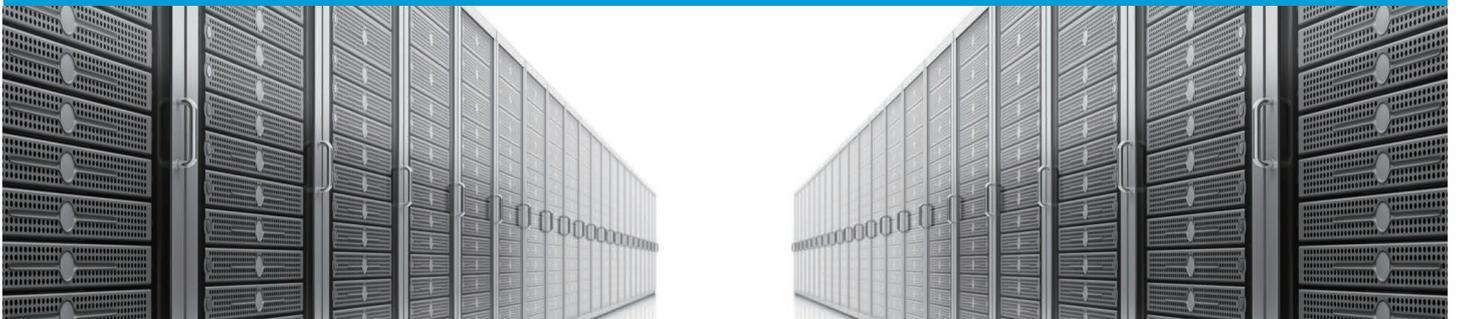# Samsung equips training company with a cost-effective VMI storage solution

PRIDE Enterprises improves application performance and reduces user response time by 80 percent with AutoCache

Company Overview

PRIDE Enterprises (Prison Rehabilitative Industries and Diversified Enterprises, Inc.) is a nationally recognized prison inmate training company operating agricultural, sewn products, graphics, manufacturing and services facilities in Florida.

Customer Needs

With 500 to 600 application users in 13 locations across Florida, PRIDE found that its frequently used business applications were generating a large amount of storage disk activity and high IOPS demands.

This load was overwhelming their storage area network (SAN) and diminishing application performance. When a performance analysis conducted by their SAN vendor indicated the need for additional disks or flash storage to achieve the response time they needed from these critical applications, PRIDE began a search for a flash storage solution.

"We need a stable, continuously running environment, but when you have a sloppy or demanding workload, it can impact performance across the entire environment," said Roman Diaz, infrastructure manager at PRIDE Enterprises.

"In a virtualized environment in which you have 70, 80, 100 or even 300 virtual machines and they are all hammering against the same disk pools, there is the tendency to impact the performance of other VMs. We could do some segmentation to lessen or mitigate that performance impact, but that consumes additional resources. We would be dedicating disk pools to specific workloads and VMs, and that costs more money."

The organization's search for a solution involved reviewing nine different flash storage options. Diaz created a spreadsheet with data on each, trying to figure out "how to get the most bang for the buck."

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AutoCache boosted performance, lowered costs and integrated seamlessly with vCenter

"We could have purchased high-performance disks, but we would only need them for that occasional spike in the workload," explained Diaz. "That would increase the cost of our SAN by 20 percent. Plus, increasing the capacity of the SAN would mean using more space, consuming more power and incurring additional maintenance costs."

Solution

PRIDE reviewed and tested Samsung AutoCache™. This server-side caching software solution, with I/O Intelligence, removes I/O bottlenecks and increases virtual machine (VM) density by up to three times to attain maximum performance for business-critical applications. AutoCache conducts hypervisor caching within VMware™ ESXi hypervisors along with a modest amount of flash storage. The method provides a more cost-effective solution for PRIDE than the other flash storage options they tested.

PRIDE tested and now uses AutoCache with the Intel® SSD 910 Series, an add-in MLC PCIe card. The higher endurance and performance provided by the Intel SSD 910, along with AutoCache software, enable servers and storage to be more responsive as more data is transferred in less time.

"We liked the AutoCache interface and excellent vCenter integration better than the other solutions we tested."

- Roman Diaz, infrastructure manager at PRIDE Enterprises

"Other products had some level of VMware vCenter™ integration, but the AutoCache interface had a very nice plug-in and worked across the entire environment. The other products offer a single plug-in on a specific machine, whereas AutoCache runs a central management server to which data reports back. AutoCache is pretty much set and forget.

AutoCache also has cache pre-warming to move data between servers faster. Other products have this feature but cost two to three times more. Choosing AutoCache really came down to cost, performance and integration."

During its testing of AutoCache, PRIDE saw dramatic improvements in application response times and IOPS and even turned AutoCache off to see exactly how it impacted performance. Without AutoCache, the response time was 10 to 18 milliseconds (ms). With AutoCache on, the response time was 2 to 3 ms — an 80 percent time reduction.

Response Time Improvement with AutoCache

Figure 1. Response time improvement with AutoCache

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PRIDE was able to gain one and a half times the storage space at half the price of other solutions

"With AutoCache, I automatically got a terabyte and a half of usable storage for half the price of the other solutions."

- Roman Diaz, infrastructure manager, PRIDE Enterprises

"AutoCache helps things run faster by smoothing and balancing out the workload," said Diaz. "A lot of companies are buying bigger and bigger SANs and faster disks to get greater performance, but the amount of floor space and electricity required to support all those disks is a tough pill to swallow. With AutoCache, I automatically got a terabyte and a half of usable storage for half the price of the other solutions, which gave me only 400 GB of usable storage. From that point on, I was hooked. It's a very good product."

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For more information

For more information about Samsung AutoCache, visit www.samsung.com/semiconductor.

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