Intelligent Data Management

Dell Storage Product Group

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Executive Summary

Data has become increasingly valuable as both a business asset and as a competitive differentiator. Its intrinsic value is being acknowledged in the form of stricter government, industry, and company standards for protecting and preserving it. As a result, organizations are generating and keeping more data than ever before, and every sign indicates that data growth will only accelerate in the future.

In challenging economic times, this confluence of rapid data growth and the need to keep it safer, longer has created a "perfect storm" for IT leaders, who must find resources to store and manage all this data while keeping costs under control. To win, organizations need to reconsider how they manage and use their data, from creation to end of life.

At present, full-lifecycle data management solutions are costly and complex. The problem is especially acute for small and medium-sized businesses (SMBs), which have a limited and poorly integrated set of options for data management.

Dell's vision is to simplify IT with products, services, and partnerships that make it easy and affordable for SMBs to manage and leverage their information from creation to end of life. We call this approach Intelligent Data Management (IDM). IDM can change the economics of information by reducing cost and complexity while protecting data and making it available in ways that make sense throughout its lifecycle. Part of our IDM strategy will be a new line of the TierDisk family of products to help SMB customers gain control of their data while reducing Total Cost of Ownership (TCO). The first of these products is our PowerVault™ DL2000 integrated disk-based backup solution. Future products will support the goals of IDM to help IT organizations reduce cost and complexity while giving them more intelligent products to manage their data.

Data Management Today: Pain Points

IT leaders in organizations of all sizes are feeling the pressure of data growth and increased regulation of how long, how securely, and how accessibly that data is stored. They need reliable backups and restores and a way to classify data according to its use, value, and compliance requirements. They need to be able to search this data and find what they need quickly. And they want to be able to plan for data growth, rather than respond to it after the fact. But current efforts to manage data typically fall short: Too much time and money are spent on incomplete, poorly integrated, and unreliable solutions. All too often, IT managers are forced into a "keep everything" and a "keep it forever" mode of operation. While throwing additional storage resources at the problem will provide some short-term relief, in the long run, the management cost of maintaining this model will be problematic.

In many organizations, responding to myriad department and user needs has created an "island" infrastructure made up of point solutions with multiple management interfaces. An organization may have separate vendors and solutions for tape backup, disk-to-disk backup, archiving, data classification, and search/discovery — and may depend heavily on expensive consulting services to stitch things together.

For the most part, well-integrated data management solutions for the full life of an organization's data do not exist. In fact, current products are focused on the enterprise market: high performance and high complexity solutions that need to be managed by trained IT specialists. These solutions are out of reach of SMBs, as they are too costly and too complex. In fact, many SMBs simply don't deploy data-recovery solutions because they don't have the budget or expertise to pull together complex solutions in their environment. Often, this can leave businesses exposed to data loss or legal action when data cannot be easily recovered or discovered.

Dell is developing this new line of IDM products to solve these problems for our SMB customers.

Dell's Vision: IDM

Dell is changing the economics of storage for SMBs by offering data-management solutions that focus on reducing the complexity of disaster recovery and data management. Dell's goal with Intelligent Data Management (IDM) is to help organizations retain, discover, and recover information according to their unique business requirements. Dell is working to develop fully integrated and automated solutions that are simple to install and configure, easy to use, and that meet these common customer needs:

- Data protection and recovery
- Legal and regulatory compliance, Disaster recovery and site recovery
- Leveraging digital content or assets
- Long-term data retention
- IT optimization

Goals and components of IDM

IDM, as an overall approach to data management, has several components that address IT's major goals of keeping data as safe and available as it needs to be at every stage of its lifecycle.

To manage and leverage information from creation to end of life, an organization needs to plan adequately for growth. It needs to monitor its data center environment both to see where current systems and architecture are inadequate or wasteful, and also on an ongoing basis to detect potential issues and deal with them before they become problems. This way, IT can put in place the resources it needs to grow gracefully and reduce or eliminate the possibility of data loss at each phase of the data's lifecycle.
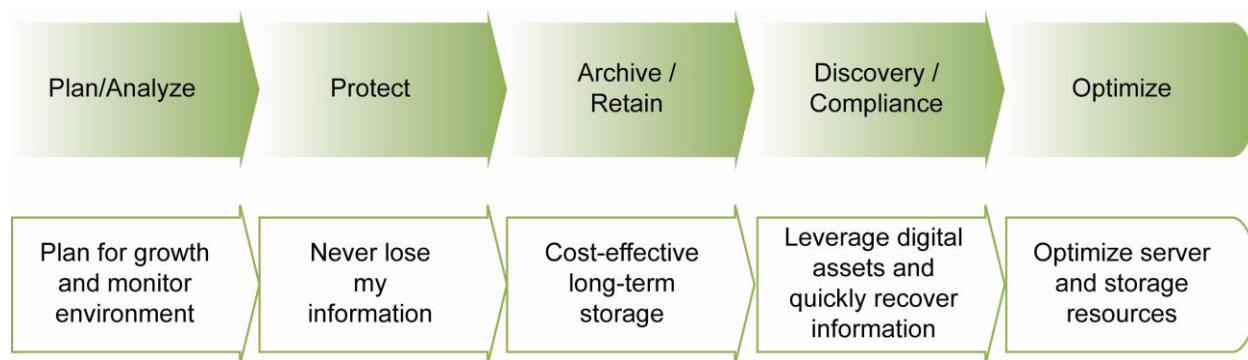
Information must be protected both in primary storage and in cost-effective long-term storage, available via search/discovery mechanisms that allow the organization to utilize its digital assets and recover information quickly.

Cost effectiveness is vital and more than a matter of purchase price. It includes the cost of management over the long haul. Complex solutions require more administrator hours and can add dramatically to TCO. Also figuring in TCO is how effectively the organization is using its server and storage resources. Optimization is a hallmark of IDM.

The most important hallmark of IDM is reduction in complexity. All the resources to achieve data management exist in the market today — but as disparate products. Customers end up using consulting services to stitch these components together into solutions, resulting in multiple management interfaces and a lot of manual work on an ongoing basis to manage the data.

Components of IDM

Plan/Analyze	Protect	Archive / Retain	Discovery / Compliance	Optimize
Plan for growth and monitor environment	Never lose my information	Cost-effective long-term storage	Leverage digital assets and quickly recover information	Optimize server and storage resources

- **Plan /Analyze:** This process could be as simple as understanding current workloads or as complicated as trying to predict what the needs will be at some time in the future. Enterprises usually accomplish such tasks through manual tracking and predictive analysis. Others utilize storage resource management software. Solutions may also employ storage assessment consulting or managed services that can leverage outside expertise for planning and analyzing customer environments.

- **Protect:** Today, data protection is achieved by storing multiple copies of data to traditional disk- or tape-based solutions using backup software. Other devices that have become popular are the Virtual Tape Libraries (VTLs), disk-based devices that emulate tape solutions.

- **Archive:** Archive is often equated with long-term retention of backup data using lower-cost, tape-based solutions. However, traditional tape-based backups lack the value of a truly effective archive solution. An effective archive solution removes inactive or infrequently accessed content from expensive primary storage and onto lower-cost media, while maintaining right-time access to and governance of that content throughout its lifecycle.

- **eDiscovery/Compliance:** Effective archive solutions offer robust data classification and policy-based rules engines for efficient, fully compliant content retention, search, and discoverability. This feature is especially important for complying with industry, government, or corporate records-retention policies or to support litigation. Traditional approaches to compliance and eDiscovery often are reactive, manually intensive, and, ultimately, ineffective efforts to locate data across disparate systems and media types. Even large

enterprises often outsource eDiscovery requests to consulting companies that specialize in performing such tasks.

- **Optimize:** Many technologies are available that help in optimizing IT resources. Deduplication helps in reducing the data footprint by maintaining single copies of redundant data. Customers can tier their storage, thus moving infrequently accessed data from high-performance storage arrays to cheaper, lower-performance arrays. Power-efficient solutions and arrays allow customers to save on their power requirements. Server virtualization allows consolidating multiple workloads onto a single physical server.

Today, many organizations are struggling to manage a fragmented solution with multiple management consoles and minimal integration between applications (e.g., backup and archive are often separate operations). Customers shouldn't have to buy an over-configured solution today — they should be able to scale their solutions as their data grows. Existing technologies may help in controlling the growth of the resources required to maintain exponentially growing data, but they should be well integrated with the solutions performing the other functions.

Dell's vision of IDM is that the components that perform these individual functions will work together seamlessly, with no silos of data that would make data migration a complicated task involving manual intervention. Dell is laying out a roadmap for a set of Intelligent Data Management solutions under its TierDisk family of products, which will help SMBs solve the data management problems by integrating all the above components.

Solutions

Dell is partnering with industry leaders to deliver fully integrated and automated TierDisk products to simplify information management. The first of these solutions are available now: Dell's PowerVault™ DL2000 integrated disk-based backup solutions.

PowerVault DL2000

PowerVault DL2000 solutions are the first fully integrated, automated, disk-to-disk-to-tape solutions with our industry leading partners CommVault® and Symantec® Backup Exec™. These solutions are designed to manage and protect information at multiple points in its lifecycle, enabling retention and recovery according to an organization's unique business requirements.

The PowerVault DL2000 solutions come factory installed with Symantec Backup Exec or CommVault Simpana® software, plus ease-of-use wizards that allow them to be set up in less than 30 minutes. These solutions fulfill the goals of IDM by reducing the cost and complexity of data management. They come with automated dynamic disk provisioning that configures the disks without user intervention. They provide integrated support for tape libraries, which allows for easy off-site storage for disaster recovery. And they are available with Dell Storage Assessment Services, which help in planning the overall data management strategy and the deployment of DL2000.

PowerVault DL2000 — Powered by CommVault additionally comes with deduplication capability

built into the software, combining two components of IDM in a single product. Archive functionality can also be added to create a single solution that will protect and archive data while optimizing disk usage.

Tiered storage

Implementing tiered storage arrays can deliver important cost savings over a "one-size-fits-all" model of storage. Tiering storage allows customers to use their high-performance arrays to host the primary data. For secondary data, which is not accessed as often, the organization can use comparatively inexpensive storage arrays.

Dell's portfolio of storage products includes Fibre Channel (Dell/EMC CX Arrays) and iSCSI arrays (EqualLogic PS Series and the PowerVault MD series) and direct-attached storage and tape — a broad range of offerings to enable tiered storage. Our consulting services help organizations classify their data and optimize the way it's stored, protected, and managed in a tiered architecture.

The Dell/EMC CX4 and the EqualLogic PS5000X are ideal for hosting primary data for high-performance applications such as e-mail and databases. For secondary storage, we recommend the Dell/ EMC CX4 array with SATA drives or the EqualLogic PS PS5500 with mirroring to disaster recovery sites or software for disk-based backups.

Deduplication solutions

Deduplication is a storage-optimization technology that reduces the data footprint by deleting multiple copies of redundant data and storing only unique data. Copies of the data are replaced by references to the original data. Deduplication of redundant data at the file, sub-file, or block level can help make disk-based backup as economical as tape backups.

Deduplication is not in itself a panacea. It can work well as part of a solution to enhance data management and protection, but organizations need to understand their specific needs and challenges to determine how to get the most value from deduplication technology. Dell has Storage Optimization Services that can help.

Dell is committed to helping organizations optimize their storage. Deduplication technology optimizes backup to disk, and Dell's integrated deduplication offerings are designed to deliver the widest benefits: efficient, cost-effective backups and restores, reduced requirements for storage capacity, power, cooling, and floor space, and reduced consumption of network bandwidth. Using our backup-to-disk solutions with integrated deduplication, organizations can centralize data protection and archive, reducing the burden on their staff and eliminating the need for on-site tape backup in remote offices. In addition, Dell also offers appliance-based solutions which may be the best approach for customers in some cases.

With a view to the future, Dell is actively pushing deduplication capabilities into our products and coordinating with our partners to deliver the future of data deduplication. To learn more about deduplication from Dell, please visit www.dell.com/deduplication.

Consulting services

Dell has introduced services that help in analyzing customers' environments and developing action plans designed to improve data recovery capabilities. Dell can help identify flaws in existing data protection processes and design, update backup, restore as well as set up a disaster recovery infrastructure to meet your organizational data protection requirements. Dell uses a tools-based approach to assess customers' backup environments so that design is based on actuals as well as Dell field expertise and point-of-proof knowledge base. These services from Dell free up customers' resources to focus on planning and related strategic projects.

Our View of the Future

Dell foresees a range of additional IDM technology enablers, including solutions for storage resource management, data replication, continuous data protection, server virtualization, and fixed-content retention and governance. SMB customers can look forward to future products that deliver on our promise of cost-effective, simple-to-use solutions that deliver on our Intelligent Data Management goals.

Conclusions

Rapid data growth and the need to keep it safer, longer will require organizations to integrate how they manage and use their data, from creation to end of life. Dell is addressing this need with a product strategy that enables Intelligent Data Management (IDM) now and in the future, with products that fit seamlessly into our customers' existing environments while giving them the advanced tools they need to safeguard and protect their data easily and cost effectively.