University Enrollment Management Area Admits Storage Spaces Direct to Power Its Primary Storage

Washington State University increases performance, storage capacity and QoS with Microsoft and DataON

The Challenge

- Increase performance and storage size, reduce reboot, restart and update times, and provide better quality of service to staff and students
- Find a vendor and best-case solution that can meet its constrained budget
- Phase out legacy SANs and migrate workloads to a Windows Server 2016 Storage Spaces Direct hyper-converged infrastructure

The Solution

- Highly scalable Windows Server 2016 Storage Spaces Direct hyper-converged infrastructure
- DataON S2D-5212 with three-tiered hybrid storage for capacity and performance, optimized for performance & cost

The Result

- In the process of phasing out legacy SANs and migrating workloads to their new Windows Server 2016 Storage Spaces Direct hyper-converged infrastructure
- Increased performance, storage capacity
- Fifteen second Windows Server 2016 and VM boot times
- Provided better QoS (Quality of Service) for its staff and students

University Overview

Founded in 1890, Washington State University (WSU) is a top-tier research university known for academic and athletic excellence. Offering over ninety-five academic majors for undergraduate students and over one hundred forty programs for graduate students, WSU has over 30,000 students and is ranked in the top 100 public schools in the US. Enrollment Information Technology (IT) provides technology services to WSU enrollment management offices, University staff, and students.

IT Challenge: Phase out sluggish legacy SAN and increase storage performance with Windows Server 2016 Storage Spaces Direct hyper-converged infrastructure

Washington State University's Enrollment IT runs heavy workloads with over one hundred virtual machines (VMs), approximately thirty SQL servers, file shares, SharePoint servers and more. Its data center storage consisted of six-year-old Dell EqualLogic iSCSI SAN storage using spindle disks. Performance was poor and there were substantial slowdowns for staff and students. The Dell SANs were only capable of six to seven thousand IOPS and the IT team had to run them at sixty percent capacity to perform adequately. Updates, reboots and restarts took far too long, providing longer than necessary disruptions in service. For the team, they were in crunch because their Dell hardware warranty and service contracts were to expire shortly.

Through a strategic University initiative to cut costs, the Enrollment area and the Enrollment IT department faced budgetary constraints, which made upgrading its infrastructure to their ideal specifications next to impossible with a SAN. The team decided that hyper-converged infrastructure would be the optimal choice because it could provide the performance and resiliency they needed at a much better price.

Enrollment IT's goals in updating its infrastructure included:

- Increasing performance and storage size, reducing reboot, restart and update times, and providing better quality of service to staff and students
- Finding a vendor and best-case solution that could meet its constrained budget
- Phasing out Legacy SANs and migrating workloads to a Windows Server 2016 and Storage Spaces Direct hyper-converged infrastructure

The Solution: DataON S2D-5212 hyper-converged infrastructure with Windows Server 2016 Storage Spaces Direct

Enrollment IT, a Microsoft shop, uses Windows Server with datacenter licensing that Microsoft offers free to educational institutions, which includes Hyper-V, software-defined networking, and Storage Spaces Direct. Familiar with Microsoft, the IT team knew the capability of Storage Spaces Direct and felt it was the optimal choice, both in features and performance, and at zero cost to them, for a hyper-converged infrastructure.

"It's smart and works well," Chris Cordodor, Infrastructure, Enrollment Information Technology, Washington State University said. "People choose HCI because they're looking for speed, because the processor sits right on top of the storage."

One of the biggest challenges for the WSU Enrollment Office's IT team was budget. The team had shopped around with nearly every vendor. Several years back, they had purchased a Cluster-in-a-Box (CiB) from DataON and had a good experience. So they called on DataON again.

WSU's Enrollment IT chose DataON because of its expertise and commitment to find them the best solution at a good price point. Cordodor said, "We chose DataON because they provided us a turnkey ready-to-go, out-of-the-box solution, that no other vendors offered, which was essential to us."

WSU Enrollment purchased four S2D-5212 nodes with three-tier hybrid storage consisting of NVMe, solid state drives (SSDs), and hard disk drives (HDDs), which was ample enough to handle the heavy workloads.

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The IT team is migrating applications gradually off the Dell SANs to the Microsoft WSSD-certified DataON hyper-converged infrastructure. Currently, seventy-one virtual machines (VMs) and most of its applications have migrated. The team plans to migrate the SQL servers and eighteen other VMs over soon and completely retire the SAN.
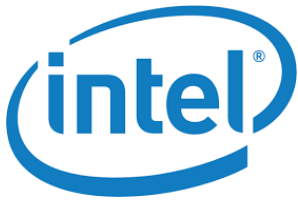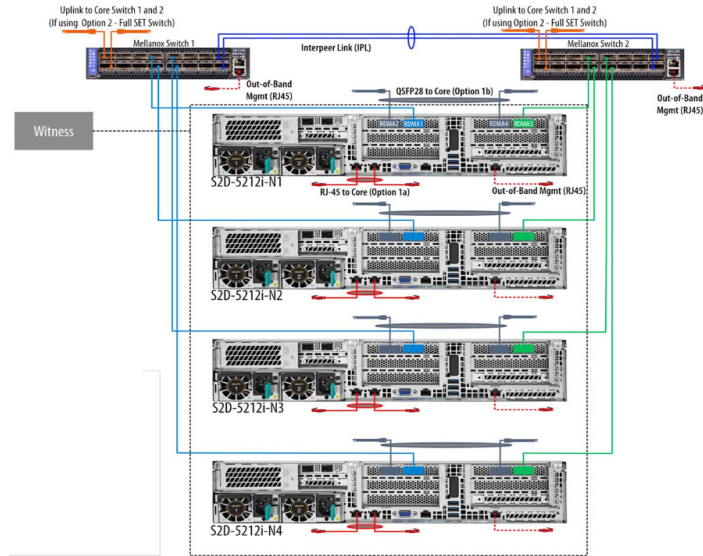
The Results

The Enrollment IT team noticed the benefits from the DataON hyper-converged infrastructure immediately. Cordodor said, "Performance is so much better. Before, boot times took forever. Now, we can reboot system and the VMs within 15 seconds. File copies are faster. It's great."

Cordodor and the team had no second thoughts about choosing Storage Spaces Direct. "I don't think VMware users are aware of the true capabilities, its robustness and the performance that Hyper-V can deliver," he said. "Our VMware colleagues didn't have faith in Storage Spaces Direct, but it has delivered."

"DataON did a great a job. As advertised, we got a turnkey solution and excellent support to help us get up and running. Their team was smart and resourceful. I highly recommend them," Cordodor concluded.

The WSU Enrollment Office's IT team plans to purchase additional RAM and retire the Dell SANs as soon as migration is complete. They also plan to upgrade to Windows Server 2019 and create a hybrid cloud infrastructure using Azure services.

About DataON

DataON is the industry-leading provider of hyper-converged infrastructure and storage systems optimized for Microsoft Windows Server environments. It has been named to CIO Review's '20 Most Promising Microsoft Solution Providers 2018.' Our company is focused on customers who have made the "Microsoft choice" to deploy Microsoft applications, virtualization, data protection, and hybrid cloud services. Our enterprise-level solutions, delivered as a complete, turnkey experience, are designed to provide the highest level of performance, manageability, and security offered.

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