



CASE STUDY

Asteris Relies on Western Digital and AC&NC™ to Deliver Veterinary IT Services with Microsoft® Storage Spaces



Customer Profile

Asteris, Inc. exemplifies that veterinary healthcare can be as advanced as human healthcare. Founded in 2004, the company's Keystone platform offers telehealth capabilities for veterinarians, radiologists, cardiologists, and veterinarian technicians. Providers from single practitioners to animal hospitals, universities, and groups of specialists use the innovative Asteris solution to store, transfer, retrieve, and view medical images and reports easily and securely. The cloud-based, image-archiving and communications system expedites workflows and care for animals. Colorado-based Asteris has customers on five continents, including all fifty states and such countries as the United Kingdom, Canada, France, Australia, New Zealand, Brazil, Hong Kong, and Indonesia.

Highlights

- Highly reliable Ultrastar® HDDs provide up to 840TB¹ of raw capacity in a 4U enclosure
- Easy upgrade path to even more capacity in the future by simply upgrading to higher capacity HDDs or by daisy-chaining additional Ultrastar Data60 platforms
- Greatly simplified infrastructure with an easy-to-manage and cost-effective storage solution
- Increased reliability with the latest low failure rate drives, reducing the need for on-site staff to manage the storage

Challenges

- Keeping pace with rapid data growth caused by increasing number of customers adopting solution
- Limited rack space available available in leased racks from an infrastructure provider
- Poor reliability of existing solution required increased amount of support and management
- Increasing need to ensure digital images are securely stored and easily accessible

Solution

An integrated solution consisting of:

- Two Western Digital Ultrastar Data60 hybrid storage platforms
- Two Dell servers
- Microsoft Windows Storage Spaces
- Integration services from AC&NC

The Challenge: Keeping Pace With Rapid Data Growth in Limited Space

Veterinary healthcare faces the same IT challenges as human healthcare. Providers must safely store and distribute files, such as large radiological images used for diagnostics. Asteris's rapid growth, however, outpaced the capacity of its legacy storage systems to house customer data. This in itself was a challenge, but the firm faced other issues.

Asteris is a truly digital company without brick-and-mortar facilities. Its employees work from home offices and it leases racks from an infrastructure provider for its data center. "As a virtual enterprise, Asteris is very forward-thinking, but we don't have a dedicated data center," said Jason Otis, CEO of Asteris. "Having limited rack space, we required solutions that are very compact, but still deliver enterprise-class capacity."

The company utilizes its patented Keystone software, in combination with Microsoft Windows Storage Spaces, to manage, compress, encrypt, and store its customers' files. It deploys HBA controllers in its servers and thus needed JBODs (Just-a-Bunch-of-Disks) to support its software-defined storage technology. They did not want to utilize storage arrays with their own controllers, due to cost and complexity.

To support its business growth, Asteris required a simple, affordable storage solution to anchor its Keystone software-defined digital imaging and communications platform. After many proposals, Asteris chose system integrator AC&NC (www.acnc.com) that proposed a solution based on Western Digital's Ultrastar Data60 storage platforms.

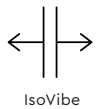
The Solution: Ultra-high Capacity Storage

The winning solution consisted of two Western Digital Ultrastar Data60 storage platforms managed by Microsoft Windows Storage Spaces on Dell servers installed in the leased racks.

The two Ultrastar Data60 storage platforms were deployed with 30x Ultrastar 10TB and 30x Ultrastar 12TB SAS HDDs, for a total of 660TB raw storage capacity in each 4U chassis. Each platform was linked through 12Gb/s SAS connections to the Dell server, equipped

"With their solid build quality, redundant components, and excellent speed, Ultrastar Data60 storage platforms show how useful and cost-effective JBODs can be. For us, it was a no-brainer and our integration partner AC&NC delivered exactly what we needed."

Jason Otis
CEO Asteris



IsoVibe™ Vibration Isolation Technology

Precise cuts in the baseboard provide a suspension for the drives in the chassis, isolating them from transmitted vibration. The result is that consistent performance is maintained, even when all the drives are working hard.



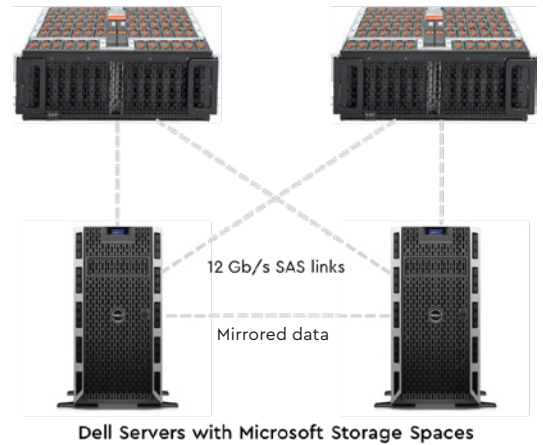
ArcticFlow™ Thermal Zone Cooling Technology

By Introducing cool air into the center of the chassis, drives operate at lower and more consistent temperatures than conventional systems. This results in lower fan speeds, reduced vibration, lower power consumption, quieter operation and ultimately higher reliability.

with Microsoft Windows Storage Spaces. The Ultrastar Data60 platforms were configured with two partitions each, so the servers would see a total of four virtual drives in their storage repository.

The Keystone software algorithms reduce the need for any RAID configuration. When incoming files arrive at one of the load-balanced servers, they are written first to that server's Ultrastar Data60 platform and then to the other chassis, ensuring multiple, mirrored copies of all customer data. For even greater data protection, files are also sent to a backup cloud repository.

Western Digital Ultrastar Data60 Storage Platforms



Furthermore, the Keystone software compresses files without any loss of diagnostic image data before they are stored on the Ultrastar Data60 platforms. With files averaging about 55% of their original size, the company has approximately 70TB of compressed data on one Ultrastar Data60 platform and 62TB of compressed data on the other, providing plenty of room for future growth.

"Deployment was straightforward," noted Otis. "AC&NC, our integration partner, made sure that everything was working properly, which we appreciated."

High Reliability Storage with Low Maintenance

Asteris stated that the Ultrastar SAS HDDs provide impressive reliability and I/O performance. "We haven't seen a bad sector, let alone a drive failure since deployment," said Jason Otis. "The Ultrastar Data60 storage platforms are truly enterprise-class JBODs that can deliver the speed, reliability and capacity that veterinary healthcare providers demand".

System integrator AC&NC chose the Ultrastar Data60 platform for its high reliability, scalability and warranty terms, reducing the need to architect a SAN or NAS with expensive, complex storage arrays that needs to be managed closely. Two innovative technologies IsoVibe™ and ArcticFlow™ both contribute to long-term reliability and reduced drive failure, enabling a five year limited warranty on the entire platform. For a virtual company such as Asteris, having low failure rates and no requirement for on-site staff to manage the storage is key for successful business operations.

The Ultrastar Data60 storage platform is a hybrid storage solution that supports both HDDs and SSDs and offer up to 840TB of raw storage in a 4U enclosure. For this configuration, an initial 660TB of raw storage was deployed, but additional capacity could be added in the future through either deploying larger capacity hard drives, or by simply daisy-chaining additional Ultrastar Data60 storage platforms to those it already has.

Asteris appreciated the density of the Ultrastar Data60 platform, as it maximized their leased rack space. The innovative IsoVibe technology inside the enclosure reduces vibration interference between the drives, ensuring no performance degradation for Asteris' customers. The unique ArcticFlow technology enables the chassis to operate at lower temperatures, lowering power consumption, enhancing reliability and thereby reducing overall cost. As a result, the Ultrastar Data60 operated noticeably cooler than the old solution, despite their much greater capacity and density.

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¹One TB is equal one trillion bytes when referring to storage capacity. Accessible capacity will vary from the stated capacity due to formatting and partitioning of drives, software, and other factors.

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