NETGEAR®

Continuous Data Protection for ReadyNAS® OS 6

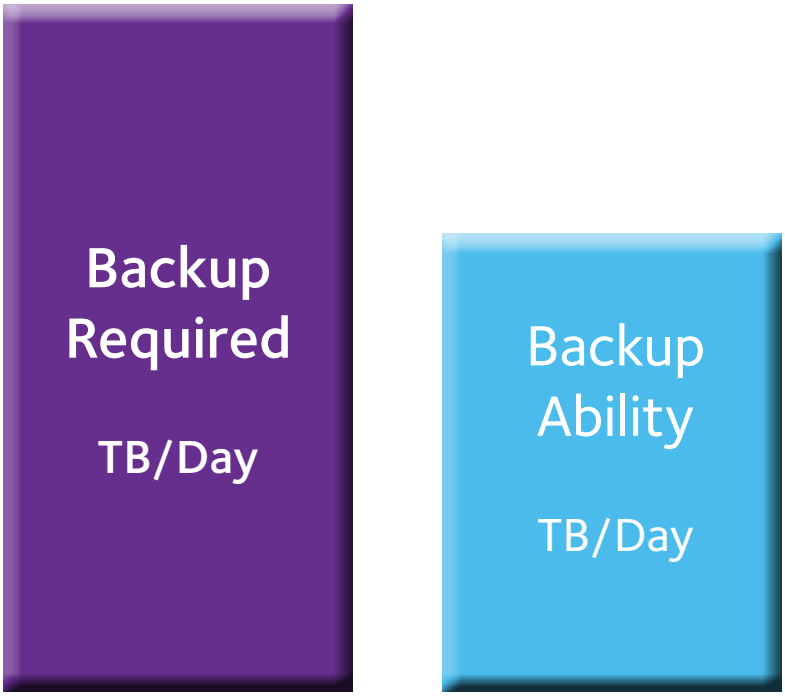
WHITE PAPER

Table of Contents

CONTINUOUS DATA PROTECTION WITH UNLIMITED SNAPSHOTS

A data snapshot is simply a point-in-time image of your stored files. Snapshot technologies are useful for creating copies of large data volumes without the need to actually move all the data or consume large amounts of space.

When data is generated by multi-tasking, multi-users, or within virtualized environments, it is changing at a rapid pace. In these cases, traditional backup techniques always lag behind the actual data changes. This means that traditional backups can't sufficiently provide adequate protection as changes are happening and in many cases they can't even meet the out-dated 24-hour protection that was once considered standard practice.



To solve this problem, enterprise backup solutions perform backups using instant snapshots to create read-only copies the data frozen at a point in time. This then allows applications to continue writing their data, while retaining a synthetic full copy of data for safe keeping.

Snapshots have long been the data protection solution utilized by enterprise and government agencies. Large storage vendors such as EMC, NetApp, and IBM have pioneered the big business adoption of snapshot technology. However, each vendor has implemented the snapshot concept in slightly different ways. Of these, pointer-based snapshot techniques have been most successful at providing protection of mission-critical data.

In 2012, NETGEAR® ReadyDATA™ brought enterprise-class pointer-based snapshot technology to small and medium businesses at a price of less than $10k. In 2013, NETGEAR ReadyNAS® is bringing snapshot technology to everyone, starting at just $200.

Pointer-based snapshots are an effective data protection solution for the following reasons:

- High level of data protection, recoverability and availability while maximizing system up-time
- Automated data protection with no performance impact or capacity waste while applications are running
- Zero data loss, the ability to meet recovery point objectives (RPOs) and continuous data protection without negatively impacting performance
- Fast recoverability

As with any great idea, true snapshots also have their imitators. It is important that users not be fooled by limited snapshot solutions that aren't pointer-based. When a vendor advertises a limited number of snapshots (usually less than 100), that means the underlying snapshot technology is a legacy copy-on-write snapshot (COW). The drawback of COW technology is that it impacts the performance as soon as it's enabled. These snapshots are impractical in a modern storage solution as the more COW snapshots you have, the slower your system can perform.

True pointer-based snapshots are instant, only use incremental space and require no performance overhead. Only by combining these three qualities can snapshots truly provide automated granular protection (e.g. hourly). This technology allows users and administrators to access any data from the past without a performance cost to production storage and wait time for recovery.

What is the difference between a Pointer-based snapshot, COW snapshot and traditional backup (copy)?

	Pointer Snapshots	COW Snapshots	Legacy Backup (copy)
Space efficiency	High	High	Poor
Time-to-create	Instant	Instant	Slow and dependent on change
Performance impact	None	High	Medium
Number of snapshots/backups	Unlimited	Limited by performance	Limited by capacity
Frequency of protection	Hourly, Daily, weekly, monthly	Temporary and infrequent	Hourly, Daily, weekly, monthly

ReadyNAS OS 6 solutions have built-in pointer-based snapshots. Our Linux-based competitors that claim snapshot support can only provide COW snapshots or legacy backup (copies). For this reason only NETGEAR provides unlimited, granular protection of your production data at scale that is affordable for the SMB or home user.

Cloned snapshots (Writable) – Instant DR testing and recovery

Pointer-based hourly snapshots are great for retrieving individual files that may have been deleted or corrupted accidently at any point in time. Working with larger data from as virtual machines is slightly more complex. Being able to pull a large (for example 1TB) VM from a pointer-based snapshot (read only) is nice. However, pulling massive files out of a snapshot can be time consuming. Wouldn't it be nice to power on that VM directly from within the snapshot without a need to move any data? ReadyNAS OS 6 allows administrators to create an instant writable clone to do just that.

Not only can you retrieve data from within a snapshot but you can also be using accessing the data while it continues to reside within the snapshot. In the case of Virtual Machines (VMware, Hyper-V or Citrix Xen) you can power on a VM from any previous snapshot without any wait time. This is an ideal solution for quick disaster recovery or even non-impact disaster recovery testing.

Pointer-based snapshots and writable clones are just two of the many new enterprise-grade data protection capabilities available in every ReadyNAS OS 6 appliance from NETGEAR.

These technologies were once the exclusive domain of high-priced, complex enterprise storage. With NETGEAR ReadyNAS OS 6, businesses of any size now have access to these powerful tools.

For more information please visit www.netgear.com/ReadyNAS