

Primary Storage for Virtual Environments Using QXS Hybrid Storage

THE SITUATION

The highly attractive combination of significant cost reduction and application deployment flexibility has driven virtualization to become one of the most widely adopted new technologies in computing history. With this flexibility comes the requirement that the storage on which the applications and user data resides be flexible enough to keep up with changing usage patterns.

Storage utilization has quickly transformed from predictable, to predictably changing, to unpredictably random. Manual tuning and reallocation can't keep up, and replacing disks with flash isn't cost effective and undermines the savings originally promised by virtual computing.



ENTER QUANTUM QXS HYBRID STORAGE WITH REAL-TIME INTELLIGENT TIERING

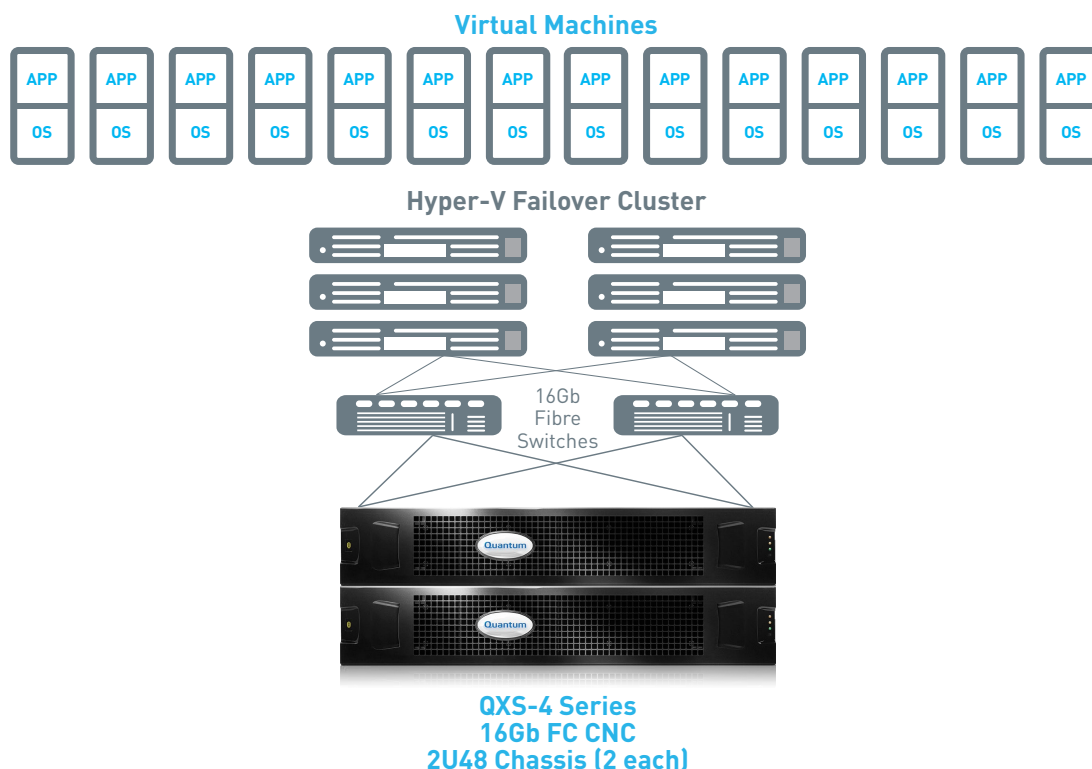
To meet the demands of these random workloads, Quantum QXS hybrid storage uses Q-Tier real-time intelligent tiering software to move data among different tiers of storage within an array, including flash, high-performance HDDs, and lower-cost HDDs, based on real-time data access patterns.

Tiering data requires both compute power and storage bandwidth. Unlike other hybrid storage arrays that tier data daily to avoid performance degradation during peak hours, QXS hybrid storage arrays have dedicated processing and dual active-active controllers to tier data every 5 seconds—constantly promoting active workloads to the fastest tier available with no reduction in performance. This provides the most-needed data with the highest I/O possible, and also reduces the bottlenecks and noisy-neighbor effects associated with static storage.

The net effect is that users can achieve flash performance for data sets that need it without overprovisioning expensive flash storage infrastructure. For the other arrays that tier the data as a batch process at the end of the day, the tiering occurs way too late—by that time, different data sets are being accessed.

One common use case that really benefits from this real-time tiering is primary storage for virtual environments: see Figure 1.

Figure 1. Primary Storage for Virtual Environments Using QXS Hybrid Storage



SOLUTION DESCRIPTION

As shown in Figure 1 above, this solution consists of a Hyper-V failover cluster that is running a number of virtual machines, in this case, SQL server databases. Although this example highlights Hyper-V, the benefits of the QXS hybrid storage arrays apply regardless of hypervisor or the application running on the virtual servers. This works for any environment with random, unpredictable workloads.

The servers running the Hyper-V cluster are connected to Quantum QXS-4 Series hybrid storage using a 16Gb fibre channel SAN.

This solution includes enough flash to handle peak performance and data access for the database applications. The rest of the storage uses less-expensive hard drives where the majority of the data can reside when it is not being accessed.

SOLUTION BENEFITS

By providing real-time intelligent tiering, Quantum QXS hybrid storage arrays combine flash with small and large form factor HDDs, in a variety of different chassis options, to deliver the benefits of flash performance without the cost of an all-flash array. By responding in real time to unpredictable data access patterns, and therefore accelerating the application that is servicing our customers' ultimate end users, Quantum QXS hybrid storage arrays deliver excellent value without sacrificing functionality or reliability.

Learn more at www.quantum.com/hybridstorage.

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SB00126A-v01 Aug 2015