MYSQL ON VMWARE VSAN

Modern infrastructure delivers a powerful new operating model for your critical applications

MySQL on HCI Powered by vSAN

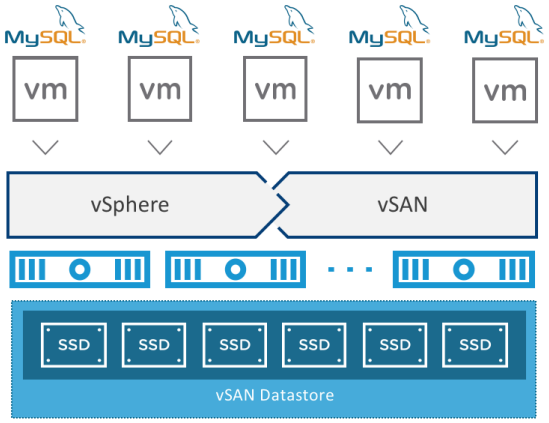
Delivering the needs of your MySQL applications with the market leading HCI software.

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. Due to these limitations, organizations have traditionally procured expensive, purpose-built infrastructure that led the creation of silos and required hardware expertise and highly manual, inefficient processes. In response, many companies have been turning to Hyper-Converged Infrastructure to simplify operations and lower TCO on standardized x86 based hardware. VMware vSAN™ is a Hyper-Converged Infrastructure (HCI) software solution natively integrated with VMware vSphere®, the market-leading hypervisor. HCI clusters powered by vSAN allow administrators and application owners to deploy and run their solutions tailored to the needs of the application. MySQL is an open source relational database that can also be found as a part of a Linux, Apache, MySQL, Perl/PHP/Python (LAMP) stack, and is often responsible for supporting a number of applications across data centers large and small. MySQL running on a vSAN powered cluster provides a simple way to improve performance and operational flexibility while driving down costs in order to meet the demands of an organization for today, tomorrow, and beyond.

UNIQUE CAPABILITIES

ADOPT A SIMPLIFIED, MORE EFFICIENT OPERATIONAL MODEL WITH HCI POWERED BY VSAN:

- **Unified management from edge to core to cloud**: Using vCenter, manage all your MySQL workloads centrally with the same tool, regardless of where the application runs, including the public cloud
- **Run MySQL on the HCI industry's largest ecosystem**: vSAN runs on over 500+ ReadyNodes in over 10,000 private clouds, or VxRail, a turnkey appliance jointly engineered with Dell Technologies. vSAN also has native services with AWS and IBM Cloud
- **Storage Policy Based Management (SPBM) simplifies operations**: define desired outcomes for your MySQL workloads, and apply storage policies to achieve performance, protection, and space efficiency objectives.



Increased agility through Storage Policy Based Management (SPBM)

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 to the specific MySQL need, based on its role in the data center. Easily increase the level of failures to tolerate on one MySQL server, while applying policies that focus on limiting I/O resources for another server running MySQL. This allows for a prescriptive level of control that is not possible with other approaches.

MARKET LEADING AGILITY

QUICKLY ADAPT TO EVOLVING BUSINESS REQUIREMENTS

- Adopt and integrate the very latest hardware technologies like 3D XPoint NVMe devices into a cluster
- Scale up or out incrementally, as needed by an organization.
- Maintain full independence of storage from demands of other clusters. Just as with compute and memory, vSAN storage is a cluster resource that remains independent from other clusters

High performance through native hypervisor integration

The performance of a MySQL server can play a key part in delivering performance to front facing applications like web farms, or complex multi-tier applications. In order to meet the service level requirements of an application, the underlying platform must deliver performance, consistently, under a variety of conditions. vSAN achieves this in part, through a distributed object storage system directly integrated into the hypervisor. Providing native storage services directly into the hypervisor avoids the inefficiencies of I/O and CPU amplification commonly found in other HCI solutions that use virtual appliances to provide storage services. Native integration allows hypervisor and cluster level activities such as snapshots, HA, and DRS to be fully aware and compatible with vSAN. Running MySQL on vSAN platform enables administrators to run more VMs per host with more consistent performance, while maintaining all of their operational functionality found in other vSphere clusters.

Optimize storage efficiency through granular controls

The flexibility associated with MySQL allows for MySQL servers to be used for a variety of circumstances. Some databases may be used for highly transactional, repeating processes, while other instances may be used for large data warehouses that might reflect less transactional activity, but require much more storage capacity. vSAN allows prescriptive space efficiency settings on a cluster wide, per VM, or per VMDK basis. Easily assign storage policies for MySQL servers used for development, testing, and staging to an extremely space efficient RAID-5 erasure coding scheme. Or perhaps assign space efficient storage policies to guest OS, binaries, system logs, and home partitions living on their own VMDKs, while more performance focused data placement schemes are used for the database and transaction logs. vSAN provides the ability to assign space efficient storage policies easily, and quickly, with no disruption to running workloads.

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. MySQL 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 database servers grow.

LEARN MORE ABOUT MYSQL AND VSAN

- Reference Architecture - MySQL on VMware vSAN All-Flash
- 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

Resilience

MySQL contains application level resilience through a MySQL group replication plugin and can be used to compliment the enterprise class resiliency features within vSAN. User customizable, storage level resilience is built directly into vSAN, and is suitable for even the most demanding requirements. Easily choose levels of failure to tolerate defined by a storage policy, and simply apply it to a VM, or VMDK. vSAN is self-healing and will attempt to re-establish full compliance of the storage protection policies assigned to the affected VM. It performs resynchronization actions automatically, all while maintaining a fair balance of resynchronization and guest VM traffic to ensure that the MySQL servers are able to maintain sufficient levels of performance during these resynchronization operations.

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 MySQL deployments are part of a large, coordinated deployment for a targeted set of applications, or simply a part of numerous turnkey LAMP stack configurations, vSAN provides operational simplicity and flexibility to meet the demands of the datacenter administrator, the DBA, and the consumer of those services.

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