White Paper

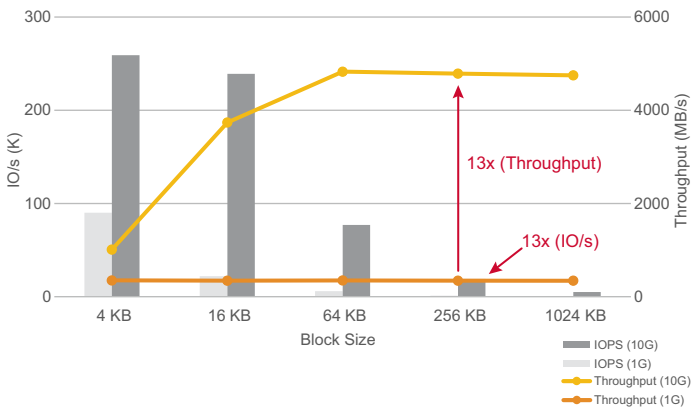
NetXtreme®

Supermicro vSAN-Ready Node with Broadcom NetXtreme 25G Ethernet Adapter for Mission-Critical HCI Workload

As customers aim to improve the performance of hyper-converged infrastructure (HCI), they must evaluate all the potential bottlenecks that can throttle performance. Each node in a vSAN environment has the ability to provide scaling-out storage for an entire cluster. Improving the network bandwidth and efficiency of the HCI environment enables high availability (HA), vMotion, and distributed resource scheduler (DRS) within the stack—preventing any potential bottlenecks in the vSAN cluster.

Broadcom collaborated with Super Micro Computer, Inc. to validate improvements in storage IOPs and throughput. A Supermicro vSAN ReadyNode™ configuration was implemented and these nodes were equipped with Broadcom NetXtreme adapters. VMWare HCIBench was used as the basis for measuring the results, which shows a clear advantage in moving from 1G to 10G/25G link speeds. This advantage is shown in Figure 1.

Figure 1: HCI Bench 70% Read Random—10G vs. 1G



Most enterprise customers have transitioned from 1G to 10G bandwidth and taken advantage of the higher throughput (13x) and IOPS (13x) this move provides. Broadcom NetXtreme adapters provide an additional 90% improvement in performance (IOPS and throughput) when upgrading from 10G to 25G bandwidth. At larger block sizes, there is a visible advantage to having 25GbE bandwidth. This eliminates any potential bottlenecks in vSAN traffic, thus creating better value and a lower cost of ownership (COO) for customers. Figure 3 shows this 90% improvement in throughput.

Figure 2: Supermicro vSAN-Ready Node

Figure 3: HCI Bench 70% Read Random—25G vs. 10G

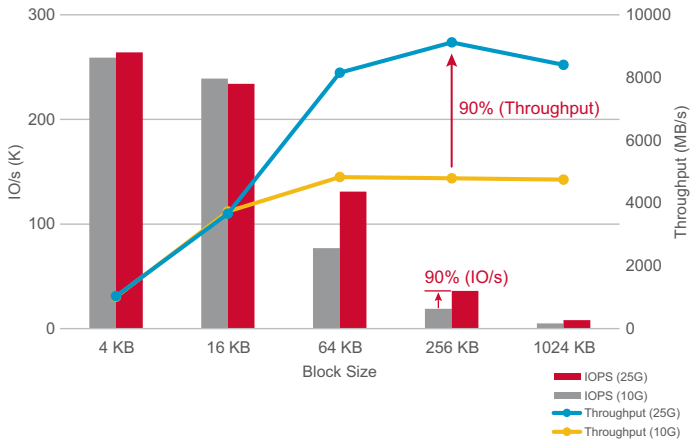


Figure 4: vSAN Configuration

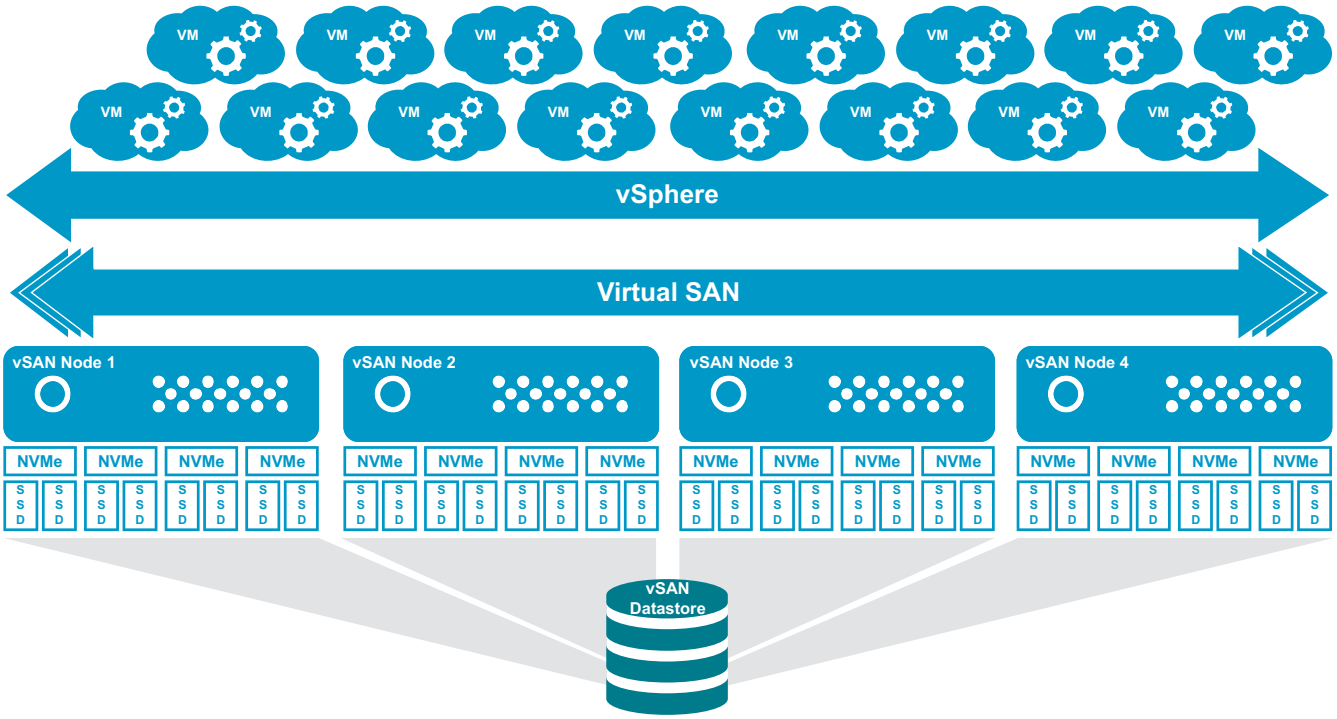


Figure 5: Physical Setup

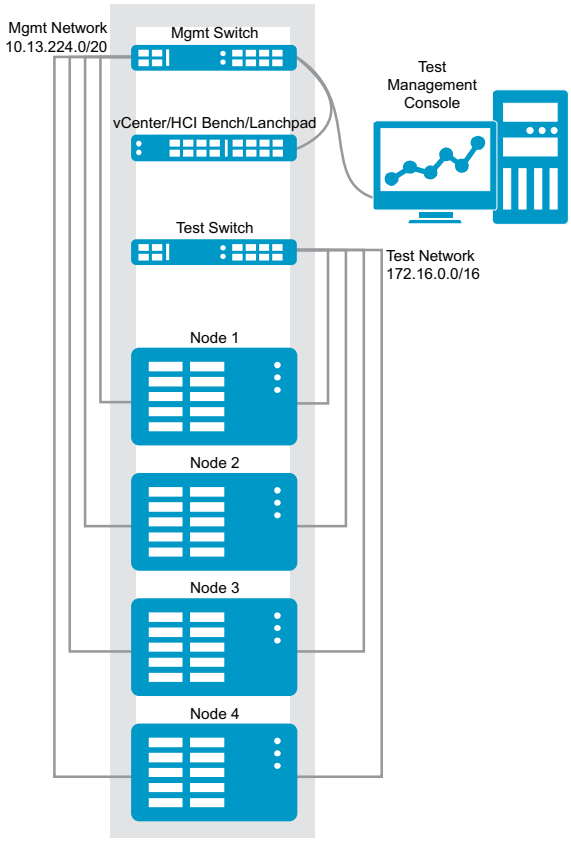


Table 1: System Details

No. of vSAN Nodes	4
SMCI vSAN Ready Node	2029U-E1CRT
CPU	2x 6134
RAM	12x 32 GB RAM
Controller	SMC3008 Storage Controller
OS Drive	2x 240G M.2
Cache SSD	Intel SD3-S4610 960G x4
Capacity Drives	8x1.92 TB SAS drive, 2.5 in. SAS
Network Interface Card	AOC-S25G-B2S-Broadcom

The Supermicro vSAN-Ready Node coupled with Broadcom NetXtreme 10GbE/25GbE solutions provide the building blocks to simplify deployment and speed-scaling for vSAN clusters. To increase the performance of throughput and bandwidth, customers simply need to move their networks from 1 Gb to 10 Gb, thus increasing throughput and storage IOPS. The move to 10-Gigabit/25-Gigabit Ethernet speeds translates to increased application performance along with better utilization and scaling of compute power and storage performance. This paper shows that vSAN deployments significantly benefit from upgrading 1GbE to 10GbE/25GbE speeds.