Western Digital.

CASE STUDY

Access Technologies Partners with Western Digital for High-Performance 3D Imaging System

Challenge

3D recording and imaging system needed even greater performance and capacity.

Solution

Access Technologies partnered with Western Digital to build a solution on Western Digital's Ultrastar Data60 storage platform.

Key Results

The final solution delivered substantially larger work output and exceeded write speed requirements using only HDDs in RAID 6 configuration.

Company Profile

Access Technologies, based in Israel, is a leading IT solutions provider. For over 25 years, the company has delivered successful implementations in high-performance computing (HPC), server virtualization, enterprise applications, storage, cloud computing, security, backup and DR, and more.

3D Imaging Demands Greater Performance and Capacity

It was at an equestrian show jumping competition where the value of cutting-edge, 3D recording and imaging technology was first showcased in a major event. The system, developed by Replay Technologies (currently owned by Intel®), enhanced the judge's capabilities and performance analysis, and improved the experience of both viewers and competitors exponentially.

The 3D imaging system required enormous processing power and data storage. It employed 24 cameras in 5k resolution and had to deliver replays within 30 seconds. To provide this level of performance, Replay Technologies turned to the services of Israel-based Access Technologies Ltd, which developed a unique HPC cluster that included 40 processors. This cluster could run the imaging application at a clock speed 50% faster than otherwise possible with a traditional configuration of 40 GPUs.

The successful demonstration inspired market demand for the imaging system. It also led to a desire for even greater performance and capacity to roll out the system in larger, more extensive environments. To fulfill the new requirements, such as extended recording capacity, faster processing speed, mobility, and larger memory, Access Technologies needed to find a new storage solution provider.

Western Digital was the Perfect Solution

After surveying the market, Western Digital, one of the most advanced storage solutions providers in the world, was found to meet all their requirements. Western Digital offers a one-stop-shop for its clients and delivers storage solutions and data processing alongside high serviceability, extensive technical support, availability, and extended warranty when compared to other suppliers. Western Digital also had worked in collaboration with Access Technologies on several projects in the past, which solidified its status as a highly capable partner especially suited for this type of advanced project.

Access Technologies and Western Digital jointly mapped the project's requirements and co-developed a solution that answered all of the requirements.

"The project was a leap forwards in the system abilities... Our capabilities with Western Digital allowed us to complete this assignment successfully."

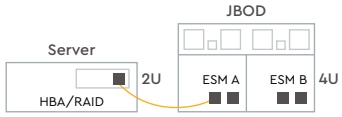
Yakov Valerstein
CEO of Access Technologies

Western Digital Better Together

To improve the reliability and efficiency of this critical storage infrastructure, Access Technologies selected the Ultrastar Data60 storage platform filled with Ultrastar HelioSeal® hard drives. The Ultrastar Data60 includes unique technologies not found in any other storage platform: patented IsoVibe™ and innovative ArcticFlow™. IsoVibe reduces vibration-induced performance degradation, while ArcticFlow overcomes the cooling issues by introducing cool air into the middle of the platform. Combining these technologies with HelioSeal hard drives provides a solution designed for long-term reliability and reduced drive failures, enabling the safekeeping of all the digital content stored on the platform.

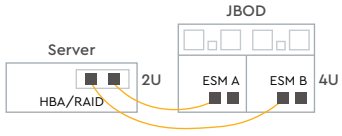
Twenty-eight workstations were connected to a Windows server using NTFS, and each station was assigned to a single camera, guaranteeing fast processing speed and excellent performance. The resulting system could read at a speed of 8.5 GB/s using connecting bridges in the following configurations:

1 Link : 1port 1HBA - 1ESM



Single bridge connection
This arrangement offers an average read/write speed of 4.5 GB/s but without redundancy

2 Links : 2ports 1HBA - 2ESM



Double bridge connection from a single port
When the double bridge is connected, the read/write speed reaches 6 GB/s with an option for redundancy

2 Links : 1port 2HBA - 2ESM

Double bridge connection from 2 ports
This configuration offers the best redundancy in writing speeds of up to 8 GB/s

A Leap Forward in System Performance

The final solution delivered a substantially larger work output while maintaining a compact form factor that is comfortable for the operator to use. The required writing speed was 1.5 GB/s, but after modifying and changing the rack structure and overclocking system components, an impressive speed of 3 GB/s was measured using only hard drives in a RAID 6 configuration.

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