Topkey Group Uses NeoSapphire All-Flash Array to Enhance Virtual Server Performance and Deployment Flexibility

"Among many brands in the market, AccelStor provides impressive performance and reliability as well as timely and first-rate technical support services. After introducing NeoSapphire 3411 to our storage system, we see a significant enhancement in the overall performance of our virtual servers. In addition, the NeoSapphire all-flash array delivers a superior price-performance advantage over its competitors and ensures low maintenance costs. There is no doubt that it was the best choice for Topkey."

Ding-Chu Chen from Information Technology Department at Topkey Group

Customer Profile

Established in 1980, Topkey Group is a leading manufacturer of carbon fibre composites. Applications of the product include bicycles, helmets, aviation, and medical equipment. With more than 30 years of experiences in carbon composite industry, Topkey has successfully transformed themselves from a production-oriented company into a technology-oriented company, and worked toward expanding the application of carbon composites for a wider range of corporate products. The headquarter of the company is in Taichung Industrial Park, hosting over 200 employees. With more than 7,500 employees globally, Topkey has production bases and subsidiary companies in Xiamen (China) and Seattle (USA).

Challenge

Initially, Topkey used Linux KVM (Kernel-based Virtual Machine) over NFS (Network File System) to build multiple database servers (SQL, MySQL and PostgreSQL), file servers, web servers, domain controllers and MES, managing internal file sharing and database for production and sales transaction. To further boost the performance of these business-critical applications, Topkey installed PCI-E SSDs in servers.

With the growth in global business and the company expansion, Topkey realized that PCI-E SSDs could no longer handle their rapidly growing databases. Moreover, the SSD lifespan was short when using the conventional RAID architecture, this increased the total cost of ownership (TCO) and the burden of maintenance for the IT department. To solve this performance bottleneck, Topkey was in urgent need of a better storage solution.

By introducing a new storage system, Topkey hopes to achieve the following objectives:
1. Accelerate the speed of data processing on database servers, file servers and transaction servers to enhance the efficiency of server virtualization and improve the overall productivity
2. Adopt superior price-performance storage solution
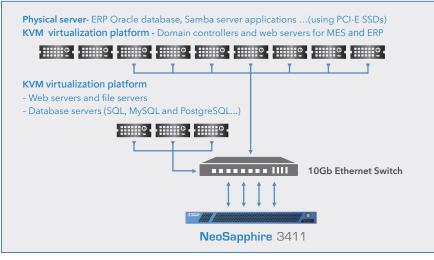3. Reduce maintenance costs by maximizing SSD lifespan
4. A more flexible deployment to meet changing demands of business

Challenge

To achieve the above objectives, Topkey implemented AccelStor's NeoSapphire 3411 (NS3411) for their virtualization platform after evaluating several storage solutions. Powered by AccelStor's award-winning FlexiRemap® software technology, the NS3411 all-flash array enables more efficient data processing as well as longer SSD lifespan, unleashing the true performance of the enterprise SSDs inside the array. The NS3411's built-in web based user interface makes it easier to manage storage volumes attached to multiple servers. FlexiRemap® comes with built-in data protection and fault tolerance, which provides better protection against SSD failure than standard RAID. In addition, the overall deployment flexibility can be greatly improved by using 10GbE transmission to share NFS shares with a KVM virtual platform.

Topkey's environment configuration consists of 12 physical servers—3 servers for Linux KVM visualization platform, managing virtualized web servers, file servers, database servers (SQL, MySQL and PostgreSQL…) while the rest of the servers are for an Oracle ERP database, Samba server applications as well as KVM virtualization platform for MES and ERP domain controllers.

Figure 1：Architecture diagram of Topkey adopting NeoSapphire 3411 to their virtualization platform

Physical server- ERP Oracle database, Samba server applications …(using PCI-E SSDs)
KVM virtualization platform - Domain controllers and web servers for MES and ERP

KVM virtualization platform
– Web servers and file servers
– Database servers (SQL, MySQL and PostgreSQL…)

10Gb Ethernet Switch

NeoSapphire 3411

● 10Gb Ethernet NFS

The NS3411 features high-speed 10GbE iSCSI network connectivity and supports both NFS and CIFS protocols, making it an ideal storage solution for Topkey. During the configuration of the storage system, AccelStor's highly acclaimed technical support team offered free, timely and first-rate technical consulting and set up support.

Ding-Chu Chen says, "After introducing AccelStor's NS3411 into our virtualization platform, we saw a remarkable improvement in performance. Thus, we are planning to use 10GbE iSCSI transmission to boost the performance of mission critical virtualized applications."

Benefits Introduced

The NeoSapphire 3411 is powered by AccelStor's core technology–FlexiRemap®, a unique software architecture featuring a proprietary data remapping algorithm designed to work based on the fundamentals of flash memory. The NS3411 has brought the following remarkable benefits for Topkey:
1. Offer an outstanding 360K IOPS for 4KB random writes, which greatly enhances the performance of virtual servers
2. Proprietary data remapping technology and global wear leveling algorithm reduce unnecessary I/O overhead and maximize SSD lifespan

3. AccelStor's software-defined approach unleashes the true performance of storage hardware, ensures sustained high performance and robust data protection, providing customers a superior price-performance flash storage.

Conclusion

Ding-Chu Chen says," Among many brands in the market, AccelStor provides impressive performance and reliability as well as timely and first-rate technical support services. After introducing NeoSapphire 3411 to our storage system, we see a significant enhancement in the overall performance of our virtual servers. In addition, the NeoSapphire all-flash array delivers a superior price-performance advantage over its competitors and ensures low maintenance costs. There is no doubt that it was the best choice for Topkey." Their rapidly growing business has driven Topkey to leverage their operational efficiency. Topkey faced performance bottlenecks as their data transmission speed, security and reliability of their existing data storage platform running their virtualization environment was no longer able to handle the increasing amounts of data. However, after using the NeoSapphire all-flash array powered by AccelStor's exclusive FlexiRemap® software technology, the overall efficiency of server virtualization and productivity

have been greatly improved. AccelStor's all-flash array storage has successfully helped Topkey accelerate their business without compromising efficiency, reliability, or IT flexibility. Topkey is expecting a continued growth in their future operational performance.

Accomplishments

● Remarkable enhancement in server virtualization and productivity
● Better SSD endurance
● Agile deployment
● Superior price-performance ratio

Products Introduced

● NeoSapphire 3411 All-Flash Array