




# Public School System Chooses a Windows Server Hyper-Converged Solution to Increase Storage Performance and Capacity While Cutting Costs

Cherokee County School District replaces their iSCSI SAN storage with a Storage Spaces Direct and DataON solution

## Company Overview

Cherokee County School District (CCSD) is a high-performing K-12 public school system in the metro Atlanta area. They serve more than 42,000 students with over 4800 employees in 41 schools and centers.

### IT Challenge: Replace an aging storage system with a more cost-effective solution that could meet their growing needs for users and storage

CCSD had an aging three-tiered storage system running VMware that included a Dell EqualLogic iSCSI SAN. They needed to find a new storage system that could support heavy VM usage, as there are nearly 50,000 students and staff that access the system daily. HR, payroll, central records, and student registration systems all utilize the same system. They also wanted to consolidate their storage systems into one on-premise platform for direct and easy access to their data. Having a visibility and monitoring tool would be very important to ensuring high availability for their new storage system.

CCSD's goals in updating their IT infrastructure included:

- Consolidate their three-tiered storage system into one platform
- Provide on-premise storage
- Find a less expensive solution than their current VMware solution
- Support heavy VM usage from students and staff
- Support current HR, central records, and student registration systems

### The Solution: DataON S2D family of hyper-converged infrastructure with Microsoft Windows Server 2016 Storage Spaces Direct

Matt Roper, Facilitator of Technology Support Services, CCSD, went to Microsoft Ignite 2016 to learn more about Windows Server 2016 as a potential alternative to VMware. He found Windows Server 2016 to be a good data center technology that could support CCSD's needs for today and for the future. He liked how easy it is to use Windows Server 2016 and found that the price for licenses was much cheaper than what they were paying for VMware.

Roper learned about DataON through Microsoft's presentations at Microsoft Ignite 2016, where DataON was touted as one of Microsoft's oldest hardware partners. This gave Roper confidence that DataON could deliver a high-quality solution.

DataON proposed their S2D hyper-converged infrastructure with Intel Xeon processors for optimized performance, density, and capacity. CCSD chose a hybrid SSD/HDD solution that can achieve 1.5-3.2M IOPS in a 4-node cluster. It combines high performance NVMe SSDs with SMB3 RDMA networking to maximize performance and capacity.

After CCSD completed their evaluation, they found the DataON solution to provide the most "bang for the buck performance." CCSD liked that the S2D solutions included NVMe and 40GbE networking for high performance, which was not always available with other vendors.

## Platform Configuration and Deployment

CCSD initially purchased six S2D-3212 hyper-converged servers and later added another six S2D-5212 hyper-converged servers with Intel® Xeon® Scalable Processor with Intel C620 Chipsets. They included Intel NVMe SSDs for the cache tier, Intel SATA SSDs for the performance tier and HGST SAS HDDs for the capacity tier.

## The Challenge



CCSD's goals in updating their storage infrastructure, included:

- Consolidate their storage system into one platform
- Find a less expensive solution than their current VMware solution
- Support heavy VM usage from students and staff
- Leverage NVMe and 40GbE networking for high performance
- Include a good monitoring and management software tool

## The Solution



- Cost-effective Windows SDS solution that is scalable and flexible
- Windows Server 2016 Storage Spaces Direct for software-defined storage at a fraction of the cost of traditional SAN or NAS arrays
- DataON S2D-5212i hyper-converged infrastructure, optimized for performance & cost, with hybrid storage
- Windows Admin Center & DataON MUST for simplified management

## The Result



- 10x better performance with the DataON & Storage Spaces Direct solution
- Simplified Windows SDS management compared to traditional SANs
- Low latency and high CPU efficiency with SMB3 over RDMA
- Lower price for Windows Server 2016 than VMware
- Lays the foundation to deploy Storage Replica in the future

## DataON S2D-5212



- **High Performance** – Utilizes all-flash NVMe SSDs to achieve over 3.2M IOPS in a 4-node cluster
- **Supports more VMs** – Supports 40+ Hyper-V VMs per node, with up to 16 nodes per cluster
- **Highly Scalable** – Delivers compute, networking and storage resources with near-linear scalability
- **Easy to Deploy** – Simple out-of-the-box setup and installation
- **Easy to Manage** – DataON's exclusive MUST visibility, monitoring and management software

The S2D servers were linked by Mellanox 40GbE RDMA networking adapters and a Mellanox Spectrum 16-port 40GbE Ethernet switch, which was connected to CCSD's existing 40GbE switches. Storage Spaces Direct leverages an Ethernet network and takes advantage of RDMA over Ethernet for a loss-less network with no packet drops.

"The scripts that DataON provided for us to deploy Storage Spaces Direct were super easy, and they provided very detailed documentation. Plus, Hyper-V was easy to learn and use, and it took us a tenth of the time to set it up than VMware."

CCSD has also been using DataON's MUST visibility, monitoring and management tool. "MUST has been a great tool to help us monitor and manage our cluster," said Roper. "I can see all of the pools, volumes and nodes, as well as a disk map. I'm starting to utilize Windows Admin Center and the ability for MUST to integrate with WAC gives me the power of both tools in a single console."

## Results

With their new DataON solution, CCSD now has a consolidated system that can support all their 50,000 students and staff.

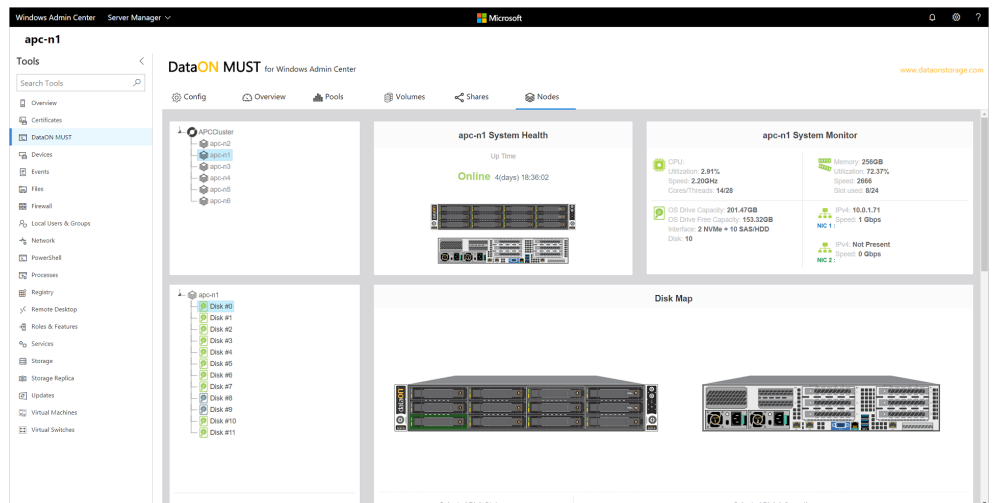
**"Microsoft has a winner," said Roper. "Everything is incredibly faster, feels 10 times faster. Tasks that used to take minutes to complete, now only takes seconds."**

Roper really likes the simplified management, scalability and capacity from the DataON and Windows Server 2016 solution. He also likes the lower price tag for Windows Server 2016, which means he can re-allocate funds for VMware licensing to other projects.



"With DataON and Microsoft, we could get the best and cheapest performance, and they included NVMe and 40GbE networking. Other vendors couldn't offer the same technology for the price."

Matt Roper  
Facilitator of Technology  
Support Services, CCSD



[www.dataonstorage.com](http://www.dataonstorage.com)

[dataon\\_sales@dataonstorage.com](mailto:dataon_sales@dataonstorage.com)

1.714.441.8820

Copyright © 2017 DataON. All Rights Reserved. Specifications may change without notice. DataON is not responsible for photographic or typographical errors. DataON, the DataON logo, MUST, and the MUST logo are trademarks of DataON in the United States and certain other countries. Other company, product, or services names may be trademarks or service marks of others.

## About DataON

DataON™ is the leader in Microsoft® Windows Server software-defined solutions. 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 are designed to provide the highest level of performance, manageability, and security offered, delivered as a complete, turnkey experience. DataON is a division of Area Electronics Systems, Inc.