# NexentaStor and Seagate SSDs
## Solution Brief

## Nexenta and Seagate Scale and Accelerate Software-Defined Storage

SSDs deliver low latency and high performance for NexentaStor Software-Defined Storage solutions

### Software-Defined Storage – Changing the Rules

The enterprise data center has never experienced such disruptive change so quickly. Traditional IT is now being replaced with fluid and dynamic software-defined environments that free users from the scalability and management limitations of previous architectures. At the backbone of this software-defined storage (SDS) is intelligent software that virtualizes the physical hardware and connects storage to other parts of the data center that can manage block, file and object all via a unified management interface.

### NexentaStor – A Leader in SDS Solutions

NexentaStor is Nexenta's flagship, and award-winning, storage management SDS solution 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, or functionality. NexentaStor runs on industry standard hardware, scales from tens of terabytes to petabytes and includes all data management functionalities.

### SDS Acceleration with SSDs

In addition to SDS, solid-state drives (SSDs) are increasingly becoming a viable option to resolve performance gaps in the data center - and SDS is no exception.  Specifically designed for low latency and high IOPs, SSDs also include no moving parts providing for higher reliability and lower power. These characteristics are especially critical for SDS environments which have very demanding performance needs and can scale across massive infrastructures which can be easily impacted by IT resources managing hardware failures and costs impacted by high power consumption.

### Seagate SSD Technology

As an alliance partner, Seagate collaborates with Nexenta to offer data center-ready, leading edge enterprise storage technologies. With a key goal to drive innovation that delivers maximum performance and value in the data center, both Nexenta and Seagate understand the need for a simple and effective approach to high performance SDS solutions.

## Key Benefits

- Proven with the assurance of complete testing and validation by Nexenta
- Performance with scalable software and turn-key drives
- Achieve low $/performance and low $/GB with a hybrid storage pool including both Seagate SAS SSD and HDDs
- Storage agility by seamlessly caching hot data to Seagate SSDs and cold data to HDDs
- Hybrid storage pool improves the efficiency of storage utilization with storage virtualized and enables access across nodes

# NexentaStor™ and Seagate

## The NexentaStor™ and Seagate Solution

With NexentaStor's support for hybrid storage pools, the Seagate 1200.2 SAS SSD is ideally suited to house cached data with the remaining data to be housed on cost-effective HDDs. NexentaStor in a hybrid configuration can, in fact, blend the optimal balance of DRAM, SSDs and HDDs to accomplish a balance of lowest $/IO and $/GB with Seagate SSDs situated nicely between the two in terms of price and performance. This ensures a cost-effective, dense and scalable high performance SDS deployment that can meet the demands of virtually any environment.

Nexenta and Seagate have also qualified all-flash solutions to support performance workloads looking to leverage the flexibility and simplicity of SDS.

As a fully tested and certified solution with both the NexentaStor 4.x and 5.x, the Seagate 1200.2 SAS SSD provides ultra-fast, consistent and easily scalable performance that delivers 12Gb/s SAS single port bandwidth. With NexentaStor running on Seagate SSDs, low latency can be achieved across a SDS infrastructure with minimal effort or cost. The Seagate 1200.2 SAS SSD also provides customers with:

- **Dual port 12Gb/s SAS interface** for the highest level of availability and scalability
- **Industry-leading storage density** range including 4TB in a 2.5-inch form factor
- **SAS dual-port** communication path for redundant, failover I/O communication to ensure data availability in critical production systems
- **Endurance options** to match the needs of a wide range of enterprise workloads

## NexentaStor Data Caching to Seagate SSDs

NexentaStor utilizes two automatic and intelligent caching algorithms to take full advantage of Seagate 1200.2 SAS SSDs to ensure optimal and seamless performance.

The first, L2ARC (Level 2 Adjustable Replacement Cache) resides on flash, such as Seagate SSDs, and is an extension of the first level, or ARC, which resides on DRAM. Well suited for read optimization, SSDs are more cost effective than the same capacity of DRAM while still delivering accelerated performance.

The second caching algorithm, Separate Intent Log (SLOG), solves the issue of synchronous writes which are capable of slowing response times. With SLOG, these can be converted to asynchronous writes by being written to a fast separate caching device enabling SLOG to be a high-speed read caching solution.

## Conclusion

NexentaStor with Seagate SSDs provide industry leading caching and SSD technologies for mixed virtual workloads, Online Transactional Processing (OLTP), file and object workloads as well as hyperscale environments. Nexenta and Seagate innovate to bring together Software-Defined Storage solutions that enable our customers to successfully accelerate performance, improve response time, reduce costs and, most importantly, take full advantage of what SDS has to offer.

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