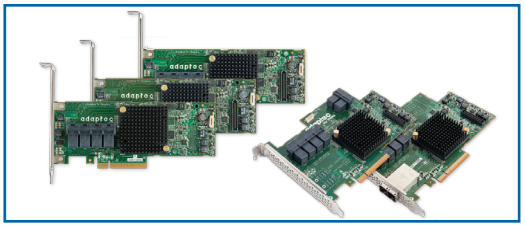
adaptec by PMC

CUSTOMER CASE STUDY

Plat'Home Co., Ltd. uses Adaptec Series 7 RAID adapters to improve fault tolerance, ease maintenance, and deliver high performance in high-capacity storage servers



Introduction

Founded in 1993, Plat'Home Co., Ltd. was the first company to bring the Linux operating system to Japan. The company introduced the first Linux server under its own brand in 1996, and has since become a leader in Open Source OS-based servers, storage, networking, and security devices both as reseller and under its own brand.

Plat'Home's TrusSPS storage server series was developed to address growing demand from customers for high-performance, high-capacity storage servers. These customers, including research institutes and broadcasting companies, typically need systems with a large number of low-cost, high-capacity hard disk drives (HDDs) and performance specs that bring down the cost-per-GB.

"In addition to high performance and low cost-per-GB, our customers demand that our servers are stable," said Mr. Kazunori Yamazaki, an engineer for Plat'Home. "Failure rates must be as low as possible and the system must recover as quickly as possible after a failure."

Rogue expander firmware update causes server failure

First-generation TrusSPS storage server configurations connected the HDD and RAID adapter through a backplane expander, with each component being from a different vendor. Recently, however, the company was challenged with customer support and maintenance issues after a series of firmware updates to all three components caused installed servers to become unresponsive.

After an extensive onsite testing of installed servers, Plat'Home traced the cause of the issue to the expander firmware update, which had taken place with no advance warning from the vendor. Plat'Home was eventually able to provide a solution, but the process took a considerable amount of time and resources, and also inconvenienced the company's customers, marring Plat'Home's reputation.

In addition to providing the expander firmware fix for installed servers, Plat'Home had to install the fix in every unshipped server in its warehouse, which resulted in delivery and setup delays.

Mr. Yamazaki

"In order to provide maximum uptime, it is critical that the server's components are compatible with each other," said Mr. Yamazaki. "We have seen firsthand how one flaw beyond our control, such as an unannounced firmware upgrade to one component, can render the server useless and damage our relationships with affected customers. The more components from different vendors that a server has, the greater the potential for compatibility issues and the longer it takes to identify and correct any problems."

As if the compatibly issue wasn't enough, customers were also dissatisfied with the performance of the TrusSPS server. "We repeatedly received inquiries from customers asking what could be done to improve performance," said Mr. Yamazaki.

Executive Summary

Challenge

An unannounced firmware update to the backplane expander used in Plat'Home's TrusSPS series servers caused widespread system failures. Locating the cause of the problem took substantial time and resources from Plat'Home and inconvenienced customers. The servers also suffered from performance issues.

Solution

Next-generation TrusSPS2 servers utilized Adaptec Series 7 RAID adapters featuring 24 native ports to make an expander unnecessary.

Result

Adoption of Series 7 simplified TrusSPS2 server configurations, lowering failure rates and making maintenance much easier. Eliminating the expander also increased data transfer rates.

Plat'Home
TECHNOLOGY to serve you.

"The more components from different vendors that a server has, the greater the potential for performance and compatibility issues. Adaptec Series 7 RAID adapters allowed us to eliminate backplane expanders and simplify our TrusSPS2 server configurations, lowering failure rates and improving data transfer rates."

— Mr. Kazunori Yamazaki, Engineer, Plat'Home Co., Ltd.

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Building next-generation servers with Adaptec Series 7

Mr. Yamazaki incorporated these experiences when planning Plat'Home's second-generation server model, the TrusSPS2. Top priority was given to improving the server's fault-tolerance and maintainability. While an increase in performance was a secondary priority, Mr. Yamazaki knew that both issues needed to be solved simultaneously.

The company's found its solution with 6Gb/s Adaptec Series 7 RAID adapters.

The Adaptec Series 7 RAID adapter family features PMC's 24 port PM8015 RAID-on-Chip (ROC), which combines a x8 PCIe Gen3 interface with 6Gb/s SAS ports to enable a new generation of high-performance RAID adapters that are unmatched by any other ROC in the industry. Series 7 RAID adapters are available with 8, 16, or 24 native SAS/SATA ports, allowing direct connect to up to 24 HDDs without an expander.

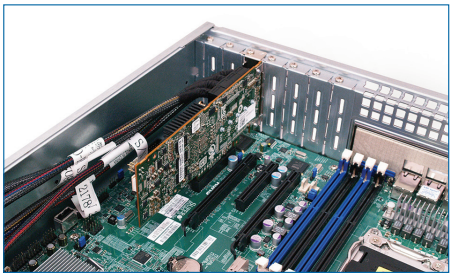
Series 7 adapters perform at up to 6.6 GB/s on sequential reads and up to 2.6 GB/s on sequential writes on parity RAID 5, more than doubling the performance of competing host-based RAID adapters.

With Series 7 RAID adapters, Plat'Home engineers were able to eliminate the expander from the backplane in the TrusSPS2 models, which significantly reduced compatibility issues and improved fault tolerance. As a bonus, data transfer speeds improved by about 40% compared to the company's first-generation TrusSPS models.

"We established clear specification requirements for our SPS2 servers and found that Adaptec by PMC met those specifications," said Mr. Yamazaki. "Adaptec Series 7 RAID adapters were the only ones that could connect many HDDs without an expander, which allowed for a simpler configuration and greatly improved reliability and maintainability."

In a test of a RAID 6 configuration with 23 7,400 RPM HDDs, Plat'Home saw sequential read and write performance of 1MB blocks to be 40%-50% better in the SPS2 compared to expander-based TrusSPS models. "The performance improvements tend to increase as the data block sizes become larger. Customers who have elevated requirements, such as those in the broadcasting industry who routinely have file transfer sizes of 10GB and 20GB, will see even better performance gains," said Mr. Yamazaki.

Since the SPS2's introduction in May 2013, Plat'Home has fielded no complaints about failures or performance. "Many SPS2 customers had already adopted the first-generation TrusSPS models and were victims of the expander firmware issue, so they were viewing us with a critical eye," said Mr. Yamazaki. "These customers would contact us immediately if they found any issues with the SPS2. Since we have not heard from them, we are confident that the problems that we had on previous models have been eliminated."



Pleased with Adaptec by PMC technical support

"Our servers use products from several different companies, and Adaptec's technical support beats them all. We frequently cannot get answers to technical inquiries from other vendors, even in crucial situations like the firmware issue. By contrast, Adaptec is able to answer our questions and provide support during the product evaluation phase, which gives us a great deal of confidence in trusting our servers and our business to Adaptec."

About the customer

Founded in 1993, Plat'Home Co., Ltd. was the first company to bring the Linux operating system to Japan. In 1996, the company introduced the first Linux server under its own brand and has since become a leader in Open Source OS-based servers, storage, networking, and security devices both as reseller and under its own brand. Plat'Home went public at the Tokyo Stock Exchange Mothers market in 2000.

http://www.plathome.co.jp/

Related information

Adaptec Series 7 RAID adapter product page: http://www.adaptec.com/en-us/products/series/7/

Adaptec Series 7 data sheet: http://www.adaptec.com/nr/pdfs/Series7_ds.pdf

Adaptec Series 7 compatibility report: http://download.adaptec.com/pdfs/compatibility_report/arc-sas_cr_06-06-13_series7.pdf

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