



Software-Defined Storage: A Buyer's Guide

Who should read this paper

Software-defined storage (SDS) is a trend that is fast gaining currency within the IT profession. It seems vendors and analysts alike are jumping on the SDS bandwagon each with their own interpretation and offerings. Regardless of the diversity of choices, IT managers considering software-defined storage will do well to adopt a requirements-first approach to decide upon their path forward. This paper is suitable for IT leaders responsible for evaluating, recommending and deciding upon software-defined storage adoption.

September 2015

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White Paper: Enable The Agile Data Center

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Overview

Software-defined storage (SDS) enables organizations to provision and manage storage independently of hardware types or locations, typically because the storage is virtualized in some manner and controlled through a single interface. With SDS, IT managers have a “virtual pool” of storage at their disposal, so they can fulfill business requirements in a flexible, responsive, common way.

When you're looking for an SDS solution, consider its potential operational and financial benefits. By partnering with an innovative, forward-thinking, and credible SDS vendor that has a strong reputation in storage and software, you'll realize better gains in availability, performance, and cost savings.

In this brief, we'll describe the three main steps to take when evaluating an SDS solution for your organization including outlining requirements, understanding what you want to achieve, and determining the functionality that you really need.

What is software-defined storage?

Software-Defined Storage (SDS) enables organizations to provision and manage storage independently of hardware types or locations.

By identifying and optimizing critical workloads, SDS delivers:

- predictable service levels
- increases storage agility
- better ROI without compromising on performance and flexibility

The value of SDS is reflected in expectations of significant growth in the SDS market, see Figure 1.

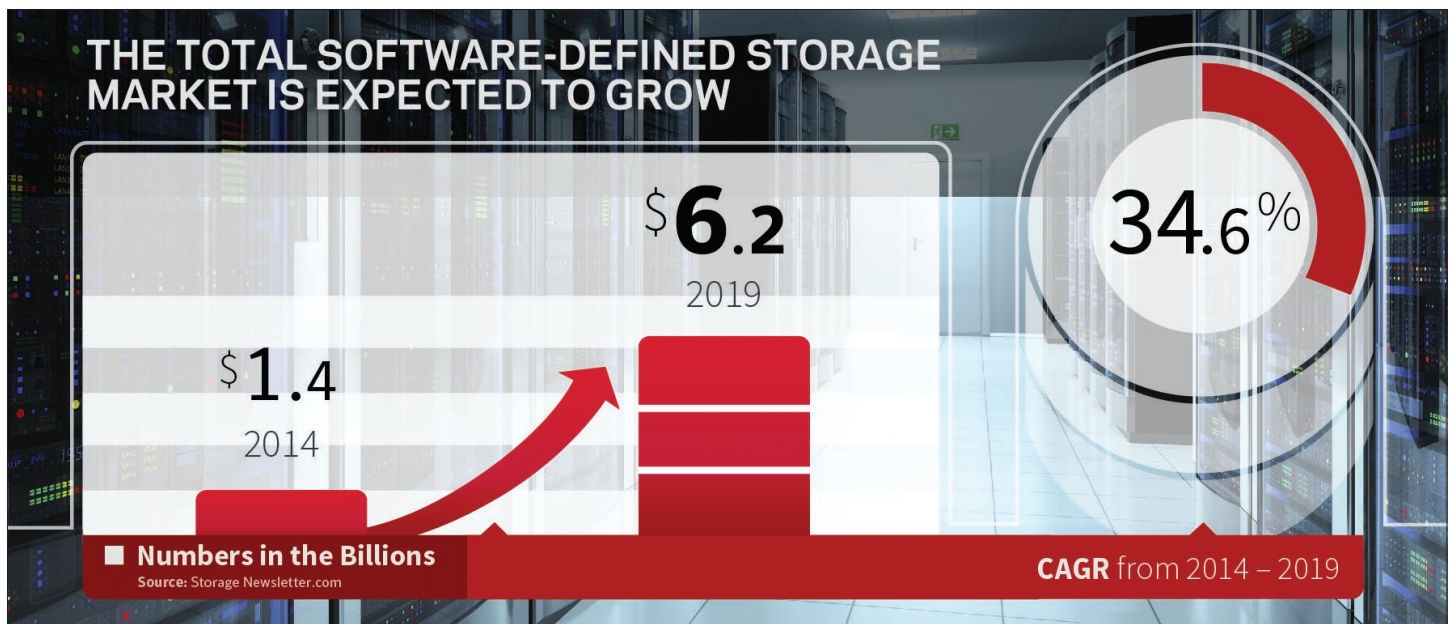


Figure 1. SDS Market Growth Projection

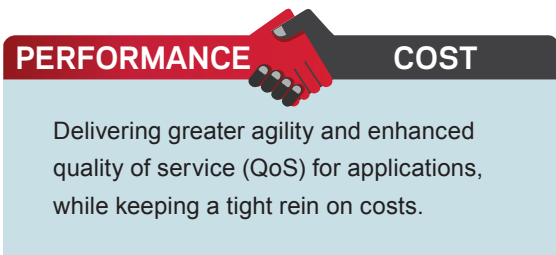
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Step 1: What are your requirements?

To find the right SDS solution for your organization, you'll need to clearly understand your requirements. Consider these questions:

- 1. What do you want to achieve with SDS?** What are your workload and end user requirements? Do you want to improve the agility of your overall storage infrastructure? Do you need to improve efficiency by better linking storage to the rest of the data center?
- 2. What costs do you want to reduce?** SDS usually reduces operating expenditures by improving administrators' productivity and capital expenditures are lowered through more efficient utilization of proprietary storage systems and using commodity components to deliver storage services.
- 3. What storage hardware will be used?** Will you be using dissimilar hardware? Note that although physical storage devices are needed with SDS, you don't need to think of SDS as a costly rip-and-replace endeavor. And dissimilar hardware is not an issue with an SDS solution that is vendor and hardware agnostic.
- 4. How quickly (or slowly) do you want to implement it?** SDS is easy to implement at the pace that is appropriate for your organization.
- 5. What common IT processes are time-consuming for your team?** SDS often eliminates many manual IT processes through automation.
- 6. What are your current and long-term plans for storage growth?** SDS can help minimize the cost and pain of capacity growth.



PERFORMANCE **COST**

Delivering greater agility and enhanced quality of service (QoS) for applications, while keeping a tight rein on costs.

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Step 2: What results do you want to achieve?

The challenge for many IT managers is how to get started with SDS and which vendor(s) to evaluate. Be sure any SDS solution you consider can achieve the following operational and financial outcomes:

- **Centralized control.** With some or all storage resources managed through one interface, you can be far more efficient with traditionally time-consuming activities such as provisioning, monitoring, change management, and reporting. And, with the scalability of SDS, you can often manage far more data than traditional storage solutions.
- **Lower hardware costs.** Rather than purchasing multiple physical storage devices and proprietary software to fulfill demands for additional capacity and functionality, you can use software to reduce capital expenditures and create the right mix of storage capabilities on different physical and virtual machines.
- **Organizational agility.** With many repetitive, labor-intensive tasks performed by the software, data is more readily accessible and available for go-to-market initiatives. In turn, operating expenditures are reduced because productivity is often improved.
- **Freedom of choice.** When storage resources can be accessed and managed with software, organizations are increasingly free to mix and match vendors and physical assets to meet their changing business requirements. With SDS, a low-cost commodity device may serve a purpose just as well as a more expensive pre-packaged option.
- **Easier, more affordable growth.** Every IT organization needs more capacity at some point. SDS can help minimize the cost and pain of capacity growth in a number of ways:
 - Providing the ability to use potentially less-expensive “commodity” hardware, which in turn, gives you greater freedom to select more cost-effective approaches.
 - Supporting a single pool of storage resources, which means the utilization levels of all the component resources in that pool can be driven higher than a more traditional “archipelago” storage environment.
 - Adding resources is easier with standard management and provisioning which, in turn, saves time and money.

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Step 3: What SDS functionality do you really need?

Software accomplishes many tasks better, faster, and more cost effectively than “throwing hardware at the problem.” In a nutshell, that’s what SDS can do for storage, but it must be thoughtfully and precisely matched to workload and end-user requirements.

A guide to evaluating SDS solutions

Use this guide to match your requirements and goals to the specific functionality that can help you reach them. You can also use this chart to build an RFP for SDS vendors that you plan to evaluate.

| Key functionality | Why it's important | What to look for in an SDS solution |
|---|--|---|
| Hardware and platform agnostic | Reduced operational costs and capital expenditures across storage platforms—no matter which vendor you choose. | An SDS solution should be hardware and vendor independent so it will support any platform you're currently running or planning to use in the future. |
| Storage virtualization | Incorporates quality of service while reducing operational costs and capital expenditures regardless of the storage vendor you use. | The ability to virtualize back-end storage and make it appear as a single pool of capacity by using intelligent software management. |
| Quality of service (QoS) for mission critical applications | Satisfies SLAs and applications' performance without manipulating the architecture or requiring downtime. Also ensures quality of service at the application level while optimizing the storage footprint through high-performance, in-server storage. | Granular, online caching to move reads and writes inside the server that can be enabled at the block or file level. Ideally, you can achieve up to 400 percent performance gains while eliminating 80 percent of storage costs. |
| In-server storage capabilities | Traditionally, a storage area network (SAN) is needed to provide high availability for data. However, when you use direct-attached storage (DAS) instead of a SAN, you often can save money and sidestep a lot of complexity. | The ability to combine shared and direct attached storage for near-local read and write performance to and from remote disks. A “shared-nothing architecture” that utilizes DAS can improve read and write performance by 400 percent at only 20 percent of the cost of a traditional SAN. ¹ |
| Advanced storage capabilities | Advanced storage capabilities should have the ability to be implemented on any platform, which reduces costs and simplifies storage management. | Support for storage tiering, dynamic multipathing, thin reclamation, built-in deduplication and compression, and embedded cache for flash devices (SSDs). |
| Storage management automation | Allows storage administrators to focus on higher level tasks rather than fixing immediate problems that often degrade SLAs. | It should centrally manage application, server, and storage environments while identifying and visualizing potential application and storage problems. |
| Scalability | Application scale out is supported while delivering optimum performance and data integrity. | It should scale storage infrastructure without disruption to availability, quality of service, or SLA performance. Ideal solutions can mount up to 64 cluster nodes simultaneously. |

¹Ibid.

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About Veritas Technologies LLC

Veritas Technologies LLC enables organizations to harness the power of their information, with solutions designed to serve the world's largest and most complex heterogeneous environments. Veritas works with 86 percent of Fortune 500 companies today, improving data availability and revealing insights to drive competitive advantage.

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