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storage :::

STORAGE VIRTUALIZED— FINALLY!

From iSCSI to global namespaces, virtualization is bringing flexibility to network storage. By Penny Lunt Crosman

Long awaited, storage virtualization has finally begun to deliver its promise of an organic, flexible storage structure that can be managed and changed from a single central console. The idea is simple: Create a virtual storage pool where all your storage units look like one giant disk drive at the device level. Or at the file level, use global namespaces to retrieve files without knowing their physical location, only their name.

Virtualization masks the complexity of managing a large storage network. If an application needs more storage, you simply request it, along with specific performance and availability attributes, from the virtual storage pool and trust the virtualization engine to deliver it.

Where traditionally each storage unit would have its own management mechanism, virtualization is bringing management to a central point in the storage network, and over time that point will become the intelligent storage switch. But for now, management control is starting to be gathered by storage management software. iSCSI is becoming the way storage is attached to networks, and virtual tape the backup method of choice.

Crystal Ball For SANs

The industry is moving toward full-fledged storage resource management. It's going beyond capacity management and reporting to encompassing SAN management, storage device management, capacity management, quota management, and policy-managed automation. Onaro's SANscreen predictive change management software recognizes that goal. It can monitor and manage an entire SAN and simulate the effects that particular changes would have on it, discovering problems such as single points of failure, bottlenecks, incomplete connections, and orphaned storage. SANscreen lets network managers make changes quickly, without bringing the SAN to its knees.

Global Namespace Pioneer

For end users, storage has been simplified by the concept of global namespaces. With this system, every file has a unique identifier, allowing it to be accessed from anywhere on the network. Users don't have to worry about what disk a file is running on, or where that disk is.

NuView is a global namespace pioneer and its StorageX soft-

COMPANY & PRODUCT	INNOVATION
MOST INFLUENTIAL NuView: StorageX 5.0	Pioneering global namespace software
MOST VISIONARY Onaro: SANscreen	First software to provide visibility and simulate changes in SANs
PRODUCT BREAKTHROUGH EqualLogic: PS200E	One of the first iSCSI SANs

ware is among the most interoperable in its category, working with both Windows and Unix. StorageX lets companies build a unified global namespace across the Common Internet File System (CIFS) or the Network File System (NFS). With it, users can view, store, and update files on remote computers. It provides one console for looking at all the storage within the infrastructure, and administrators can decide centrally who may access what. StorageX also automates data migration, local and remote replication, client failover, disk-to-disk archival and data classification, and reporting.

IP Everywhere

Along with better management, this industry continues to see improved packaging and lower prices. EqualLogic's PS200E is an IP-based SAN that uses iSCSI to provide low-cost, easy-to-deploy storage, priced at less than \$10 per gigabyte. This reflects another major trend toward low-cost storage. The PS200E was one of the first SANs to bring enterprise-strength shared block storage to the rapidly growing midrange storage market. It provides 5.6 to 100TB of RAID storage and includes storage management software, load balancing, snapshot management, replication, disaster recovery, and backup.



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