

DATASTAX ENTERPRISE ON VMWARE vSAN™ FOR PRODUCTION

Simplicity, Agility, Resilience, and Performance for Modern Cloud Applications

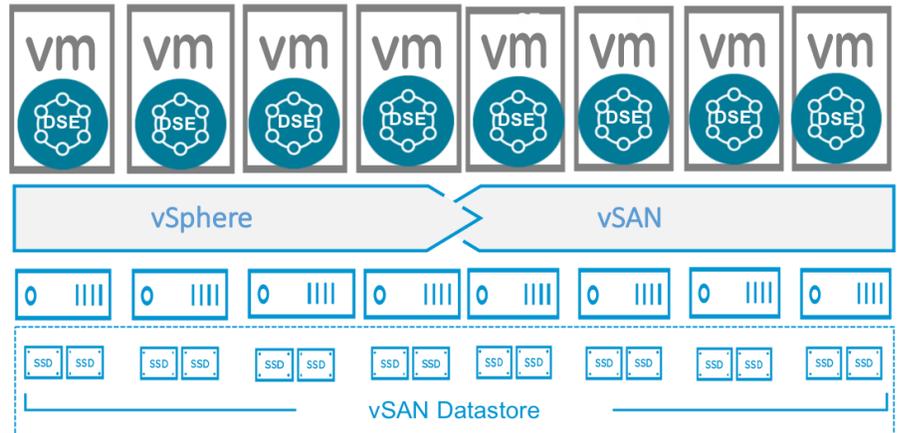
DSE Cassandra™ on HCI Powered by vSAN

Delivering the needs of your Cloud applications, the right way. Virtual environments can sometimes be subject to unwanted limitations within a data center, which forces organizations to run applications within the constraints of devices, solutions and architecture that make up the environment. This can lead to a sprawl of unique silos for databases and next-generation applications. VMware vSAN™ is a Hyper-Converged Infrastructure (HCI) solution with a VMware vSphere®. Clusters powered by vSAN administrators and application owners to deploy, and run their solutions tailored to the needs of the application. DataStax Enterprise™ (DSE) is the always-on data platform powered by the industry's best distribution of Apache Cassandra—and includes search, analytics, developer tooling, and operations management, all in a unified security model. DSE makes it easy to distribute your data across datacenters or cloud regions, making your applications always-on, ready to scale, and able to create instant insights and experiences. Your applications are ready for anything—be it enormous growth, handling mixed workloads, or enduring catastrophic failures. With DSE's unique, fully distributed, masterless architecture, your application scales reliably and effortlessly. VMware and DataStax have jointly undertaken an extensive technical validation to demonstrate DSE on vSAN for globally distributed cloud applications.

UNIQUE CAPABILITIES

SHIFTING STORAGE RELATED SETTINGS FROM HARDWARE TO SOFTWARE

- Define desired outcome for your Apache Cassandra workloads, and apply storage policy to achieve performance, scalability, and resiliency objectives.
- Easily use vSAN to build an active-active data center using integrated stretched clustering for your DSE Cassandra workloads.
- Easily apply deduplication and compression across a vSAN cluster with just two clicks.
- Protect your workloads with cluster-based data at rest encryption integrated directly into vSAN,



Accommodate Next-gen Apps using Shared-nothing Architectures

Many next-generation applications manage their own resiliency through replication inside of the application. This type of application design reduces or eliminates resiliency techniques commonly found in data centers. VMware introduced Host Affinity policy to better align with the design of these applications. This policy offers customers additional flexibility to configure vSAN data placement and replication specific to the application that has been deployed. Host Affinity delegates replication to DataStax Enterprise, while maintaining data locality with DataStax Enterprise compute. The Host Affinity policy is available in addition to standard vSAN replication policies and intended to offer customers choice of deployment based on their criticality, uptime and maintenance requirements.

VMware vSAN was built around the idea of assigning storage related settings on a per VM, or even per virtual disk basis. This level of control allows for an administrator to be prescriptive and chose advanced performance and availability options for other

virtual machines that reside in the same cluster as those that are using Host Affinity. Availability, security, and performance can be customized on a granular level.

Scale in Parallel with the Application for Consistent Performance

Application scaling is an important concept, as it allows the application to scale up or out to meet the growing demands of an organization. DataStax Enterprise relies on this method for achieving levels of performance as the demand grows. vSAN allows for hosts to be scaled up, and cluster to be scaled out to meet the demands of the workloads of the cluster. This means that vSAN storage performance and capacity can grow incrementally, and predictably as the demands and the quantity of the nodes grow.

Enterprise Operations for Apache Cassandra

DSE OpsCenter for administration and monitoring: Apache Cassandra has no administration and monitoring capabilities. DSE includes DSE OpsCenter to easily administer and monitor your cluster in a visual environment.

DSE Advanced Replication: DSE Advanced Replication delivers more flexibility in how data is replicated, both for operational and performance purposes.

DSE NodeSync for automated cluster consistency: Apache Cassandra requires heavy manual intervention by experts to manage repair operations that synchronize nodes. DSE NodeSync virtually eliminates manual efforts required to operate a DataStax cluster.

DSE TrafficControl for reduced bottlenecks: DSE TrafficControl: delivers advanced resiliency that ensures DSE nodes stay online under an extreme workload.

DSE Upgrade Service for automated upgrades: Manual upgrades can be laborious in Apache Cassandra DSE Upgrade Service handles those functions in an easy, automated way.

DataStax Managed Cloud, a white-glove managed service: For those seeking zero operational overhead, DataStax Managed Cloud provides a white-glove managed service so that DataStax experts can take on 100% of operations using your own public cloud account.

Resilience

DataStax Enterprise contains application level resilience through Cassandra replication. This enables continuous operations and self healing in the event of failures. Backup and recovery can be easily monitored and managed from DSE Operations Center. These capabilities can be used to compliment the enterprise class resiliency features within vSAN. DataStax Enterprise performs resynchronization actions automatically, all while maintaining a fair balance of resynchronization database requests to maintain sufficient levels of performance during these resynchronization operations.

LEARN MORE ABOUT DATASTAX AND vSAN

- [Reference Architecture](#) – DataStax Enterprise on VMware vSAN 6.7 All-Flash for Production
- [VirtualBlocks](#) – VMware's blog site for all topics related to storage and availability
- [StorageHub](#) – The one-stop location for all documentation on storage and availability

Takeaway

Use software you already know to provide the storage services you need.

The architecture of VMware vSAN allows it to address agility, consistent performance, scalability, and resiliency requirements that are top of mind for data center administrators, and application owners alike. Whether the Cassandra deployments are part of a large, coordinated deployment for a targeted set of applications, or simply a part of a single application pilot, vSAN provides operational simplicity and flexibility to meet the demands of the datacenter administrator, the DBA, and the consumer of those services.

