

Family data sheet

HP 3PAR StoreServ Storage software



December 2013

Meeting demands of the modern data center

HP 3PAR StoreServ Storage delivers the efficiency and agility required by virtual, cloud, and IT as a Service (ITaaS) environments with a robust software portfolio. HP 3PAR StoreServ Storage software includes both the OS that runs on HP 3PAR StoreServ and additional software products that run on customer hosts. HP 3PAR Operating System software comes installed on HP 3PAR StoreServ and includes a collection of advanced internal virtualization capabilities that increase storage efficiency and reduce administration time. The additional HP 3PAR StoreServ software products available for HP 3PAR StoreServ offer enhanced capabilities including thin storage technologies, data persistence, safe partitioning for virtual private arrays, virtual and remote copy capabilities, and nondisruptive data mobility. HP 3PAR StoreServ host-based software products enable HP 3PAR StoreServ to address the needs of specific application environments, multipathing, historical performance, and capacity management.

In addition to the HP 3PAR OS, the HP 3PAR software family can be categorized as:

HP 3PAR array-based software

- HP 3PAR Operating System software
- HP 3PAR Peer Motion software
- HP 3PAR Thin Provisioning software
- HP 3PAR Thin Conversion software
- HP 3PAR Thin Persistence software
- HP 3PAR Virtual Copy software
- HP 3PAR Remote Copy software
- HP 3PAR Peer Persistence software
- HP 3PAR Adaptive Optimization software
- HP 3PAR Dynamic Optimization software
- HP 3PAR Priority Optimization software
- HP 3PAR Virtual Domains software
- HP 3PAR Virtual Lock software
- HP 3PAR System Tuner software

HP 3PAR host software

- HP 3PAR Online Import software
- HP 3PAR Recovery Manager software for VMware vSphere
- HP 3PAR Management Plug-In software for VMware vCenter
- HP Cluster Extension software for HP 3PAR StoreServ
- HP 3PAR Recovery Manager software for Microsoft® Exchange
- HP 3PAR Recovery Manager software for Microsoft SQL Server
- HP 3PAR Recovery Manager software for Oracle
- HP 3PAR Recovery Manager software for Hyper-V
- HP 3PAR System Reporter software
- HP 3PAR Host Explorer software
- HP 3PAR Multipath I/O (MPIO) software for Microsoft Windows® Server 2003
- HP 3PAR Replication Adapter software for VMware vCenter Site Recovery Manager
- HP 3PAR Policy Manager software

The above features are available on all HP 3PAR StoreServ models.

HP 3PAR Operating System software

Provides advanced internal virtualization capabilities, features, and tools that increase storage management efficiency, capacity utilization, and performance in enterprise and cloud data centers

Supported across all HP 3PAR StoreServ models, HP 3PAR OS software utilizes advanced internal virtualization capabilities, features, and tools to increase storage management efficiency, capacity utilization, and performance in enterprise and cloud data centers. The HP 3PAR OS simplifies storage management by handling provisioning and change management autonomously and intelligently, at a subsystem level, and without administrator intervention. Autonomic provisioning features do away with traditional storage planning by delivering instant, application-tailored provisioning. Fine-grained virtualization of lower-level components and wide striping of data-enabled service levels to remain high and predictable, even as the use of the system grows or in the event of a component failure. Industry-leading ease of use is delivered through the simple, unified HP 3PAR Management Console and the powerful, scriptable HP 3PAR CLI.

New HP 3PAR Adaptive Flash Cache¹ accelerates storage performance, leveraging existing solid-state drives (SSDs) to extend cache nondisruptively. This feature reduces latency for read-intensive I/O workloads and improves response time for periodic read-burst access to cold data.

Key features and benefits

Autonomic provisioning features make traditional storage planning redundant

- HP 3PAR Rapid Provisioning is an HP 3PAR OS software feature that delivers instant, application-tailored volume provisioning. Provisioning is managed intelligently and autonomously, while traditional storage planning and change management are reduced
- HP 3PAR Autonomic Groups software is a feature designed to simplify storage provisioning for clustered and virtual server environments. Use of Autonomic Groups lessens the chances of human error by reducing manual repetition of tedious commands, making the provisioning process more reliable
- The HP 3PAR Scheduler feature enhances management automation, reduces administration time, and decreases the chances of administrative error by giving users full control over automated virtual copy snapshot creation and deletion

Simple, powerful administration tools deliver industry-leading ease of use

- The unified HP 3PAR Management Console simplifies storage management by placing everything you need to administer and fine-tune your entire HP 3PAR StoreServ deployment in a single window, including remote replication to disaster recovery (DR) sites
- SNMP and the Storage Management Initiative Specification (SMI-S) enable open, standards-based management
- Access Guard is an HP 3PAR OS software feature that delivers user-configurable volume security at logical and physical levels, enabling you to protect hosts and ports to specific virtual volumes
- Native support for Lightweight Directory Access Protocol (LDAP) within the HP 3PAR OS software delivers centralized user authentication and authorization by using a standard protocol for managing IT resources
- Web Services application programming interface (API) allows direct integration of HP 3PAR StoreServ management into your service delivery platform, allowing end-to-end automation. This storage management API is based on the reliable RESTful API

¹This feature is coming in a future release.

Advanced virtualization capabilities deliver high and predictable service levels

- The HP 3PAR OS software stripes data in a massively parallel and fine-grained fashion across all internal resources. This enables service levels to remain high and predictable even as the use of the system grows or in the event of a component failure
- HP 3PAR Persistent Cache maintains service levels by preserving write caching through rapid remirroring of cache to the other nodes in the cluster in the event of a cache or controller node failure
- HP 3PAR Persistent Ports is a tier 1 resiliency feature that provides nondisruptive online software upgrades on HP 3PAR StoreServ Storage systems without relying on multipathing software. This feature, available on all HP 3PAR StoreServ models, brings tier 1 resiliency, across the StoreServ product line including the midrange platform by verifying that host paths remain online throughout the software upgrade process. Persistent Ports controller node connection status detection improves resiliency with automatic failover if a port experiences physical connection loss

Data protection and copy space reclamation features improve capacity utilization

- HP 3PAR RAID Multi-Parity (MP) uses fast RAID 6 and the accelerated performance of the HP 3PAR ASIC to prevent data loss as a result of double disk failures. Performance levels are maintained with capacity overheads comparable to popular RAID 5 modes
- HP 3PAR Full Copy is an HP 3PAR OS software feature that allows you to create thin-aware, point-in-time (PIT) clones with independent service-level parameters, which can be rapidly resynchronized with base volumes as needed
- The HP 3PAR Thin Copy Reclamation feature keeps your storage lean and efficient by reclaiming unused space resulting from the deletion of virtual copy snapshots associated with virtual copy and remote copy volumes

HP 3PAR Peer Motion software

Nondisruptive data mobility across systems enables customers to load balance at will, update technology seamlessly, improve asset lifecycle management, and lower technology refresh CAPEX

HP 3PAR Peer Motion software is a nondisruptive, do-it-yourself data migration tool for enterprise block storage. HP 3PAR Peer Motion software customers can load balance I/O workloads across systems at will, perform technology update seamlessly, reduce costs for asset lifecycle management, and lower CAPEX associated with technology refresh. Unlike traditional block migration approaches, HP 3PAR Peer Motion software enables customers to migrate storage volumes between any HP 3PAR StoreServ Storage online, nondisruptively and without complex planning or dependency on extra tools. HP 3PAR Peer Motion software leverages HP 3PAR Thin Built In technology to power the simple and rapid inline conversion of inefficient, fat volumes on source arrays to more efficient, higher-utilization thin volumes on the destination system. Peer Motion Manager, a built in capability within HP 3PAR Management Console orchestrates all stages of the data migration lifecycle to enable data migration that is simple and foolproof.

Key features and benefits

Load balance data between systems at will

- Provides online, nondisruptive, on-demand data mobility between any HP 3PAR StoreServ Storage system
- Requires no complex planning or dependency on new technology layers or extra tools
- Integrates with Peer Motion Manager to enable do-it-yourself data migration that is simple and foolproof
- Facilitates self-throttled data movement that regulates data migration speed to preserve application performance

Perform technology refresh seamlessly

- Migrates data between HP 3PAR StoreServ Storage systems nondisruptively while the application remains online
- Works with Peer Motion Manager, a capability within 3PAR Management Console, to automate, simplify, and foolproof the migration of data between HP 3PAR StoreServ systems, thereby enabling a do-it-yourself data migration approach while lowering the need for professional services

Reduce costs for asset lifecycle management

- Nondisruptive data mobility between any-to-any HP 3PAR StoreServ Storage systems unlock the flexibility to enhance the purchase and addition of new resources to an existing system over its lifecycle

Lower capital expenditure for technology refresh

- Leverages HP 3PAR Thin Built In ASIC to power the simple and rapid conversion of inefficient, fat volumes on source system to more efficient, higher-utilization thin volumes on the destination HP 3PAR StoreServ Storage
- Removes allocated, but unused storage capacity, so the purchased capacity on the destination HP 3PAR StoreServ Storage system can be right-sized for written data
- Adjusts the RAID level, subsystem failure protection level, drive type, stripe width, or radial placement of volumes seamlessly to improve data quality of service (QoS) levels and lower capital expenditure (CAPEX) on destination HP 3PAR StoreServ Storage system

HP 3PAR Thin Provisioning software

HP 3PAR Thin Provisioning software can make any organization more agile and efficient by mitigating upfront capacity reservations and allowing disk capacity to be purchased only as needed

Do you have storage pools that aren't efficient?

HP 3PAR Thin Provisioning software solves the problem of inefficient capacity utilization by breaking the traditional linkage between allocated and purchased capacity. Demand for thin provisioning solutions combined with increased attention to data center power consumption has put pressure on vendors to introduce thin provisioning solutions, but bolt-on implementations can't deliver the simplicity or the efficiency of HP 3PAR Thin Provisioning.

With HP 3PAR Thin Provisioning software, capacity is dedicated and configured autonomically, just in time, and without active management. It also doesn't require planning or the need to configure storage into intermediary pools. Rather than create separate pools of storage, the software creates a pool from which capacity is dedicated only as data is actually written. And, while other thin provisioning implementations use coarse allocation units that can range from 1 MB to 17 GB, HP 3PAR Thin Provisioning software uses a fine-grained, 16 KB allocation unit to increase system efficiency.

Key features and benefits

Enables organizations to do more with less by reducing upfront storage costs

- Cuts down upfront disk drive purchases by reducing the number of disks required to store application data; thanks to a “dedicate-on-write” approach that consumes physical capacity only, as it is actually needed for written data
- Draws and configures capacity in fine-grained increments from a single free space reservoir without prededication of any kind—even for data with varying service-level requirements, enabling enterprises to consolidate onto a single, dynamically tiered storage array with a reduced footprint
- Prevents small writes from consuming megabytes or even gigabytes of capacity or from filling volumes during file system setup before application data is ever written with fine-grain allocation
- Leverages the massive scalability of HP 3PAR StoreServ to enable customers to grow as business needs dictate by adding capacity easily and as needed instead of making a large upfront investment when legacy systems reach their capacity limits
- Works with HP 3PAR Virtual Copy software and HP 3PAR Remote Copy software to prevent unnecessary duplication of unwritten capacity during local and remote volume replication

Reduces operating costs by making storage more agile and efficient

- Cuts SAN costs, floor space requirements, and energy expenses significantly, easing recurring facilities and energy costs by lowering the need to house power and cool drives that may not be needed for months or years to come
- Reduces not only storage administration, but also system and database (DB) administrator workloads
- Reduces license fees paid for many storage software products that are based on system capacity, such as Site Recovery Manager (SRM) tools
- Enables lifetime, application-tailored storage to be provisioned in just seconds and with just a few clicks from within the unified HP 3PAR Management Console, which offers industry-leading ease of use

Reduces risk and improves return on investment to shift resources from operations to innovation

- Enables a greater number of projects to be initiated at a lower cost by allowing more applications to be deployed with less infrastructure
- Expedites deployment of new applications and services by diminishing volume planning and manual provisioning
- Avoids application downtime associated with reconfiguring volumes and adding capacity to applications
- Frees IT from having to wait on budget allocation and storage purchasing to initiate new projects that can generate return for the business; allows instantaneous deployment of new applications, and provisioning of storage for new clients without depending on the traditional storage purchasing cycle
- Offers administrator-configurable allocation warnings and limits that remove risk and reduce the need for proactive monitoring by providing redundant mechanisms for automatically notifying administrators when physical capacity is being depleted and by preventing “runaway applications”

HP 3PAR Thin Conversion software

Leverages zero-detection capabilities within the HP 3PAR Gen4 ASIC to drive the conversion of inefficient, fat volumes on legacy arrays to more efficient thin volumes on HP 3PAR StoreServ

What can I do to improve the capacity efficiency of my legacy storage volumes without complex data migration or professional services?

HP 3PAR Thin Conversion software leverages the zero-detection capabilities within the HP 3PAR Gen4 ASIC to drive the conversion of inefficient, fat volumes on legacy arrays to more efficient, higher-utilization thin volumes on HP 3PAR StoreServ. This thinning of volumes enables data centers to meet green IT targets, curb wastage of space, and increase utilization rates. Because the fat-to-thin conversion mechanism is built into array hardware, volume conversions take place in the data path, at wire speeds, while preserving service levels, and without disruption to production workloads.

With Thin Conversion, a technology refresh no longer requires a terabyte-for-terabyte replacement, but instead offers the opportunity to reduce capacity requirements by 50 percent.² And while doing this, it preserves service levels and prevents impact to production workloads, all without the need to invest in professional services.

Key features and benefits

Drives up storage efficiency

- Leverages the HP 3PAR Gen4 ASIC and Thin Engine—a unique virtualization mapping engine for space reclamation—to drive the simple and rapid conversion of inefficient, fat volumes on legacy arrays to higher-utilization volumes on HP 3PAR StoreServ
- Enables customers like you who did not initially deploy thin provisioning to leverage the inherent efficiencies of thin provisioning and become thin, both simply and cost efficiently
- Reduces capacity costs as volumes are consolidated in conjunction with data center virtualization; as VMware Storage vMotion migrates data from legacy systems, Thin Conversion maps out deleted space from old virtual machines (VMs) to save more space for new and growing applications

Delivers quick and easy deployment

- Reduces volume migration timeline dramatically from months to almost hours through hardware-accelerated conversion
- Requires no special host software or professional services
- Allows customers undergoing a storage refresh to reduce data center environmental impact by migrating from legacy arrays to hyper-efficient, next-generation storage
- Offers a simple three-step process that involves using existing volume manager or file system to zero out deleted data before activating HP 3PAR Thin Conversion on HP 3PAR StoreServ, and then using HP 3PAR Thin Conversion software to initiate automated migration of legacy volumes to the new array

²For more details visit, HP 3PAR programs-Get Thin Guarantee, at www8.hp.com/us/en/products/data-storage/data-storage-products.html?compURI=1284392

HP 3PAR Thin Persistence software

Thin volumes on HP 3PAR StoreServ stay as lean and efficient as possible by leveraging the HP 3PAR Gen4 ASIC to nondisruptively reclaim unused space associated with deleted data

What good are thin provisioning savings if they can't be preserved over time?

HP 3PAR Thin Persistence software allows thin volumes on HP 3PAR StoreServ to stay lean and efficient. Writing and deleting large amounts of data can leave unused space within thin volumes. Even lots of small writes and deletions can eventually reduce the efficiency of thin volumes. This logical deletion of data without actually freeing up unused space creates a hidden utilization penalty that adds up over time. HP 3PAR Thin Persistence software reclaims this unused space to increase capacity efficiency, keep costs down, and help defer the purchase of additional capacity to handle new data growth. HP 3PAR Thin Persistence software also helps enterprises maintain sustainability targets by keeping down data center power and cooling needs.

Key features and benefits

Preserves utilization level of high storage capacity, over time

- Leverages the unique Thin Built In hardware capabilities of HP 3PAR Gen4 ASIC to drive the ongoing inline thinning of volumes at wire speeds, while preserving service levels and preventing disruption to production workloads
- Uses the zero-detection capability embedded in HP 3PAR Gen4 ASIC to reclaim unused space associated with data deleted from storage volumes
- Employs hardware-based mechanism to accelerate time required to reclaim allocated but unused space

Increases storage efficiency to deliver ongoing cost savings

- Produces significant savings on both capital and operating costs by extending the benefits of HP 3PAR Thin Provisioning software and HP 3PAR Thin Conversion software to keep capacity requirements low
- Helps customers defer the cost of purchasing raw capacity to handle new data growth by freeing up allocated but unused capacity that can be used to store new application data
- Mitigates the requirement for special host software or professional services aimed at heightening capacity utilization levels
- Helps customers achieve and maintain sustainability targets by shrinking data center power and cooling requirements as a result of reduction in unnecessary physical capacity

Extends thin benefits through integration with partner products

- Works with partner products building out a thin ecosystem that extends the benefits of thin technologies to other areas of the data center
- Enables Oracle Database 10g and 11g customers using Oracle Automatic Storage Management (ASM) to reclaim allocated but unused disk space by using HP 3PAR Thin Persistence software and the new Oracle ASM Storage Reclamation Utility (ASRU)
- Delivers performance benefits while lowering the capacity tradeoffs associated with the highest-performing Virtual Machine Disk (VMDK) format and eager zeroed thick; with VMware vSphere 5.0 and HP 3PAR OS 3.1.1, VMware space can be reclaimed autonomically with support for full VMDK reclamation upon VM deletion

HP 3PAR Virtual Copy software

Enables HP 3PAR StoreServ users to protect and share data flexibly and affordably from any application without sacrificing performance, availability, or versatility

Do you have the need to create snapshots for data backup, application recovery, business intelligence, and to expedite development and testing?

HP 3PAR Virtual Copy software flexibly delivers instant PIT copies of your data so you can share and protect data from almost any application simply and affordably. Use HP 3PAR Virtual Copy software to stay ahead of the innovation curve, for example, by enabling rapid application recovery, while containing costs with a thin-aware implementation that decreases the amount of physical capacity that is actually being consumed by your data.

Most traditional copy solutions lack flexibility and require too great an investment in online capacity to be considered economical.

- Prevents prereservation of capacity; only fine-grained capacity is consumed for changed data; copy-on-write operations are thin and nonduplicative; and changed data is seldom duplicated within a snapshot tree
- Helps autonomic space reclamation using thin copy reclamation feature that frees up unused space following snapshot deletions to maintain high-capacity utilization over time
- Supports snapshots of snapshots for fast, flexible sharing of data sets without the need for additional base volumes

Flexible solution elevates user control while guarding against risk

- Protects against any noticeable performance impact, while providing the ability to recover applications from multiple points in time, on par with near continuous data protection solutions
- Enables the deletion of snapshots freely without affecting peer snapshots—reverts a volume safely to any snapshot while retaining the remainder of snapshot tree intact
- Assigns different QoS levels to snapshots and base volumes flexibly

HP 3PAR Virtual Copy software is a reservationless, nonduplicative, copy-on-write product that consumes capacity only for changed data, in fine-grained increments, and without ever duplicating changed data within a snapshot tree.

Key features and benefits

Uniquely powerful yet simple snapshot solution

- Creates up to 2048 instantly available PIT snapshots per base volume without impacting applications, up to 256 of which can be read-write copies
- Receives autonomic data integrity across a set of volumes by using consistency groups feature to maintain write order consistency within a volume set
- Automates creation and expiration of virtual copy snapshots using scheduler feature

Simple key business processes to accelerate innovation

- Delivers affordable rapid application recovery for Oracle Database, Microsoft SQL Server, Microsoft Exchange Server, VMware vSphere, and Windows Hyper-V environments by using an extended library of PIT snapshots, when HP 3PAR Virtual Copy software is integrated with HP 3PAR Recovery Manager software
- Backs up volumes from a snapshot image locally or remotely, allowing business-critical applications to continue with little or no performance impact, without extended downtime, and while consuming only little additional capacity
- Uses multiple read-write snapshot instances of a “golden image” (a read-only snapshot of a given OS or application) for “bare metal” server provisioning and simplified patch management
- Enables multiple developers and testers to perform parallel development and testing of new applications safely with read-write snapshots of production data to accelerate new projects
- Accelerates data warehouse creation with instant snapshots of production datasets for use in extract, transform, and load (ETL) operations

HP 3PAR Remote Copy software

Provides enterprise and cloud data centers autonomic DR and replication technology to protect and share data from any application—simply, efficiently, and affordably

Do you want the ability to replicate data to remote locations more efficiently and cost-effectively?

HP 3PAR Remote Copy software dramatically reduces the cost of remote data replication and DR by leveraging thin copy technology, enabling multisite and multimode replication with both midrange and high-end arrays, and reducing the need for professional services.

HP 3PAR Remote Copy software offers fast and autonomic DR configuration; it can be set up and tested almost in minutes, from a single window. This software leverages the HP 3PAR Thin Built In ASIC to utilize expensive remote copy bandwidth efficiently. With support for synchronous long-distance replication, you can have an affordable, multisite alternative for achieving low recovery time objectives (RTOs) and zero-data-loss recovery point objectives (RPOs) with complete distance flexibility.

Key features and benefits

Uniquely powerful, yet simple replication solution

- Has built-in, autonomic configuration capabilities unique to HP 3PAR StoreServ that reduces the need for professional service engagements common with competing replication solutions
- Delivers multisite replication that can be set up, tested, and managed with just a few clicks from a single HP 3PAR management console window, enabling simple, efficient DR using HP 3PAR StoreServ
- Provides multisite, multimode synchronous long-distance replication configuration that enables organizations to save on hardware costs while meeting low RTOs and zero-data-loss RPOs with complete distance flexibility

Highly efficient and flexible implementation

- Offers synchronous or asynchronous periodic mode replication and one-to-one, N-to-1, 1-to-N or synchronous long-distance remote copy configuration for flexible and efficient multisite DR
- Enables target volumes to provide the same cost savings and ease of use associated with thin-provisioned source volumes since it is a thin-aware implementation and makes use of thin copies for asynchronous periodic mode replication to increase capacity efficiency, dismissing the need for full copy mirrors

- Delivers native support for replication by using both Fibre Channel (FC) and IP out-of-the-box connectivity over an IP network that decrease the need for dedicated or specialized infrastructure such as FC extenders and converters
- Allows mirroring of data between HP 3PAR StoreServ systems of any model and configuration, lessening the incompatibilities and complexities associated with trying to mirror between midrange and high-end array technologies purchased from other vendors

Virtual server, application, and cloud solution integration to simplify DR

- The combination of HP 3PAR Remote Copy software, HP 3PAR Peer Persistence software, HP 3PAR Replication Adapter software for VMware vCenter SRM, and VMware vCenter SRM enables simple, efficient, transparent, and affordable DR management across data centers that use VMware vSphere
- Based on HP 3PAR Remote Copy software, the HP 3PAR CloudAgile solution, offered through the HP 3PAR CloudAgile program, provides a highly available, cloud-based DR solution that is quick to implement, and is flexible and robust

HP 3PAR Peer Persistence software

Federates your storage infrastructure across your data centers unconstrained by their physical boundaries and uses them effectively as one single storage resource

Do you want seamless transition for your applications moving from one data center to another without any downtime?

HP 3PAR Peer Persistence software helps companies to federate their 3PAR StoreServ systems present at geographically separated data centers. This inter-site federation of storage allows customers to use their data centers more effectively by allowing them to move applications from one site to another as per their business need, and more importantly, without any application downtime.

HP 3PAR Peer Persistence leverages the robust high availability (HA) solutions already available on HP 3PAR StoreServ systems, and extends it even further by enabling a peer relationship between two HP 3PAR StoreServ systems located at geographically separated sites. Peer Persistence is built on the same industry-leading mesh-active and massively parallel architecture that HP 3PAR is known for, and thereby allows HP 3PAR customers with Remote Copy set up to deploy Peer Persistence without any appliance or additional hardware needed.

HP 3PAR Peer Persistence enables automatic switchover and switchback between two sites or data centers to be transparent to hosts and without any disruption to applications running on them. Peer Persistence is VMware vSphere Metro Storage Cluster (vMSC) certified and is deployed with Remote Copy without the need for any additional hardware or appliance.

Key features and benefits

Highly available federated storage

- Enables a peer relationship between HP 3PAR StoreServ systems located at data centers separated by metropolitan distance
- Presents a common seamless storage infrastructure to servers and hosts with inter-site storage federation
- Allows load balancing across data centers by supporting storage vMotion enabling VMs to move from one site to another without any downtime for their applications

Improved RTO with transparent failover and failback

- Helps in achieving complete business continuity by making zero RTO possible with zero RPO
- Protects against possible outage of mission-critical applications due to failures at storage component level or at an entire site level

Elegant and cost-effective design

- Saves cost by avoiding the need for any additional hardware or special appliance while deployment
- Preserves HP 3PAR StoreServ simplicity by enabling customers to deploy Peer Persistence themselves with the help of intuitive commands obviating the need for expensive professional services
- Builds on top of HP 3PAR Remote Copy and leverages all its inherent capabilities and benefits, such as thin-awareness, resulting in efficient link bandwidth utilization

HP 3PAR Adaptive Optimization software

Provides an autonomic storage-tiering solution that enables virtual and cloud data centers to deploy service-level enhancements on a broad scale, at a low cost and with low risk

Do you want to optimize service levels effortlessly, on a large scale, and at a lower total cost than other solutions?

HP 3PAR Adaptive Optimization software delivers the next generation in storage tiering by taking a fine-grained, highly automated approach to service-level improvement. Policy-driven, granular data movement takes place autonomically, providing highly reliable, nondisruptive, cost-effective storage tiering at the subvolume level; thus delivering the right QoS to the right data at the right time.

Key features and benefits

Service-level improvement delivers cost savings

- Delivers subvolume data placement that allows customers to reduce costs by meeting stringent performance targets with a lean, premium SSD tier 0 while highly economical, widely striped nearline (enterprise SATA) drives are used as tier 1 and tier 2 storage to place less frequently accessed data
- Allows you to meet virtual and cloud performance demands in a smaller footprint and to deliver significantly lower storage equipment costs than using FC drives alone, by using SSDs for tier 0 storage
- Configures starting service levels for each application independently and flexibly to match the desired service level and cost

Autonomic solution enhances infrastructure agility

- Enables IT managers to react swiftly to changing business needs while delivering service-level improvement over the entire application lifecycle, autonomically and nondisruptively
- Offers QoS gradients for application prioritization modes (performance, balanced, and cost) to shift data at a granular level towards the most appropriate storage tier according to changing QoS demands
- Monitors subvolume performance intelligently and then applies user-specified policies to move data autonomically and disruptively among tiers
- Works with HP 3PAR System Reporter software to allow administrators to prioritize each application separately with up to three storage tiers defined by drive type, RAID level, stripe width, or radial placement of data

Flexible, proven implementation reduces risk

- Leverages the proven, fine-grained data movement engine built into HP 3PAR OS software; this data movement engine has been widely deployed by HP 3PAR clients for nondisruptive rebalancing of storage volumes by using HP 3PAR Dynamic Optimization software
- Incorporates a high degree of user control and several policy override mechanisms; a flexible implementation allows analysis and data movement to be scheduled, and resource usage limits and tier definitions to be varied by application
- Prevents data thrashing through built-in stability mechanisms
- Supports multiple Adaptive Optimization configurations and the coexistence of tiered and nontiered application volumes, delivering the ability to consolidate a wide range of applications onto a single array

HP 3PAR Dynamic Optimization software

Alleviates costly and time-consuming QoS-level management by giving organizations the ability to react autonomically to changing application and infrastructure requirements

Looking for a storage solution that alleviates costly and time-consuming QoS level management?

HP 3PAR Dynamic Optimization software enables organizations to achieve peak data QoS levels at the lowest cost, at all times, across all stages of the disk-based data lifecycle. It enables users to nondisruptively alter service levels associated with a storage volume (RAID level, subsystem failure protection level, drive type, stripe width, or radial placement) and to rebalance storage volumes, each with a single click. HP 3PAR Policy Advisor for Dynamic Optimization software is an add-on application that analyzes how volumes on HP 3PAR StoreServ uses physical disk space and makes intelligent, autonomic adjustments to facilitate improved volume distribution and tiering of storage volumes.

Key features and benefits

Aligns application requirements with data QoS levels flexibly, precisely, and on demand

- Alters service levels of a volume nondisruptively with a single click, without scheduling, planning, or impacting application performance; each storage volume resides on a single tier, but maintains mobility between tiers throughout the application lifecycle
- Works with the HP 3PAR Policy Advisor software to drive large-scale performance enhancements autonomically with one button, after addition of new resources to the system or movement of a large number of volumes between tiers
- Adjusts the RAID level, subsystem failure protection level, drive type, stripe width, or radial placement of volumes seamlessly to achieve peak data QoS levels

Provides the ability to react quickly to changing application and infrastructure requirements

- Enables service-level change orders to be made on demand, aligning appropriate storage resources as needed with the changing value of data
- Works with HP 3PAR Policy Manager software to rebalance multiple volumes autonomically and nondisruptively, with a single command based on configurable policies
- Cuts down the cost of overprovisioning needed to accommodate usage spikes as well as the time-consuming, manual migration of data to lower tiers, thus also reducing storage costs

HP 3PAR Priority Optimization software

Achieves service levels and offers predictable performance for an application or workload

Do you need to improve QoS for mission-critical applications?

HP 3PAR Priority Optimization software enables service levels for applications, virtual domains, and workloads as business requirements dictate. It protects mission-critical applications in enterprise environments by specifying Service Level Objectives and Service Level Caps for IOPS (i.e., performance) and bandwidth. You can also define Latency Goals for your most mission-critical applications. If these goals are not met, Priority Optimization automatically adjusts the service levels of lower-priority applications and workloads to assure necessary QoS levels for your highest priority applications.

Key features and benefits

- Assures QoS for your most mission-critical applications; protects from poor performance
Creates and modifies threshold limits including I/O per second, bandwidth, and latency to meet business needs
- Configures QoS with mission-critical apps as “high” and others as “medium” or “low” priority
- Configures thresholds by volume set with real-time enforcement measured in seconds or subseconds
- Easy configuration with autonomic service level objectives for a virtual volume set

Specify the relative performance of each workload on HP 3PAR StoreServ

- Controls and balances the distribution of the powerful HP 3PAR StoreServ disk bandwidth **across** multiple production, and test and development workloads on a single system
- Avoids resource contention in the storage system by throttling the I/O of one or more workloads to allow performance of others
- Manages end-user application performance expectations with even only one workload present, preventing support calls with additional workloads come online

HP 3PAR Virtual Domains software

Lifts service levels and lowers cost by enabling consolidation on “virtual private arrays” on shared HP 3PAR StoreServ systems, while preserving the benefits of massively parallel load balancing

Are security and performance concerns standing in the way of infrastructure consolidation?

By providing administrative segregation of users, hosts, and application data, HP 3PAR Virtual Domains software allows hosting providers to deliver virtual private array services and enterprise IT organizations to deliver “self-service” storage that is both protected and capable of high QoS levels. Through consolidation onto the massively parallel and dynamically tiered HP 3PAR StoreServ, individual user groups and applications achieve greater storage service levels (performance, availability, and functionality) than preconsolidation levels with less infrastructure. HP 3PAR Virtual Domains software is ideal for both internal and external storage service providers, and for any enterprise deploying a converged infrastructure.

Key features and benefits

Protected, virtual private arrays to simplify storage

- Prevents the costly purchase and time-consuming management of separate physical resources—either within a monolithic storage system or with multiple, dedicated modular storage arrays
- Enables the creation of up to 1,024 protected, virtual private arrays within a single, massively scalable HP 3PAR StoreServ by delivering a simple, efficient, and scalable approach to protect segregation within a consolidated platform
- Allows organizations to enjoy the benefits of storage consolidation—including greater resource utilization, reduced administration, centralized backup, and reduced energy and floor space consumption—while meeting diverse and distributed storage needs
- Is fully integrated with HP 3PAR Remote Copy software for simple and protected access to replicated volumes, with HP 3PAR System Reporter software for simple historical performance and capacity utilization reporting by virtual domain, and with Lightweight Directory Access Protocol (LDAP) support for centralized user authentication and authorization

Improved QoS levels

- Is fully integrated with HP 3PAR Priority Optimization software to set thresholds that protect individual tenants, preventing a single tenant from monopolizing resources
- Policy-based, virtual implementation that preserves the benefits of massively distributing and sharing each application workload across all system resources (ports, processors, cache, loops, and disk drives)
- Administrative segregation of users, hosts, and application data enables individual user groups and applications to achieve greater storage service levels (performance, availability, and functionality) at a lower cost, with fewer infrastructure, and without compromising security
- With virtual implementation having advanced security, users only have access to virtual domains and logical elements that they have been granted access by a master administrator. IT organizations can deliver customized, protected, and even self-service storage to administrators, applications, departments, and customers
- Ideal for internal or external service providers that must enable high security, consolidated, independent storage services to multiple administrators, applications, departments, and customers

Enhanced operational efficiency

- Enables simple storage administrative tasks and monitoring tools to be turned over to system and application administrators in a self-service model that drives time and cost savings
- Prevents deliberate or inadvertent presentations of a volume outside its virtual domain, thereby protecting authorized administrators against errors and aiding compliance efforts
- Groups multiple independent virtual domains into a single logical entity thus simplifying storage administration and backups, when using the Autonomic Groups feature of the HP 3PAR Operating System software
- Enables the protected consolidation of production with test and development environments to drive huge cost savings

HP 3PAR Virtual Lock software

Provides HP 3PAR StoreServ users with an efficient and cost-effective way to comply with data retention requirements, for example, to comply with internal governance policies or eDiscovery

Is your organization looking to implementing stricter data governance practices, or do you need to protect data from deletion to facilitate electronic discovery (eDiscovery)?

HP 3PAR Virtual Lock software gives users the ability to protect data volumes and volume copies from intentional or unintentional deletions. During the user-specified retention period, volumes and copies can be read but are protected against deletion, even by an administrator with the highest-level user privileges.

HP 3PAR Virtual Lock software is thin aware, so it works on both standard and thin-provisioned storage volumes copies, and is completely compatible with HP 3PAR Virtual Copy software, HP 3PAR Remote Copy software, and HP 3PAR Thin Provisioning software.

Key features and benefits

Safely and efficiently preserves data for compliance and eDiscovery

- HP 3PAR Virtual Lock software supports data retention for internal governance and eDiscovery purposes by protecting volumes and volume copies from intentional or unintentional deletion
- Once locked by the HP 3PAR Virtual Lock software, specified storage volumes and copies cannot be deleted, even by an HP 3PAR StoreServ administrator with the highest user privilege level
- When used in conjunction with HP 3PAR Virtual Copy software for reservationless, nonduplicative snapshots, HP 3PAR Virtual Lock software delivers an extremely simple and efficient approach to data retention

Simple, flexible administration delivers security and control

- The HP 3PAR Virtual Lock software allows a user-configurable retention period that enables individual storage volumes or copies to be locked for a specified period of time
- During this retention period set by using HP 3PAR Virtual Lock software, read access to volumes and copies is allowed, but deletions are prohibited, making data tamper proof

HP 3PAR System Tuner software

Maintains peak HP 3PAR StoreServ performance by autonomically and nondisruptively detecting and resolving performance bottlenecks and storage hotspots

HP 3PAR OS software spreads volumes evenly and widely across all available resources so that HP 3PAR StoreServ can deliver balanced performance. However, as the storage system scales and new applications come online, new access patterns may emerge that result in suboptimal performance levels. HP 3PAR System Tuner software rebalances volumes to maintain peak performance without impacting service levels or changing pre-existing service-level characteristics such as RAID level.

Key features and benefits

Autonomically maintains peak performance over time

- Detects unforeseen storage access patterns and addresses any issues that may arise to facilitate consistently high performance
- Retains all pre-existing service-level parameters such as RAID levels and disk type
- Allows relocation operations to run as a background process that is nondisruptive to users and applications

Customizable solution delivers administrative simplicity, flexibility, and control

- Targets underperforming storage at the subvolume level by identifying fine-grained capacity units that fall below a specific, user-definable threshold
- Adjusts configurable thresholds according to multiple criteria related to service times
- Is set up to examine all capacity in the array or a subset of the system, such as a specified group of physical disks

HP 3PAR Online Import software

Used with HP EVA Command View, Online Import software enables the orchestration of data migration from a source EVA system to a destination HP 3PAR StoreServ system. Customers can migrate EVA virtual disks and host configuration information to HP 3PAR StoreServ without having to change host configuration or interrupting data access. Peer Motion is the fundamental technology that enables this capability.

Key features and benefits

Perform technology refresh seamlessly

- Migrates data between HP EVA Storage with either no or very minimal disruption to the application, depending on the host OS
- Uses HP Command View EVA to automate and simplify data migration, enabling a do-it-yourself approach and reducing the need for professional services

HP 3PAR Recovery Manager software for VMware vSphere

Provides simple and efficient protection and rapid online recovery of VMDKs, VMFS, VMs, and individual files

Is your VMware vSphere backup solution disruptive or does backup recovery lack the granularity to restore individual files?

HP 3PAR Recovery Manager software for VMware vSphere is an array-based, online VM snapshot and recovery solution that gives superior control over data protection and recovery in VMware vSphere environments—including granular, rapid online recovery of files. By leveraging HP 3PAR Virtual Copy software, Recovery Manager enables VMware administrators to nondisruptively create hundreds of space-efficient, application-consistent, PIT snapshots to protect and recover VMDKs, Virtual Machine File Systems (VMFS), individual VMs, or individual files. Along with the HP 3PAR Management Plug-In for VMware vCenter, HP 3PAR Recovery Manager software gives administrators access to all of this functionality from within the familiar and easy-to-use VMware vCenter Server virtualization management console.

Key features and benefits

Delivers simple and highly flexible implementation with a low-impact topology

- HP 3PAR Recovery Manager software for VMware vSphere dispenses with the backup window and associated “race to daylight” by powering hundreds of nondisruptive, application-consistent VM snapshots for rapid online recovery
- Array-based approach leverages HP 3PAR Virtual Copy software to create highly space-efficient snapshots to enable tighter service level agreements (SLAs) without the use of separate agents installed on individual VMs
- The software is integrated into the VMware vCenter Server virtualization management console for superior ease of use; the scheduler feature of the Recovery Manager provides automated snapshot creation
- It can be used for a variety of scenarios including change management (protecting VMs before applying new patches) and creating snapshots for testing and development purposes

Enables highly granular and flexible RPOs and RTOs

- Enables administrators to simply and efficiently protect and recover VMDKs, VMFS, individual VMs, and individual files without the need for agents
- Allows administrators, through scalable, nonduplicative snapshots, a greater number of backups for a frequent extended history of recovery points, giving flexibility when committing to a given RPO
- Delivers the flexibility to restore from snapshot (through fast D2D restore) or to mount the snapshot on the host directly and instantaneously, which allows administrators to offer increasingly aggressive RTO SLAs to customers

HP 3PAR Management Plug-In software for VMware vCenter

Integrates with VMware vCenter Server so VMware administrators can view HP 3PAR StoreServ resources connected to the VMware infrastructure by using a native VMware interface

How would giving your VMware administrators precise insight into underlying storage resources improve their efficiency?

HP 3PAR Management Plug-In software for VMware vCenter offers administrators access to powerful management capabilities from within the VMware vCenter Server management console. VMware administrators can gain greater visibility into storage resources and precise insight into how individual VMs are mapped to data stores and individual volumes on HP 3PAR StoreServ. With this plug-in, QoS characteristics for individual storage volumes such as RAID level, subsystem failure protection level, drive type, and volume size and type are all displayed within the familiar easy-to-use vCenter Server virtualization console. When used in conjunction with HP 3PAR Recovery Manager software for VMware vSphere, this plug-in also gives VMware administrators the power of rapid online recovery from within the vCenter console.

Key features and benefits

Greater visibility into underlying storage resources

- Enables viewing HP 3PAR StoreServ resources connected to the VMware infrastructure using the native interface provided by the VMware vCenter Server virtualization console
- Improves visibility for VMware administrators, who can now view information on VM to data store, to logical unit number (LUN) mapping
- Gives precise insight into underlying storage properties for easy reporting and troubleshooting of infrastructure issues by VMware administrators
- Frees VMware administrators from relying solely on storage administrators for critical information and for help troubleshooting infrastructure performance issues
- Reduces storage administration by consolidating all host configuration information in a central location; and enables the transfer of that information to HP for service purposes

Integration with optional recovery manager software for seamless, rapid online recovery

- Integrates with optional HP 3PAR Recovery Manager software for VMware vSphere to give VMware administrators seamless, rapid online recovery from within the vCenter console
- Works with HP 3PAR Recovery Manager software to enable VMware administrators to create and view hundreds of space-efficient, PIT snapshots of VMs and their associated storage volumes
- Complements HP 3PAR Recovery Manager software to create application-consistent virtual copies for rapid recovery of mission-critical applications
- Allows stored snapshots to be used for granular, rapid online recovery of individual files or directories inside a VM, for entire VMs, or even for an entire data store

HP Cluster Extension software for HP 3PAR StoreServ

An automated disaster tolerant solution for HP 3PAR StoreServ that helps achieve lower RPO and RTO

HP Cluster Extension software (CLX) for HP 3PAR StoreServ is a full-site disaster tolerance software solution. HP CLX offers protection against application downtime from fault, failure, or site disaster by extending a local cluster between data centers over metropolitan distance. CLX reinstates critical applications at a remote site within minutes after an adverse event. CLX integrates with the OS clustering software, Microsoft Cluster Service in Microsoft Windows and the array-based remote mirroring software, HP 3PAR Remote Copy software on storage to automate failover and failback between sites. This dual integration enables the cluster service to verify the status of the storage as well as the server cluster; thus allowing the correct failover and failback decisions to be made, which reduce downtime and accelerate recovery—without human intervention.

Key features and benefits

Offers protection against system downtime

- Provides hands-free failover and failback decision-making because it detects failures and automatically manages recovery without human intervention; helps meet RPO and RTO
- Supports no reboots and LUN presentation and mapping changes during failover; servers on both sides are recognized from the initial boot
- Performs read/write enabling of remotely mirrored storage
- Supports automatic failover of application services over metropolitan distances; extends a single cluster solution over metropolitan distances

Is scalable, reliable, and available

- Provides scalability in extending a single cluster over metropolitan or global distances
- Supports automatic failover of application services over global distances, reliably
- Monitors and recovers disk pair synchronization on an application level
- Provides high standards in data integrity by enhancing the advantages of HP 3PAR Remote Copy software

Has flexibility with other storage arrays and OSs

- Supports the entire HP 3PAR StoreServ, EVA P6000, XP P9500 families of arrays
- Integrates with Microsoft Cluster Service on Windows

HP 3PAR Recovery Manager software for Microsoft Exchange

Provides rapid, efficient online backup and recovery of entire Microsoft Exchange Server DBs or even an individual email from multiple, highly granular PIT

Is your data protection solution causing administrative costs of your Exchange to spiral out of control?

HP 3PAR Recovery Manager software intelligently creates and manages highly granular and capacity-efficient Exchange-aware snapshots. These snapshots can then be used to restore Exchange instances or DBs quickly, or to back them up nondisruptively to tape for near-continuous data protection. As HP 3PAR Recovery Manager software is built on HP 3PAR Virtual Copy, scores of reservationless snapshots can be kept online economically, allowing for extended or frequent Exchange DB recovery points.

Key features and benefits

Makes backup and recovery in Microsoft Exchange environments simpler and more efficient

- Leverages HP 3PAR Virtual Copy software to enable scores of snapshots to be kept online economically—allowing for extended or frequent Exchange DB recovery points
- Allows snapshot instances to be managed efficiently, from an easy-to-use GUI on the host that helps control administration costs
- Makes a variety of scenarios simpler and more efficient, including creating snapshots for testing and development purposes
- Integrates with Symantec NetBackup, delivering fast, reliable backup to tape and recovery staging to disk from tape
- Integrates with optional HP 3PAR Remote Copy software, giving organizations an ideal solution for cost-effective replication of Exchange DBs over any distance to provide business continuity following a primary site outage

Enables highly granular and flexible RPOs and RTOs

- Does away with the backup window and associated “race to daylight” by integrating with Microsoft Volume Shadow Copy Service (VSS) to power the creation of hundreds of nondisruptive, application-consistent snapshots for off-host backup
- Provides scalable, nonduplicative snapshots that allow administrators a greater number of backups for a frequent extended history of recovery points, thus providing flexibility when committing to a given RPO
- Delivers the flexibility to restore from snapshot (through fast D2D restore) or to mount the snapshot on the host directly and instantaneously, which allows administrators to offer increasingly aggressive RTO SLAs to customers

HP 3PAR Recovery Manager software for Microsoft SQL Server

Provides a rapid and efficient local backup and DR solution for Microsoft SQL Server DBs

Are you being forced to choose between performing fewer SQL Server backups and spending more for storage?

HP 3PAR Recovery Manager software for Microsoft SQL Server is a highly efficient solution for automatically creating and managing hundreds of application-consistent, reservationless, PIT snapshots of Microsoft SQL Server DBs for rapid online recovery. Snapshots can be used to quickly restore SQL Server DBs or nondisruptively back up DBs to tape for near-continuous data protection. Because Recovery Manager leverages highly efficient HP 3PAR Virtual Copy software, scores of snapshots can be kept online economically, allowing extended or frequent recovery points. Unlike host-based backup solutions where the time to backup is proportional to the DB size, HP 3PAR Recovery Manager creates snapshots instantaneously, irrespective of DB size. This capability enables organizations to maintain consistent service levels even with large, multiterabyte DBs.

Key features and benefits

Delivers rapid, affordable recovery of mission-critical applications

- The array-based implementation of HP 3PAR Recovery Manager software for Microsoft SQL Server leverages HP 3PAR Virtual Copy software to enable scores of snapshots to be kept online economically, allowing for extended or frequent SQL DB recovery points
- Unlike host-based backup solutions where the time to back up is proportional to the size of the DB, virtual copies created with Recovery Manager are instantaneous, irrespective of DB size
- Integration with Microsoft VSS provides a standardized interface for creating snapshots; Recovery Manager's advanced scheduler feature provides automated snapshot creation to control administration costs
- The software enables SQL Server DBs to be quickly recovered to a known PIT or to the point of failure, speeding up a variety of operations including rapid recovery of the production SQL Server
- It can make a range of scenarios simpler and more efficient, including creating snapshots for testing and development purposes

Highly granular and flexible RPOs and RTOs

- HP 3PAR Recovery Manager software for Microsoft SQL Server disables the backup window and associated "race to daylight" by integrating with Microsoft VSS to power the creation of hundreds of nondisruptive, application-consistent snapshots of single or multiple volumes for off-host backup
- Scalable, nonduplicative snapshots allow administrators a greater number of backups for a frequent extended history of recovery points, thus increasing flexibility when committing to a given RPO
- The software delivers the flexibility to restore from snapshot (through fast D2D restore) or to mount the snapshot on the host directly and instantaneously, which allows administrators to offer increasingly aggressive RTO SLAs to customers
- Integration with HP Data Protector, Symantec NetBackup, and Symantec Backup Exec delivers fast, reliable backup to tape and recovery staging to disk from tape
- Integration with optional HP 3PAR Remote Copy software gives organizations an ideal solution for cost-effective replication of SQL DBs over any distance to enable business continuity following a primary site outage

HP 3PAR Recovery Manager software for Oracle

Intelligently and nondisruptively creates, manages, and presents time-consistent snapshot images of Oracle Databases for rapid application recovery, near-continuous data protection, and data sharing

Does your Oracle backup and recovery solution impact service levels and produce unnecessary cost and complexity?

HP 3PAR Recovery Manager software for Oracle is a highly efficient solution for automatically creating and managing hundreds of application-consistent, reservationless, PIT snapshots of Oracle and Oracle Real Application Clusters (RAC) DBs for rapid online recovery. These snapshot images are then presentable to other Oracle Database instances, managed from an easy-to-use GUI on the host. With Recovery Manager, administrators can recover a DB to a known PIT quickly and simply, speeding up a variety of operations including the rapid recovery of the Oracle production server.

Integration with Oracle Active Data Guard enables snapshots to be taken on standby DBs, thus cushioning impact to the production DB. Fast, reliable backup and recovery to tape is made possible through integration with Symantec NetBackup.

Key features and benefits

Maintains balance between performing fewer full backups and spending more on storage

- Creates highly space-efficient snapshots that enable Oracle logs to be replayed for up-to-the-minute DB recovery, speeding up a variety of operations including the rapid application recovery of the Oracle production server itself with an array-based approach that leverages HP 3PAR Virtual Copy software
- Allows snapshot instances to be managed efficiently, from an easy-to-use GUI on the host
- Makes a variety of scenarios simpler and more efficient, including creating snapshots for testing and development purposes
- Works with optional HP 3PAR Virtual Lock software to safeguard disk-based backups, reducing the need to perform redundant tape backups to protect against accidental or malicious deletion of disk-based backups
- Integrates with Symantec NetBackup intelligently to present Oracle snapshots to the NetBackup server as a class or policy so that backup jobs do not require reconfiguration, thus avoiding the need for custom scripting or costly consulting services otherwise necessary to achieve the same result

Enables highly granular and flexible RPOs and RTOs

- Does away with the backup window and associated “race to daylight” by powering hundreds of nondisruptive, application-consistent snapshot images of production Oracle and Oracle RAC DBs
- Discovers autonomically and maps all DB elements intelligently (including table spaces, data files, control files, parameter files, and archive log files) to associated snapshots
- Provides scalable, nonduplicative snapshots that allow administrators a greater number of backups for a frequent, extended history of recovery points, thereby increasing flexibility when committing to a given RPO
- Delivers the flexibility to restore from snapshot (through fast D2D restore) or by mounting the snapshot on the host directly and instantaneously, which allows administrators to offer increasingly aggressive RTO SLAs to customers
- Integrates with Oracle Data Guard to provide application-level DR on the host in Oracle Data Guard and Active Data Guard environments, which enables organizations to take snapshots of standby DBs instead of production DBs

HP 3PAR Recovery Manager software for Hyper-V

Provides simple and efficient protection and rapid online recovery of VHDs and individual VMs

Is your Hyper-V backup solution disruptive or does recovery lack the granularity to restore individual files?

HP 3PAR Recovery Manager software for Hyper-V is an array-based, online VM snapshot and recovery solution that gives superior control over data protection and recovery in Hyper-V environments. By leveraging HP 3PAR Virtual Copy software, Recovery Manager for Hyper-V enables administrators to nondisruptively create space-efficient, application-consistent, PIT snapshots to protect and recover Virtual Hard Disks (VHDs) and individual VMs.

Key features and benefits

Simple and highly flexible implementation for recovery of Hyper-V VMs to enhance productivity

- Enables Hyper-V VMs to be quickly recovered to a known PIT or to the point-of-failure. This speeds up a variety of operations including rapid recovery of the application
- Creates highly space-efficient snapshots enabling tighter SLAs without the use of separate agents installed on individual VMs, with an array-based approach that leverages HP 3PAR Virtual Copy software

Enables highly granular and flexible RPOs and RTOs

- Provides a simple, automated solution to enable administrators to efficiently protect and recover VHDs, Hyper-V VMs, and individual files
- Allows flexibility when committing to a given RPO with scalable, nonduplicative snapshots that offer administrators a greater number of backups for a frequent extended history of recovery points
- Delivers the flexibility to restore from snapshot or to directly and instantaneously mount the snapshot on the host, which allows administrators to offer increasingly aggressive RTO SLAs to customers

HP 3PAR System Reporter software

Delivers Web-based historical performance and capacity management reporting for multiple HP 3PAR StoreServ systems, even if they are geographically dispersed

Do you need to gather and track historical system information for your HP 3PAR StoreServ?

HP 3PAR System Reporter software is a flexible, intuitive, Web-based performance and capacity management tool that aggregates fine-grained performance and capacity usage data for HP 3PAR StoreServ, regardless of location. The highly customizable, robust reporting offers straightforward report sharing and report scheduling, which simplify performance monitoring and assist in gathering data for improvement and planning. HP 3PAR System Reporter software enables quick troubleshooting and isolation of performance issues reducing business impact. HP 3PAR System Reporter proves particularly useful for service providers and enterprises that require detailed information for service-level administration. The ability to create reports by user group supports chargeback and meeting SLAs. The software works with HP 3PAR Adaptive Optimization software to enable policy management of autonomic storage tiering resources.

Key features and benefits

Delivers powerful, customizable infrastructure monitoring and management capabilities

- Tracks performance and capacity utilization trends for multiple HP 3PAR StoreServ systems regardless of their physical location
- Allows a broad range of report customizations and groupings for SLA and chargeback support
- Provides information on how to plan and enhance future configuration changes to improve infrastructure investments

Simplifies information gathering and storage capacity management

- Provides detailed, information-rich, historical reports, and both tabular and pictorial charting for ease of analysis
- Simplifies reporting and supports report sharing using a Web browser or optional Microsoft Excel client
- Gives users the ability to schedule highly customizable, automatically generated reports

Allows robust, proactive performance analysis

- Alerts users when specified performance thresholds are reached
- Provides a set of predefined reports for easy and quick viewing of capacity and performance
- Helps troubleshoot and isolate performance issues quickly to reduce business impact

Provides policy management for autonomic storage tiering

- Supports clients using HP 3PAR Adaptive Optimization software and enables policy management of autonomic storage tiering resources
- Collects and analyzes access rates at a subvolume level and relays this information to HP 3PAR Adaptive Optimization software
- Enables users to specify policies that guide HP 3PAR Adaptive Optimization software in moving subvolume level data between storage tiers

HP 3PAR Host Explorer software

An autonomic storage management tool that simplifies routine administrative tasks related to host configuration with HP 3PAR StoreServ and HP 3PAR Operating System software upgrade

Is your administrator spending a considerable amount of time collecting host configuration information?

HP 3PAR Host Explorer software is an autonomic storage management tool for HP 3PAR StoreServ that establishes protected communication channels between storage and hosts. HP 3PAR Host Explorer software uses this connection to automate host discovery and collection of detailed host configuration information that is critical to speeding storage provisioning and simplifying maintenance. Using the protected communication channel, HP 3PAR Host Explorer software automatically and with advanced security communicates host information such as FC Worldwide Name (WWN) and host multipath data to HP 3PAR StoreServ to reduce manual administration.

Key features and benefits

Establishes protected, autonomic communication channels between storage and hosts

- Communicates host information such as FC WWN and host multipath data to HP 3PAR StoreServ with improved security

Simplifies administration by automating host discovery

- Prepopulates host configuration information to simplify configuration of hosts with storage

Reduces administration tasks during storage OS upgrade

- Automatic collection of host configuration information reduces administrative tasks during HP 3PAR Operating System software upgrade

HP 3PAR MPIO software for Microsoft Windows Server 2003

Delivers a highly available, robust, and trouble-free multipathing solution for Microsoft Windows environments

Have you been foregoing the benefits of multipathing due to cost, complexity, or limited operability?

HP 3PAR MPIO software for Microsoft Windows Server 2003 delivers a highly available, robust, and trouble-free multipathing solution for Microsoft Windows Server 2003 environments. With MPIO for Windows, I/O is intelligently routed through multiple paths between a host server and the HP 3PAR StoreServ system for greater availability and load balancing. This solution is designed to utilize all available paths to prevent overloading of any single path and avoid the formation of I/O bottlenecks. MPIO software for Windows accomplishes this through a combination of autonomic load balancing, path failover capabilities, and ease of management. In the event of a path failure, MPIO for Windows routes data to an alternate path to prevent application disruption. Simple administration and affordability make MPIO for Windows an ideal solution for enhancing performance and reliability in Microsoft Windows environments.

Key features and benefits

Highly available, robust, and trouble-free multipathing solution for Microsoft Windows 2003

- HP 3PAR MPIO software for Microsoft Windows intelligently routes I/O through multiple paths between a host server and HP 3PAR StoreServ for greater availability and load balancing
- Active-active configuration policy enables dynamic load balancing
- Automatic failover and the ability to recover failed paths reduce the need for offline or manual reconfigurations after a failure
- Automatic detection of devices simplifies deployment while automatic load balancing and path failover capabilities ease management
- Simple administration and affordability make MPIO for Windows an ideal solution for enhancing performance and reliability in Microsoft Windows 2003 environments

HP 3PAR MPIO software for IBM AIX

Delivers a highly available, robust, and trouble-free multipathing solution for IBM AIX deployments

Have you been foregoing the benefits of multipathing due to cost, complexity, or limited operability?

HP 3PAR MPIO software for IBM AIX delivers a highly available, robust, and trouble-free multipathing solution for IBM AIX deployments. With MPIO for IBM AIX, I/O is intelligently routed through multiple paths between a host server and HP 3PAR StoreServ for greater availability and load balancing. This solution is designed to utilize all available paths to prevent overloading of any single path and avoid the formation of I/O bottlenecks. MPIO for IBM AIX accomplishes this through a combination of autonomic load balancing, path failover capabilities, and ease of management. In the event of a path failure, MPIO for IBM AIX routes data to an alternate path to prevent application disruption. Simple administration and affordability make MPIO for AIX an ideal solution for enhancing performance and reliability in IBM AIX environments.

Key features and benefits

Highly available, robust, and trouble-free multipathing solution for IBM AIX deployments

- HP 3PAR MPIO software for IBM AIX intelligently routes I/O through multiple paths between a host server and HP 3PAR StoreServ for greater availability and load balancing
- Active-active configuration policy enables dynamic load balancing
- Automatic failover and the ability to recover failed paths reduce the need for offline or manual reconfigurations after a failure
- Automatic detection of devices simplifies deployment while automatic load balancing and path failover capabilities ease management
- Simple administration and affordability make MPIO for IBM AIX an ideal solution for enhancing performance and reliability in IBM AIX environments

HP 3PAR Software Plug-In for VMware VAAI

Delivers reliable VMware vSphere performance at scale

HP 3PAR Software Plug-In for VMware vSphere API for Array Integration (VAAI) enables HP 3PAR StoreServ support for advanced storage operations introduced in VMware vSphere to improve virtual infrastructure performance, agility, capacity efficiency, and scalability for public and private cloud data centers.

Hardware-assisted locking is a new vSphere storage feature designed to remove VM reliability and performance bottlenecks by locking storage at the block level instead of the LUN level to reduce SCSI reservation contentions. This new capability enables greater VM scalability without compromising reliability. In addition, with the HP 3PAR Gen4 ASIC, metadata comparisons are executed in silicon, further improving performance in the largest and one of the most demanding vSphere environments.

Full copy is a new vSphere feature designed to dramatically improve the agility of enterprise and cloud data centers by enabling rapid VM deployment, expedited cloning, and faster VMware Storage vMotion operations. With HP 3PAR Software Plug-In for VAAI, data movement operations are offloaded to the system array. The plug-in allows HP 3PAR Full Copy software to not only leverage the built-in performance and efficiency advantages of the array, but to free up critical server and network resources.

Block zero is a new vSphere feature that offloads large, block-level write operations of zeros from virtual servers to HP 3PAR StoreServ, boosting efficiency during several common vSphere operations, including the initialization of eager zeroed thick virtual disks and the allocation of new file blocks for thin-provisioned virtual disks.

With the HP 3PAR Software Plug-In for VAAI, these data movement and write operations now have “zero cost,” which frees valuable server, storage, and network resources, so organizations can increase both VM performance and density.

HP 3PAR Replication Adapter software for VMware vCenter SRM

Provides end-to-end DR for virtualized environments

The HP 3PAR Replication Adapter software provides simple, reliable, end-to-end DR for VMware vSphere environments. By integrating HP 3PAR Remote Copy software with VMware vCenter SRM for automated DR management, organizations can protect their applications seamlessly and effectively without duplicating DR investments in both storage and server layers.

HP 3PAR Policy Manager software

Enables customers to define and implement remote service access policies to allow centralized, granular audit of communications to and from HP 3PAR StoreServ

Does your storage environment require granular and centralized outbound and remote services policy administration?

With HP 3PAR Policy Manager software, customers have the ultimate flexibility and control to allow or deny outbound communications or remote service connections to and from HP 3PAR StoreServ at the customer site.

HP 3PAR Policy Manager software enables customers to define and implement remote service access policies. Policy configurations are managed by the customer, thus promoting integrity of customer-configured remote access policies. To limit access, HP 3PAR Policy Manager software is installed on a customer-provided server.

HP 3PAR Policy Manager software also serves as the centralized point for collecting and storing audit logs of all diagnostic data transfers and authorized remote service connections to and from all devices managed by the software. As policies are administered by the customer, the audit logs are a trusted source for reporting and compliance.

Key features and benefits

Provides flexible and granular control in defining and implementing remote service access policies

- Enables you to define and implement granular outbound or remote service connection policies for HP 3PAR StoreServ

Allows centralized audit for all devices being managed

- Serves as the centralized point for collecting and storing audit logs of all diagnostic data transfers and authorized remote service connections to and from HP 3PAR StoreServ managed by the software
- Provides the ability to view the audit log via Web browser within the customer internal network

Offers a trusted and protected audit log for the purpose of reporting and compliance

- HP 3PAR Policy Manager software is installed on customer-provided hardware and all policies are defined and implemented by the customer
- HP Global Service and Support organization has no access to HP 3PAR Policy Manager software

HP StoreFront Mobile Access

A secure mobility solution to monitor HP 3PAR Storage—anytime, anywhere.

HP StoreFront Mobile Access is a secure converged storage management solution that utilizes mobility to enable customers to monitor HP 3PAR StoreServ Storage—anytime and anywhere. Available as a free download for iOS and Android based smartphones and HP Slate 7, customers can now have a browse-only access to monitor their HP 3PAR StoreServ Storage.

Key features and benefits

Anytime, anywhere access to HP Storage

- Enables storage administrators to gain real-time, remote access to HP 3PAR StoreServ storage arrays, at any time and from anywhere

Receive alerts and notifications of errors

- Allows storage administrators to get instant alerts or notifications on smartphones if an error happens and act on information faster than ever before

Monitor storage statistics and meet SLAs

- Using an iOS/Android smartphone and/or HP Slate 7, monitor key system statistics and configuration details increasing productivity and meeting SLAs

Single application to monitor multiple HP Storage

- Enables management through a single-pane-of-glass view for all HP 3PAR StoreServ storage arrays

HP 3PAR Management Pack for Microsoft System Center Operations Manager

Enables storage administrators to monitor HP 3PAR StoreServ resources using Microsoft System Center interface

The HP 3PAR Management Pack provides seamless integration with **Microsoft Systems Center Operations Manager (SCOM)** and offers the administrators access to powerful management capabilities from within the Microsoft System Center management console. It enables predefined discovery, monitoring of HP 3PAR alerts and event processing rules. The storage administrators can gain greater visibility into HP 3PAR resources and monitor its health status in a diagram view.

Key features and benefits

Automated installation and discovery

- Fully scripted installation that creates HP specific groups and copies HP rules, scripts, views, tasks, and knowledge base data to the OpsMgr database
- Configuring and monitoring HP 3PAR Management Pack using PowerShell Cmdlets for events, alerts, and diagrammatic view
- Discover and manage multiple HP 3PAR Storage simultaneously

Greater visibility into underlying storage resources

- Predefined rules to process and clearly display events and alerts for HP 3PAR Storage in the Operations Manager Operator Console
- Gives precise insight into underlying HP 3PAR Storage properties for easy reporting and troubleshooting of infrastructure issues by storage administrators

HP 3PAR UI Add-in for Microsoft System Center Virtual Machine Manager

Enables enhanced monitoring, provisioning, and control of HP 3PAR Storage in Microsoft System Center virtual environment

The **HP 3PAR UI Add-in for System Center Virtual Machine Manager (SCVMM)** enables enhanced integration of Microsoft SCVMM and HP 3PAR Storage providing our customers a single-pane-of-glass monitoring view of physical, virtual, and cloud environments. It automates HP 3PAR Storage management and provides an integrated view of VMs and associated storage resources. HP 3PAR supports all SMI-S enabled functionality introduced in Microsoft SCVMM 2012-Storage Discovery, Storage Classification, Storage Provisioning, and Storage Allocation.

Key features and benefits

Greater visibility into underlying virtual storage infrastructure

- Provides dashboard information of VMs, Hosts, LUNs, CPGs, and their communication protocols
- Provides context-sensitive in-depth info of volumes and their remote copies
- Provides detailed path information of VMs in HP 3PAR StoreServ Storage

Proactive management of HP 3PAR Storage

- Provides resizing of LUNs based on the capacity requirements
- Monitor HP 3PAR Adaptive Optimization (AO) policy details
- Display alerts received from Microsoft SCOM

HP Storage Services

What can HP Storage Technology Services do for you?

HP Storage Services offer the consulting expertise and technology support know-how you need to deliver modern storage architecture designed for the cloud, optimized for Big Data, and built on converged infrastructure. Start your move to the new era now—with higher return on your investments along the way. With HP Storage Services, you can:

- Add value to your HP investments with services that wrap our core infrastructure, storage, and software offerings
- Integrate technologies to advance your business objectives in a holistic way
- Enhance your archiving, analytical search, backup, and recovery capabilities from storage services that rein in costs and reduce risk

Services to accelerate time to results

HP Storage Services bring you a rich portfolio of consulting and support services designed to extend the value to our core storage products and solutions. We work closely with you as your strategic partner, leveraging our full services portfolio to make sure that everything works to optimize your enterprise.

Choose from services aligned to our storage product offerings and lifecycle. From proactive services to innovative support automation, you choose the precise level of attention and support your business demands.

Strategy and design

Today's business demands the right level of storage services to support your organization—and that starts with examining your approach to designing your future-state environments to increase service, decrease costs, and mitigate risks.

Let us help you evaluate and understand your options as part of a comprehensive approach to strategy and design. We can define your business requirements, detail your solution, and specify the right technology to meet your business needs. We can also help develop the business case for new storage and backup related investments.

Implementation

We work with you from day one to mitigate risk and accelerate storage-related implementation that includes installation, integration, and migration with services that incorporate best practice design, configuration, and deployment for improved time to revenue.

Operation

We provide you with detailed information about how your new HP storage solution is designed to operate in your environment, so you can keep your business running at maximum efficiency. Our services help avoid downtime, boost performance, and improve data availability.

Continual improvement

We also offer a wide selection of lifecycle event services to help you make the best use of your storage technology every step of the way. Whatever challenges keep you up at night—from IT strategy and system integration to data center operations and optimization—we put our business and technical talent at your disposal, anytime and anywhere.

Reduce risk throughout the storage lifecycle

The relationship experience with us is everything. It's not just what we deliver, consult, and support but how we listen, collaborate, and ally with your business.

We know you need more than innovative, robust storage products and solutions. That's because we've listened to CEOs tell us they are extremely risk adverse, they value vendor intimacy, and the true measure of a supplier is the response during difficult times.

To this end, we provide the support that establishes and sustains a positive experience well beyond the installation. We can help you:

- Avoid preventable problems and risk, even risk unrelated to the storage products and solutions
- Get the most out of your storage products and solutions
- Provide rapid, preferential treatment should something go wrong

Because of our breadth and depth of experience, we excel at managing complexity. It is something we do every day at more than 1,000 large enterprises, including 426 of the Fortune 500 companies and some of the largest government agencies in the world. hp.com/services/storage

Customize your IT lifecycle management, from acquisition of new IT, management of existing assets, and removal of unneeded equipment.

hp.com/go/hpfinancialservices

HP Factory Express

HP Factory Express provides customization and deployment services along with your storage and server purchases. You can customize hardware to your exact specifications in the factory—helping speed deployment. hp.com/go/factoryexpress

Customer technical training

Gain the skills you need with ExpertOne training and certification from HP. With HP Converged Storage training, you will accelerate your technology transition, improve operational performance, and get the best return on your HP investment. Our training is available when and where you need it, through flexible delivery options and a global training capability. hp.com/learn/storage

HP Services

Tap into the HP support services advantage, backed by the strategic and technical know-how of our consulting experts—for a single-source solution that makes the most of your investments. Depending on your individual support requirements, choose from three levels of care that cover the entire lifecycle to better address your needs:

Discover, plan, design, and understand your options and build it right from day one:

- HP Storage Efficiency Analysis
- HP Storage Impact Analysis
- HP Modernization Service

Deploy and integrate, increase uptime, and decrease risk as you free up your resources:

- HP 3PAR StoreServ Storage Installation and Startup Service
- HP 3PAR Software Installation and Startup Service
- HP EVA to HP 3PAR StoreServ Acceleration Service
- HP Data Replication Solution Service
- HP Enhanced Implementation Service for SANs
- HP 3PAR Adaptive Optimization Policy Implementation Service
- HP Storage Virtual Volume Design and Implementation Service
- HP Thin Volume Conversion Service
- HP 3PAR StoreServ Health Check
- HP Performance Analysis Service
- HP 3PAR Rebalance Service
- HP 3PAR Storage Assessment Service
- HP Proactive Select

Operate and support, meet SLAs with the right support level. Choose from three levels of operate and support care:

- **Optimized Care**—Delivers the highest levels of performance and stability through deployment and proactive management practices
HP Critical Service
Additional options: 10 HP Proactive Select credits per year, per array
- **Standard Care**—Maintains high level of uptime, along with expert help to cut the cost and complexity of implementation and support
HP Proactive Care 24x7—Plus, 20 credits per year per array
Additional options: HP Proactive Care Personalized Support (once per each new Proactive Care support environment), HP Personalized Support Additional Day, and an additional 10 HP Proactive Select credits per year per array
- **Basic Care**—Minimum recommended support
Proactive Care 24x7—Plus, 10 credits per year per array
Additional options: HP Proactive Care Personalized Support (once per each new Proactive Care support environment), HP Personalized Support Additional Day, and an additional 10 HP Proactive Select credits per year per array

If none of our support recommendations meet your needs, we can tailor a service solution for your unique support requirements. HP brings together deep expertise, proactive and business-critical support, and a strong partner network—plus a full set of infrastructure services designed to power a converged infrastructure.

For more information, visit hp.com/services/storage.

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