

Running Business Critical Applications on VMware vSAN

Solution Brief

BENEFITS OF RUNNING BUSINESS CRITICAL APPLICATIONS ON VMWARE vSAN

- High performance —All new levels of performance under a variety of conditions
- Optimal storage efficiency through the reduced capacity consumption
- Expedite deployment with highly automated processes
- Reduce costs compared to legacy storage solutions
- Multi-cloud readiness with intrinsic security throughout

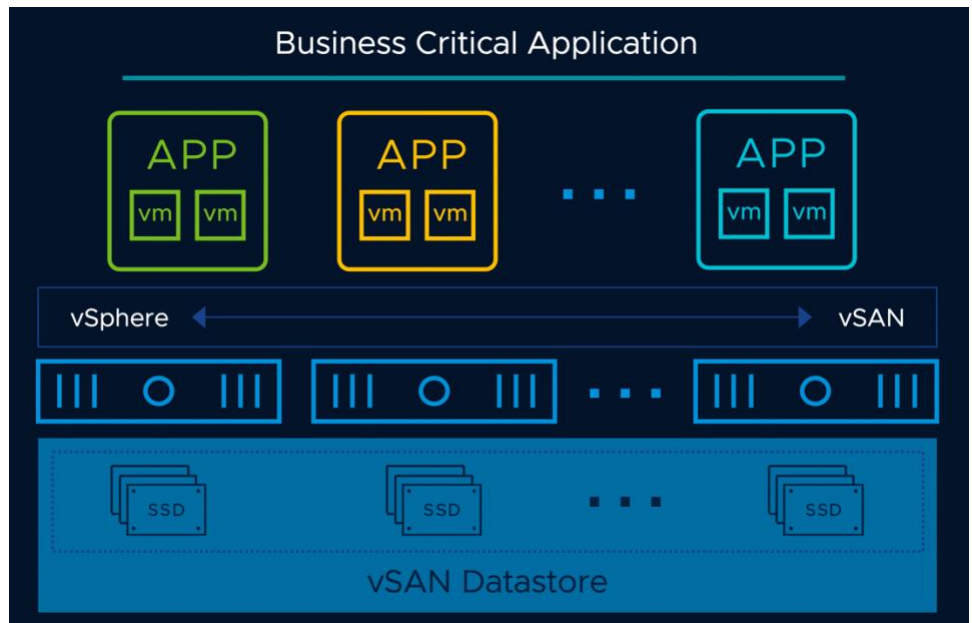
Business Critical Applications (BCAs) on VMware vSAN

VMware vSAN™ is the industry-leading hyperconverged infrastructure (HCI) platform that delivers on-demand scalability, improved performance, optimal efficiency, and simplified management that are required to run business critical application. *vSAN 7 U1* helps boost data center efficiency by delivering developer-ready infrastructure, scaling without compromise, simplifying operations, and expanding file services.

vSAN offers the premium levels of performance when using all-flash storage, and it supports the latest storage technology, such as NVMe to boost transaction speed. vSAN uses policy-based management to eliminate or automate highly manual storage processes, and it increases agility by enabling administrators to prioritize SLAs of mission-critical workloads on the fly. Organizations can configure multiple RAID levels for performance or capacity savings, and non-disruptively scale out or scale up to size business critical applications right at each expansion interval.

Solution Architecture

Running business critical application on VMware vSAN in a virtualized VMware vSphere® or VMware Cloud Foundation™ environment provides customers with scalable, high-performance, and secure infrastructure that enables simplified operation, lower costs, and hybrid-cloud ready architecture.



Key Benefits of Running BCAs on vSAN 7 U1

- **A foundation built on software-defined architecture**

As a hyperconverged architecture, vSAN can remove dependencies from hardware feature sets. By abstracting these features away from underlying hardware, you can address and apply the right settings in the right way for business-critical application workloads running in a data center. As organizations are looking for interoperability with other public or private cloud environments, being able to apply these settings in a granular way, using software, is quickly turning into a requirement.

- **Improved performance for erasure coding and failures to tolerate (FTT)**

Business critical application is recommended to configure erasure coding RAID 5/6 or FTT equal or greater than 1 to allow high availability on the storage tier. As a result, the application requires a balance design for both performance and high availability due to the existence of write penalty.

In vSAN 7 U1, multiple receive threads in VM kernel NIC is configured for vSAN network traffic, thus driving improved performance for both VM workloads in the front-end and possible resynchronizations happening at the backend. Depending on the configuration and workloads, it is estimated to have up to 30% performance improvement in terms of response time metrics at the vSAN level.

- **Optimal space efficiency through compression only**

In vSAN 7 U1, the “Compression only” option is introduced to accommodate workloads that are not ideally suitable for deduplication technology, such as Oracle and Microsoft SQL Server OLTP database workloads.

The “Compression only” option allows faster destaging data from vSAN cache tier to capacity tier, which increases the effective steady-state performance of running business critical application on vSAN. It also reduces the fault domain from disk group level to a single storage device level wherever a potential capacity disk failure happens.

Takeaway

VMware HCI, powered by vSAN, is the cornerstone for modern datacenters whether they are on-premises or in the cloud. vSAN has proven to be an excellent fit for business-critical applications like Oracle, Microsoft SQL Server, and SAP HANA. The success of vSAN can be attributed to many factors such as performance, flexibility, ease of use, robustness, and pace of innovation.

Paradigms associated with traditional infrastructure deployment, operations, and maintenance include various disaggregated tools and often specialized skill sets. The hyperconverged approach of vSphere and vSAN simplifies these tasks using familiar tools to deploy, operate, and manage private-cloud infrastructure in order to run customer’s business critical applications. VMware vSAN provides the best-in-class enterprise storage and is the cornerstone of VMware Cloud Foundation, accelerating customer’s multi-cloud journey of a variety of workloads.

Resources

- For more reference architecture about business-critical application on vSAN, visit <https://core.vmware.com/business-critical-application-reference-architectures>
- Check out the one-stop VMware Hyperconverged Infrastructure documentation on [Tech Zone](#).
- Learn more about VMware Cloud Foundation on [the website](#).
- Check out Cloud Foundation [Blog](#), [Twitter](#), and [YouTube](#) for the latest updates on Cloud Foundation.



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