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## Continuous data protection: Increasing backup frequency

By Paul Klinkby-Silver, VP Europe EqualLogic

Thursday, 20 July 2006 07:54 EST

To have a consistent, usable, secure copy of data to store long term, backup is required. Backup is the core of data protection because it provides the ability to recover data from either physical disasters or common data corruption. Daily data backups are therefore, an important, yet often painful, operation - slowing (even halting) production, requiring hands-on management, and consuming media. Recovery is even more painful - finding the right backup media and restoring data back into a usable format can take hours, and even days - and without application coordination, data integrity is not assured.

Backup and recovery operations are the focus of business continuity and data protection plans and often the main source of anxiety for IT departments. Few businesses are fully satisfied with their backup and recovery solutions. Not only must data be protected from complete site failures, such as those resulting from natural disasters, data must also be protected from corruption or data loss, such as that resulting from a computer virus or human error.

An ideal backup and recovery solution:

- Maintains data integrity during backup operations to ensure that restored data is reliable
- Retains multiple copies of data in safe locations, either local (for example, in the same building) or remote (for example, in a different geographic location)
- Ensures that backup processing has minimal impact on other IT operations
- Allows data to be restored quickly and effectively, with minimal impact on users and applications. A common challenge for administrators is to determine what is theoretically possible and what is practical with the backup products available today.

### Ways to back-up

Incremental backups can save time, network bandwidth, and storage space while improving performance, but at a cost of complexity, convoluted scheduling, and longer restore times. Instead, IT usually concedes that data recovery will mean a day or more of lost work, since the most likely recoverable copy will be in yesterday's backup.

The core problem is that backup and restore operations take too much time. But what if backup was so easy and non-disruptive that you could backup as many times a day as you wanted? And what if administrators could allow users to restore data themselves without administrator intervention? This would fundamentally change how organisations think about data protection.

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Near-continuous backup and configurable, user-based restore are not a dream - they are available with today's Continuous Data Protection (CDP) products. Microsoft® Data Protection Manager, Mimosa NearPoint™, Sonasoft™ SonaSafe®, Symantec™ (VERITAS®) Backup Exec 10d, and others deliver extraordinary benefits: frequent and faster backups, shorter backup windows, fast recovery, and the opportunity to move tape processing to daytime operations.

These disk-based backups typically provide 30 days of online backups, and reduce the complexity and expense of tape libraries and media. Most organisations still run tape backups for long term data retention, but day-to-day backup and restore performance is vastly improved by using disk.

### How Continuous Backups Work

A new CDP server executes a full backup to disk of the all server data, initialising itself with a complete data set. After that, the CDP server will execute frequent incremental backups at designated intervals - every five minutes, every hour, whenever a log changes in your email or database system - whenever you want. These new technologies have redefined 'incremental backup' to mean only the actual changes in each file - instead of the entire changed file - are backed up. Less data means backups run much faster, and you can backup more frequently because the overhead of each backup is significantly reduced. For example, if you lose a file at 4pm, you don't have to go back to yesterday's version - you may have a 3pm version, which significantly reduces lost work and lost productivity. You gain dramatic improvement in backup frequency, increasing fidelity without hurting performance or increasing administrator burden.

Another improvement is that the backups are application - and file system-consistent. CDP products are aware of the objects they are backing up - files, email messages, etc. - so both users and administrators are presented with familiar objects during restore. Restore is immediate - no lengthy process is needed to place data back into a useable format.

### Operational Improvement

CDP is not a replacement for all backup operations, since it does not provide long term data retention. Most organisations continue doing tape backups, but no longer need to run them at night - they can be run during normal business hours, copying data directly from the CDP server to tape media so that your production servers are not interrupted. In addition, CDP enables IT to centralise tape operations, removing that burden (and tape drives) from branch offices. Operations improve for both the data centre and remote offices, while providing more reliable data protection and end-user recovery.

### iSCSI SAN Enhances Continuous Data Protection

Most CDP products provide protection for application data - file systems, email, and databases - but not for system disks. Advanced SAN-based features such as snapshot and replication technologies are still important for smooth operations - snapshots offer instant recovery from system level catastrophic failures, and remote replication provides fast and easy data restore in case of a site-wide disaster. CDP and advanced SAN features together deliver solid protection and fast recovery for all failure scenarios.

CDP servers require good data protection - features such as RAID, redundant and hot serviceable hardware, and automation are important to ensure reliable operations for

both production data and CDP backups of production data. In addition, CDP servers require easy, online storage expansion. As your application server storage grows, the CDP server's storage must also grow. It is important that storage expansion be done online without disrupting applications or data protection services.

#### All in one

PS Series storage provides all the features needed for continuous protection and online operations - complete data protection, excellent capacity and performance, easy online expansion, plus other advanced functions: automatic load balancing, SAN boot for fast server interchange, PS snapshots for fast recovery from catastrophic failure, multi-path I/O for better performance, and PS Series auto-replication for disaster recovery.

Backups and recovery need not be the bane of IT administrators' lives if a company's needs are assessed properly and met using the right technology.

*EqualLogic is exhibiting at Storage Expo 2006*

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