



## ENHANCING YOUR IT ENVIRONMENT USING SNAPSHOTS

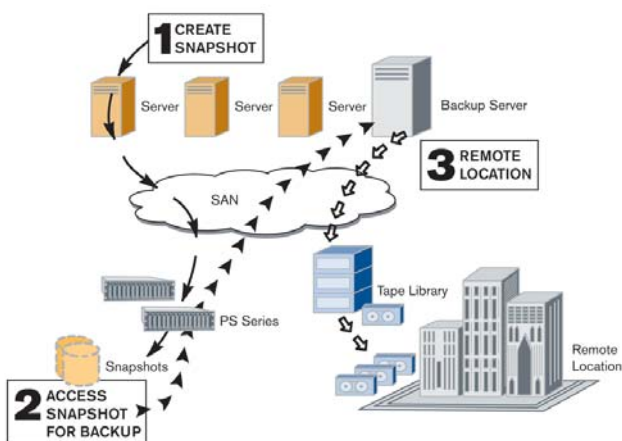
Snapshots enhance backups by improving data integrity, reducing application disruption, offloading application servers from backup processing, and enabling quick restore.

Snapshots and other SAN data copies enable your SAN to work harder for you. By using copies for various tasks, you get “double duty” from your data – while production operations continue at peak performance, backups, upgrades, new installations, testing, maintenance, and parallel processing can take place. Because snapshots are fast, flexible, and affordable, they can help you improve productivity and reliability.

### BETTER BACKUP WITH SNAPSHOTS

A primary reason for using snapshots is that they improve backup operations.

- Improved backup data integrity means more reliable restore. When backing up live data, open files can compromise backup data integrity. Some backup tools skip open files, leaving them unprotected; some copy open files, creating incomplete and/or corrupt data (which you may discover only after restore); others skip open files with an automatic plan to return on closure – so databases that run 24 x 7 are never backed up. However, if you make a snapshot and back that up, you stabilize the data and save a “known good” copy, ensuring full protection and backup data integrity.
- Reduce application disruptions during backup. Many applications are brought offline or into a significantly degraded state during backups. Snapshots are created quickly (within seconds in a good implementation) and efficiently, thus reducing the time applications spend in offline or backup mode. This allows improved service levels even during the backup times.
- Offload application servers from backup processing. Some backup tools mount the snapshot on the application server that is running the application. This means the data copy operation from the snapshot to backup media is impacting performance of the application servers. Many backup applications support mounting a snapshot onto a different server than the application server that created it. This way, the backup server performs all data movement operations to backup media, resulting in better performance for production servers. This can also safely extend the backup window, allowing



Snapshots facilitate replicated server environments, increase productivity and flexibility during testing, and smooth application and server re-deployments.

more frequent backups and/or more time to complete backups. For example, your Exchange, SQL, and other application servers can all create snapshots at 8 pm and then continue operations while the backup server copies each snapshot to backup media. This eliminates most application server overhead during backups.

- Quick restore solutions. Snapshots can be a critical component in enabling quick restore – the ability to come back online swiftly after a catastrophe. Whether an outage is due to data corruption, virus attack, or application malfunction, snapshots help you return to full operation as fast as possible.

Note that snapshots do not replace backup – a snapshot’s lifespan is typically hours or days, not years. In addition, since they are typically collocated with primary data, snapshots are vulnerable to physical disasters unless replicated remotely.

### SIMPLIFY REPLICATED SYSTEM DEPLOYMENTS

Many organizations deploy replicated systems for web applications, compute servers, file and print services, and desktops. Snapshots and clones make these difficult installations much easier. Once a master system image is created, it can be cloned in the storage array to provide each system its own system disk. This capability also relies on SAN boot to have systems run from their own system disk.

### INCREASE PRODUCTIVITY AND FLEXIBILITY DURING TESTING

Snapshots can enhance reliability during many IT tests, such as integrity and consistency scans, and upgrades. Using a snapshot, you can test a procedure against full data sets without putting production systems at risk. IT managers commonly test against only subsets of data because they can’t afford the time to copy full data sets or the risk to test against them; unfortunately, their procedures may pass the test, but can fail when implemented fully. Snapshots alleviate these problems.

Productivity improvements are gained with snapshots as well. For example, a development engineer may need an hour to configure a software bug test environment; re-setting that environment between test iterations causes hours of delay. Instead, a snapshot lets you re-test immediately. Snapshots are also used to load data warehouses and re-load applications, avoiding operational downtime.

### RE-DEPLOYING APPLICATIONS TO NEW SERVERS

Re-deploying applications to new or different servers is a common task, whether as part of a system upgrade or to match applications to needed system resources. Normally this requires reinstalling the system and applications on the new server, followed by application downtime while application data are copied from the old server to the new. This process is very expensive – not only in IT staff time and effort, but also in disrupting application users.

Instead, IT personnel can test with application data using snapshots without lengthy copy operations or disrupting applications and users. For the actual move after testing, SAN-based data re-assignment allows the new server to use the existing production volumes and data – resulting in significantly less IT effort and dramatic reductions in planned downtime.

Snapshots created in iSCSI storage arrays are affordable data copies that deliver numerous benefits including improved productivity, reliability, and information protection. This capability can add flexibility to your environment while improving service levels.

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