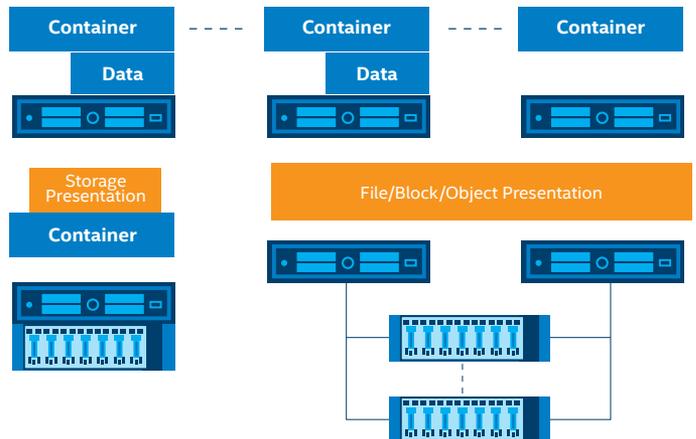
Scale-out is a fundamentally different approach from scale-up, enabled by software-only solutions like NexentaEdge™. With scale-out storage solutions, multiple head nodes can be attached over a standard Ethernet network, using Intel® Ethernet Converged Network Adapters to dramatically increase scalability. You can connect as many nodes as you want to form a cluster that provides storage services out to applications as a unified namespace, ideal for web 2.0 application use cases.

Additionally, scalability is top-notch, since you can start small and grow just by easily adding more nodes. Dependence on network quality is also mission-critical—the quality of your gear will significantly impact performance, because of the amount of communication between nodes.

Containerized

Containers use shared operating systems, meaning they're much more efficient than hypervisors in terms of system resource usage. The big benefit is that you can get more applications—4 to 6x more—on the same servers, and run those applications anywhere in your infrastructure.

For storage, the containerization approach varies—it's either all local storage, or external components sharing file, block, or object presentation that gets integrated into containers as staple storage. Both NexentaStor and NexentaEdge support containerization, which is tested in DevOps or in hyperscale environments, alongside the Intel® Xeon® E5-2600 v4 family of processors.



	Scale-Up Software Only	Scale-Out	Hyper-converged	Container
Separation of software and hardware	✓	✓		✓
Based on off-the-shelf hardware	✓	✓	✓	✓
Feature parity across hardware platforms	✓	✓		✓
Works with any or most types of storage	✓		✓	
Centralized management of all corporate storage	✓	✓	✓	
Policy-based provisioning	✓	✓		
Intelligent tiering	✓		✓	
Scripted storage interaction (e.g., Cinder, Chef, Puppet)	✓	✓		✓
Independent of server hypervisor	✓	✓		✓
Comprehensive APIs	✓	✓		

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Nexenta and Intel: Enabling Storage on Your Terms

Nexenta software meets Intel hardware at the system level. Plus, our product portfolio is designed to leverage Intel components. When combined with our open partnership approach, we are able to maximize the flexibility, cost-effectiveness, and choice available to our customers. From solutions for file, block, and object storage—for scale-up, scale-out, and container solutions—deployed for more than 6,000 customers, and with more than 1.4 exabytes under management, Nexenta and Intel have you covered.

Intel-Supported Nexenta Storage Solutions

NexentaStor: NexentaStor delivers unified file (NFS and SMB) and block (FC and iSCSI) storage services. These run on commercial off-the-shelf Intel hardware that can scale from tens of terabytes to petabyte configurations, and includes all data management functionality by default.

Solutions for a variety of use cases can be built using our reference architectures and have been validated on hardware that uses the best products Intel has to offer.

<https://nexenta.com/products/nexentastor>

NexentaEdge: NexentaEdge is designed to deliver high-performance, petabyte-scale, container-based deployment, and full-featured object storage services. This is an ideal storage solution for use cases, including OpenStack, cloud-native applications utilizing containers, and big data applications, like Hadoop*, that require petabyte-scale storage scalability and elasticity. NexentaEdge on an Intel infrastructure supports usage of containers through a validated reference architecture.

<https://nexenta.com/products/nexentaedge>

Intel

Intel® Xeon® E5- and E3-2600 v3 Processor Families

These processor families provide energy efficiency and high performance, together with integrated Intel® Data Direct I/O technology, to help remove bottlenecks, decrease latency, and increase data throughput. Find these processors in a variety of NexentaStor reference architectures and on the Nexenta Hardware Compatibility List.

Intel Xeon E5-2600 v4 Processor Family

The Intel® Xeon® E5-2600 v4 processor family extends the Xeon-class data center storage features of previous generations. It is made using advanced 14 nm manufacturing processes, and it adds several new features such as increased memory bandwidth, Intel® Resource Director Technology, Intel® QuickAssist Technology, and Intel® QuickData technology. When combined with quality storage software, the Intel Xeon E5-2600 v4 processor family enables data centers to run more efficiently and use less power than previous generations while helping enterprises and clouds to tackle today's bigger storage challenges.

Intel® Solid-State Drive Data Center Family

Intel Data Center SSDs offer full end-to-end data protection, consistent performance with low latencies, high write endurance, and scalability for growing storage needs. Check out NVMe based SSDs for amazing capabilities today and the coming Intel® Optane® SSDs based on 3D XPoint technology for incredible advances tomorrow.

Intel® Ethernet Converged Network Adapters

Intel's unified networking vision is to support all LAN data and storage traffic on a common Ethernet infrastructure. Improving your network with 10 and 40 GB Intel® Ethernet Converged Network Adapters also improves the performance of network-based object storage solutions like NexentaEdge.

Target Use Cases	Capacity	Compute (CPU)	Servers	Networking
OpenStack clouds storage back end Object-based active archives Container storage for cloud-native applications	100s of TB 100s of PB	Intel® Xeon® E5 v2/v3 CPU Intel® Xeon® E5-2600 v4 CPU	Storage servers Multiple data nodes to match capacity and performance demands Minimum: 4HDD + 1SSD, 64 GB RAM Gateway servers One or more gateway nodes, for larger environments	10 GbE ToR switch



To learn more, download a **free trial of Nexenta software**, engage with our sales team at sales@nexenta.com, or call us at +1 (855) NEXENTA (639-3682).

To learn more visit intel.com/storage.

Intel® technologies' features and benefits depend on system configuration and may require enabled hardware, software, or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at intel.com/storage.

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