PURESTORAGE

SERVER LOAD TIMES FROM **4 HOURS** TO **1 HOUR** + FROM 300 MILLISECONDS TO **<1ms** LATENCY = **LIGHTNING** FAST DATABASE QUERIES

COMPANY:

Trip Pak Services
www.trippak.com

CHALLENGE:

- Manage very high IOPs and throughput against storage array
- Improve performance of virtual machines under heavy data loads
- Meet growing data storage needs affordably

SOLUTION HIGHLIGHTS:

- Migrated virtualized OLTP databases, servers, and desktops to Pure Storage
- 6:1 data reduction with workloads including Citrix XenDesktops, Oracle, and SQL databases running on vSphere 5.0
- Increased IOPs by 6X to 200,000 sustained

USE CASE
Database

GEO
North America

INDUSTRY
Transportation

TRIP PAK SERVICES IMPROVES DATA PERFORMANCE 10X WHILE ALSO REDUCING LATENCY AND SEEING A 6:1 DATA REDUCTION

A leader in solving challenges for the transportation industry, TripPak Services provides document capture and processing solutions for hundreds of motor carriers nationwide. TripPak provides solutions for imaging and workflow, as well as safety and compliance, that helps fleets increase cash flow while changing how they do business and how drivers experience life on the road.

LARGE IO WORKLOADS NOW RUN QUICKLY WITHOUT DRAGGING DOWN PERFORMANCE

To provide its business-critical support, the TripPak IT team used hundreds of virtualized servers running on 15 physical hosts. These machines include Oracle and SQL database servers running OLTP workloads, application and web servers, as well as Citrix XenApp and XenDesktop environments supporting internal users. The mixed workload produced very high IOPs and throughput against their legacy mechanical disk storage.

Behind the efficient server infrastructure was a traditional SAN with a high-performance 15K mechanical disk. As the disk filled up, it was unable to maintain the performance that TripPak required, and was capping around 7,000 IOPs with its database/VM over fibre channel load. For several hours every evening, data audits or loads within the entire environment would bring all virtualized systems to a grinding halt, as storage latency averaged more than 300ms with peaks of more than 1,000ms.

"Trying to deliver the performance required, only to have a new application come in and kill performance, was very frustrating," says David Abbot, Senior Infrastructure Engineer at Trip Pak. "The exponential growth of virtualization was placing a lot of pressure on our centralized storage infrastructure—and it just couldn't keep up."

The virtualized machines produced a random I/O stream that further slowed down the performance of the array. "We considered adding technologies like FlashCache to our controllers, purpose-built Flash accelerator cards to our servers, or more disks and bigger controllers to our existing arrays," says Abbot. "But none of these fixes gave us the I/O performance we needed without locking us into inflexible server-based solutions, or costing more than the business could afford."

LATENCY DROPS TO <1MS AFTER SWITCHING TO FLASHARRAY

After several false starts with products from other all-flash vendors, Abbott discovered FlashArray from Pure Storage. "FlashArray looked easy to manage, and looked like it could dedupe and compress our data inline while providing 200K IOPs," Abbot explains. "Other vendors had told us that they strongly recommended against turning on their dedupe because it would impact performance, or said that their arrays performed these tasks post-process."

TripPak replaced its mechanical array with Pure Storage FlashArray, moving its mechanical SAN array to Tier 2 storage. With plenty of room to grow, TripPak now sees latency consistently below 1 ms for both read and write—even while running 200,000 IOPs workloads on the array.

> "My team and I get pretty excited when talking about Pure Storage, and for good reason: it has saved countless hours managing storage in our data center, eliminated storage as a performance bottleneck, lowered power requirements, reduced rack space, and cut costs."
>
> David Abbott, *Senior Infrastructure Engineer*

"After spending years digging through the layers of settings on traditional disk-based arrays, the simple setup on FlashArray was a welcome change," Abbot says. "It was easy for us to learn how to do the initial setup and provisioning of storage, and we were up and running in a few minutes."

One of TripPak's first projects was to virtualize two small SQL Server instances that were causing problems within mechanical disk storage, "The very first day that we cut over these two SQL Servers, audit/load times on these servers plummeted from more than four hours to just over one hour," Abbot says.

Another benefit was that other virtual machines on the array were not impacted: latency remained at about 1ms on the virtual machines and 1ms on the array.

TripPak needed not only fast storage from FlashArray, but also affordable storage. With FlashArray's data reduction technologies, TripPak was able to achieve a 6:1 data reduction, allowing the company to buy the array at the cost of mechanical disk storage.

"With FlashArray, TripPak customers now see lightning-fast response times from their high workload database queries. TripPak IT is using less power and less space for data even while improving performance 10X, and gaining storage space to spare as Abbott's team moves more workloads over to FlashArray," says Abbott. "For the first time, we don't have to worry how storage is performing, if the next upgrade is going to take the datacenter down, what will happen if we lose a drive or controller, or how much our next maintenance bill will go up."

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