



Flexible Storage Enables Growth

TIERED SAN STORAGE NOW FOR ENTERPRISES OF ALL SIZES

BY STAN GIBSON

It's no secret: for your business to succeed, it must grow. Growth may spur your company to make strategic acquisitions and consolidate operations; launch new units quickly in one part of the world; or pick up an operation from one place and put it somewhere else to meet market demands.

As a business leader, you want to be able to think; then act. You don't want to have to put a new market push or a strategic merger on hold because your data storage infrastructure can't change fast enough or because the cost of a storage upgrade would erode the gains from a new business initiative. Putting in place a storage infrastructure that can handle anything the future may bring can give your company a distinct strategic advantage.

Case in point: McNeil Technologies, a Springfield, VA federal contractor with services ranging from language translation to IT solutions, recently completed a merger with TRAWICK & Associates, Inc. In so doing, McNeil merged data centers, consolidated and virtualized servers and slashed data center waste. "We're getting rid of 13 servers and virtualizing everything in an environment that will be easier to manage, cheaper to run and will save space," said Gene Gilley, IT director at McNeil. The server consolidation is being enhanced by adding shared storage using a Dell™ AX4-5 fibre channel storage area network (SAN) device. The AX4-5 can handle both SAS and SATA disk drives. It can be configured for iSCSI or fibre channel networks.

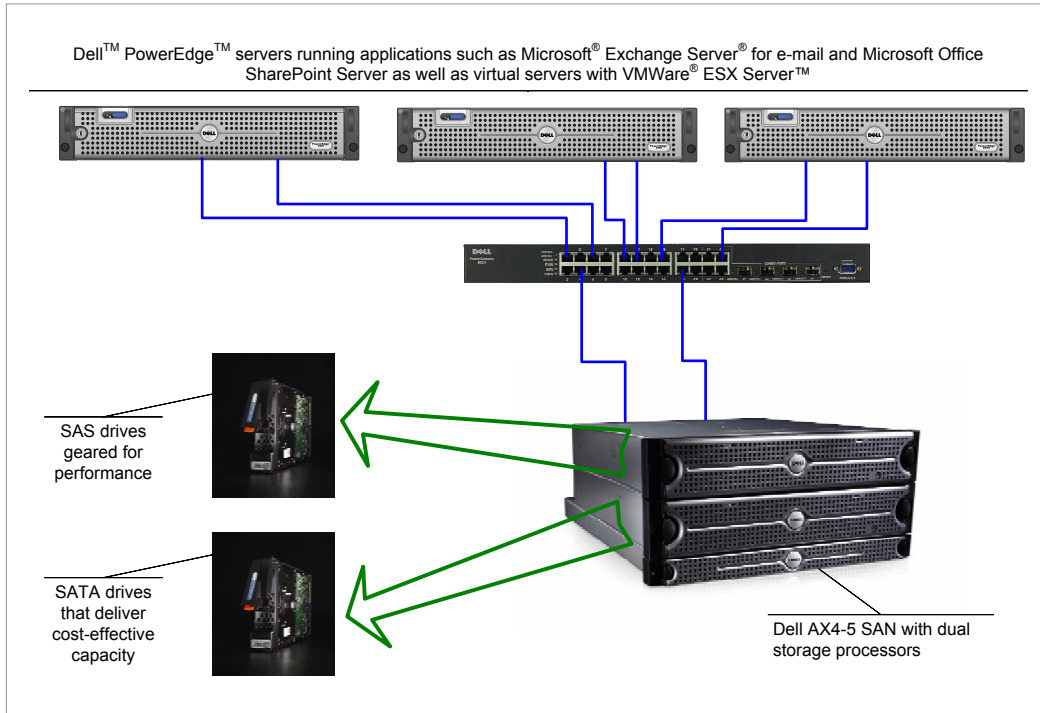
In leveraging a flexible storage infrastructure to enable growth, McNeil is not alone. "Growing companies want to put in a SAN so they can virtualize. They want SAS drives for high performance. They also want to reduce costs and simplify management by using SATA drives, which are ideal for backups, snapshots and information that's not frequently accessed," said David Reine, Director, Enterprise Systems, with The Clipper Group, Inc., in Wellesley, MA.

ENTERPRISE-CLASS STORAGE FOR MID-TIER AND SMALLER COMPANIES

In the past, small to medium businesses have had fewer choices, often relying on more basic, less flexible storage subsystems, such as direct-attached storage (DAS). Industry-standard servers with DAS storage have the advantage of being inexpensive and easy to implement but as a result, a data center can become quickly cluttered by a number of different servers and their DAS storage, each handling a different application. That kind of helter-skelter server and storage proliferation begets waste and limits the benefits of virtualization because shared storage such as a SAN can be accessed by a number of different virtual servers and affords far more efficient backup and recovery.

"Smaller companies may have a single server dedicated to each application and these servers tend to be underutilized. They may also have separate DAS devices assigned to each server, which either may be underutilized or present challenges as the drives become full," said Reine. "In addition, data center floor space and electrical power also are squandered," the analyst added.

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◀ The Dell AX4-5 can be configured for Fibre Channel or iSCSI networks. Pictured to the left is a typical set-up for application servers utilizing tiered storage. The SAS drives are used for data requiring performance while the SATA drives are used for back-up, snapshots and less frequently accessed data.

For this reason, a SAN architecture, in which the data storage is independent of the servers and yet can be addressed by any of them, is a far superior approach, said Reine. But Fibre Channel SANs in particular historically have required significant expertise to manage, and those higher-level management skills have often been in short supply at smaller companies.

Similarly, tiered storage enables the use of different types of disk drives for different types of data, a far more efficient approach than storing all data on the same kind of device. For example, a growing business with the need to access data frequently needs SAS storage, which although more expensive, boasts faster response time than SATA drives. Storing seldom-accessed data on SAS drives, however, wastes money.

In contrast, lower-cost SATA drives afford higher capacity, but slower response time. Those aren't necessarily the best characteristics for frequently accessed data, but they're perfect for archival data – particularly when it can be accessed from any of several servers, as it can be in a SAN storage architecture. Like a Fibre Channel SAN, however, managing tiered storage has often required highly skilled – and therefore highly paid – data administration professionals.

SOLUTION: THE DELL AX4-5

In McNeil's case, the AX4-5 provided the kind of easy to implement and use, flexible storage infrastructure that enabled both a corporate merger and the resulting data center consolidation. At the same time, McNeil implemented 20 virtual servers with VMWare® ESX Server™ and upgraded Microsoft® Exchange Server® for e-mail as well as Microsoft Office SharePoint Server for collaboration and business intelligence. If that weren't enough, McNeil also migrated a number of its file servers to Linux®. It was a tall order, one that would have been extremely difficult to fill with conventional standalone servers and DAS storage.

"We took Dell's recommendation and went with the AX4-5. Now we have two trays of drives, one SAS and one SATA, with 12 drives per tray," said McNeil's Gilley. "The top, SAS, shelf is for virtual machines and primary storage for Exchange and SharePoint servers and shared files. The bottom, SATA, shelf is for snapshots and backups," McNeil's Deputy IT director Mervin Yap explained.

While some smaller businesses are daunted by the prospect of implementing Fibre Channel storage, Gilley said it was far from an insurmountable hurdle. "It was fairly simple. There was a learning curve for us, but the documentation allowed us to get a quick grasp on it. We did everything ourselves. The NaviSphere® console is very easy to use," said Gilley and Yap.

Not only did the AX4-5 underpin the successful acquisition, it is the foundation for continuing growth. "Based on our current growth rate, it won't be too long before we get another shelf," said Gilley. With room for up to 60 disk drives, McNeil's AX4-5 has plenty of room left.

While McNeil is benefiting from having both SAS and SATA drives in a single SAN by using SATA drives to store snapshots of the active data on the SAS drives, Reine said the ability of the AX4-5 to move data from SATA to SAS drives is also very important. "At the end of the quarter, you might need some older information more frequently for financial reports," the analyst noted.

AVAILABLE IN GREEN

As enterprises of all kinds embrace so-called "Green IT" initiatives both to cut energy costs and mitigate environmental impact, consolidated and virtualized data centers, enabled by devices like Dell's AX4-5 are becoming widely popular for the savings they generate. Because of its data center consolidation, McNeil is able to turn off one air conditioning unit in the summer. "We're saving man hours as well as saving money on power and real estate," said Gilley.

Reine pointed out that in contrast, DAS devices aren't very green. "When you plug in the DAS unit, all the devices are spinning. You're using all this energy, but only accessing 50 percent of the capacity in some cases," he said.

Another popular practice, Information Lifecycle Management (ILM), in which data is carefully matched to the most appropriate and economical storage devices for its particular type and age, can be readily implemented with the tiered storage of the AX4-5, Reine noted.

For McNeil, going green is a welcome byproduct of a deployment that has saved money from the very beginning. "The cost of the system was actually under our budget," said Gilley. But more important, the AX4-5 has allowed McNeil to stand shoulder-to-shoulder with much larger enterprises when it comes to data storage sophistication and efficiency. ■