REDUCE

**Cut the cost
of a tech refresh**

HP 3PAR Thin Technologies

Solution brief

Slash your technology refresh costs by up to 60%

HP 3PAR® Utility Storage leads the industry not just in thin provisioning, but in overall storage efficiency—including minimizing power consumption, reducing administration time, and enabling Green IT. It is the only storage platform to offer next–generation thin technologies that can save you up to 60% on the cost of a technology refresh, then help keep your storage costs low over time. By enabling you to slash your capacity needs and keep them low, HP 3PAR Utility Storage not only reduces your equipment costs, but saves you money on housing, powering, and cooling your storage equipment.

HP 3PAR Utility Storage makes these savings possible by offering the industry's most comprehensive approach to thin storage. This approach is built on thin technologies that combine both software and hardware innovations unique to the HP 3PAR Utility Storage platform such as Reservationless Dedicate-on-Write, the HP 3PAR Gen3 ASIC with Thin Built In™, and a virtualization mapping engine for space reclamation known as the HP 3PAR Thin Engine. Together these innovations maximize storage efficiency and ROI and help you meet your Green IT targets.

Traditional storage vendors want to sell you more than twice the capacity you actually need. This additional capacity not only inflates your CAPEX and the OPEX associated with powering and cooling all of those unnecessary drives, but also leads to additional real estate needs, facilities costs, and administration time—not to mention the environmental costs. You can eliminate this waste with HP 3PAR Storage Systems featuring unique thin technologies that enable your organization to not only *start thin,* but to *get thin* and *stay thin.*

Start thin: HP 3PAR Thin Provisioning Software

HP 3PAR Thin Provisioning Software improves storage system efficiency and optimizes capacity utilization system-wide. It does this by addressing the problem of capacity overallocation through eliminating the need to dedicate storage capacity up-front and on a per-application basis.

Since its introduction, Thin Provisioning has given customers the ability to meet Green IT targets and reduce capacity purchases. Thin Provisioning makes this possible by cutting SAN costs, floor space requirements, and energy expenses by up to 75% and decreasing administration time by up to 90%. It does this by allowing customers to purchase only the disk capacity they actually need, only as they actually need it. No more up-front capacity allocation. No more dedicating resources for each application. No more paying to power, house, and cool disks that may not be needed for months or years to come, or may never actually be used.
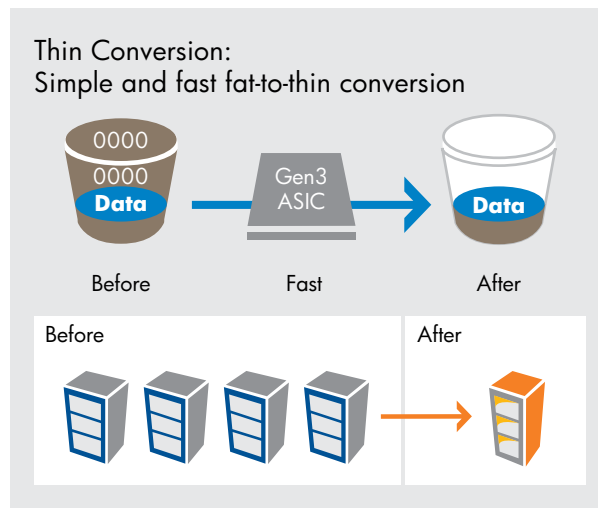
Get thin: HP 3PAR Thin Conversion Software

With HP 3PAR Thin Conversion Software, a technology refresh no longer requires a terabyte-for-terabyte replacement, but instead offers the opportunity to eliminate 70-80% of the legacy capacity in your storage environment, simply and rapidly. This solution not only makes a technology refresh more affordable, but it reduces up-front capital costs as well as ongoing operational and environmental costs associated with powering, cooling, and housing your storage equipment. It also provides space and power consumption relief for datacenters approaching maximum density.

In an ideal world, all your storage would start thin using HP 3PAR Thin Provisioning Software. But what if starting thin has not been an option because you've been limited to legacy arrays from a traditional storage vendor? Or what if you've already created volumes on an HP 3PAR Storage System without the use of Thin Provisioning?

It's never too late to become more efficient. HP 3PAR Thin Conversion Software extends the benefits of Thin Provisioning to your existing storage volumes by leveraging the HP 3PAR Thin Engine (a unique virtualization mapping engine) and the HP 3PAR Gen3 ASIC with Thin Built In™. Together, this combination drives inline, wire speed "fat-to-thin" conversions compatible with any host volume. HP 3PAR Utility Storage is the only platform in the industry to offer this built-in, hardware-accelerated, fat-to-thin conversion capability.
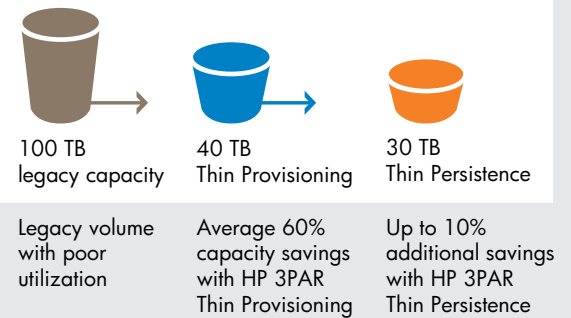
With Thin Conversion, you can quickly shrink your storage footprint, reduce storage TCO even further, and meet your Green IT targets. The zero-detection capability built into the HP 3PAR Gen3 ASIC combined with Thin Conversion Software and the Thin Engine can effectively and rapidly "thin" a heterogeneous datacenter to one-quarter of its original size—or less—while preserving service levels, and without impacting production workloads.

Stay thin: HP 3PAR Thin Persistence and Thin Copy Reclamation Software
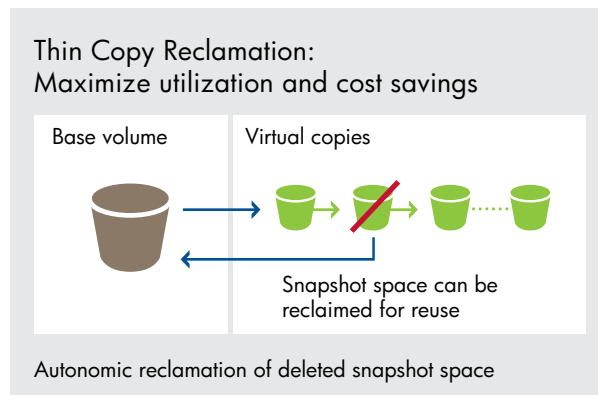
To realize the ultimate efficiency and cost-saving benefits of starting thin or getting thin, you also need to stay thin. An industry first, HP 3PAR Thin Persistence Software ensures that thin volumes on the HP 3PAR Storage System stay as lean and efficient as possible. Thin Persistence accomplishes this by leveraging the Thin Engine and Gen3 ASIC to reclaim unused space associated with deleted data within system storage volumes—simply, quickly, and without disruption.

Thin Provisioning + Thin Persistence:
Average 70% capacity savings

100 TB legacy capacity	40 TB Thin Provisioning	30 TB Thin Persistence
Legacy volume with poor utilization	Average 60% capacity savings with HP 3PAR Thin Provisioning	Up to 10% additional savings with HP 3PAR Thin Persistence

Thin Conversion:
Simple and fast fat-to-thin conversion

Thin Copy Reclamation is similar to Thin Persistence but instead of applying the Thin Engine to space reclamation for thin volumes, this software reclaims unused space from thin copies (virtual copy snapshots and remote copies).

On average, with thin technologies, HP 3PAR Utility Storage customers can purchase 60% less capacity than would have been necessary with traditional storage arrays. Thin Persistence and Thin Copy Reclamation can improve this average capacity savings by another 10% for a total savings of up to 70%. All volumes and snapshots stay thin to help sustain Green IT targets, defer the cost of purchasing raw capacity to handle new data growth, and keep costs down—without having to purchase special host-based software or retaining professional services.

Thin Copy Reclamation:
Maximize utilization and cost savings

Base volume   Virtual copies

Snapshot space can be reclaimed for reuse

Autonomic reclamation of deleted snapshot space

Demand thin: HP 3PAR Utility Storage

Don't just think thin, but demand thin. Demand a comprehensive thin strategy that saves you up to 60% on a technology refresh and then keeps your costs down with the ability to stay thin.

HP 3PAR Utility Storage has set the gold standard for thin provisioning and is the only storage platform offering a comprehensive approach to thin storage. This approach enables you to not only save money on up-front capacity purchases, but to remain cost- and energy-efficient over time by ensuring that your thin volumes and thin copies stay thin. As the first storage platform to build accelerated thin capabilities into array hardware with the Gen3 ASIC with Thin Built In™, the HP 3PAR Utility Storage platform offers thin technology leadership that vendors offering bolt-on capacity reduction products simply cannot match.

Not all thin implementations are created equal, and they certainly don't offer equal benefits. To maximize your savings on a technology refresh, reduce CAPEX and OPEX, and increase storage ROI, it pays to demand the best and most comprehensive thin technologies available. Don't compromise—demand thin. Demand HP 3PAR Utility Storage.

Building a thin ecosystem

HP 3PAR Utility Storage integrates with partner products for the purpose of building out a thin ecosystem and extending the benefits of thin technologies to other areas of the datacenter.

This includes offering the industry's first database storage reclamation solution, currently available only with HP 3PAR Utility Storage. With this solution, Oracle Database 10g and 11g customers using Oracle Automatic Storage Management (ASM) and HP 3PAR Thin Provisioning Software can now reclaim allocated but unused disk space using HP 3PAR Thin Persistence Software and the new Oracle ASM Storage Reclamation Utility (ASRU).

A Thin Reclamation API developed in conjunction with Symantec™ allows host file systems to intelligently communicate with HP 3PAR Storage Systems to reclaim space associated with file deletions. HP 3PAR Thin Reclamation Software for Veritas Storage Foundation is the first platform solution to take advantage of this API. As more file system vendors integrate this capability, which is presently driving the emerging T10 thin provisioning standard, not only will their file systems work with HP 3PAR Storage Systems to reclaim unused space, but datacenters will move closer to becoming "thin by design."

In VMware vSphere™ environments, HP 3PAR Thin Persistence Software ensures storage capacity efficiency by maintaining the thinness of all three vSphere virtual machine disk (VMDK) formats at the storage layer. In addition, Thin Persistence, combined with the built-in zero-detection capability of the HP 3PAR Gen3 ASIC, delivers performance benefits while eliminating the capacity tradeoffs associated with the highest-performing VMDK format, Eager Zeroed Thick.

Not all thin implementations are created equal

Key attribute	HP 3PAR Utility Storage	Other platforms
Autonomic provisioning Does not require an administrator to add capacity. No need for manual planning and configuration.	✓	✗
Reservationless implementation No silos or up-front allocated storage pools required.	✓	✗
Scalable performance Clustered architecture provides massive scalability in a single system.	✓	✗
Small write allocation units Fine-grained allocation ensures efficient use of storage each time a write to disk is performed.	✓	✗
Built-in, integrated design Truly virtualized infrastructure fully integrated with all software subsystems.	✓	✗
Comprehensive thin storage strategy Maximizes efficiency and cost savings by enabling you to start thin, get thin, and stay thin.	✓	✗

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