

# Successful Implementation of **StarWind's Virtual SAN** in **University Advancement** Makes it the Standard for Future Clustering Projects

“ An easy, reliable two-box solution for failover clustering. ”

**Paul Harmon**, Server & Network Administrator, University Advancement – Colorado State University



**Colorado State University**

## Organization

University Advancement – Colorado State University  
[www.supporting.colostate.edu](http://www.supporting.colostate.edu)

## Environment

Single MSSQL server with Production and Test instances

## Challenge

- To be able to cluster MSSQL for uptime during updates and possible hardware failures.
- To eliminate the single point of failure for MSSQL databases.

## Solution

StarWind Virtual SAN

## Results

- Reliable failover clustering
- Effective use of hardware and network resources
- Low Total Cost of Ownership (TCO) for HA solution

## CHALLENGE

The database server for the University Advancement program supports public and internal websites involved in the advancement and support of the Colorado State University community. Because of its mission critical nature, 24/7 uptime is required for the database and the sites it supports as they are accessed by donors, friends and employees of the university.

*“Our previous database scenario had Microsoft SQL Server 2008 running on one server with 2 instances for test and production. This presented a single point of failure and downtime during monthly patches. Testing within the same physical server presented additional risks to the uptime of our production databases” – said Paul Harmon, Server & Network Administrator.*

As Paul identified a single point of failure, his only option was to cluster physical servers and introduce a redundant solution. After much research and deliberation, Paul's team decided that a software-based solution was the most viable option as it gave them the ability to repurpose hardware that was already in use or decommissioned and lower their total cost of ownership (TCO). After several trial deployments and testing, it was revealed that **StarWind Virtual SAN** was the best option for its ease of use, speed, reliability, its small hardware footprint – StarWind's hyper-converged architecture gave Paul the ability to mirror the storage that was local to his SQL servers as opposed to adding physical servers for storage to reside on. As an added incentive, access to StarWind's educational pricing turned out to be quite competitive.

## SOLUTION

Paul discusses his experience during testing and implementation:

*I implemented **StarWind Virtual SAN** for Hyper-V on a two node cluster. I configured the servers for this task as new from HP. No spinning disks are in these servers. A total of 8 SSDs per server make up the system and storage volumes. The machines are linked directly by dual-port 10 gigabit NICs and 1 meter SFP+ cabling. Each machine has 6 gigabit NICs for use among the Hyper-V guests. 2x Quad-Core Xeons and 64GB RAM each complete the hardware picture.*

*With Windows Server 2012R2 installed, the StarWind software went on without issue. Creating the iSCSI links was simple, and linking them to Windows' storage infrastructure was well documented and again, easy. The deployment involved the creation of the hardware failover cluster, with guest clustering on Hyper-V providing the platform for highly available database services. The newly released Server 2012 R2's ability to support shared VHDX files among VMs was used to easily and quickly create the guest clusters. StarWind keeps everything in sync behind the scenes, while the clustering services keep things online through whatever I throw at them. I was able to make a few tweaks in networking and CPU counts to optimize performance on the hardware.*

This provides high mobility and uptime across both planned and unplanned outages. The ability to instantly move VMs from one host to another was critical to avoid downtime due to monthly patches to Windows Server.

## RESULTS

*"Thanks to the speed and flexibility of the Windows cluster on StarWind, I was able to create an identical testing deployment alongside the production system. By utilizing different disks, I was able to isolate the workloads while maintaining an identical mirror environment for testing upgrades, changes, etc." – said Paul Harmon.*

Paul mentions, *"We're able to test the in-place upgrade of Microsoft SQL Server on our test environment with data restored from the production systems. This was previously impossible with multiple instances under one installation of SQL Server"*.

Based on Paul's implementation of StarWind he has made it clear that there is a plan to actively utilize **StarWind Virtual SAN** solution and it will come under heavy consideration for future Windows clustering projects.

Harmon concludes, *"The simplicity, reliability and performance are unmatched, especially when you consider that the pricing comes in less than the competitors. After one year in production service, we'd easily and readily recommend StarWind's software to any server admin looking for a robust and cost-effective SAN, without the single point of failure or proprietary operating system of a hardware solution."*