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READER-EXPERT I/O

Managing the backup of several SAN islands

Q: We have a number of small, independent, departmental storage area networks (SANs), which we back up to a centralized LAN backup system. We want to leverage the SAN for backup but cannot afford to—nor do we really want to—consolidate our individual SANs into a single, larger one. Do we have any options?

JACOB FARMER
Cambridge Computer Services

You have plenty of options, none of which will require you to consolidate your SANs. But before I list them, however, I'd like to make a couple of key points:

First, the storage environment (i.e., multiple SAN islands) you describe is very common, and supporting it is not necessarily any more difficult than managing one big SAN.

Second, disk storage and backup are separate issues. Yes, they can leverage the same infrastructure, but it is not uncommon for them to operate independently. An obvious example can be drawn from your own environment, in which you have LAN backup with SAN disk. You could just as easily have SAN backup with direct-attached disk.

Third, LAN-free backup (or SAN backup) still involves the LAN! The central backup server communicates with its clients over the LAN and is connected to the robotic arm of the library. The rest of the hosts communicate only with the tape drives.

That said, the option you choose will depend on the amount of data you are moving, the size of your tape library, and the throughput of your tape drives.

Option #1: Assuming that you have enough tape drives in your library to dedicate a few drives to each SAN island, the easiest option is to use several independent SAN routers (a.k.a. Fibre Channel-to-SCSI bridges) to connect groups of drives in the library to each of the SANs. The one drawback to this type of setup is that it doesn't allow you to dynamically share drives between SAN islands. This could be very limiting, especially if you don't have many tape drives.

Option #2: A similar solution is to use a SAN router with multiple Fibre Channel ports to connect multiple SANs to a single set of tape drives in the library. All drives connected to the SCSI ports can be selectively presented across each of the Fibre Channel ports. This type of configuration allows you to share tape drives across multiple SANs but keeps traffic from flowing between the SAN islands.

Option #3: Install a separate host bus adapter (HBA) and possibly a separate SAN just for backup. This might sound like overkill, but it is a very common practice due to conflicts or incompatibilities between disk and tape drivers. The good news is that SAN connections for tape do not require the same levels of fault tolerance as disk connections. If your backup SAN is small enough, you can get away with nothing more than a multi-port SAN router for all of your connectivity.

Option #4: Another solution is to use multiple SAN-attached tape libraries, but keep them under the control of a single backup server. True, your hardware becomes decentralized, but you still have centralized management, and the tapes belonging to each SAN island are kept separate from one another. If you go this route, you might want to consider a software package that offers good management of multiple tape libraries.

Option #5: Try virtual tape. Although I can't possibly do justice to this topic in this column, it is possible to connect a virtual tape server with a dedicated HBA to each SAN island. Each island could then send backup traffic to the virtual tape server, which in turn, would transfer data to the tape library. ❑

If you have a question you would like to ask one of our experts, please e-mail Heidi Biggar at heidib@pennwell.com.

Jacob Farmer is the CTO of Cambridge Computer Services, a storage technology integrator and training provider based in Boston, MA. His team is currently writing a book on SAN and NAS technologies to be published in the spring/summer of 2002. He can be reached at jacobf@cambridgecomputer.com.

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