



# HP 3PAR StoreServ 7000 Storage

## Make storage effortless

### Key features and benefits

#### Grow with freedom in any direction

- One architecture and a single stack for HDDs and SSDs, from midrange to high end
- Support true convergence of block, file, and object access
- Ease data migration with storage federation software
- Affordable entry pricing and non-disruptive scalability to four nodes<sup>3</sup>

#### Get Tier-1 features, “six-nines” availability, and data mobility at a midrange price

- Automated disaster recovery (DR) configuration protects your data with one step
- Mixed workload support increases consolidation opportunities
- Persistent technologies deliver high availability and Tier-1 resiliency
- Snapshots provide efficient online recovery
- Storage federation drives data mobility, including load balancing and painless data migration
- HP 3PAR Data-At-Rest (DAR) Encryption meets security and compliance requirements
- Industry-leading thin technologies cut capacity by up to 75 percent
- Automated sub-volume tiering enhances service levels and reduces costs
- Flexible priority policies assure service levels

### Bulletproof, Tier-1 storage at a midrange price

Have budget constraints forced you to settle for midrange storage that compromises performance and scalability? Is managing your storage taking up more and more time while delivering diminishing returns?

The gold standard platform for Tier-1 storage has extended its offerings—delivering effortless, efficient, bulletproof, and future-proof storage for the entire midrange. HP 3PAR StoreServ 7000 Storage delivers the same industry-leading architecture chosen by 3 out of 4 of the world’s largest managed service providers (MSPs)<sup>1</sup> with pricing that makes compromises a thing of the past. Store all of your data on a single system that supports advanced features including storage federation and automated tiering that enable you to start small and grow without disruption. Make storage effortless.

With models that give you a range of options that support true convergence of block and file protocols, all-flash array performance, and the use of solid-state drives (SSDs) tiered with spinning media, HP 3PAR StoreServ 7000 Storage is effortless to install, own, and upgrade. You’ll be up and running in just minutes, meeting mixed workload demands with improved service levels and virtually unlimited scalability options. You’ll spend less time managing your storage with converged block, file, and object access from a single interface for increased agility. You’ll get an architecture capable of “six-nines” availability with enhanced efficiency using traditional spinning media, flash, or a combination of both. You’ll rid yourself of tradeoffs that have forced you to sacrifice critical capabilities like performance for scalability and Tier-1 data services. You’ll even be able to double virtual machine (VM) density on your physical servers—guaranteed.<sup>2</sup>

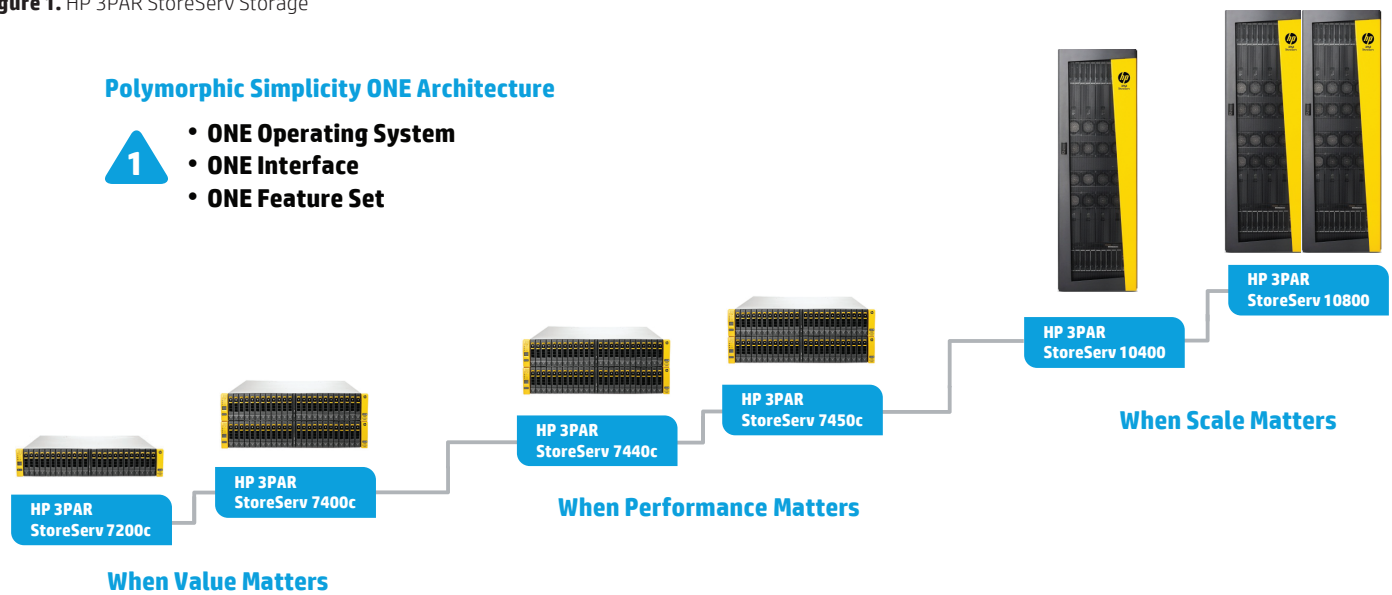
The HP 3PAR Operating System Suite that comes with HP 3PAR StoreServ 7000 Storage includes everything you need to get started, including HP 3PAR Adaptive Flash Cache, a true extension of DRAM cache that offers lower latency for read-intensive workloads. Optional software suites are also available for advanced data optimization, file protocol, replication, security, reporting, and application integration—offering enterprise-class features at a price you can afford. It’s storage that delivers the performance and flexibility you need to accelerate new application deployment and support server virtualization, the cloud, new service delivery models, data growth, or whatever else your future may hold—effortlessly.

<sup>1</sup>451 Research, Market Monitor, 2012.

<sup>2</sup>Subject to qualification and compliance with the Get Virtual Guarantee Program Terms and Conditions, which will be provided by your HP Sales or Channel Partner representative.

<sup>3</sup>Scalability to four nodes restricted to the HP 3PAR StoreServ 7400, 7400c, and 7440c Storage arrays.

**Figure 1.** HP 3PAR StoreServ Storage



**Simple to install, own, and upgrade**

- Software suites simplify purchasing and lower costs
- HP SmartStart and HP 3PAR Rapid Provisioning get you up and running in minutes
- Reconfigurable in just seconds without disruption
- Shared management console across all HP 3PAR StoreServ arrays simplifies administration
- Manage Block, File, and Object access from a single interface for maximum agility
- Self-diagnostic and “phone home” capabilities automate support
- HP 3PAR Online Import supports seamless migration from HP EVA Storage and EMC Storage arrays<sup>5</sup>

**Thin-deduplication increases capacity efficiency without compromising performance**

- Inline deduplication lowers flash cost by saving capacity up front without the need for any storage pools or post-processing
- Avoids unnecessary writes to flash media extending its life
- Integration with Peer Motion increases storage efficiency across systems

<sup>4</sup>Converged block and file requires Converged Controllers available with 7200c, 7400c, and 7440c models.

<sup>5</sup>3PAR Online Import software provides support for EMC Symmetrix VMAX, VNX and CLARiiON CX4 Storage arrays.

**Ready for whatever your future may hold**

The one thing we know about the future is that it’s unpredictable. So how do you prepare for data growth and new business initiatives in such an environment? You need storage that gives you the power to master the unpredictable. Storage that is scalable and can grow with you. Storage that’s adaptable, so it supports a variety of different applications and workloads without sacrificing performance. Storage that supports data mobility, so the right data is in the right place at the right time, making painful data migrations a thing of the past. And you need it all for a price you can afford.

With rich capabilities at an unbelievably low entry price and non-disruptive scalability to four nodes, HP 3PAR StoreServ 7000 Storage eliminates tradeoffs. You no longer need to choose between affordability and Tier-1 resiliency or flash-optimized performance and Tier-1 data services. That’s because HP 3PAR StoreServ 7000 Storage shares the same flash-optimized architecture and software stack with the entire family of HP 3PAR StoreServ arrays, so you’ll not only get an industry-leading storage platform, but you’ll get a storage platform that you can grow into, not out of.

**True convergence of block, file, and object access**

With the HP 3PAR File Persona Software Suite, you can unlock the native file and object access capabilities within your HP 3PAR StoreServ Storage array, made possible by the HP 3PAR OS and your array’s Converged Controllers<sup>4</sup>. This approach offers a unique solution that incorporates multi-protocol support into the system architecture to deliver a tightly integrated, truly converged solution for provisioning both block storage volumes and file shares from a single storage system. Unlike existing solutions, this truly converged solution extends the architectural benefits that the HP 3PAR StoreServ Storage system already delivers for block workloads to file shares and object access in a way that is simple to deploy and administer.

The HP 3PAR File Persona Software Suite is a licensed feature of the HP 3PAR OS that enables a rich set of file protocols, an Object Access API, and file data services. By unlocking File Persona capabilities, you gain the ability to provision file shares and block volumes from a single user interface. This solution extends the spectrum of primary storage workloads natively addressed by the system’s default Block Persona. The Block Persona is ideal for your virtualization, database, and application workloads with the File Persona enabling home directory consolidation, group/departmental shares, corporate shares, and custom cloud applications—all from truly Converged Controllers, truly agile capacity, and truly unified management. By expanding the use of your system to include these new purposes, you can realize up to 67 percent data center space savings and significant power savings with a single converged solution that gives you agile provisioning of block, file, and object access.

**A federated solution for seamless data mobility**

Mastering the unpredictable also means being able to move data and workloads between arrays without impact to your applications, users, or services. With HP 3PAR StoreServ 7000 Storage, you can simply and non-disruptively shift data between HP 3PAR

StoreServ systems of any model without additional management layers or appliances. The underlying storage federation capabilities that make this seamless data movement possible can also help improve availability in clustered VMware and Microsoft Windows environments. And if you are currently an HP EVA Storage customer, you can use it to import data from your current HP EVA Storage system onto your new HP 3PAR StoreServ array, providing you with a simple upgrade path. If you are looking to consolidate your EMC Symmetrix VMAX, CLARiiON CX4, and VNX arrays, new HP 3PAR Online Import capabilities make it easier for you to move from legacy EMC Storage to HP 3PAR StoreServ. Every HP 3PAR StoreServ Storage system comes with 3PAR Online Import Software at no additional charge for 180 days—giving you painless, non—disruptive migration so that you can finally say goodbye to the “land of no”.<sup>5</sup>

## Accelerate performance with a flash-optimized architecture featuring inline deduplication

Meet even the most stringent SLAs with performance acceleration for your most frequently accessed data. A flash-optimized architecture enables optimal performance of flash-based SSDs while block-level storage tiering and mixed workload optimization enable high levels of performance for both spinning and non-spinning media. As a result, you can put more applications on the same storage to lower total infrastructure cost. Unlike traditional arrays that require you to “scale up” to support growth or increase performance, the platform’s clustered, Mesh-Active design, with fine-grained virtualization and system-wide striping, delivers capacity and performance that scale, even at extremely high capacity utilization levels.

A feature of the 3PAR OS, HP 3PAR Thin Deduplication software with patented Express Indexing is the only solution in the industry that delivers inline deduplication at scale with hardware acceleration. Thin Deduplication runs on any HP 3PAR StoreServ array with an SSD tier to increase usable capacity, lower total cost of ownership, and extend flash media lifespan. When combined with new high-density 1.92TB commercial MLCs (cMLCs), HP 3PAR compaction technologies lower the cost of flash storage to below that of spinning media—as low as \$2 per usable GB. In cases where there is a large amount of duplicate data, Thin Deduplication also improves write throughput and performance. Other storage architectures that support deduplication are not able to offer these benefits at the same capacity scale or at the same performance level.

### Increased performance and extended media lifespan

Flash-optimized software innovations like the HP 3PAR Adaptive Read and Write features enable a more granular approach than can be achieved with spinning media by matching the size of host reads and writes to flash media to avoid unnecessary data reads and writes. This significantly reduces latency and enhances backend performance to meet the requirements of response-time sensitive applications like Oracle Database and Microsoft® Exchange. Reducing unnecessary writes also helps extend the life of flash-based media for better cost-efficiency. Not only this, but all HP 3PAR SSDs are now covered by a 5-year warranty. This warranty includes replacement of the SSDs for any failure including write wear level limit being reached.<sup>6</sup> Additional innovations to the HP 3PAR StoreServ Storage platform deliver media endurance benefits that enable you to extend the life of your SSDs to get the most out of every dollar and I/O for increased storage return on investment (ROI).

HP 3PAR Express Writes is a built-in HP 3PAR OS write acceleration feature that optimizes CPU utilization to increase throughput, deliver up to 30 percent more IOPS, and reduce latency by up to 20 percent depending on workload.<sup>7</sup> These benefits extend to both spinning drives and flash-based media. Read acceleration is also built in to the HP 3PAR OS via HP 3PAR Adaptive Flash Cache, a feature that allows SSDs to act as an extension of system cache. This feature can as much as double read rates and reduce latency up to 70 percent with HP 3PAR StoreServ Storage arrays that are configured with SSDs.

A high-performance architecture also allows you to get more out of your VMware vSphere deployment, where extensive use of virtual memory pages to disk can limit VM consolidation on your physical servers when paired with legacy storage, but not with HP 3PAR StoreServ Storage. In fact, HP stands behind your ability to double VM density on your physical servers when replacing legacy storage with HP 3PAR StoreServ Storage, including the 7000 series models, with the industry’s only Get Virtual Guarantee.<sup>2</sup>

### Autonomic tiered storage

Policy-driven, autonomic storage tiering technologies also make efficiency effortless by balancing cost and performance to meet service-level requirements for the lowest cost, while increasing business agility and mitigating risk. For example, HP 3PAR Adaptive Optimization software leverages a proven, fine-grained data movement engine and applies it to independent regions within a volume

### Looking for an all-flash array at the absolute lowest cost?

The HP 3PAR 7200c All-Flash Starter Kit gives you a fully functional, all-flash array with nearly 7 TB of usable capacity for roughly half the price of competing entry-level systems.<sup>8</sup> You get an incredibly affordable entry price point without limiting your ability to grow or deploy advanced data services. You can easily expand this initial configuration, scaling to a total of 690 TB of usable capacity.

<sup>5</sup> 5 years of warranty coverage is offered on 1.92 TB and 480 GB commercial MLC (cMLC) and 480 GB and 920 GB MCL SSD drives. Contact your HP representatives for details.

<sup>7</sup> Based on a random, 100 percent write workload with an 8K block size.

<sup>8</sup> Based on comparison of US list prices for the HP 3PAR StoreServ 7200c All-Flash Starter Kit and EMC XtremIO with 5TB of raw capacity and Pure Storage FA-405 entry-level configuration with 2.75TB raw capacity.

to deliver highly reliable, nondisruptive, autonomic-tiered storage to provide the right quality of service (QoS) to the right data at the right time so you can meet service level targets.

Support for multitenant storage is a must-have requirement in modern data centers. But multitenancy can create resource contention. With HP 3PAR Priority Optimization software, you can reduce this contention by limiting maximum performance or setting a minimum goal for IOPS and bandwidth for a specific application, tenant, or workload. It provides high-priority applications with all the resources they need to meet service levels. It enables certainty and predictability for all applications and tenants.

## High availability and resiliency to meet mission-critical application needs

A suite of unique persistent technologies powers HP 3PAR StoreServ 7000 Storage in delivering high availability and Tier-1 resiliency to the midrange. HP 3PAR Persistent Cache preserves service levels so they are not impacted by unplanned component failures—a key requirement for the virtual data center. HP 3PAR Persistent Ports allows non-disruptive upgrades to HP 3PAR StoreServ 7000 Storage systems without relying on multipathing software or failover initiation. This feature also automatically fails over a front-end controller node port that experiences physical connection loss due to cable or switch failure in order to preserve service levels.

Effortless resiliency is delivered by HP 3PAR Peer Persistence software, with VMware vSphere Metro Storage Cluster (vMSC) certification and support for Microsoft Windows Servers and Microsoft Windows Hyper-V environments. With Peer Persistence, you'll be able to federate storage across data centers, regardless of physical boundary constraints. Automated failover and failback between two sites or data centers is transparent to hosts, which keeps your VMware deployments seamlessly running even in the event of a disaster.

With the Get 6-Nines Guarantee program, you can achieve 99.9999 percent data availability with all quad-node and larger HP 3PAR StoreServ Storage arrays, giving you all of the benefits of deploying HP Converged Storage for your mission-critical environment, without the risk.<sup>9</sup>

### Effortless efficiency

Unlike bolt-on thin storage on legacy arrays, HP 3PAR StoreServ 7000 Storage features hardware-enabled thin technologies that allow the system to run in a state of consistent high capacity utilization without performance tradeoffs. This allows you to save on the cost of a storage technology refresh and then increase storage ROI by keeping incremental purchases, administration, and operating costs low over time. In fact, the HP Get Thin Guarantee promises new HP 3PAR StoreServ customers at least 50 percent reduction in capacity requirements by replacing legacy storage with HP 3PAR StoreServ—guaranteed.<sup>10</sup>

### The security features you require

The HP 3PAR StoreServ Data-at-Rest Encryption solution protects your data from both internal and external security breaches. If your application or environment requires protection from unauthorized access of the data on a drive, then you should consider this solution. HP 3PAR StoreServ models are fully FIPS 140-2 compliant, support intelligent key management, and are available with self-encrypting drives (SEDs), where data is encrypted as it is written to the drive. You get the peace of mind in knowing that all user data contained on these drives is protected against unauthorized access, even if a drive is stolen, fails, or has to be retired. 3PAR StoreServ now offers drives that are FIPS 140-2 validated, which is often a compliance requirement in Health Care, Financial, and Public Sector market segments. HP 3PAR Data at Rest Encryption supports all of the advanced data services on 3PAR StoreServ Storage.

## Affordable, flexible disaster recovery

In order to meet service level demands for modern IT and Cloud environments, high availability and uncompromising data protection are must-haves. With HP 3PAR StoreServ 7000 Storage, you can decrease downtime while dramatically reducing the cost of remote data replication and disaster recovery (DR) with highly efficient, multi-mode replication across all HP 3PAR StoreServ models. HP 3PAR Remote Copy software allows you to achieve low recovery time objectives (RTOs) and zero-data-loss recovery point objectives (RPOs) with complete distance flexibility. And since HP 3PAR Remote Copy configuration is autonomic, set-up only requires one step so you can protect your data from the start. Refer to the [HP 3PAR Replication Software Suite data sheet](#) for additional details on Remote Copy and related functionality.

High availability and uncompromising data protection are must-haves for any enterprise data center—not just those that can afford high-end storage. With HP 3PAR StoreServ 7000 Storage, you can dramatically reduce the cost of remote data replication and DR with highly efficient, multimode replication across all HP 3PAR StoreServ models.

<sup>9</sup>Subject to qualification and compliance with the HP 3PAR Get 6-Nines Guarantee Program Terms and Conditions, which will be provided by your HP Sales or Channel Partner representative.

<sup>10</sup>Subject to qualification and compliance with the HP 3PAR Get Thin Guarantee Program Terms and Conditions, which will be provided by your HP Sales or Channel Partner representative.

## Upgrading to HP 3PAR StoreServ Storage is effortless!

If you are an existing HP EVA Storage customer looking for a pain-free evolution that takes the best of EVA into the future of storage, then look no further than HP 3PAR StoreServ 7000 Storage. With HP 3PAR Online Import software, you can quickly and easily move data from HP EVA to HP 3PAR StoreServ Storage using HP Command View EVA. The upgrade process couldn't be simpler, and HP 3PAR StoreServ Storage is everything you could want in a next generation of EVA—and more.

If you are an existing EMC Symmetrix VMAX, CLARiiON CX4, or VNX customer looking for a technology refresh to storage that offers Tier-1 capabilities at a midrange price, provides faster provisioning, and reduces capacity requirements by 50 percent, then HP 3PAR StoreServ Storage is the answer. HP 3PAR Online Import software enables smooth data migration from a source EMC array to your new HP 3PAR StoreServ array in 5 simple steps.

## Incredibly simple to install, own, and upgrade

Simplicity saves you money, but it must be there from the start. With HP 3PAR StoreServ 7000 Storage, streamlined software suites make selecting and purchasing enterprise-class features simple and affordable.<sup>11</sup> In addition, you get:

- **HP 3PAR SmartStart:** Gets you up and running in six quick and easy steps, while Rapid Provisioning reduces array planning by intelligently and autonomically managing system-wide striping of data across internal resources.
- **HP 3PAR Autonomic Groups:** Gives you the flexibility to create host, volume, and domain groups to further automate and expedite storage provisioning, both now and in the future. Three clicks and 60 seconds are all you need to fully create and provision multiple volumes to multiple servers. All of these volumes are reconfigurable in just seconds, without disruption and without compromise.
- **HP 3PAR StoreServ Management Console:** A converged management platform with a modern look and consistent feel for all HP 3PAR StoreServ arrays, making management effortless. Manage block, file, and object access from a single interface serving diverse workloads for increased agility. All the information you need at a glance with customizable reporting capabilities remove the need for add-on software tools as well as diagnosis and troubleshooting that require professional services. Assess what's happening across the entire data center in seconds via a simple dashboard and you're just one click away from collecting configuration and health information on any resource.
- **Open administration support:** Provided via SNMP, Storage Management Initiative Specification (SMI-S), and a recently added Web services application programming interface (API).
- **Secure Services Architecture:** A dedicated, enhanced-security communication channel between the system and remote support resources. Diagnostic information such as system health statistics, configuration data, performance data, and system events are periodically collected on each HP 3PAR StoreServ array and transferred to HP for remote diagnostic analysis and proactive fault detection.

## Storage built for server virtualization

Virtualizing your data center? Then you probably know that server virtualization can stretch traditional storage to the breaking point when it comes to performance, availability, efficiency, and manageability. Addressing these requirements is critical to achieving full business benefit from server virtualization. HP 3PAR StoreServ 7000 Storage is designed from the ground up to help you optimize VM density, reduce storage costs, and simplify management with virtualization software from VMware, Microsoft, and Citrix®.

HP 3PAR StoreServ integration with Microsoft System Center and VMware vCenter, gives you enhanced visibility into storage resources and precise insight into how VMs are mapped to data stores and system volumes. Support for VMware Virtual Volumes (VVOLs) enables granular VM-level storage control, disaster recovery, and quality of service in VMware environments with VMware vSphere6. HP 3PAR Recovery Manager for VMware vCenter provides vSphere administrators with superior granularity and control of array-based snapshots that can be used for rapid online data protection and recovery. Integration with VMware VAAI, vSphere APIs for Storage Awareness (VASA), Microsoft Offload Data Transfer (ODX), and HP 3PAR Thin Provisioning enables HP 3PAR StoreServ Storage to improve virtual infrastructure performance, efficiency, and scalability.

In client virtualization environments, HP 3PAR StoreServ Storage delivers industry-leading performance, high availability, dynamic tiering, and advanced storage virtualization features. This delivers a seamless user experience, enables “bring your own device” (BYOD) and desktop modernization, and drives down IT administration costs. Organizations that have deployed HP 3PAR StoreServ Storage in client virtualization environments consistently cite reduced total cost of ownership (TCO) and increased ROI as two of the key advantages it has delivered.

## Storage customized for your applications

Your critical business infrastructure and applications require a single storage infrastructure that can deliver the service levels, application availability, and efficiencies that your business requires. HP 3PAR StoreServ 7000 Storage allows you to consolidate applications onto a single, high-performance system, giving your business the flexibility to meet changing business needs on demand.

<sup>11</sup> See page 7 for descriptions of each of these suites.

In Microsoft SQL Server 2012 and Oracle Database deployments, HP 3PAR StoreServ 7000 Storage meets the performance demands of your databases via mixed workload support and the ability to scale down to smaller system capacities, while HP 3PAR Adaptive Optimization software delivers balanced performance and cost. HP 3PAR Thin Provisioning software and the use of Common Provisioning Groups (CPGs) allow your database deployment to grow over time, simplifying your initial design and sizing. With HP 3PAR Recovery Manager for Microsoft SQL Server and Oracle, you can automatically create and manage hundreds of application-consistent, reservationless, point-in-time (PIT) snapshots of Microsoft SQL Server and Oracle databases for rapid online recovery and near-continuous data protection. Oracle Database 11g with Automatic Storage Management (ASM) and HP 3PAR Thin Provisioning simplify database storage management and enable enhanced resource utilization, resulting in unmatched cost of storage.

With Microsoft Exchange 2010, HP 3PAR StoreServ 7000 support for HP 3PAR Rapid Provisioning simplifies deployment of new Exchange mailboxes by provisioning storage, creating RAID groups, and adjusting logical unit numbers (LUNs) in seconds with no preplanning required. HP 3PAR Thin Technologies remove the need for full provisioning of storage since Exchange database availability groups (DAGs) consume only what they need. Autonomic storage tiering gives you the flexibility to meet a wide variety of Exchange workloads within the same mailbox database while also reducing cost. HP 3PAR Recovery Manager for Microsoft Exchange uses a unique asynchronous periodic mode to deliver a DR solution that provides data integrity and application-consistent snapshots at the remote site.

SAP landscapes feature unique challenges such as exponentially growing SAP database instances, the need to improve storage performance while increasing availability for SAP systems, and the need to keep up with rapid deployment of virtualized SAP systems. HP 3PAR StoreServ 7000 Storage addresses these challenges with capabilities such as industry-leading thin technologies for defining the SAP database size of tomorrow while paying for the hardware requirements of today. HP 3PAR Autonomic Groups and HP 3PAR Virtual Domains simplify SAP database provisioning and organization of storage resources, while system-wide striping meets SAP environment demands for low-latency I/O response times under all conditions.

In Microsoft Windows® Server 2012 environments, built-in, fine-grained virtualization, system-wide striping, and support for multitenancy give you the ability to consolidate mixed workloads onto a single HP 3PAR StoreServ 7000 system. With Windows Server 2012 Offload Data Transfer (ODX) and HP 3PAR StoreServ 7000 Storage, you can migrate large files—such as databases or video assets—up to seven times faster with near-zero network impact due to zero-detection capability built into the HP 3PAR StoreServ ASIC. HP 3PAR Thin Technologies and Windows Server 2012 automatic reclamation of storage automate storage growth and shrinkage, while HP 3PAR Adaptive Optimization software delivers the right QoS to the right data at the right time in Windows Server 2012 environments.

## Technical specifications



	HP 3PAR StoreServ 7200c	HP 3PAR StoreServ 7400c	HP 3PAR StoreServ 7440c
<b>Storage Controllers</b>	2	2-4	2-4
<b>Maximum host ports</b>	12	24	24
<b>Fibre Channel</b>	4-12	4-24	4-24
<b>10 Gb iSCSI</b>	0-4	0-8	0-8
<b>Maximum initiators per system</b>	1024	2048	2048
<b>Drive types (mixable)</b>	SAS (Performance, Nearline, SSDs)	SAS (Performance, Nearline, SSDs)	SAS (Performance, Nearline, SSDs)
<b>Max Hard Disk Drives (HDDs)</b>	8-240	8-480	8-960
<b>Max Solid State Drives (SSDs)</b>	120	240	240
<b>Maximum capacity raw (HDD/SSD)</b>	500 TB / 230 TB	1600 TB / 460 TB	2000 TB / 460 TB

## Software suites for HP 3PAR StoreServ Storage

HP 3PAR StoreServ Storage supports the same OS and software offerings as the other members of the HP 3PAR StoreServ family. As with all HP 3PAR StoreServ models, you have the opportunity to purchase software bundled into a series of suites designed to simplify purchasing and save you money. Selected software titles may also be purchased separately, as indicated below.

<b>HP 3PAR Operating System Software Suite</b>	Required for all new HP 3PAR StoreServ systems, this foundational software suite gives you everything you need to get up and running quickly and efficiently. This suite includes the HP 3PAR Operating System, including HP 3PAR Management Console, HP 3PAR Host Explorer, and HP 3PAR SmartStart—software designed to get you off to a quick start with your new HP 3PAR StoreServ system. It also includes all of the platform's thin software offerings—HP 3PAR Thin Provisioning, Thin Conversion, Thin Persistence Thin Deduplication, and Thin Clones. Other highlights of this suite include HP 3PAR Adaptive Flash Cache, HP 3PAR Express Writes, HP 3PAR Full Copy, autonomic rebalancing capabilities that help you get optimal use out of future capacity expansions, and support for standard multipathing software for high availability in clustered environments. A 180-day license for online import is included to enable migration from EMC Symmetrix VMAX, EMC CLARiiON CX4, and EMC VNX arrays as well as HP EVA Storage.
<b>HP 3PAR File Persona Software Suite</b>	A feature of the HP 3PAR OS, this license enables file protocol services and an Object Access API to extend the spectrum of primary storage workloads natively addressed by HP 3PAR StoreServ 7000 Storage systems with Converged Controllers. With this solution, you can extend the architectural benefits of HP 3PAR StoreServ Storage to the following use cases: home directory consolidation; group, departmental, and corporate shares; and custom cloud applications.
<b>HP 3PAR Replication Software Suite</b>	This optional suite bundles HP 3PAR Virtual Copy with HP 3PAR Remote Copy software, both also sold separately for all HP 3PAR StoreServ models. Included in this bundle is Peer Persistence, which enables peer federation for VMware and Windows clusters to improve overall availability. Licensed based on system capacity.
<b>HP 3PAR Data Optimization Software Suite</b>	This optional software bundle combines HP 3PAR Dynamic Optimization, HP 3PAR Adaptive Optimization, HP 3PAR Peer Motion, and HP 3PAR Priority Optimization software so you can move data and workloads between arrays without impacting applications, users, or services. Licensed based on system capacity, the four software titles bundled in this suite are also sold separately for all HP 3PAR StoreServ models. Depending on purchase date, titles included in this suite may vary. Check the HP 3PAR Software QuickSpec for complete details. For the 10000 models only, HP 3PAR Optimization Suite is available and includes Adaptive Optimization and Dynamic Optimization.
<b>HP 3PAR Security Software Suite</b>	This optional suite bundles HP 3PAR Virtual Domains and HP 3PAR Virtual Lock Software, both also sold separately for all HP 3PAR StoreServ models. With this suite, you can segregate access and deliver robust storage services for different applications and user groups with additional security attached to the retention of storage volumes. Licensed based on system capacity.
<b>HP 3PAR Application Software Suite for VMware</b>	Everything you need to make your VMware environment more agile and efficient—including HP 3PAR Recovery Manager for VMware, Host Explorer for VMware, VASA support, and three essential plug-ins: the VMware Site Replication Manager (SRM) Adapter, the HP 3PAR VAAI Plug-in, and the HP 3PAR Management Plug-in for VMware vCenter. This suite is optional and licensed on a per-system basis.
<b>HP 3PAR Application Software Suite for Hyper-V</b>	Protect your Microsoft Hyper-V environment with HP 3PAR Recovery Manager for Microsoft Hyper-V and the HP 3PAR VSS Provider software, included in this optional suite and licensed on a per-system basis.
<b>HP 3PAR Application Software Suite for Exchange</b>	This bundle gives you the essentials for use with Microsoft Exchange, including HP 3PAR Recovery Manager for Exchange and the VSS Provider software. This suite is optional and licensed on a per-system basis.
<b>HP 3PAR Application Software Suite for Oracle</b>	Everything you need for protecting Oracle Databases, including HP 3PAR Recovery Manager for Oracle and Oracle space reclamation capabilities, sold as an optional suite and licensed on a per-system basis.
<b>HP 3PAR Application Software Suite for SQL</b>	Protect Microsoft SQL DB with HP 3PAR Recovery Manager for Microsoft SQL and the HP 3PAR VSS Provider software, bundled with this optional suite and licensed on a per-system basis.
<b>HP 3PAR Reporting Software Suite</b>	Enhance system visibility and reporting capabilities with this optional suite, which includes HP 3PAR System Reporter software and the HP 3PARInfo application, licensed on a per-system basis.

## Converged Data Protection with HP StoreOnce

If you are looking for virtually instant application-consistent backups for your VMware environment, look no further than rapid and granular backup and recovery with HP StoreOnce Backup and HP StoreOnce Recovery Manager Central for fast, efficient, reliable, and simple backup and recovery with your HP 3PAR StoreServ Storage system. This solution transforms traditional approaches to backup and recovery, giving you application-aware, storage integrated data protection that bypasses traditional backup server-based processes.

By connecting HP 3PAR StoreServ Storage directly to HP StoreOnce Backup, you can maintain business productivity by expediting the backup and recovery process and eliminating application performance impact. This streamlined backup process also reduces total cost of ownership for storage by leveraging HP StoreOnce Backup systems for cost-effective backup retention. The native movement of snapshots from HP 3PAR StoreServ Storage to HP StoreOnce Backup assures that any online storage threats are quickly mitigated with always-available, single-click data recovery. This is all made possible by HP StoreOnce Recovery Manager Central, which allows VMware owners to seamlessly manage snapshots, backup, and recovery directly from within VMware vCenter.

Customize your IT lifecycle management, from acquisition of new IT, management of existing assets, and removal of unneeded equipment. [hp.com/go/hpfinancialservices](http://hp.com/go/hpfinancialservices)

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. Visit [hp.com/go/factoryexpress](http://hp.com/go/factoryexpress)

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](http://hp.com/learn/storage)



#### Free ROI Calculator

Take five minutes to calculate the potential three-year cost savings and ROI you can expect by migrating from your current storage to an HP 3PAR StoreServ solution. [Click here](#) to go to the HP Storage Quick ROI Tool.

## HP Technology Services

**Expert HP storage consultants and service professionals** sit down with you and your team to map your storage needs. Not only can we help you accelerate implementation and reduce deployment risk, but we can also help you realize the full value of your storage purchases as you transform storage for the New Style of IT.

### Advise, transform, and integrate

Navigate through the complexities of storage, backup, archive, disaster recovery, and Big Data with advisory, transformation, and integration consulting.

### Deploy and implement

Access expertise to support deployment, operations, relocation, sanitization, and disposal, plus improvement-focused education.

### Operate and support

Find the level of personalized, proactive, and simplified support right for your business.

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#### Note

Specific service availability varies by product

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### Foundation Care

System-level IT hardware and software support delivers flexible coverage window and response time for more choice and simplicity.

### Proactive Care

Combined reactive and proactive services provide easy-to-purchase, cost-efficient system-level support coupled with personalized expert advice and products connected to HP to help prevent problems and reduce downtime.

### Datacenter Care

Get the support you need to deploy, operate, and evolve your data center environment to be hybrid-cloud ready with single-point-of-accountability for HP and others' product.

Get connected and get back to business – HP Storage Technology Services provide the path to get your HP Storage solutions and your business connected to HP. Once connected, our experts are able to scan your system and run health checks, then use that data to create personalized reports and recommendations for actions to take to prevent problems and downtime.

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