Using SATA as the Middle Tier in the Enterprise

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It was a perennial problem in data storage: Use primary disk storage for infrequently accessed, or reference, information such a presentations, email and documents in a case of bandwidth overkill. Or turn to tape, an impractical alternative because of the sluggish pace of offloading data to tape and retrieval that is equally slow and cumbersome. Indeed, more than half of enterprise data centers rely solely on high-speed Fibre Channel and SCSI disks for reference data storage. And because this high-end storage, designed for frequently accessed, or transactional, data offers lower capacity, it is not well suited for bulk storage.

This mismatch of application with cost, performance and capacity has given rise to a new class of storage – low-cost Serial ATA disk drives for bulk storage of reference data and as a staging area for moving primary storage to tape for archival. Serial ATA storage is ideal for disk-to-disk backup and reference data storage since Serial ATA drives are optimized for capacity. By contrast, enterprise-class Fibre Channel and SCSI disk drives are optimized for performance and reliability.

There are several compelling reasons to use Serial ATA disks as the middle tier in the enterprise – the tier between backup tape libraries and high-bandwidth Fibre Channel or SCSI disk storage. Among other benefits, moving reference data – inactive and seldom-used online storage – to high-capacity, low-cost Serial ATA disk drives reduces storage costs and accelerate access to archival data.

Using Serial ATA as backup storage for midline data restoration also can cut storage costs. Most data centers perform restorations more than once a year, while many others do so monthly or more frequently. The labor costs of file restorations are high, and the process is typically very disruptive. To prevent any modifications to stored data during back and restore, user access generally must be interrupted. For business applications that can easily withstand this scheduled downtime, this procedure is straightforward. However, environments requiring continuous data access need a less-intrusive alternative. Midline storage can provide cost-effective online backup of various point-in-time data to dramatically reduce these costs.

For many users, backup windows have become too short. The inability to quickly offload important files to tape often slows system startup the next day. IT managers also can stage data for backup on disk drives before moving it to tape storage to shorten backup windows and maintain uninterrupted contact with customers and business partners, a growing practice as more organizations rely on the Internet for round-the-clock business operations.

The emergence of SATA as mid-tier storage is prompting many IT managers to re-evaluate the cost-effectiveness of their storage infrastructures. As part of this assessment, administrators are focusing on balancing performance against costs as content moves through the tiers of storage, realizing that reference data should be stored on low-cost, high-capacity SATA drives, and recognizing that tape is not the only mechanism for backup and restore protection.

About the author

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