DATASHEET

NETAPP SNAPSHOT TECHNOLOGY

Create and manage point-in-time file system copies with no performance impact and minimal storage consumption.

NetApp snapshots: A data protection differentiator
Several data storage vendors implement snapshot copies, but not all snapshot technology is created equal. NetApp, the first company to ship high-volume open systems and "point-in-time" snapshot capability, offers unique and important advantages. NetApp® snapshots deliver more stability, scalability, recoverability, and performance than competing snapshot technologies.

NetApp leverages its superior snapshot technology as the foundation for a family of data protection solutions. These products incorporate and extend the advantages of NetApp snapshots to deliver advanced enterprise data protection.

What is a NetApp snapshot
A snapshot copy is a point-in-time file system image. Low-overhead snapshots are made possible by the unique features of the WAFL® (Write Anywhere File Layout) storage virtualization technology that is part of NetApp ONTAP® software. Like a database, WAFL uses pointers to the actual data blocks on disk, but, unlike a database, WAFL does not rewrite existing blocks; it writes updated data to a new block and updates the active file system pointer (see Figure 1).

A NetApp snapshot simply manipulates block pointers, creating a "frozen" read-only view of a WAFL volume that lets applications access older versions of files, directory hierarchies, and/or LUNs (logical unit numbers) without special programming. Because actual data blocks aren't copied, NetApp snapshots are extremely efficient both in the time needed to create them and in storage space.

SNAPSHOTS AT A GLANCE

With snapshots, you can:

- Make instant copies of your valuable data while applications run.
- Protect important data frequently with up to 1023 snapshots per volume.
- Unify your protection as NetApp SnapManager®, SnapMirror®, SnapProtect, and SnapRestore® software all utilize snapshots to defend your valuable data.

A NetApp snapshot takes only a few seconds to create—typically less than one second, regardless of the size of the volume or the level of activity on the NetApp storage system. After a snapshot has been created, changes to data objects are reflected in updates to the current version of the objects, as if a snapshot did not exist.

Meanwhile, the snapshot of the data remains completely stable. A NetApp snapshot incurs no performance overhead; users can comfortably store up to 1023 snapshots per WAFL volume, all of which are accessible as read-only and online versions of the data.

NetApp snapshot technology forms the basis of a unique ecosystem of high-availability, disaster-tolerant data protection solutions.

Easier storage administration
System administrators use NetApp snapshots to take and maintain frequent, low-impact, user-recoverable copies of files, directory hierarchies, LUNs, and/or application data. The NetApp snapshot technology vastly improves the frequency and reliability of backups, since it incurs minimal performance overhead and can be safely created on a running system.

In addition, NetApp snapshots allow near-instantaneous, secure, user-managed restores. Users can directly access the snapshots to recover from accidental deletion, corruption, or modification of their data. Since the security of the file is retained in the snapshot, the restoration is both secure and simple.

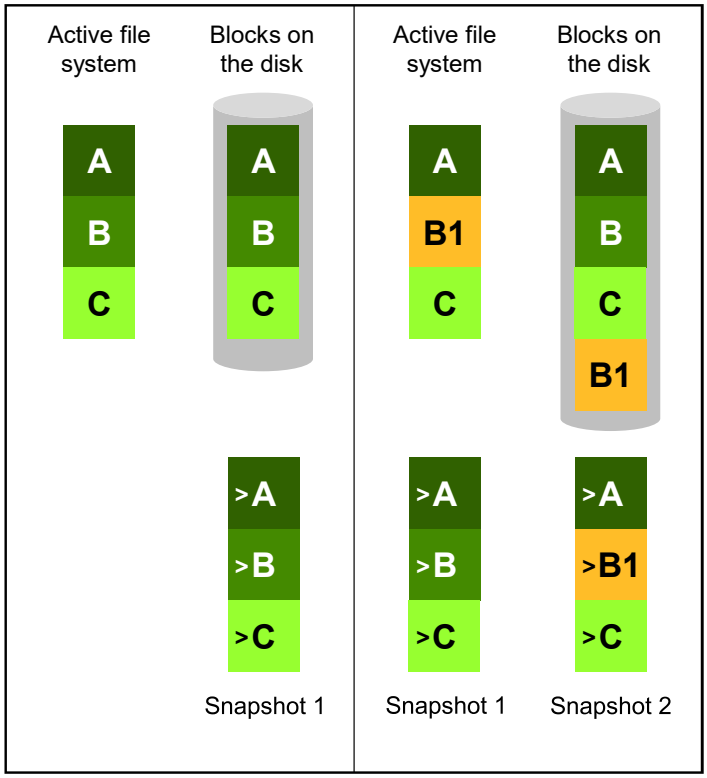

Figure 1: A snapshot of the active file system is taken. Changed data is written to a new block. Another snapshot is taken of just the changed data. The snapshot pointer still points to the old block as well as the new block. You now have access to your live data as well as copies of your data without taking up the disk space that multiple unique copies would require.

Key benefits of NetApp snapshots

Stability: A NetApp snapshot is a read-only, static, and immutable copy. It enables organizations to perform consistent backups from a NetApp storage system while applications run.

Performance: Storing a NetApp snapshot on a NetApp system has no performance impact. In addition, creating and deleting NetApp snapshots has little performance impact on a properly configured system. Even if you use a competing primary storage system, NetApp storage can be used for replication, backup, and archival.

Scalability: NetApp storage supports 1023 snapshots per volume. The ability to store a large number of low-impact, frequently created snapshots increases the likelihood that the desired version of data can be successfully recovered.

User visibility and file recoverability: The high performance, scalability, and stability of NetApp snapshots provide an ideal online backup for user-driven recovery. Additional solutions allow you to copy backups to offline disk or to tape and archive them in provably immutable form for compliance or e-discovery.

Efficient storage utilization: Two snapshots taken in sequence differ only by the blocks added or changed in the time interval between the two. This block-incremental behavior limits associated storage capacity consumption. Some alternative implementations can consume storage volumes rivaling that of the active file system, raising storage capacity requirements.

Learn more

Explore how NetApp snapshots play a key role in ONTAP data security for end-to-end cyber resilience.

Contact Us

About NetApp

For more than three decades, NetApp has helped the world's leading organizations navigate change—from the rise of enterprise storage to the intelligent era defined by data and AI. Today, NetApp is the Intelligent Data Infrastructure company, helping customers turn data into a catalyst for innovation, resilience, and growth. At the heart of that infrastructure is the NetApp data platform—the unified, enterprise-grade, intelligent foundation that connects, protects, and activates data across every cloud, workload, and environment. Built on the proven power of NetApp ONTAP, our leading data management software and OS, and enhanced by automation through the AI Data Engine and AFX, it delivers observability, resilience, and intelligence at scale. Disaggregated by design, the NetApp data platform separates storage, services, and control so enterprises can modernize faster, scale efficiently, and innovate without lock-in. As the only enterprise storage platform natively embedded in the world's largest clouds, it gives organizations the freedom to run any workload anywhere with consistent performance, governance, and protection. With NetApp, data is always ready—ready to defend against threats, ready to power AI, and ready to drive the next breakthrough. That's why the world's most forward-thinking enterprises trust NetApp to turn intelligence into advantage.

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