Western Digital.

Sinthera System Integrator Lowers Customer's TCO by Deploying Western Digital NVMe™ SSDs and Storage Enclosures Combined with DataCore SANsymphony™ Software
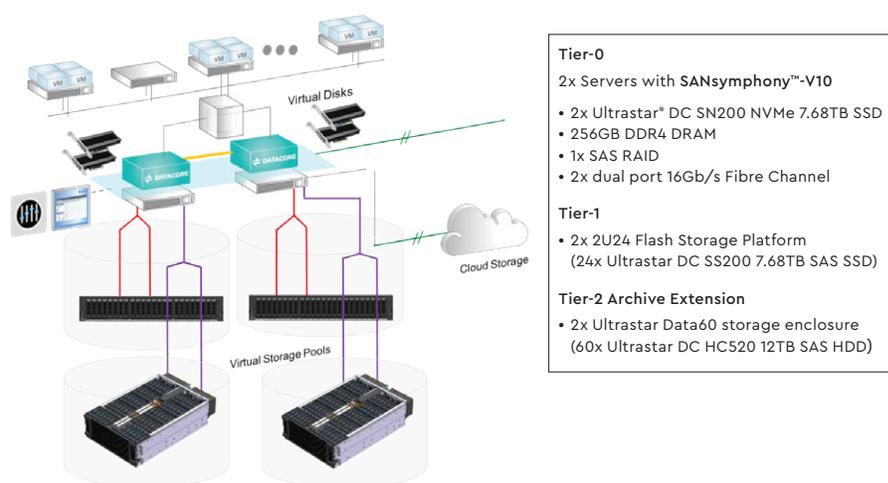
Challenge

Customer's existing 90TB storage solution did not provide the TCO and the performance needed for storing and accessing its data

Solution

A storage solution based on Western Digital's Ultrastar DC SN200 NVMe SSDs, 2U24 Flash Storage Platform and Ultrastar Data60 HDD-based storage enclosure combined with DataCore SANsymphony software

Key Results

- 30% reduced TCO
- 10TB rebuild completed in less than 1 hour
- Resilient and high-performance solution (>1.5GB/s)
- Up to 155TB net flash capacity in Tier-1
- Up to 1.4PB HDD capacity in Tier-2

Company Profile

Sinthera, a system integrator in Italy, offers data center, networking, virtualization, and cloud services, with a focus on software-defined data center and cloud-oriented solutions. The company offers consulting, operational support, and training which allows them to find the intersection between customer needs, protection of its investments, and technological innovation.

Multi-Tiered Storage Solution

Sinthera's end customer was using two legacy systems from an established OEM storage vendor, each containing 90TB of HDD storage, plus an SSD for caching. The manufacturer's service coverage expired after four years and the customer took the opportunity to look for a solution that provided them with better performance compared to the existing systems, and a lower total cost of ownership (TCO) for the following five years.

Sinthera, the integration partner, proposed a solution based on DataCore's SANsymphony™ software and Ultrastar NVMe™ SSD devices and storage enclosures as shown in Figure 1.

Tier-0
2x Servers with **SANsymphony™-V10**
- 2x Ultrastar® DC SN200 NVMe 7.68TB SSD
- 256GB DDR4 DRAM
- 1x SAS RAID
- 2x dual port 16Gb/s Fibre Channel

Tier-1
- 2x 2U24 Flash Storage Platform
  (24x Ultrastar DC SS200 7.68TB SAS SSD)

Tier-2 Archive Extension
- 2x Ultrastar Data60 storage enclosure
  (60x Ultrastar DC HC520 12TB SAS HDD)

Figure 1: Sinthera's multi-tiered solution

High Resiliency and Reliability Based on Western Digital and DataCore

Sinthera's solution was based on DataCore's SANsymphony V10 software, running on two standard x86 servers each equipped with 2x Ultrastar DC SN200 NVMe SSDs to act as a very fast Tier-0 layer. For the Tier-1 layer, Sinthera chose the Western Digital's 2U24 all-flash storage enclosure, populated with Ultrastar DC SS200 SAS SSDs. For the Tier-2 layer, they proposed two Ultrastar Data60 storage enclosures populated with Ultrastar DC HC520 12TB HDDs.

The incumbent supplier tried to match the offered solution with similar proposals, but could not meet the price and performance targets. They also came with the risk of vendor lock-in, making future upgrades more expensive than desirable.

Sinthera chose Western Digital for the reliability of its enterprise-grade SSD and HDDs, and the robust build of the storage enclosures, which are anticipated to provide many years of dependable service and offer a superior warranty. The installation was simple and efficient, taking just one day to install the DataCore SANsymphony software, creating the RAID configuration, and exposing the storage pool to the software running on the 2x Windows-based servers. High-level monitoring was handled by DataCore's SANsymphony software, while the RAID controller manager performed the low-level control. The proposed solution proved to be extremely resilient, sustaining all failure scenarios requested by the customer.

"When our customer came to us with the request to propose a solution to replace their existing 90TB storage systems, we set out to search for the most cost-efficient and robust solution that we could find" said Paolo Marco Salvatore, CTO for Sinthera. "Having partnered with [Western Digital] in the past, we knew the reliability of their components and storage solutions, and it was an easy choice to provide a tailored solution at a very reasonable price."

High Performance and High Capacity Based on Western Digital Storage Solutions

The all-flash 2U24 and HDD-based Ultrastar Data60 storage enclosures connected through 2x 8Gb/s connections to the mirrored host servers, fully saturating the bandwidth available to the Western Digital platforms. Sinthera's performance testing showed amazing performance with a 10TB rebuild completed in less than one hour at a bandwidth of >1.5GB/s (measured using GrafANA test platform).

Utilizing 2x 7.68TB Ultrastar DC SN200 NVMe SSD cards as Tier-0 storage, the solution provided for a large capacity cache per server (15.36TB), while the high performance of the Ultrastar DC SN200 NVMe SSDs (up to 1.2M read IOPS and up to 240K IOPS for a mixed workload) allowed the DataCore SANsymphony software to run extremely fast and efficiently. By enabling a Tier-1 layer that consisted of high capacity flash storage (24x 7.68TB Ultrastar DC SS200 SAS SSD), the solution provided for 368TB of raw flash capacity, resulting in 155TB of net capacity. The archival Tier-2 layer delivered up to 1.4PB of cost-efficient, reliable HDD storage.

Lowered TCO with the Right Mix of Performance, Reliability and Capacity Tiering

Prior to implementing the new solution, the customer experienced challenges both in the TCO and performance of their existing storage system. After implementing Sinthera's proposed Western Digital/DataCore solution, they were able to reduce 5-year TCO by 30%, while achieving much higher performance, capacity, and reliability. The solution was scalable and satisfied capacity, throughput, connectivity, and high-availability requirements.

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