



# Leading Graphics Card Provider Migrates to SQL Server 2016 with Storage Spaces Direct

EVGA chooses to deploy SQL Server 2016 in a Windows Server 2016 hyper-converged environment

## The Challenge



- Purchase an affordable, high-performance solution to run SQL Server 2016
- Eliminate expensive VMware licensing fees
- Combine SQL Server, file share server, domain controller, and other existing applications on one cluster, consolidating infrastructure

## The Solution



- Windows Server 2016 Storage Spaces Direct
- DataON S2D series hyper-converged infrastructure
- All-flash NVMe SSDs for the best streamlined SQL Server 2016 and enterprise applications performance

## The Result



- Eliminated SAN infrastructure and VMware licensing fees
- Deployed a highly resilient, three-way mirror, two-cluster solution at primary and disaster recovery sites
- Increased SQL Server performance and configured AlwaysOn SQL Server 2016 feature for better resiliency
- Saved money and consolidated infrastructure

## Company Overview

EVGA is the leading hardware provider of high-end NVIDIA® video cards and Intel® - based motherboards for gaming and video enthusiasts. It also produces gaming laptops, power supplies, computer cases, and gaming mice. EVGA's global headquarters are in Brea, California, with offices in Munich, Miami, and Hong Kong.

## IT Challenge: Migrate to SQL Server 2016, replace SAN, eliminate VMware fees, and move to a Windows Server 2016 hyper-converged infrastructure

Approaching end-of-life mainstream support, EVGA was looking to update SQL Server 2008 to SQL Server 2016. It had planned to deploy traditional SAN storage and looked at pricing from traditional storage vendors. Dave Riser, Director of IT, EVGA, said, "The hardware cost over a half-million dollars for a spinning disk-only SAN solution, and we hadn't even factored in VMware licensing. For our enterprise applications and new SQL Server software, we needed high performance and all-flash storage, and it wasn't possible at a SAN price point."

EVGA goals in updating its IT infrastructure included:

- Purchasing an affordable, high-performance solution to run SQL Server 2016
- Eliminating expensive VMware licensing fees
- Combining SQL, file share server, domain controller, and other existing applications over two clusters into a single consolidated architecture

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

As a long-time customer, EVGA contacted DataON for advice. DataON introduced them to Storage Spaces Direct, a feature of Windows Server 2016, that enables customers to create a hyper-converged infrastructure. With Storage Spaces Direct, EVGA could purchase the all-flash solution it needed for its enterprise and SQL Server 2016 applications, come in under budget, and get the robustness of a SAN, but with better performance.

With EVGA's input, DataON architected a highly resilient SQL Server 2016 solution, ensuring uninterrupted access to personalized content and transactional requests. Using SQL Server's AlwaysOn feature, DataON and EVGA created an availability group on top of four-node and three-node Windows Server failover clusters using Storage Spaces Direct. The four-node failover cluster consisted of one primary database and one secondary replica. The three-node cluster consisted of a secondary replica and backed up to a similar seven-node configuration in another location. Both locations were backed up to the cloud through independent servers using Veeam Backup & Recovery.

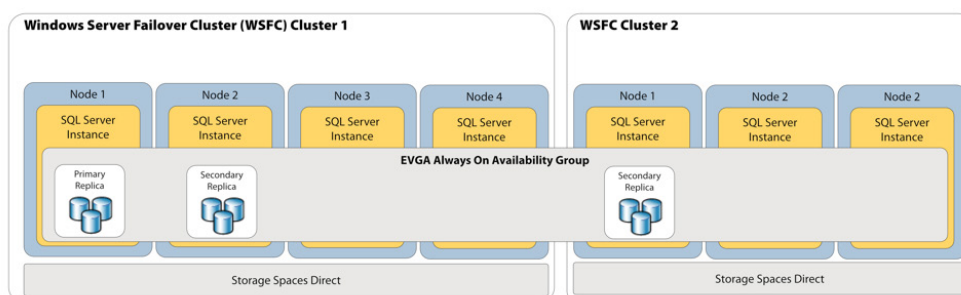


Figure 1: An availability group can support up to eight secondary replicas



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Dave Riser  
Director of IT  
EVGA

*"We got the resiliency of a SAN, but we were able to run our domain controller, file share, Web, and SQL servers all on one cluster, which is impossible to do on a SAN."*

*Dave Riser, Director of IT, EVGA*

EVGA was impressed with SQL Server 2016's resiliency. In addition, with Storage Spaces Direct, EVGA was able to configure each cluster for three-way mirroring. This configuration enabled SQL Server and all other data to be copied three times on one cluster, and then on the second cluster. The data was backed up to a mirror site, also configured for three-way mirroring.

## The Results

As an early adopter of SQL Server 2016 and Storage Spaces Direct, EVGA faced some challenges with database performance during the initial deployment. After migration and deployment, SQL Server 2016 performed no faster than it did on SQL Server 2008. However, after thorough testing with DataON and its Microsoft MVP, the team discovered that they needed to refactor the old application SQL code for SQL Server 2016.

Once this was done, performance gains for SQL Server 2016 running on Storage Spaces Direct, compared with SQL Server 2008 running on a SAN, were substantial. Riser said, "We saw a fifty percent performance increase. An inventory check query previously took thirty seconds. Now, it was instantaneous. Our IOPS increased and our latency was reduced."

"We got the resiliency of a SAN," Riser said, "but we were also able to run our domain controller, file share and Web and SQL servers all on one cluster, which is impossible to do on a SAN."

By deploying a hyper-converging infrastructure, EVGA not only saved a considerable amount of money, but got all-flash storage and the SQL performance they needed. EVGA was pleased with DataON's white glove customer support and applied their cost savings towards purchasing additional hyper-converged solutions from DataON.

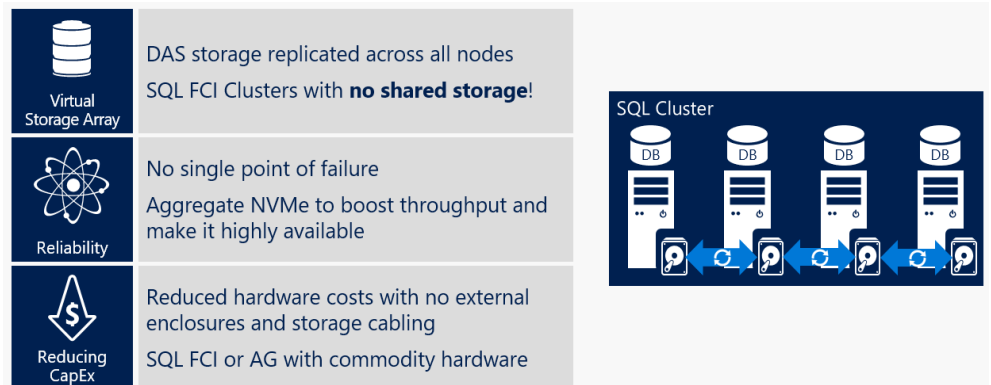


Figure 2: Storage Spaces Direct with SQL Server

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## 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.