Spend less on all-flash storage

HPE Store More Guarantee for HPE Nimble Storage

The advanced data reduction technologies from HPE Nimble Storage change the economics of flash and help you get the most out of your system's flash capacity while improving flash media endurance.

Store more data per raw terabyte with HPE compared to the competition.[1] Get more for less with better overall efficiency. We'll back this up with guaranteed data reduction ratios for your workloads. It's as simple as that.

While flash is fast and has accelerated the transformation of the modern enterprise, it's more expensive than spinning media. On your journey to the flash-driven data center, it only makes sense to make sure your flash storage offers superior capacity and efficiency. With the HPE Store More Guarantee, you can be confident that you'll get the most from your flash investment. If you're not satisfied with the storage efficiency for your workloads on your new HPE Nimble Storage All-Flash system, we will work to make you happy. For example, Hewlett Packard Enterprise will resolve issues and provide expertise related to data reduction or deliver additional storage if needed.[2]

HPE Nimble Storage is ultra-efficient flash storage that dramatically changes the economics of flash and delivers a radically simple user experience for the enterprise. Deep integration and optimization of advanced data reduction technologies automatically work to provide a complete solution with maximum efficiency to reduce the high cost and footprint of flash.

Designed for mixed-workload environments, HPE Nimble Storage data reduction operations are always-on for simplicity and ease of use, and run inline for peak efficiency without performance penalties. This not only increases the endurance of flash but also achieves consistent performance by not requiring resource-intensive, post-process tasks. In addition, running data reduction in line provides predictable savings as data is loaded into your system and prevents running out of space due to deferred processing. Delivering complete data reduction with the HPE NimbleOS low-overhead operating system, flash performance is available and affordable for every workload.

HPE Nimble Storage delivers advanced data reduction

Always-on, inline deduplication
Deduplication on the HPE Nimble Storage array is highly efficient while maintaining high levels of performance. HPE Nimble Storage dedupe algorithms requires far less memory in the array to manage and reduce the amount of data stored in a given volume of data. As a result, we manage more physical capacity with less memory than our competitors, which means you spend less money on expensive flash.

Always-on removes the duplicates as the data arrives. High-performance write operations such as data copies, virtual machine (VM) moves, or bulk data ingest does not shutdown dedupe. This critical ability is the reason you don't run out of space when running workloads that generate lots of duplicate blocks, such as parallel patch updates to a large number of VM images. And by processing deduplication before any other data reduction techniques are applied, and before data is written to flash, we deliver better data efficiency and performance, and avoid high volumes of unnecessary writes, which cause premature flash-wear.

Always-on, inline, adaptive compression
Advanced adaptive compression techniques automatically and dynamically switch between compression algorithms to deliver a reduced flash footprint and superior performance. Our variable block size technique enables high-performance inline compression that helps eliminate the need to clump blocks together, avoiding the costly read-modify-write penalty on random updates incurred by competitive flash systems.

Everyone's data is a little different
Want to know more on the impact of HPE Nimble Storage data reduction technologies in your environment?

Find out how HPE Nimble Storage All-Flash arrays can simplify your storage and workload environment while reducing the cost and footprint of flash with an assessment and report.[3] The report highlights inefficiencies and ways to better utilize your current infrastructure, regardless of what equipment you're using today.

Assessments are optional and not required to participate in HPE Store More Guarantee program. Contact your HPE sales or channel partner representative for more information.

[1] Based on HPE analysis of publicly available data, conducted in February 2019; Internal testing carried out in December 2018.

[2] Provided the additional storage does not cause the total storage of the HPE Nimble Storage array purchased to exceed its maximum capacity.

[3] No conditions or restrictions apply for this assessment and report.

Block Folding

Block Folding achieves three goals: increased space efficiency to store more data, improved random write performance, and enhanced flash endurance. Block Folding takes variably sized blocks resulting from deduplication and compression, and packs or folds them into large, storage-optimized chunks, which are then sequentially write-optimized to the storage media. The folding process naturally helps eliminate fragmentation, vastly reducing wear on flash and delivers superior write-optimized performance.

Random write performance also improves by coalescing random writes into a small number of sequential writes to the media. Sequential writes to the RAID groups dramatically reduce the number of RAID calculations needed and avoids read-modify-write activity associated with write-in-place RAID systems. Using Block Folding, HPE Nimble Storage arrays offer one of the highest raw to effective ratios among major all-flash arrays while maintaining high levels of sustained, low-latency performance.[4]

Automated thin provisioning

HPE Nimble Storage thin provisioning is completely automated and dynamically adjusts volumes sizes for all workloads, automatically. This means you don't need to worry about allocating volume sizes, you can simply let your workloads do their job and let HPE Nimble Storage take the worry out of provisioning.

Zero-pattern elimination

Zero-pattern elimination is a special case of compression and deduplication. If a block is full of zeros, rather than processing that block, we simply free the storage that would be associated with that data. For some workloads, such as databases that maintain initialized data blocks, this simple optimization substantially improves performance and data reduction.

Copy avoidance

By far the most efficient data reduction technique is to avoid creating data at all. HPE Nimble Storage arrays support efficient snapshots and Zero-Copy Clones. These techniques create virtual copies of your data for almost any purpose, allowing you to avoid nearly all physical copies of data.

Zero-Copy Clones

Create as many Zero-Copy Clones of any snapshot as you need. As efficient and performant as the snapshots they are built from, Zero-Copy Clones are perfect for dev/test copies, reporting instances, or for working with historical copies of your data. HPE Nimble Storage toolkits integrate clone management with popular applications simplifying the creation of full database instances using this technology.

Snapshots

Do you need a crash-consistent or application-consistent image of your data? HPE Nimble Storage's snapshot implementation is so efficient we support up to 1000 snapshots per volume. Snapshots are quick to take, have no performance cost to maintain, and require space to only hold the difference between the active volume and the snapshot. There is no need to limit the number you take or to manage a separate pool of space for snapshot data.

Uncompromising data resiliency

HPE Nimble Storage delivers proven 99.9999% availability.[5] It uses a single RAID type so you don't need to figure out what RAID level to use. The unique Triple+ Parity RAID from HPE Nimble Storage, along with Cascade Multistage Checksums delivers unequalled protection where any three drives can fail simultaneously (the triple part) and while rebuilding, the rest of the drives could have sector-read errors simultaneously, and the array would still suffer no data loss (the + part).[6] All HPE Nimble Storage data reduction come with this uncompromising commitment to data integrity.

Let HPE demonstrate how we can accelerate and simplify your journey to the modern, flash-driven enterprise with HPE Nimble Storage and reduce the high cost of flash with HPE Store More Guarantee.

HPE Store More Guarantee for HPE Nimble Storage

• This guarantee applies to new HPE Nimble Storage all-flash array purchases (no POC or demo units) until December 31, 2019.

• HPE Nimble Storage array must be sized and priced on the basis of its data reduction technologies, including thin provisioning, by Hewlett Packard Enterprise or an authorized channel partner.

• HPE Nimble Storage array must run HPE NimbleOS version 5.0 (or higher) with active deduplication and compression.

• This guarantee does not apply to environments where compression or encryption occurs outside HPE Nimble Storage array. For example, data may not be compressed at the application layer or encrypted at the host or switch.

• Any workloads that include noncompressible or precompressed data (such as, audio and video files) are not eligible.

• The customer must migrate a significant portion of their data to the HPE Nimble Storage array to see statistically accurate data reduction (for instance, migrating a single VM shows less deduplication than migrating 10 VMs).

• HPE Nimble Storage array must be installed following HPE Nimble Storage best practices.

• HPE Nimble Storage must be configured to send telemetry to **HPE InfoSight**.

• This guarantee is valid for a 180-day period, which starts from the time HPE Nimble Storage array arrives at the customer site.

• To qualify for the guarantee, only database data must be stored in volumes using the application categories DB2, Oracle, or SQL Server. Only virtual server data must be stored in volumes using the application category Virtual Server. Only virtual desktop data must be stored in volumes using the application category Virtual Desktop.

• The customer must work with Hewlett Packard Enterprise on good-faith remediation.

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hpe.com/in/en/storage/nimble

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