

Slash Your Technology Refresh Costs by Up to 60% with Thin³

Widely known as a thin storage pioneer, 3PAR® is not just a leader in thin provisioning, but in overall storage efficiency—including minimising power consumption, reducing administration time, and promoting environmental responsibility. Our next generation of thin technologies 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, 3PAR not only reduces your equipment costs, but saves you money on housing, powering, and cooling your storage.

Since revolutionising data storage with the introduction of 3PAR Thin Provisioning software in 2002, 3PAR has gone on to build 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 3PAR Utility Storage platform such as Reservationless Dedicate-on-Write, the 3PAR Gen3 ASIC with Thin Built In™, and more recently a virtualisation mapping engine for space reclamation, the 3PAR Thin Engine. Together these innovations maximise 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 3PAR arrays and unique thin technologies that enable your organisation to not only start thin, but to *get thin* and *stay thin*.

Start Thin. 3PAR Thin Provisioning

3PAR Thin Provisioning software improves storage system efficiency and optimises capacity utilisation system-wide. It does this by addressing the problem of capacity overallocation through eliminating the need to dedicate storage capacity on a per-application basis.

Since its introduction, 3PAR Thin Provisioning has given 3PAR Utility Storage 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 90%. It does this by allowing you to purchase only the disk capacity you actually need, only as you 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 you may not need for months or years to come, or may *never* actually need.

Get Thin. 3PAR Thin Conversion

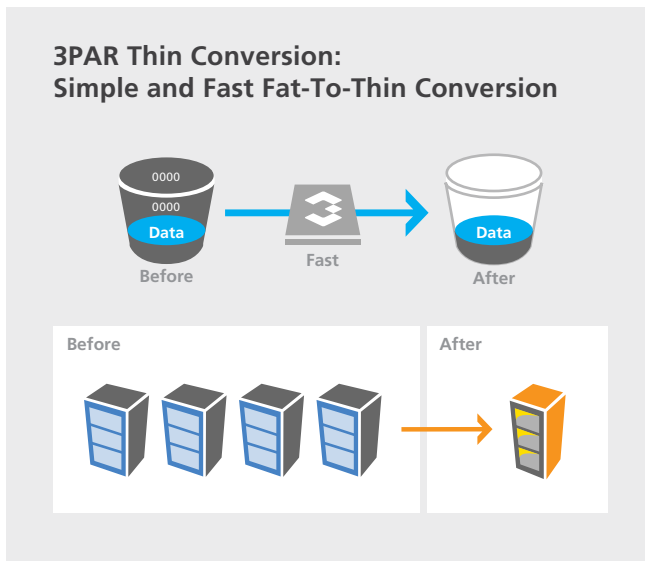
With 3PAR Thin Conversion, a technology refresh no longer requires a terabyte-for-terabyte replacement, but instead offers the opportunity to eliminate 70-80% of the legacy capacity in your storage environment, simply and rapidly. This solution not only makes a technology refresh more affordable, but 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 datacentres approaching maximum density.

In an ideal world, all your storage would start thin using 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 are a 3PAR customer with volumes that were created without the use of Thin Provisioning?



It's never too late to become more efficient. 3PAR Thin Conversion uses a virtualisation mapping engine for space reclamation called the 3PAR Thin Engine, together with the unique hardware capabilities of the 3PAR InServ® Storage Server with Thin Built In™ to extend the benefits of thin provisioning to your existing storage volumes. Thin Conversion with the 3PAR Gen3 ASIC in the InServ drives inline, wire speed “fat-to-thin” conversions compatible with any host volume. 3PAR is the only vendor in the industry to offer this built-in, hardware-accelerated, fat-to-thin conversion capability.



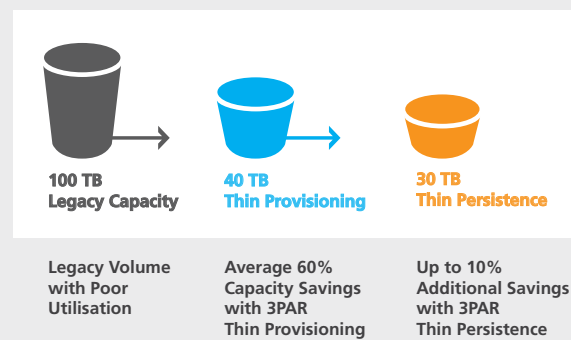
With Thin Conversion, you can quickly shrink your storage footprint, reduce storage TCO even further, and meet your Green IT targets. The zero-detection capability built into the 3PAR Gen3 ASIC combined with Thin Conversion software can effectively and rapidly “thin” a

heterogeneous datacentre to one-quarter of its original size—or less—while preserving service levels, and without impacting production workloads.

Stay Thin. 3PAR Thin Persistence and 3PAR Thin Copy Reclamation

To realise the ultimate efficiency and cost-saving benefits of starting thin or getting thin, you also need to stay thin. An industry first, 3PAR Thin Persistence software ensures that thin volumes on the InServ stay as lean and efficient as possible. Thin Persistence accomplishes this by using Thin Engine technology with the InServ's built-in zero-detection capability to reclaim unused space associated with deleted data within InServ storage volumes—simply, quickly, and without disruption.

Thin Provisioning + Thin Persistence: Average 70% Capacity Savings

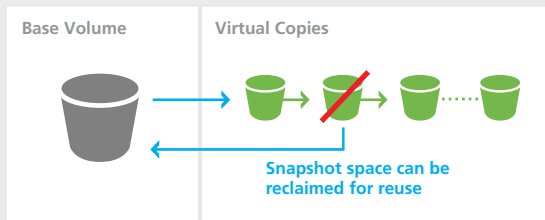


Thin Copy Reclamation is similar to Thin Persistence but instead of applying the Thin Engine to space reclamation for thin volumes, it reclaims unused space from thin copies (virtual copy snapshots and remote copies).

On average, 3PAR customers purchase 60% less capacity than would have been necessary with traditional storage arrays. With Thin Persistence and Thin Copy Reclamation, you can improve that average capacity savings by another 10% for a total savings of up to 70%. All of your volumes and snapshots can stay thin to help you sustain your Green IT targets, defer the cost of purchasing

raw capacity to handle new data growth, and keep costs down—without purchasing special host-based software or retaining professional services.

Thin Copy Reclamation: Maximise Utilisation And Cost Savings



Autonomic Reclamation of Deleted Snapshot Space

***Demand Thin*³. 3PAR Utility Storage**

Don't just think thin, but *demand thin*—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*.

3PAR has set the gold standard for thin provisioning and is the only storage vendor 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 vendor to build accelerated thin capabilities into array hardware with our Gen3 ASIC with Thin Built In™, 3PAR is building on a heritage of thin technology leadership—a heritage with which vendors offering bolt-on capacity reduction products simply cannot compete.

Not all thin implementations are created equal, and they certainly don't offer equal benefits. To maximise 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 3PAR Utility Storage.

Building a Thin Ecosystem

Another way that 3PAR delivers a comprehensive thin storage strategy is through continued work with partners to build a thin ecosystem that extends the benefits of thin technologies within the datacentre.

As part of this thin ecosystem, 3PAR and Oracle® have launched the industry's first database storage reclamation solution. Oracle Database 10g and 11g customers using Oracle Automatic Storage Management (ASM) and 3PAR Utility Storage with Thin Provisioning can now reclaim allocated but unused disk space by using 3PAR Thin Persistence and the new Oracle ASM Storage Reclamation Utility (ASRU).

3PAR and Symantec™ have also pioneered a Thin Reclamation API that allows a host file system to intelligently communicate with the InServ to reclaim space associated with file deletions. 3PAR Thin Reclamation for Veritas Storage Foundation leverages 3PAR Thin Engine technology to become the first software to take advantage of this API. The Thin Reclamation API enables InServ arrays to use granular, file system-level information to autonomously reclaim unused space within thin InServ volumes so that they stay thin over time.

3PAR thin technologies integrate with the latest version of VMware vSphere™ to ensure storage capacity efficiency by maintaining the thinness of all three vSphere virtual machine disk (VMDK) formats at the storage layer. 3PAR Thin Conversion autonomously works with Storage vMotion to maximise capacity savings when migrating data during "fat" to "thin" VMDK conversions. 3PAR Thin Persistence delivers performance benefits while eliminating the capacity tradeoffs associated with the highest-performing VMDK format, *Eager Zeroed Thick*. Unlike other storage platforms, the built-in zero-detection capability of the 3PAR Gen3 ASIC allows users to seamlessly create Eager Zeroed Thick VMs that do not consume physical capacity for the storage blocks that are "zeroed" at initialisation.

Not All Thin Implementations Are Created Equal

Key Attribute	3PAR	Other Vendors
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 InSpire® 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 virtualised infrastructure fully integrated with all software subsystems.	✓	✗
Comprehensive Thin Storage Strategy Maximises efficiency and cost savings by enabling you to start thin, get thin, and stay thin.	✓	✗

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