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CIO REVIEW
44790, S Glimmer Blvd.
#202, Fremont, CA-94538

How to Get More from Your VMware VSAN Cloud-Based Storage

By Michael Letschin, Field CTO, Nexenta Systems

For those of us who work in, manage and serve the data center, ‘storage’ has become an exciting topic in a way it wasn’t for some 40 years. Over those four decades, innovation in storage slowed to a crawl as the large storage vendors continued to sell the same hardware year after year, with only slight improvements and contractual obligations that enforced strict and costly vendor lock-in. It was a profitable business for vendors, but not a terribly interesting or valuable progression for enterprises.

Fast forward to 2015 and innovation is exploding in the data center, matched only by the unstoppable growth of data itself. Leading the charge over the past few years are technologies such as virtualization, cloud computing, and software-defined storage (SDS). SDS as a technology has in and of itself changed the fabric of enterprise storage ushering in a new generation of storage vendors, ready to challenge standard practice of legacy storage providers.

With these new vendors, came innovation geared to radically transform the data center from big-box warehouses to high-performing, policy-driven services. Storage is increasingly defined by software rather than by the capabilities and limitations of the hardware. Virtualization software such as Citrix XenServer, VMware vSphere, and Microsoft Hyper-V leverage available storage in a more nimble, agile, efficient way.

VMware planted a stake in the software-defined storage market with the introduction of VMware Virtual SAN (VSAN), providing a new tier of hypervisor-converged storage. VSAN is based on a highly available architecture with no single point of failure. It can withstand failures at the disk, server, and network level with no data loss, thanks to built-in redundancy mechanisms that transparently store multiple copies of the



data across disks and hosts. This is vital in an environment transitioning workloads to a fully virtualized infrastructure.

As a policy-based approach to storage management, VSAN allows IT administrators to specify storage attributes—such as capacity, performance, and availability—in the form of simple policies associated with virtual data stores. Each data store maintains a unique storage policy, and VSAN dynamically self-tunes and load balances to meet the policies of each group of VMs loaded on the data stores, adapting to ongoing workload condition changes as needed.

VMware VSAN offers enterprises key benefits when implemented in a growing storage environment, including:

- ▶ Higher-performance storage for VMware virtual machines
- ▶ Storage elasticity—the ability to grow or shrink as needed
- ▶ 100 percent access to storage resources for all VMs, with zero disruption
- ▶ Greater ability to scale storage requirements and minimize large upfront investments—reducing capex in the data center
- ▶ Simpler, easier management of storage—reducing opex for IT

VMware VSAN is a widely validated solution for leveraging VMs to establish a software-defined infrastructure, but is not built to manage or virtualize the storage resources used by file servers, creating the need for a file-service solution. File services would allow the solution to be extensible to additional use cases, such as virtual desktops, pre-production, test and development environments, and branch or remote offices; and would streamline management of the entire storage ecosystem—under ‘a single pane of management,’ as the saying goes.

Traditional vendors can meet this need with external storage arrays that drive up costs and limit flexibility, but in order to harness the full potential of VMware VSAN, users should consider a software-defined file-services solution.

It’s possible—as we’ve done at Nexenta—to provide such a solution—essentially by adding NFS and SMB access on top of the existing VSAN to complete the software hyper-convergence model. We saw

that VMware Virtual SAN represented a significant step forward in creating a “hyper-converged” infrastructure, addressing the need for ever-closer integration of the compute and storage layers within the data center. But we also recognized that including NFS and SMB would be necessary to realize the ultimate vision of a software-defined data center.

The benefits of adding file services to VSAN were immediately evident, including the optimization of storage capacity using inline compression and de-duplication, performance and health monitoring, ability to take volume-level snapshots, and backup capabilities for DR scenarios. In addition, this approach could ensure proper IO path-handling and improve VSAN IO performance significantly, an area where SANs typically do not perform well. This approach also enables administrators to create storage profiles for different file systems to better align them with the needs of the business or organization.

Being able to do

all of this programmatically reduces overhead and allows organizations to increase storage efficiency, while



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avoiding the expense of adding more NAS storage. This kind of solution is particularly appealing in environments with branch offices, allowing seamless provisioning and management storage for file services at smaller locations, without deploying a separate NAS appliance, complimentary to the management capabilities of VMware Virtual SAN

In conclusion, implementing VMware VSAN is an important step in virtualizing your current storage environment and leveraging the many benefits that come with building a VMware ecosystem, but without a software-defined file-service solution, you’re effectively limiting the extensibility, scalability and ultimately, the performance of your storage environment—not to mention, missing an opportunity to ease your own management responsibilities. But if you choose to integrate an SDS file-services solution, you can lead the charge toward a software-defined data center and a software-defined everything world. [CR](#)



Michael Letschin