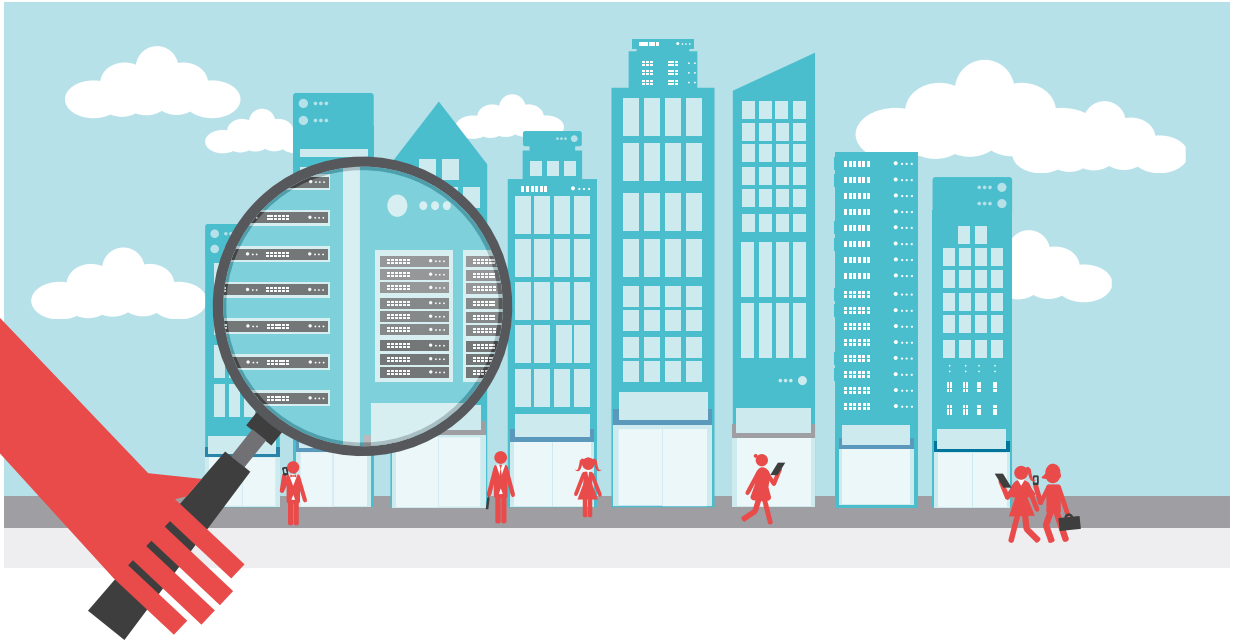


SOLVING THE MYSTERY OF SOFTWARE-DEFINED STORAGE

Running high up the stack, the control and data plane functions of a storage system can now be automated.



So many technologies are “software-defined” these days that IT professionals are having trouble keeping up. Storage is no exception.

So what is software-defined storage (SDS), exactly? Essentially, SDS is the next evolutionary phase in virtualization. Simply put, the control and data plane functions of a storage system run in software, high up the stack where they can be automated. In this way, IT organizations are no longer dependent on specialized hardware to perform enterprise storage functions.

“All the things you’d expect in a powerful storage solution – read-write caching, data tiering, compression, deduplication, quick provisioning – can now be done in software on regular

x86 servers,” says Steve Kaplan, vice president of channel and strategic sales at Nutanix, which provides SDS through its Virtual Computing Platform.

Beyond more cost-effective deployments, solutions with a hardware-agnostic SDS layer promise huge management efficiencies. For organizations with multivendor arrays deployed globally, SDS will allow IT administrators to centralize management functions so they can control dispersed, disparate storage resources through one interface. They get a highly automated, flexible storage infrastructure, which eliminates routine tasks and positions them to quickly respond to organizational requirements.

So how do customers determine if a provider’s storage solutions are

software-defined? Shon Boggs, a field solution architect at CDW, boils it down to a simple question: “Do I need to buy your hardware to use your storage solution? If the answer is yes, I can’t categorize you as software-defined.”

On the Way to the Software-defined Data Center

SDS is the most recent milepost on the road to the software-defined data center (SDDC), a journey that began when hypervisor vendors enabled server virtualization. On the storage virtualization front, VMware has rolled out Virtual SAN to simplify the management of virtual disks that store data used by virtual machines (VMs). The company partners with storage vendors to ensure interoperability

across virtual and physical storage. Meanwhile, large storage providers are rolling out SDS offerings that support competitor platforms.

"We're seeing a lot of the large storage vendors – EMC, IBM, NetApp, Hitachi Data Systems – adopt a model to support each other's arrays," says Boggs. The level of support each will provide is still unclear. If it's full-featured, with one supporting others' thin provisioning, snapshot

other vendors on the back end as well as locally attached storage.

Ready for Prime Time?

With SDS in its "adolescent phase," according to Boggs, the industry sees new standards emerging along with vendors rolling out new application programming interfaces to meet the frenzy. However, several questions remain, including how SDS will be priced and how third-party performance management and monitoring applications will interoperate within architectures. That's generating some debate over whether SDS is ready for prime time.

The term may be new to many organizations, but the concept has already been proven by web-scale companies, says Kaplan. "All the cloud providers have adopted it, and IT isn't just a part of their operations – it is their operation," he says. The cost savings, reduced complexity and predictable performance they've seen are major reasons why SDS is advancing, he adds.

"It's more than ready for prime time, and there's a rapidly growing market for it," says James Bagley, senior analyst at SSG-NOW. "If you look at any top-of-the-line storage array, it's essentially a pair of multi-core CPUs, running shelf after shelf of storage. It's the software that makes the difference."

Denis Vilfort, senior director of product marketing at EMC, agrees that SDS is ready for prime time, but he cautions IT professionals against buying into arguments that pit commodity hardware against traditionally engineered storage systems. "Either-or conversations don't help anyone," he says. "These platforms need to live next to each other."

Because SDS involves a fundamental IT pillar, most organizations launching initiatives are in pilot mode, says Boggs. "The problem they're solving with SDS isn't a minor issue but a very large and, in some cases, global problem, so they're not taking it lightly." However, they're

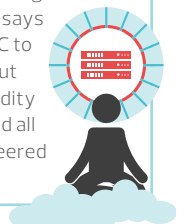
PEACEFUL AND PRODUCTIVE CO-EXISTENCE

SDS allows an organization to use commodity storage hardware, but that doesn't mean it always should, according to Denis Vilfort, senior director of product marketing at EMC.

"Somewhere along the way, SDS got linked to 'commodity,' and while that's one aspect of this trend, you really get what you pay for. In some cases, that might mean poor availability and inconsistent performance," he says. "Off-the-shelf motherboards are fine for some applications, but not for high-availability systems like those running on a trading floor in midtown Manhattan."

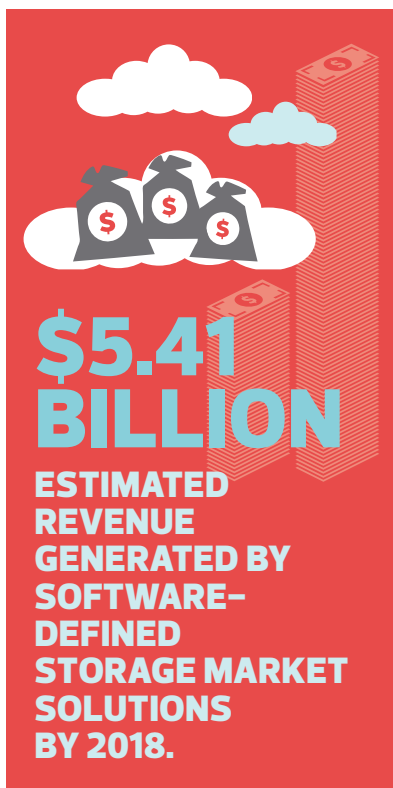
Using a software-defined storage model, "you can go the commodity hardware route, the purpose-built storage-area network route, or combine them, because both have good use cases," says James Bagley, SSG-Now analyst.

Providing that choice is the goal of EMC's ViPR platform, says Vilfort. "ViPR allows EMC to have an SDS strategy, but it's designed for commodity hardware on the low-end all the way up to our engineered systems, like VMAX."



quickly realizing how much time and expense goes into managing disparate storage environments, all with different management paradigms, as separate siloes. They're also discovering how much work has gone into SDS solutions to help them clearly define the services they can offer – and how to deploy and deliver them. ■

Want to learn more about the software-defined data center? Read the CDW white paper "Defining Moment: The Software Defined Data Center," at CDW.com/SDDC.



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functionality, tiering and pooling, that's an incredible value-add for IT departments," says Boggs.

The industry has been waiting for validation from one of the big players, and EMC, with its ViPR platform, is leading the charge, says Boggs. If an organization deploys ViPR, EMC will power the control plane, but the organization can have arrays from