CASE STUDY

MECCA Brands Partners with Mellanox and Nimble Storage to Build a Scalable Virtualization Platform

Written by Lloyd Virola, Infrastructure Engineer, and Lloyd Shanks, Head of IT, MECCA Brands

Challenge

MECCA Brands is an Australian luxury cosmetics retailer undergoing extremely high retail growth. MECCA recently found itself without a network, compute, and storage system that could scale in size, performance, redundancy, and manageability. Prior to upgrading its infrastructure, MECCA had six XenServer hosts with local storage that needed to be managed separately. Disk capacity and performance was lacking, and moving virtual machines between these servers, for load balancing, was time consuming and risky.

As MECCA's business continued to grow, three core systems – Dynamics NAV ERP (Microsoft SQL Server database), Retail Pro POS (Oracle database) and a custom MySQL data warehouse – started to struggle with the load generated by replenishment and distribution tasks, customer receipt processing, and business analytics. To maintain excellent customer service, these core systems required further compute and storage resources. This called for independent scaling of compute and storage, and a network with sufficient bandwidth and low enough latency to avoid a bottleneck in between.

After establishing the requirements, performing extensive market research, and conducting a series of 'proof of concept' tests, MECCA decided upon using Supermicro SuperServers for compute nodes, Mellanox SX1012 switches for interconnect, and Nimble Storage SANs for storage.

Solution

The virtualization platform that was created is based on XenServer 6.5. It pools the resources of four Supermicro SuperServer nodes that provides a total of 1 Terabyte of memory and 64 Xeon cores. Shared storage is provided on every host via a Nimble CS300 Array expanded with an ES1-H25 shelf. In this configuration, MECCA is able to start the VMs on any XenServer node with sufficient memory, and dynamically move them, while running, providing a high availability environment and also giving the ability to upgrade the compute nodes without risk. Every XenServer node is equipped with Mellanox's ConnectX-3 Ethernet adaptor card with dual SFP+ ports to provide 20Gbps of redundant connections to the Mellanox SX1012 switches. The Nimble Storage array has two controllers, and each controller has dual SFP+ ports that connect directly to the Mellanox switches to provide availability, redundancy and multipathing.

The SX1012 platform provides the flexibility to either maximize speed by using the 12-port 40/56GbE configuration, or to use breakout cables to provide a 48-port 10GbE configuration, or to perform a combination of the two. The rich switch feature set on SX1012 allows MECCA to form a redundant, low latency and high speed connection to both the compute and storage systems. So far, the peak IOPS experienced is 16,500 which is 1/3 of the clean performance baseline for the Nimble Storage CS300 array. The peak throughput experienced is 800MBps, approximately 2/3 of the clean performance baseline for the storage

HIGHLIGHTS

- New disaggregated platform scales seamlessly with growing needs of enterprise business applications
- Flexible and high performance Mellanox end-to-end Ethernet fabric unlocks the maximum capacity of the compute and storage
- Highly available and high performance Nimble storage adapts to workloads dynamically

platform. The half-width 1RU form factor of SX1012 allows two SX1012 switches to be deployed side-by-side in a standard rack, providing a high performance top-of-rack solution. For storage protection for virtual machine disk, a protection policy per volume group can be configured to define a snapshot schedule, as well as the number of each of these snapshots to retain. To mitigate business risk, this new platform offers redundancy and protection at all levels:

- Power redundancy
- Disk redundancy
- Storage controller redundancy
- Network adapter redundancy
- Switch redundancy, including routing, switching and hardware
- Compute redundancy with dynamic virtual machine availability and resource balancing

Conclusion

With the combination of the Mellanox SX1012 switches and the Nimble Storage CS300 storage arrays, MECCA Brands is now able to meet current and near-future needs of the key ERP, POS and analytics systems, and has put in place an architecture that can be easily and flexibly scaled with additional Mellanox and Nimble Storage technologies. With the storage and compute architecture and partnerships secured, MECCA Brands can concentrate on what it does best, providing its customers with excellent products and service.

"With easily configurable and high performance Mellanox networking and Nimble storage, we were able to build MECCA Brands a scalable virtualization platform that grows with our business application needs. It allows us to focus on our business and continue delivering first-class products and services to our customers"

- Lloyd Shanks
Head of IT,
MECCA Brands

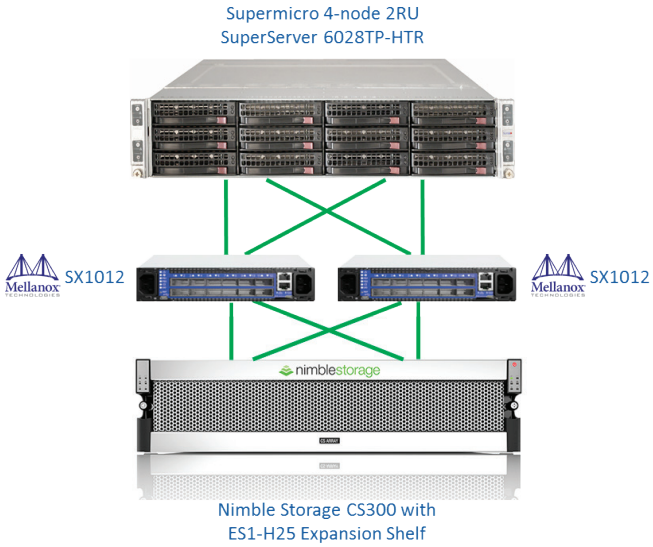

Figure 1. *MECCA Brands Solution*

350 Oakmead Parkway, Suite 100, Sunnyvale, CA 94085
Tel: 408-970-3400 • Fax: 408-970-3403
www.mellanox.com

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