EasyUse Uses NeoSapphire All-Flash Arrays to Increase Customer Satisfaction, System Performance and Service Efficiency

AccelStor has successfully resolved the issues faced by systems that need to read and write large amounts of data quickly. AccelStor has also reduced high system expansion costs, making its products a win-win choice.

EasyUse Digital Technology CEO
Winfred Chen

Customer Profile

Established in 2001, EasyUse Digital Technology specializes in the research and development of enterprise applications and analysis systems that provide enterprise users with integrated cross-platform services. EasyUse products include the DataHunter website management analysis system, MailHunter e-mail marketing follow-up and analysis system, and BillHunter electronic billing solution. BillHunter is the most comprehensive and widely used electronic billing solution among Taiwan's industries. EasyUse builds professional commercial server application systems that use operating systems as the underlying technology at their core, in addition to cluster architecture based on distributed computing. These systems are capable of transferring large amounts of documents, and greatly increase data delivery success rates and marketing hit rate. Most importantly, EasyUse believes strongly in the importance of user-friendly systems, because they reduce user resistance to new systems and effectively reduce system development times, helping corporate clients take the lead in competitive markets.

Challenge

The arrival of big data has led many of EasyUse's corporate clients to express

interest in value-added services targeting consumer needs and behavior. For example, many financial industry clients want to adopt the EasyUse BillHunter system, to provide more personalized financial information in electronic bills. According to EasyUse CEO Winfred Chen: "The widespread adoption of mobile devices means the number of people who receive financial statements by e-mail is increasing rapidly. Electronic billing is an essential part of the financial industry, so the industry does not want this customer communication channel go to waste. In recent years, the financial industry has been including more and more personalized information in their billing statements. When customers receive account information, they also receive marketing information. However, providing more information means larger billing files, which, in turn, slow down system processing times. It is therefore all the more important for our system to be able to process large amounts of information in a short amount of time."

This means that EasyUse BillHunter is not just a system for sending electronic bills; it is an integrated software and hardware solution focused on high-performance analysis and mathematical operations. The expansion of customer data means longer

mailing lists or the inclusion of more marketing information in billing statements. Therefore, sending electronic bills requires more time. For example, when the raw files are converted into an electronic billing format, 2,500 1MB bills are generated every minute, with 1,200 1MB bill dispatches per minute. System performance appears adequate at first glance, but as the number of mailing lists and services increases, expanding operational efficiency has become the top priority for both EasyUse and its corporate clients. Chen concludes, "Simply put, limitations such as time, quantity and file size mean that one of the challenges facing EasyUse products is how to read and write even more data more quickly."

To address this challenge, EasyUse added encoder servers to increase the number of bills that can be processed simultaneously. In-depth analysis of the resource usage of each encoder system, however, found that none of the encoders made the best use of their CPU resources. CPU utilization ranged between just 40 and 70%, and the I/O queue length was as high as 40. Generally, when EasyUse products generate electronic billing statements, they need to read large amounts of end customer data. If the access speed is not fast enough, the CPU spends most of its time waiting for

data; it is not running at its full potential. So, the system bottleneck is in storage performance and not the CPU. An I/O acceleration solution was needed to maximize software and hardware performance.

Solution

To resolve these issues, EasyUse introduced the NeoSapphire 3401 (NS3401) and NeoSapphire 3405 (NS3405) from AccelStor for its BillHunter and MailHunter products. NeoSapphire All-Flash Arrays consist of storage arrays built completely from flash memory. Their features include high performance and high IOPS, with the NS3401 capable of reaching 300K IOPS, and the NS3405 360K IOPS. The NS3401 and NS3405 storage arrays support 10GbE network connectivity, so they connect easily to EasyUse product systems.

The EasyUse product system architecture consists of five main subsystems: UI, DB, encoder, sender and receiver. Before the adoption of AccelStor products, scaling out the composition and dispatch of large quantities of e-mail was achieved by increasing the number of encoder/sender servers. Once AccelStor products were adopted (see Figure 1), the full power of the CPU and hardware was finally unleashed. Currently, only one high-spec Encoder server matched with one All-Flash array is needed to generate huge amounts of billing data.

Benefits Introduced

The most obvious benefit from the introduction of the NeoSapphire All-Flash Arrays was the boost in system performance. All-flash arrays offer superior IOPS performance compared to conventional hard disk arrays. A high level of storage performance can also be maintained for long periods of time, to handle large amounts of system read/write operations. According to CEO Chen, the adoption of the NS3401 more than quadrupled system performance. Bill generation increased from 2,500 1MB bills per minute to 11,000 1MB bills per minute, and bill dispatch performance also increased from 1,200 1MB bills per minute to 5,000 1MB bills per minute. CPU utilization in the Encoder server jumped from 40 to 70% to between 95 and 100%. This means there is no system idle time, and each server is being used to its full potential. For EasyUse, the system can now process more transactions and customer data in the same amount of time, which translates into a higher earnings ratio. In other words, the adoption of AccelStor products has greatly increased system performance and reduced the costs of purchasing and maintaining hardware equipment.

Conclusion

With the arrival of big data and Bank 3.0, EasyUse has been actively researching various solutions based on its years of industry experience in improving system services and enhancing product quality and value. EasyUse believes that system performance and power are critical to upgrading system services. CEO Chen: "The arrival of Bank 3.0 will enable the financial industry to conduct more of its business over the Internet. The spread of mobile devices means that financial information is increasingly being delivered by e-mail and mobile apps. For example, financial billing statements and investment information are all time-sensitive data, increasing the demand for high system performance."

After EasyUse started using the NS3401 and NS3405 from AccelStor, rapidly reading and writing large amounts of data was no longer a problem. The costs associated with adding more Encoder servers were also reduced. EasyUse CEO Chen has no doubt that the adoption of AccelStor products was the win-win choice.

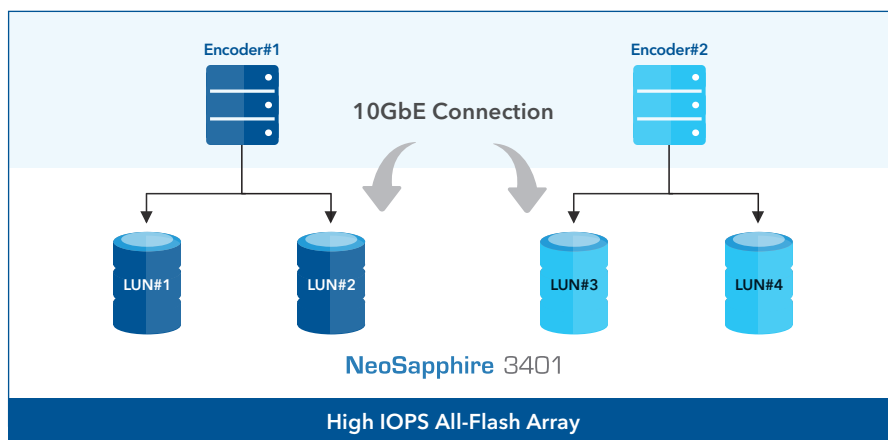*Note: The figure in this article were provided by EasyUse Digital Technology*

Accomplishments

- AccelStor NeoSapphire products have more than quadrupled system performance
- System performance has been increased significantly, while the costs of purchasing and maintaining hardware have been reduced

Products Introduced

- NeoSapphire 3401 All-Flash Array
- NeoSapphire 3405 All-Flash Array

Figure 1: Encoder integration with NeoSapphire 3401