

YP Transitions from SAN to Software-Defined Storage by Microsoft



DataON all-flash Cluster-in-a-Box (CiB) running Windows 2012 R2 boosts storage performance 10x as it scales-up Microsoft SQL Server workloads

The Challenge



YP wanted to refresh a legacy SAN in order to simplify its storage infrastructure, reduce costs, and improve performance of its business-critical high I/O applications.

The Solution



- Microsoft Windows Server 2012 R2 Storage Spaces
- 8x DataON all-flash, Cluster-in-a-Box (CiB) appliances to accelerate SQL workloads

The Result



- A 10x increase in SQL Server performance with DataON over previous solution
- A 75% improvement in efficiency by offloading CPU traffic to the NIC with RDMA
- Better performance and a longer shelf life with low-cost commodity hardware
- Reduced costs and simplified management over proprietary SAN environment
- More control with existing Microsoft infrastructure

Customer Background

YP™ is a leading local marketing solution provider in the U.S. dedicated to connecting local businesses with consumers. YP's flagship consumer brands include the YP™ app, yp.com and The Real Yellow Pages®, which are used by nearly 60 million visitors each month in the U.S.. With roots in the legacy Yellow Pages, the more than 100-year old company rebranded itself in 2012 as it expanded into digital advertising. The company had to grow its IT services to support thousands of new marketing consultants and customer service professionals across the country, who, together, are servicing nearly half a million advertisers. More than 60TB of data and up to 10,000 corporate users forced YP to re-engineer its storage infrastructure, which included moving from a traditional SAN to a cluster-based Microsoft Windows-based storage environment.

IT Challenge – Replace a Legacy SAN to Simplify Storage, Reduce Costs, and Improve Performance of Business-critical Microsoft Applications

The criticality of YP's I/O processes became paramount as the company grew its services beyond simple cataloging of local information into driving connections between merchants and customers. With billions of events processed every day, the company needed high availability with a scale-out storage concept that wouldn't smother the budget. A Microsoft software-defined storage file system seemed to be the answer.

YPS' goals in moving to Microsoft Storage Spaces included:

- Simplify the Microsoft infrastructure
- Reduce the costs of running a proprietary SAN environment
- Eliminate ongoing bugs and technical challenges inherent in the legacy SAN
- Replace multiple vendors with one vendor
- Improve scalability and application availability

The Solution: Microsoft Windows Server 2012 R2 Storage Spaces

YP found that the benefits of moving to Storage Spaces far outweighed the benefits of staying with its traditional SAN. It replaced an iSCSI SAN with Microsoft Windows Server 2012 R2 Storage Spaces using hyper-converged cluster appliances from DataON. This allowed YP to use Windows Server 2012 R2 as the infrastructure for a complete, end-to-end compute, storage, networking, and management stack.

"Microsoft has shifted the game," said Eric Pritchett, Lead System Administrator at YP.

"With Storage Spaces, we no longer have to spend a premium on features typically found in many SANs. Most features we need are now included in a single Microsoft Windows license. Hence, our support contracts and product licensing with various vendors is simpler now. Overall, this provides much more control over our infrastructure."

In the first of a two-phase deployment, YP refreshed its legacy storage with six DataON hyper-converged Cluster-in-a-Box (CiB-9124) appliances. These appliances acted as file server, backup storage servers, and hosted Microsoft Hyper-V virtual machines.

In the second phase, YP implemented the DataON certified and validated Scale-out File Servers (SoFS) platform with DataON DNS-2660 (JBOD) SSD and HDD storage enclosures to run its Microsoft Exchange environment. YP also expanded its DataON CiB platform with DataON all-flash arrays to scale its Microsoft SQL Server workloads.



"Our old SAN never came close to providing the SQL Server performance that we now get. We're seeing 10 times the performance with DataON and Microsoft Storage Spaces. Microsoft has shifted the game. With Storage Spaces, we no longer have to spend a premium on proprietary software from a variety of vendors. We get most of the advanced features of a SAN built right into our Windows license."

Arie Schnaider,
Lead Systems Administrator, YP

DataON CiB-9124

Benefits

- Simple management, easy installation & maintenance; easy out-of-the-box experience (OOBE)
- High availability – Dual node cluster, dual controller, dual path, heartbeat and redundant power
- Flexible – 24x all-flash SSD storage, tied SSD+HDD storage, 24x HDD capacity storage
- Expandable – Capacity expansion through external storage enclosure (JBOD)



Microsoft SQL Server Workloads

Enterprises that deploy SQL Server databases require high IOPS from computer to storage. YP is no exception, which is why it chose the all-flash DataON CiB. Arie Schnaider, Lead System Administrator at YP explained that the ability to push 10Gb Ethernet over the wire with Mellanox dual-port cards has provided increases in performance, specifically with SQL Server workloads. "With 60TB of data and up to 10,000 users with constant read/writes, we have the potential for huge bottlenecks," he said. "With RDMA-enabled servers, we can now offload CPU usage to the NIC and push a lot more I/Os. Our CPU load has been reduced by 75%!"

Why DataON Cluster-in-a-Box Appliances?

As a pioneer of Microsoft clustered storage platforms, DataON has delivered resilient, high-performance and scalable Microsoft-certified solutions for hundreds of scale-out software-defined storage enterprise deployments. For companies like YP that have already made the "Microsoft choice" for its data centers, DataON CiB architecture is a key component to automating and optimizing existing Microsoft applications.

Before its decision to move to DataON, YP considered additional server hardware, in addition to SAN providers. Pritchett said YP chose DataON because cost savings were higher and service was a hot point. "We were invited to DataON so they could help us set up a POC to demonstrate their hardware capabilities. We ran our own code on a server they built for us and we performed our own tests. At that point, the data made sense and we were convinced. One thing that stood out for me was that they took their time with us and offered the kind of personal support and flexibility that we wanted."

The DataON POC showcased 1.3 million IOPS with performance that convinced the YP team it could support all YP corporate services, which include SharePoint, Exchange, SQL Server, file services and VMs. According to Schnaider, "Our old SAN never came close to providing the performance that we now get. We're seeing 10 times the SQL Server performance with DataON and Microsoft Storage Spaces."

The YP networking team also found additional benefits to using DataON appliances that were not anticipated. "In addition to being less expensive, the DataON hardware has a longer shelf life than what we used in our previous SAN," said Pritchett. "We can reuse the DataON hard drives in the future when we do another upgrade. They will still be usable, because they aren't saddled with custom firmware as on some proprietary storage appliances."

The Results

According to Pritchett, the transition to Storage Spaces was painless because the YP IT team is committed to the Microsoft environment. "We're already familiar with most Microsoft products, we know the Windows architecture, and Microsoft provides training as needed. The change to Storage Spaces was seamless."

YP is now delivering extremely high levels of storage performance and resiliency similar to a traditional SAN, but using a Microsoft Windows Server 2012 Storage Spaces solution with inexpensive Microsoft-certified CiB appliances from DataON. "Best of all, we are buying commodity hardware, but outputting incredibly high performance," concluded Pritchett. "Why would we pay more for something that isn't meeting our needs?"

About DataON™

DataON is the industry leading provider of hyper-converged cluster appliances (HCCA) and storage systems optimized for Microsoft® Windows Server environments. Our solutions are built with the single purpose of rapidly and seamlessly deploying Microsoft applications, virtualization, data protection, and hybrid cloud services. Our company is focused on customers who have made the "Microsoft choice" and we provide the ultimate platform for the Microsoft software-defined data center (SDDC). DataON is a division of Area Electronics Systems, Inc.

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