



MAKING SNAPSHOTS EASY TO USE IN OPERATING SYSTEMS

If your operating system is well integrated with snapshots, advanced backup methods are dramatically easier to deploy and operate.

Storage-based snapshots improve performance and flexibility and simplify a number of IT tasks, but their most common use is to improve backup operations. Data consistency is critical in backups to ensure reliable restores when needed. Snapshot-based backups provide the best data consistency with running applications – and minimize application disruptions during backups. Snapshot backups also allow for offloading backup operations from application servers, improving application processing. Using snapshots with backup has been a difficult challenge for IT organizations. Each administrator has had to manually integrate the various components in order to create snapshot data in the format required for backups.

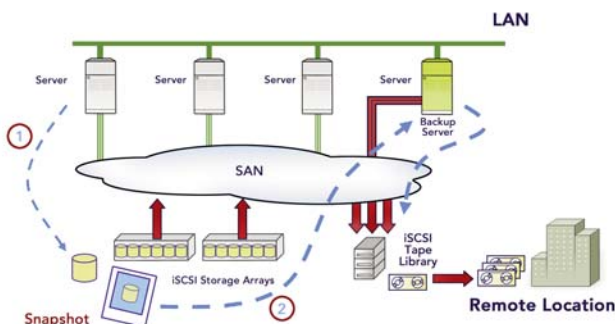
But there is good news. An emerging industry trend is shifting this integration burden back to the vendors – with “snapshot-aware” operating systems. A good example is Windows Server™ 2003, in which Microsoft® included a technology called Volume Shadow Copy Service (VSS). By integrating and coordinating all the components involved in snapshots, IT administrators can deploy turnkey backup solutions that use application-consistent snapshots to dramatically improve backup operations.

APPLICATION-CONSISTENT DATA

For online backups, backup software must coordinate application data flushing, file system flushing, and snapshot creation to ensure good backups. Backups need “application-consistent” data to send for long-term storage. Application-consistent snapshots stabilize data as if the application had been paused cleanly just prior to the snapshot creation.

GETTING THE PIECES TO WORK TOGETHER

Historically, the only way to get snapshot-related applications to work together was by manually integrating them. If you wanted VERITAS® software to backup your Exchange database using snapshots, you had to be an expert – on Exchange, Windows, VERITAS, and the storage array. Once you created scripts to incorporate all these, if changes were made – a new mail store or a disk added – your scripts had to be modified. This level of effort was time-consuming, costly, and difficult to test; IT administrators were left with a very valuable solution – using snapshots for backup – that was just too difficult to implement and maintain. Asking vendors for help was not the answer; a vendor might help with their technology, but not the other technologies in your solution, leaving you as the integrator.



VSS TAKES ON THE CHALLENGE

Microsoft built VSS as a framework to get the pieces working together. By building a “plug” for each component – backup software, business applications, and storage – VSS-enabled vendors do the integration work. Now, the IT administrator need only select products that are VSS-integrated to deploy a turnkey best practice backup solution that uses snapshots. When snapshots are requested, VSS coordinates all components for a smooth process, including:

- Freezing the application and file system
- Making a snapshot of the data
- Thawing the application and file system
- Transporting the snapshot to the backup server
- Backing it up
- Deleting the snapshot

Now, IT administrators are freed from manual integration – snapshots and backup have become a practical solution.

EASE OF USE AND OFFLOADED BACKUPS

When you select components that are integrated with VSS, you can make snapshot-based backups with full confidence in your data integrity. In addition, VSS and PS Series arrays support offloaded SAN-based backups (“transportable snapshots”), where one node can create the snapshot and another node can then mount it and execute the backup. This frees up production machines from the backup data movement, enabling them to return to full operations once the snapshot is created.

If your backups are well integrated with transportable snapshots, you gain flexibility for processing backups with minimal production impact.

TURNKEY SNAPSHOT-BASED BACKUPS

Operating system features such as VSS deliver best practice backup operations without extra work. So when you are building, upgrading, or reviewing your IT infrastructure, be sure to ask the questions you need to get the solution you want.

Checklist for Turnkey Snapshot Functionality	
✓	Is your <i>operating system</i> snapshot-aware?
✓	Are your <i>business applications</i> integrated with snapshots?
✓	Is your <i>backup application</i> integrated with snapshots?
✓	Are backup snapshots <i>transportable</i> , or only local?
✓	Is your <i>storage array</i> integrated with snapshots?



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