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THE DELL AX4-5: COST-EFFECTIVE, SIMPLIFIED STORAGE FOR SMBs

Small and medium businesses (SMBs) often contend with the same storage growth challenges as large enterprises, but with limited IT staff and resources. The Dell™ AX4-5 storage array is designed to help SMBs consolidate their data to a streamlined, scalable, high-performance storage environment in a cost-effective, easy-to-manage way.

Storage needs are estimated to be growing at an average of 50 percent per year, which is causing many organizations to face increasingly complex challenges related to managing and protecting their rapidly increasing data. Although many high-end solutions are available for large enterprises, they typically have a correspondingly high cost and require expertise that can be beyond the reach of small and medium businesses (SMBs) with fewer than 500 employees. These SMBs may have several servers and rely on a combination of internal storage and direct attach storage (DAS) systems, and although they may have considered consolidating to a storage area network (SAN), concerns about the potential costs and risks of performing such a consolidation may have led them to reject this option.

The Dell AX4-5 storage array is designed to help meet the needs of SMBs struggling with data growth, inefficient storage environments, and difficult, time-consuming IT management—placing storage consolidation within the reach of organizations with limited IT staff and resources. Designed for flexible Internet SCSI (iSCSI) or Fibre Channel connectivity and providing streamlined management tools, enhanced scalability, high performance, and powerful backup and recovery options, the Dell AX4-5 provides a flexible,

cost-effective way for SMBs to implement a SAN in their IT environments.

UNDERSTANDING THE NEEDS OF SMALL AND MEDIUM BUSINESSES

SMBs are a major part of the global economy, but their limited resources often prevent them from realizing the benefits of the consolidated storage systems used by large enterprises. Like those large enterprises, SMBs face increasing storage needs, but typically do not have the luxury of a large, dedicated IT staff that can design, install, and administer an effective storage management system. They also typically lack large budgets for storage.

Because of these challenges, many SMBs rely on adding DAS to their servers rather than implementing network attached storage (NAS) or a SAN. Figure 1 illustrates typical stages of storage growth for SMBs as they shift from internal storage to DAS, NAS, and a SAN. For organizations with only one server, internal storage or DAS may provide sufficient capacity while still being manageable. As these environments grow to four servers or more, however, deploying and managing multiple DAS systems can bring rapidly diminishing returns—the systems may be cost-effective and easy to deploy in the short term, but in the long term result in higher costs, lower utilization

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rates, and more difficult management than NAS or a SAN. For example, DAS systems are notorious for underutilization, often running significantly below capacity. In addition, as administrators add devices over time, they often end up deploying different models or systems from different vendors, which can make maintenance, upgrade, patching, and backup processes difficult and inefficient.

SMBs need storage that is simple and cost-effective while offering robust management, reliability, and scalability. An ideal system would be one that provides enterprise-class functionality while supporting easy deployment and the ability to add capacity and functionality that aligns with business growth. For many SMBs, DAS systems cannot meet all of these requirements.

INTRODUCING THE DELL AX4-5 STORAGE ARRAY

The Dell AX4-5 can help SMBs meet the challenges of increasing storage needs in their environments, integrating enterprise-class features in a simplified, cost-effective storage array. Designed for flexibility, the Dell AX4-5 storage array offers tiered storage that supports mixing high-performance Serial Attached SCSI (SAS) drives typically suited for demanding applications with cost-effective, high-capacity Serial ATA (SATA) drives typically suited for backup and archiving. The array supports up to 64 servers and can provide up to 60 TB of capacity when configured with the maximum of 60 hard drives, while optional dual controllers help increase availability, reliability, and performance for critical applications.

Integrated EMC® Navisphere® Express and Navisphere Manager software help simplify array installation and provisioning, while EMC SnapView™, MirrorView™, and SAN Copy™ software provide advanced data protection, replication, and migration features. Key features like snapshots and full-volume copies can provide multiple advantages as part of an overall backup and recovery strategy:

- Nondisruptive disk-to-disk-to-tape backups allow applications to access data during the backup and provide off-site copies.
- Multiple servers or users have read/write access to copies of the production data, helping increase efficiency.
- IT staff can rapidly restore data and applications following a hardware failure, disaster, or other disruption.
- Application development can be accelerated, because applications can be tested with the latest data without affecting production systems.
- Backup data can be stored on cost-effective, high-capacity SATA drives, helping control costs.

Dell AX4-5 arrays can support either 1 Gbps iSCSI or 4 Gbps Fibre Channel, providing organizations with the flexibility to choose a network interconnect that suits their requirements. When deciding between the two, SMBs should typically consider their existing network and storage environment, the type of applications they use and their performance demands, backup and recovery policies, IT staff

expertise and experience, and budget. Fibre Channel generally provides high levels of performance and availability, and is well suited for backup and recovery operations as well as streaming video; however, it can also be expensive to implement and require special skills to deploy and maintain. Because iSCSI uses standard Ethernet technology, it is typically easier and more cost-effective to deploy than Fibre Channel, and can offer performance comparable to Fibre Channel for many applications, including e-mail and database software.

In general, Fibre Channel is suitable when maximum performance is critical, IT administrators have the expertise to manage a Fibre Channel deployment, the cost of Fibre Channel host bus adapters and switches is justified by business requirements, and/or compatibility with other data centers is critical. iSCSI is generally suitable when organizations are implementing their first SAN, controlling costs is more important than sheer performance, IT administrators are unfamiliar with Fibre Channel or prefer working with Ethernet, and/or the environment does

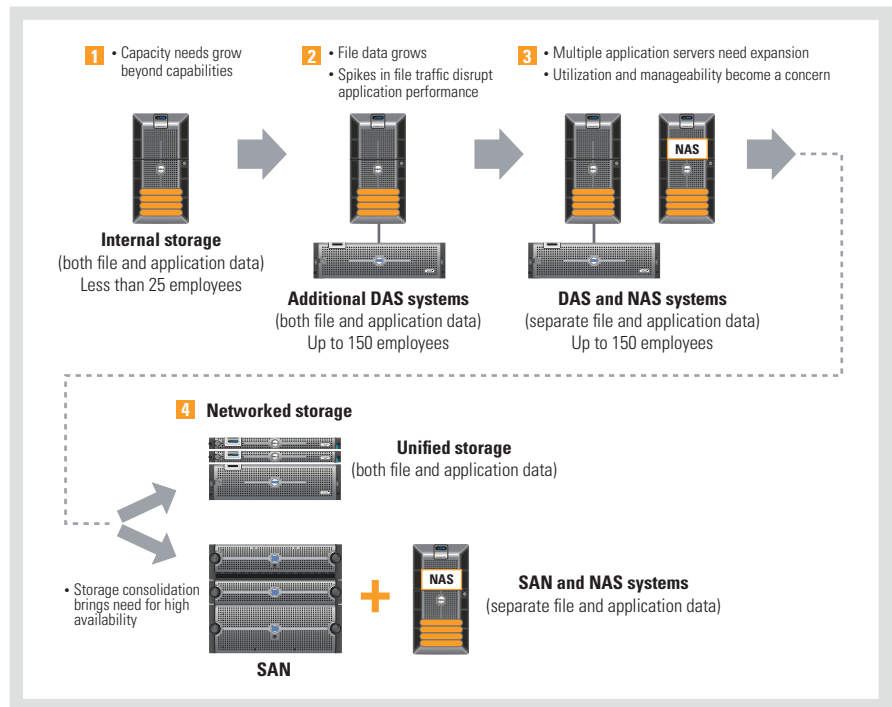


Figure 1. Typical stages of storage growth for small and medium businesses

“The Dell AX4-5 is designed to provide the alternative SMBs are looking for—a cost-effective, simplified, flexible storage array for organizations that want to consolidate their storage to a SAN for the first time or to deploy a SAN at a remote office.”

not require advanced replication or data migration options that would typically require Fibre Channel.¹

DEPLOYING COST-EFFECTIVE, SIMPLIFIED STORAGE

For SMBs that have been limited by the complicated management and expense of multiple DAS systems, the Dell AX4-5 provides a simple and cost-effective way to deploy a flexible, scalable, easy-to-manage SAN. For example, at an organization looking to move beyond DAS, the in-house IT staff might solicit feedback from each department to help them determine the company's needs and then design and plan the Dell AX4-5 storage deployment accordingly. They might choose the iSCSI-based model because the IT staff is thoroughly familiar with the technology and because the required hardware is cost-effective and easy to install.


When the IT staff is ready to deploy the system, the integrated EMC Navisphere Express management software can guide them through the installation and configuration process. They can choose only the number and type of drives they need to meet their short-term demands, knowing that they can expand the system quickly and easily as their data needs grow. Features like snapshots and full-volume copies of critical data can help them implement a comprehensive backup and recovery plan.

In this type of example scenario, the Dell AX4-5 SAN would typically result in fewer physical devices with higher utilization rates than the previous DAS-based storage environment, while providing increased performance levels to help keep key applications responsive to end users. The simplified storage environment and management help free IT staff from mundane administrative tasks and enable them to implement security policies and deploy updates quickly and easily, without disrupting production systems.

MEETING THE CHALLENGES OF DATA GROWTH

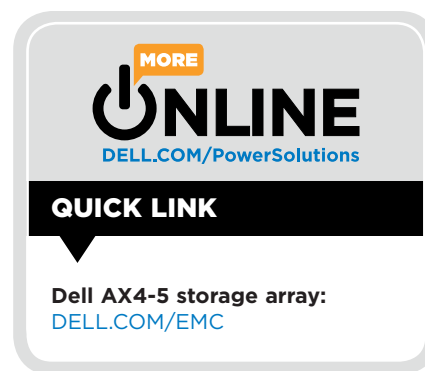
SMBs are often concerned that attempting to consolidate their storage may result in spending too much on a system that their in-house IT staff cannot manage. Feeling that they have no viable alternative to a DAS-based environment, they continue to live with the inefficiencies, potential security issues, and management difficulties that often accompany these systems.

The Dell AX4-5 is designed to provide the alternative SMBs are looking for—a cost-effective, simplified, flexible storage array for organizations that want to consolidate their storage to a SAN for the first time or to deploy a SAN at a remote office. Dell support and services can also help address the ever-growing storage needs of SMBs, including storage

assessment services that can help organizations understand their existing storage environments and how to meet their specific requirements for data archiving, capacity management, data retention, and other aspects of storage. By taking advantage of these services and the Dell AX4-5 array, SMBs can gain the benefits of storage consolidation previously available only to large enterprises—including streamlined management, enhanced scalability, and high performance. 

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¹ For more information on iSCSI and Fibre Channel, see “iSCSI: Changing the Economics of Storage; Part 1—Understanding iSCSI in Enterprise Environments,” by Travis Vigil, in *Dell Power Solutions*, May 2007, [DELL.COM/Downloads/Global/Power/ps2q07-20070335-Vigil.pdf](#); and “iSCSI: Changing the Economics of Storage; Part 3—Using iSCSI in Small and Medium Businesses,” by Travis Vigil, in *Dell Power Solutions*, November 2007, [DELL.COM/Downloads/Global/Power/ps4q07-20070402-Vigil.pdf](#).