



Partner Flyer

Software Defined Storage

SUSE and Seagate make Software-Defined Storage Simple

Software-defined storage can enable enterprises to store and manage large data sets in a private cloud at lower costs than the public cloud. However, it requires implementing the storage hardware and software using a different approach than the traditional NAS and SAN used by IT. The hardware commonly used by software-defined storage consists of industry-standard x86 servers and high-density storage arrays (also called JBOD or just a bunch of disks). The software used for storage at this scale is based on open source Ceph technology.

Advantages of software-defined storage using open source Ceph technology:

- Unlimited scalability
- Flexible: supports object, file, and block storage
- No vendor lock-in
- Cost-effective
- High resilience and availability

For SUSE Enterprise Storage with Seagate, you can also add “easy to buy and deploy”!

■ Products:

- + SUSE Enterprise Storage
- + Seagate Exos AP 4U100 Disk Array with Integrated Servers



A Proven Solution

SUSE and Seagate worked together to validate SUSE Enterprise Storage (SES) based on open source Ceph, and Seagate’s enterprise storage platforms, which enable high capacity SES nodes using Seagate’s high-capacity Seagate® Exos® AP with integrated servers.

Each Exos AP 4U100 provides up to 96 LFF 3.5” disk drive bays and 4 SFF 2.5” SSD bays for an industry-leading 100 drive bays in 4U chassis and supporting up to 1.6 PB of raw storage capacity using Seagate’s highest capacity 16TB nearline enterprise disk drives. The Exos AP 4U100 is a highly integrated server and storage platform designed for demanding enterprise deployments. It features hot swap and/or dual redundant components for most critical systems, including power, cooling, and disk components.

Highly Integrated System

Integrated into the chassis are 2 Intel Xeon servers, each supporting dual processor Intel® Xeon® Scalable Processors with 12 cores per processor. This highly integrated

system eliminates the need for separate external servers for each OSD node, saving on rack space, data center footprint, and power and simplifying cabling and management.

Safeguarding Your Data

Optimized for use in software-defined storage applications, each Exos AP 4U100 is configured as two Ceph nodes (with one embedded server per node), running in a split-mode, shared-nothing configuration with 48 3.5 disk drives per node. Three Exos AP 4U100 systems provide six nodes, making this an ideal configuration for efficient erasure coding for data protection across the nodes.

Enterprise Support for Success

SUSE Enterprise Storage delivers a highly scalable, resilient, self-healing storage software system. An open source solution backed by SUSE Support means you are using an enterprise-grade product that is hardened and secured, complemented by an experienced SUSE team dedicated to providing you with business value and customer satisfaction. With SUSE Priority

Less than a quarter of a cent per GB per month!
\$0.0025/GB/month*

Contact us at:
SUSE: suseseagate@suse.com
Seagate: Systems_Sales@seagate.com

Subscription, you receive software upgrades and updates; unlimited technical support; flexible options for chat, phone, or Web access; the ability to speak with a live person 24x7; and rapid response in as little as 60 minutes (for Severity 1).

Review the reference architecture white paper at: <https://labs.seagate.com/portfolio/a-storage-evolution-to-meet-the-data-explosion/>

Easy to Buy

To make SES using Seagate Exos platforms easy to buy, Seagate and SUSE created a bundle of the components to order, with sample pricing. This price is for illustration purposes when an end-user customer purchases the solution from an authorized VAR working with one of SUSE and Seagate's authorized distributors. The following is for planning purposes and is subject to change. Other configurations, including additional nodes and different capacities, are available. Consult an authorized Seagate and SUSE reseller for an official quote.

Example Configuration

Hardware:

- Seagate Exos AP 4U100 with Integrated Servers, 1.6 PB total raw capacity per unit, 4U Rack High, 96x LFF 3.5" disk bays with 4x SFF 2.5" SAS Drive Bay Chassis with Integrated Dual AP-RH-1, 1U Server Modules (2x Intel® Xeon® Gold 5118T CPUs, 8x 32GB DIMMs, 2x 256GB M.2 SATA Boot Drives, 4x 10GbE SPF+ per controller) and 2x 12Gbps Storage Personality Modules with Broadcom SAS controller for connection to each AP-RH-1 Controller. Includes 2x high-efficiency 3.2kW hot-swap power supplies, redundant hot-swap fans,

cable management solution, rackmount rails and license for Universal System Management (USM). Includes 96 units 16TB 3.5" SAS HDDs Model ST16000NM002 in carriers per chassis. Power Cables ordered separately.

- 4x 1.92TB Nytro 3331 SE SSD (XS1920SE70004) per chassis for hybrid Flash/Disk implementation.
- Does not include external servers for: MONs, gateways, and Salt admin node
- 3 units Seagate Exos AP 4U100 with 4.62 PB total raw capacity (3.46 PB usable capacity with 6+2 Erasure Coding)

Total Hardware Example End User Pricing = \$360,000** (USD)

Software/support (node-based pricing***):

- SUSE Enterprise Storage: Priority Subscription support for 6 nodes (2 OSD, 4 expansion)
- SUSE Assist: SUSE Core Expert, 1 week (up to 40 hours), includes travel costs, valid for 12 months

Total Software subscription/support for 3 years Example End User Pricing = \$64,700*** (USD)

Total Solution Example End User Pricing = \$424,700 (USD) (\$122.75 per TB of usable capacity)**

Alternative Configuration

For storage configurations requiring a smaller amount of storage:

Seagate Exos E 2U12 JBOD with 12x 16 TB HDD, Total of 192 TB raw per system, 12 Bay SAS to 3.5" SAS, 2U Rackmount SBB 2.0 EBOD/JBOD system with Dual IO modules, 3-12Gb x4 SAS external connections per module, Dual 580W Power Supplies, Dual SAS external cables, Rail Kit, Power Cords

and license for standard Genesis Enclosure Management (GEM 5.x)

- 3 units Seagate Exos E 2U12 with 576 TB total raw capacity (384 TB usable capacity with 6+2 Erasure Coding) = \$30,000 Example End User Pricing
- 6 1U Intel Xeon servers estimated at \$6,000 each (Note: servers are sold separately from other manufacturers) = \$36,000 Example End User Pricing

Total Hardware Example End User Pricing for Alternative Configuration = \$66,000** (USD)
SUSE Enterprise Storage subscription/support for 3 years Example End User Pricing = \$64,700*** (USD)

Total Alternative Solution Example End User Pricing = \$130,700 (USD) (\$340.36 per TB of usable capacity)**

* Monthly equivalent cost is based on hardware costs of \$360,000 and software support subscription of \$64,700 amortized over 36 months. Seagate systems are sold on an up-front single payment basis and are not sold on a subscription basis. This calculation is for comparison only and does not constitute an offer to sell any products from Seagate on a monthly or subscription basis.

** This is not an official quote. Consult an authorized Seagate reseller for an official quote. Excludes: Shipping, taxes, tariff, Ethernet switches, and SAS cables. Five-year parts warranty on the product is included. See <https://www.seagate.com/css/terms-us/> for warranty details. Three-year 8:00 a.m. – 5:00 pm or 24x7 on-site support is additional. Estimated end-user pricing when purchased in the United States. Actual pricing is subject to change and requires a binding quote from an authorized distributor or reseller.

*** SUSE is the only node-based subscription storage solution in the industry.