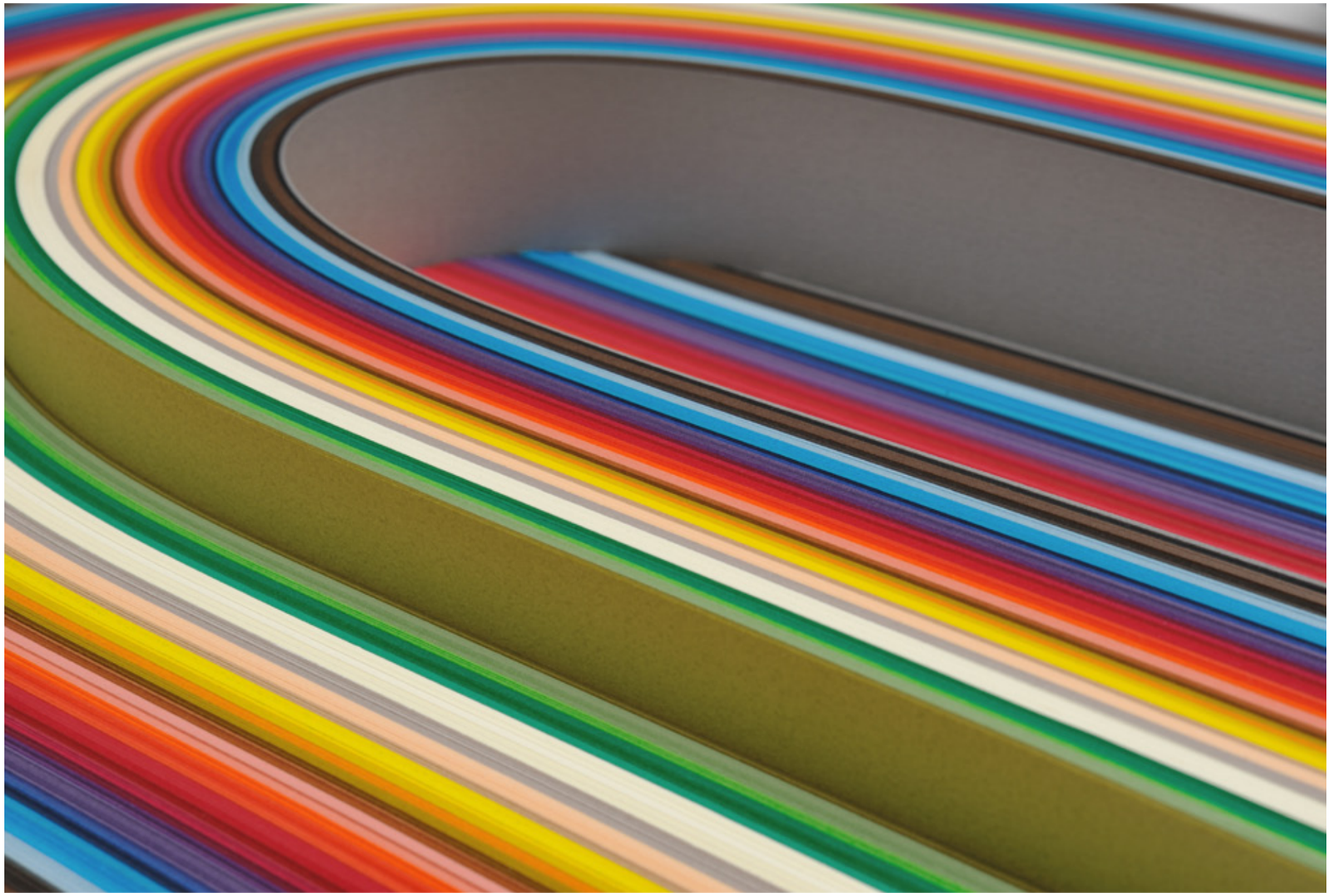
Laying a solid foundation for unified storage



Need to move to an automated, intelligent and scalable storage strategy? Get Fluid.

By Sandra Gittlen

Midsize businesses are feeling the crush of growing data. Every application is generating mounds of information that has to be stored, archived and held in compliance with corporate, industry and government mandates.

Yet many midsize organizations are managing their data storage manually, socking it away in disparate silos. As companies scale and churn out more data, this approach breaks down, draining staff, chewing up data center space, sparking unnecessary downtime and placing a heavy burden on limited budgets. In addition, siloed storage makes it impossible to operate efficiently and expediently in a fast-paced virtual environment or to pool enterprise-wide resources for improved utilization.

"When you can spin up a virtual server in minutes, you don't want to have to wait to deploy additional storage capacity," says Terri McClure, senior analyst at Enterprise Strategy Group in Milford, Mass. "Storage cannot be what holds back the rest of the infrastructure."

To match the speed of virtual networking and the benefits of unified storage, companies are turning to Dell™ Compellent™ Storage Center™ SAN, which features Fluid Data Architecture and incorporates automation and intelligence to promote storage optimization.

Dell's Compellent Storage Center SAN enables midsize companies to rapidly deploy, easily scale and intelligently manage stored data throughout its lifecycle.

Compellent's rapid provisioning, automated tiering, state-of-the-art snapshotting, thin replication, open platform and unified console create a simple, secure and highly efficient storage strategy for midsize companies that are ready to grow.

"Moving in this direction gives you one system to manage, which leads to fewer staff requirements, shortened deployment cycles, as well as increased flexibility and utilization," McClure says. "This is a great step in being able to use all your storage resources as needed throughout the enterprise."

Islands of information

For many midsize businesses, storage has come to signify complexity. As they grow, companies have added ad hoc disk and tape arrays across departments, campuses, branch offices and remote offices. Each time an application or server is stood up, IT has to scramble to buy, configure and deploy a one-off storage system for it.

The worst part is that companies tend to over-provision storage to account for future growth – sometimes by as much as 60 percent, according to McClure. "What you see in many companies is a lot of spare capacity lying around unused," she says.

With no visibility into these sprawling arrays, IT overbuys hardware, wasting valuable budget resources. Each system requires – among other expenses – management, data center space and power and cooling.

This ad hoc approach also sets up obstacles to supporting mobile users who require central access to storage and archives. And as companies introduce virtualization, storage becomes the logjam as users suffer delays while IT provisions piecemeal storage systems.

Remaining tierless

As storage systems have matured, the value of tiering has become evident. In properly tiered storage environments, data that is frequently accessed or considered valuable is kept in Tier 1 or in fast, expensive arrays.

Data tapped into less frequently or of lesser value is sent to Tier 2 or Tier 3 storage, which is slower and less expensive.

By tiering storage, midsize businesses can make the most of their investment in top-of-the-line storage arrays and speed performance for critical business systems.

Some companies try to manually create a tiered system, moving data between fast and slower arrays in huge blocks. The problem with this approach is that it's time-consuming and potentially inaccurate. For instance, some application data might be rarely accessed, while some is constantly drawn upon. To assign all of that application's data to Tier 1 spindles would squander high-value storage, and to assign it all to a lower tier could have a negative impact on performance. Instead, the data has to be managed on a granular level.

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Another challenge is that siloed, manually managed storage revolves around disaster recovery and business continuity. Without central visibility, IT has no insight into data priority, and it can't manage the data's recovery with ease.

Instead, IT is left to individually snapshot and back up storage silos, opening the organization to human error and corrupted recovery files. For instance, snapshots traditionally are taken in whole each time, and those large files must be transported and stored. This eats up a lot of valuable disk space and bandwidth in the long run.

The Fluid Data solution

Dell has solved these issues with its Compellent™ Storage Center, featuring Fluid Data Architecture, and has laid the groundwork for automated, intelligent and scalable unified storage. With this solution, midsize companies can adapt to changing business needs and manage data throughout its lifecycle.

Dell's storage infrastructure is the perfect companion to virtualized environments as it presents storage as a pool of resources in a fast, simple and secure manner, enabling data to flow throughout the enterprise.

The Fluid Data Architecture has been developed for companies ready to grow their storage without expanding their data center footprint, adding staff or increasing power and cooling capacity. It is a strategy geared toward dynamic businesses with changing storage needs.

Dell has made intelligent data management the core of this architecture. Contrasted to storage systems that manage data in complete volumes, the Fluid Data Architecture handles data in smaller blocks. This helps increase flexibility and boosts performance.

Specific information about each block is captured in flight throughout the day to provide real-time intelligence for dynamically storing, migrating and recovering data. These use characteristics are gathered using minimal system overhead but can be extensive. Examples include the type of data stored, disk drive used, RAID level, time written, frequency of access and more.

Storage virtualization is another key ingredient. Using block-level data management, storage is virtualized at the disk level, creating a flexible pool of resources that is repeatedly shared by all servers.

In the past, midsize businesses have been constricted because storage allocation and utilization were intrinsically linked. Dell has decoupled them using Dell Compellent Dynamic Capacity™ thin provisioning. Now companies can over-provision storage resources without leaving capacity unused, as it is only consumed when data is written.

Partnered with thin provisioning is Dell's Data Progression,™ which enables automated tiering. Dell's SAN dynamically and granularly classifies the importance of data and migrates it to the optimum tier based on actual usage. This eliminates waste that occurs when storing rarely accessed data on high-value storage and ensures appropriate performance levels.

Knowing that snapshotting is critical for backup and recovery, Dell has focused on developing state-of-the-art technology. Data Instant Replay™ only captures changes in data since the last snapshot, or replay. By doing so, the software dramatically reduces the amount of disk space required. In addition, thin replication, which enables IT to cost-effectively store Instant Replays in multiple local and remote locations, provides multi-site, verifiable disaster recovery. Dell's snapshot technology erases the need for high-speed data links or identical system configurations.

Ease of management is always a major consideration for midsize businesses that have limited staffing. Dell's storage infrastructure features a unified user interface with a holistic view of the storage environment rather than requiring staff shuffling through multiple system consoles.

Compellent reasoning

Midsize businesses are unmatched in their desire for agile, highly scalable and affordable storage systems. Essentially, users require access to the right data from the right place at the right time. Dell Compellent Storage Center SAN, featuring the Fluid Data Architecture, answers this call with a single, open platform that grows to handle increased storage needs. There is no need for a costly forklift upgrade. Instead, Dell protects storage investments and supports enterprises far into the future.

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