Hewlett Packard Enterprise

Brochure

SPEND LESS ON ALL-FLASH STORAGE

HPE Store More Guarantee for HPE Nimble Storage

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Navigating all the different Data Reduction ratios offered by every storage vendor out there can be difficult because no two are alike. That's why HPE goes beyond the ratio to focus on actual data consumption and capacity. Everyone's ratios are going to be different but with HPE you are guaranteed to Store More data in the same, or less raw capacity than any competitive offering.

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 available from your HPE sales or channel partner representative. The report highlights inefficiencies and ways to better utilize your current infrastructure, regardless of what equipment you're using today.

The advanced data efficiency 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.

On your journey to the flash-driven data center, it only makes sense to make sure your flash storage offers superior capacity efficiency. With the HPE Store More Guarantee, you can be confident that you'll get the most from your flash investment.

Store more data per raw terabyte with HPE compared to the competition. Get more for less with better overall efficiency. We back this up with a guaranteed data compaction ratio for HPE Nimble Storage, based on your workloads and HPE Nimble Storage data efficiency technologies. It's as simple as that.

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 efficiency 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.

Why is HPE Nimble Storage so confident?
HPE Nimble Storage set a new standard for total system efficiency that not only reduces the cost of flash but also extends flash media endurance, and offers the lowest TCO of any all-flash array. HPE Nimble Storage achieves superior data efficiency through its array of advanced, always-on, data reduction technologies.[2]

For example, customers using HPE Nimble Storage will achieve these data efficiency ratios calculated as effective to usable capacity.[3]

Application	Data compaction ratios
Virtual desktops	12:1–21:1
Virtual server environments	4:1–9:1
Databases	5:1–11:1

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.

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.[1]

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.

[1] Based on HPE analysis of publicly available data, conducted in February 2019.

[2] HPE Nimble Storage TCO calculator

[3] Based on an HPE internal study, data compaction savings per workload is derived from HPE Nimble Storage telemetry data at the time of publication. HPE Store More Guarantee may be available for other workloads with a storage assessment. Contact your HPE sales or channel partner representative for more information.

Uncompromising data resiliency

HPE Nimble Storage delivers proven 99.9999% availability.[4] 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).[5] All HPE Nimble Storage data reduction come with this uncompromising commitment to data integrity.

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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. Contact your HPE or channel sales represented for an assessment today and store more data, guaranteed.

If you do not achieve the data compaction reflected in your workload assessment, HPE will provide expertise related to data efficiency, additional storage needed to reach the targeted data efficiency, or other compensation. Refer to the guarantee document provided by your HPE sales representative or channel partner for full details.

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hpe.com/in/en/storage/nimble

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[5] HPE Nimble Storage All Flash Arrays

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