Hewlett Packard Enterprise

HPE 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[3]

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

- HPE 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. HPE 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)[1] 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, HPE 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.[2]

The HPE 3PAR Operating System Suite that comes with HPE 3PAR StoreServ 7000 Storage includes everything you need to get started, including HPE 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.

[1] 451 Research, Market Monitor, 2012.

[2] Subject to qualification and compliance with the Get Virtual Guarantee Program Terms and Conditions, which will be provided by your HPE Sales or Channel Partner representative.

[3] Scalability to four nodes restricted to the HPE 3PAR StoreServ 7400, 7400c, and 7440c 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, HPE 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 HPE 3PAR StoreServ 7000 Storage shares the same flash-optimized architecture and software stack with the entire family of HPE 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 HPE 3PAR File Persona Software Suite, you can unlock the native file and object access capabilities within your HPE 3PAR StoreServ Storage array, made possible by the HPE 3PAR OS and your array's Converged Controllers.[4] This approach offers a unique solution that incorporates multiprotocol 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 HPE 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 HPE 3PAR File Persona Software Suite is a licensed feature of the HPE 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, custom cloud applications, and enterprise file sync and share—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 HPE 3PAR StoreServ 7000 Storage, you can simply and non-disruptively shift data between HPE 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.

[4] Converged block and file requires Converged Controllers available with 7200c, 7400c, and 7440c models.

Simple to install, own, and upgrade
- Software suites simplify purchasing and lower costs
- HPE SmartStart and HPE 3PAR Rapid Provisioning get you up and running in minutes
- Reconfigurable in just seconds without disruption
- Shared management console across all HPE 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
- HPE 3PAR Online Import supports seamless migration from HPE EVA, EMC and HDS Storage arrays[7]

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

And if you are currently an HPE EVA Storage customer, you can use it to import data from your current HPE EVA Storage system onto your new HPE 3PAR StoreServ array, providing you with a simple upgrade path. If you are looking to consolidate your EMC or HDS arrays, new HPE 3PAR Online Import capabilities make it easier for you to move from legacy EMC Storage to HPE 3PAR StoreServ. Every HPE 3PAR StoreServ Storage system comes with HPE 3PAR Online Import Software at no additional charge for one year—giving you painless, non-disruptive migration so that you can finally say goodbye to the "land of no."[5]

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, HPE 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 HPE 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 3.84 TB commercial MLCs (cMLCs), HPE 3PAR compaction technologies lower the cost of flash storage to below that of spinning media—as low as $1.50 USD 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 HPE 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 HPE 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.[6] Additional innovations to the HPE 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).

[5, 7] Supports EMC VMAX, EMC VNX, EMC CLARiiON CX4, and HDS TagmaStore Network Storage Controller (NSC), HDS TagmaStore Universal Storage Platform (USP), HDS Universal Storage Platform VM (USP V), HDS Universal Storage Platform VM (USP VM), HDS Virtual Storage Platform (VSP).

[6] Five years of warranty coverage is offered on 1.92 TB and 3.84 TB and 480 GB commercial MLC (cMLC) and 480 GB and 920 GB MLC SSD drives. Contact your HPE representatives for details.

Looking for an all-flash array at the absolute lowest cost?
The HPE 3PAR 7200c All-Flash Starter Kit gives you a fully functional, all-flash array with nearly 11.5 TB of usable capacity for roughly half the price of competing entry-level systems.[10] 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 1.3 PB of usable capacity.

HPE 3PAR Express Writes is a built-in HPE 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.[8] These benefits extend to both spinning drives and flash-based media. Read acceleration is also built in to the HPE 3PAR OS via HPE 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 HPE 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 HPE 3PAR StoreServ Storage. In fact, HPE stands behind your ability to double VM density on your physical servers when replacing legacy storage with HPE 3PAR StoreServ Storage, including the 7000 series models, with the industry's only Get Virtual Guarantee.[9]

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, HPE 3PAR Adaptive Optimization software leverages a proven, fine-grained data movement engine and applies it to independent regions within a volume to deliver highly reliable, non-disruptive, 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 HPE 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 HPE 3PAR StoreServ 7000 Storage in delivering high availability and Tier-1 resiliency to the midrange. HPE 3PAR Persistent Cache preserves service levels so they are not impacted by unplanned component failures—a key requirement for the virtual data center. HPE 3PAR Persistent Ports allows non-disruptive upgrades to HPE 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 resilience is delivered by HPE 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.

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[8] Based on a random, 100 percent write workload with an 8K block size.

[9] Subject to qualification and compliance with the Get Virtual Guarantee Program Terms and Conditions, which will be provided by your HPE Sales or Channel Partner representative.

[10] Based on comparison of US list prices for the HPE 3PAR StoreServ 7200c All-Flash Starter Kit and EMC XtremIO with 5 TB of raw capacity and Pure Storage FA-405 entry-level configuration with 2.75 TB raw capacity.

With the Get 6-Nines Guarantee program, you can achieve 99.9999 percent data availability with all quad-node and larger HPE 3PAR StoreServ Storage arrays, giving you all of the benefits of deploying HPE Converged Storage for your mission-critical environment, without the risk.[11]

Effortless efficiency

Unlike bolt-on thin storage on legacy arrays, HPE 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 HPE Get Thin Guarantee promises new HPE 3PAR StoreServ customers at least 50 percent reduction in capacity requirements by replacing legacy storage with HPE 3PAR StoreServ—guaranteed.[12]

The security features you require

The HPE 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. HPE 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. HPE 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. HPE 3PAR Data-at-Rest Encryption supports all of the advanced data services on HPE 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 HPE 3PAR StoreServ 7000 Storage, you can decrease downtime while dramatically reducing the cost of remote data replication and disaster recovery (DR) with highly efficient, multimode replication across all HPE 3PAR StoreServ models. HPE 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 HPE 3PAR Remote Copy configuration is autonomic, set-up only requires one-stop so you can protect your data from the start. Refer to the **HPE 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 HPE 3PAR StoreServ 7000 Storage, you can dramatically reduce the cost of remote data replication and DR with highly efficient, multimode replication across all HPE 3PAR StoreServ models.

Converged data protection with HPE 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 HPE StoreOnce Backup and HPE StoreOnce Recovery Manager Central for fast, efficient, reliable, and simple backup and recovery with your HPE 3PAR StoreServ Storage system. This solution transforms traditional approaches to backup and recovery, giving

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[11] Subject to qualification and compliance with the HPE 3PAR Get 6-Nines Guarantee Program Terms and Conditions, which will be provided by your HPE Sales or Channel Partner representative.

[12] Subject to qualification and compliance with the HPE 3PAR Get Thin Guarantee Program Terms and Conditions, which will be provided by your HPE Sales or Channel Partner representative.

you application-aware, storage integrated data protection that bypasses traditional backup server-based processes.

By connecting HPE 3PAR StoreServ Storage directly to HPE 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 HPE StoreOnce Backup systems for cost-effective backup retention. The native movement of snapshots from HPE 3PAR StoreServ Storage to HPE StoreOnce Backup assures that any online storage threats are quickly mitigated with always-available, single-click data recovery. This is all made possible by HPE StoreOnce Recovery Manager Central, which allows VMware owners to seamlessly manage snapshots, backup, and recovery directly from within VMware® vCenter™.

Incredibly simple to install, own, and upgrade

Simplicity saves you money, but it must be there from the start. With HPE 3PAR StoreServ 7000 Storage, streamlined software suites make selecting and purchasing enterprise-class features simple and affordable.[13] In addition, you get:

- **HPE 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.

- **HPE 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.

- **HPE 3PAR StoreServ Management Console:** A converged management platform with a modern look and consistent feel for all HPE 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 your 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 HPE 3PAR StoreServ array and transferred to HPE for remote diagnostic analysis and proactive fault detection.

[13] See **page 10** for descriptions of each of these suites.

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. HPE 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®.

HPE 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 vSphere 6. HPE 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.

HPE StoreOnce Recovery Manager Central (RMC) for VMware software integrates HPE 3PAR StoreServ primary storage with HPE StoreOnce Backup Systems to provide a converged availability and flat backup service for VMware environments that augments traditional backup approaches. Combining the performance of local and remote snapshots with the protection of backups, StoreOnce RMC for VMware enables fast, efficient, reliable, and simple protection

for VMware virtual machine disks (VMDKs) and data stores. HPE StoreOnce RMC for VMware allows VMware administrators to create hundreds of non-disruptive, application consistent VM snapshots and initiate rapid online recovery. HPE StoreOnce RMC for VMware flat backup allows VM snapshot data to be automatically backed up directly from HPE 3PAR StoreServ to StoreOnce. Flat backup with StoreOnce RMC delivers up to 17X faster backups and up to 5X faster restores than traditional backup methods. And all of this can be monitored and managed directly from within the VMware vCenter management user interface.

In client virtualization environments, HPE 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 HPE 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. HPE 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.

In Microsoft SQL Server 2012 and Oracle Database deployments, HPE 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 HPE 3PAR Adaptive Optimization software delivers balances performance and cost. HPE 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 HPE 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 HPE 3PAR Thin Provisioning simplify database storage management and enable enhanced resource utilization, resulting in unmatched cost of storage.

With Microsoft Exchange 2010, HPE 3PAR StoreServ 7000 support for HPE 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. HPE 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. HPE 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. HPE 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. HPE 3PAR Autonomic Groups and HPE 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 HPE 3PAR StoreServ 7000 system. With Windows Server 2012 Offload Data Transfer (ODX) and HPE 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 HPE 3PAR StoreServ ASIC. HPE 3PAR Thin Technologies and Windows Server 2012 automatic reclamation of storage automate storage growth and shrinkage, while HPE 3PAR Adaptive Optimization software delivers the right QoS to the right data at the right time in Windows Server 2012 environments.

Technical specifications

	HPE 3PAR StoreServ 7200c	HPE 3PAR StoreServ 7400c	HPE 3PAR StoreServ 7440c
Storage Controllers	2	2 or 4	2 or 4
Maximum host ports **Fibre Channel** **10 Gb iSCSI**	12 4–12 0–4	24 4–24 0–8	24 4–24 0–8
Maximum initiators per system **Drive types (mixable)**	1024 SAS (Performance, Nearline, SSDs)	1024 or 2048 SAS (Performance, Nearline, SSDs)	1024 or 2048 SAS (Performance, Nearline, SSDs)
Maximum hard disk drives (HDDs)	8–240	8–576	8–960
Maximum solid-state drives (SSDs)	8–120	8–240	8–240
Maximum capacity raw (HDD/SSD)	500 TB	1600 TB	2000 TB

Software suites for HPE 3PAR StoreServ Storage

HPE 3PAR Operating System Software Suite	Required for all new HPE 3PAR StoreServ systems, this foundational software suite gives you everything you need to get up and running quickly and efficiently. Powered by HPE 3PAR Gen5 ASIC, HPE 3PAR Thin Technologies including—HPE 3PAR Thin Provisioning, HPE 3PAR Thin Persistence, HPE 3PAR Thin Conversion, and HPE 3PAR Thin Deduplication form the base of this software suite. Performance acceleration is assured by HPE 3PAR Adaptive Flash Cache, which reduce application response times. Network simplification and security are covered with iSCSI VLAN tagging. Simplified management is offered by the HPE 3PAR StoreServ Management Console, and HPE 3PAR Host Explorer software. HPE 3PAR System Reporter and HPE 3PARInfo Software are designed to track performance and capacity utilization trends for multiple HPE 3PAR StoreServ Systems. Other highlights of this suite include HPE 3PAR Full Copy, autonomic rebalancing capabilities that help you optimize the use of future capacity expansions, and support for standard multipathing software for high availability in clustered environments. A one-year license for HPE 3PAR Online Import is included to enable migration from HPE EVA, or EMC* or HDS** or IBM† systems.
HPE 3PAR Replication Suite	This suite bundles HPE 3PAR Virtual Copy with HPE 3PAR Remote Copy Software, both also sold separately for all HPE 3PAR StoreServ models. HPE 3PAR Virtual Copy Software protects and shares data affordably with rapid recovery using reservationless, non-duplicative, copy-on-write snapshots. HPE 3PAR Remote Copy offers simple and cost effective data protection for efficient multitenant disaster recovery. Also included in this bundle is HPE 3PAR Peer Persistence, which ensures transparent automatic failover over metropolitan distances Remote Copy Synchronous mode. For HPE 3PAR StoreServ 20000 and 8000, the Suite also includes HPE 3PAR Cluster Extension Software, which enables automatic failover across data centers using Remote Copy Asynchronous mode.
HPE 3PAR Data Optimization Software Suite	This software bundle combines HPE 3PAR Dynamic Optimization, HPE 3PAR Adaptive Optimization, HPE 3PAR Priority Optimization, and HPE 3PAR Peer Motion software together. HPE 3PAR Dynamic Optimization delivers the required service levels for the lowest possible cost throughout the data lifecycle. HPE 3PAR Adaptive Optimization improves storage utilization by enabling cost-optimized storage tiering. HPE 3PAR Priority Optimization assures service levels with QoS controls for mission-critical applications. HPE 3PAR Peer Motion enables load balancing at will wherein movement of data and workloads between arrays does not initiated without impact applications, users or services. The four software titles bundled in this suite are also sold separately for all HPE 3PAR StoreServ models. Depending on purchase date, titles included in this suite may vary. Check the HPE 3PAR Software QuickSpecs for complete details.
HPE 3PAR File Persona Software Suite	This licensed feature of the HPE 3PAR Operating System enables rich file protocols from SMB/CIFS to NFS and FTP, file data services from quota management to file snapshots and retention/immutability, and a RESTful Object Access API for programmatic access to files. It extends the spectrum of workloads natively addressed by HPE 3PAR StoreServ Storage to include home directories and user shares, content management and collaboration, data preservation/governance, and custom cloud applications. Management is truly unified through the HPE 3PAR StoreServ Management Console and the powerful, scriptable HPE 3PAR CLI.
HPE 3PAR Security Suite	This software suite bundles HPE 3PAR Virtual Domains and HPE 3PAR Virtual Lock Software. 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.
HPE 3PAR Application Software Suite for Hyper-V	Protect your Microsoft Hyper-V environment with HPE 3PAR Recovery Manager for Microsoft Hyper-V and the HPE 3PAR VSS Provider Software, included in this software.
HPE 3PAR Application Software Suite for Exchange	This bundle gives you the essentials for use with Microsoft Exchange, including HPE 3PAR Recovery Manager for Exchange and the HPE 3PAR VSS Provider Software.
HPE StoreOnce Recovery Central Manager	This suite bundles everything you need to protect your critical applications running on HPE 3PAR StoreServ Storage. RMC software allows you to create, manage, and automate crash-consistent snapshots for any application and app-consistent snapshots for VMware vSphere, Microsoft SQL Server and Oracle.† In addition, RMC allows you to perform flat backup to HPE StoreOnce systems for converged data protection.

* HPE 3PAR Online Import support for EMC Storage extends to EMC VMAX, EMC VNX and EMC CLARiiON CX4 Storage systems.

** HPE 3PAR Online Import support for Hitachi Storage system extends to Hitachi Data Systems (HDS) TagmaStore Network Storage Controller (NSC), Universal Storage Platforms (USP), and Virtual Storage Platforms (VSP) Storage systems.

† HPE 3PAR Online Import support for IBM Storage extends to IBM XiV Gen 2 and IBM XiV Gen 3 systems.

† Recovery Manager Central for Oracle (RMC-O) supports RHEL and OEL environments. For Solaris SPARC, IBM AIX and HP-UX environments, use the HPE 3PAR Applications Suite for Oracle.

Optimize your IT investment strategy with new ways to acquire, pay for and use technology, in lock-step with your business and transformation goals. **hpe.com/solutions/ hpefinancialservices**

HPE Factory Express provides implementation of IT infrastructure with minimum risk and disruption, by pre-building the customer's specifications prior to delivery and commissioning, ready to be integrated into customer's infrastructure. With a project manager to oversee the end-to-end implementation and having HPE experts build the systems, solutions are deployed with consistency and adhere to global standards ensuring that the solution is configured for best performance and supportability. For information, go to **hp.com/services/lifecycleevent**.

Take five minutes to calculate the potential three-year cost savings and ROI you can expect by migrating from your current storage to an HPE 3PAR StoreServ Storage solution. **Click here** to go to the HPE Storage Quick ROI Calculator.

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

HPE Technology Services

The support services portfolio will help complement the performance and reliability of the HPE 3PAR StoreServ Storage infrastructure. HPE provides complete, end-to-end lifecycle services for your entire infrastructure—servers, storage, networks, and software. Our services also help you consolidate your support management and whenever necessary, we collaborate with independent software vendors directly. By integrating hardware and software services, we offer you a support experience that is relevant to your business needs.

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. **Note:** Specific service availability varies by product.

HPE Foundation Care
A comprehensive suite hardware and software services aimed to help increase the availability of IT infrastructure.

HPE Proactive Care
An integrated set of reactive and proactive services designed to help you improve the stability and operation of your converged infrastructure to achieve better business outcomes. HPE Proactive Care has been specifically designed to support devices in IT environments, providing enhanced support that covers servers, operating systems, hypervisors, storage, storage area networks (SANs) and networks.

HPE Proactive Care Advanced
This service expands on HPE Proactive Care Service and is designed to help maximize the benefits of IT investments, maintain IT infrastructure stability, achieve business and IT project objectives, reduce operational costs and free IT staff for other priority tasks. An assigned HPE Account Support Manager (ASM) provides personalized technical and operational advice, including HPE best practices gleaned from HPE's broad support experience.

HPE Datacenter Care
HPE's most comprehensive support solution tailored to meet specific data center support requirements. It offers a wide choice of proactive and reactive service levels to cover requirements ranging from the most basic to the most business-critical environments.

HPE Lifecycle Event Services
These services are sold on a per-event basis and include services to help deploy technologies and solutions as well as assessments and other services to help optimize and operate the IT infrastructure.

Get connected and get back to business
Unlock all of the benefits of your technology investment by connecting your products to HPE Enterprise. Achieve up to 77 percent[14] reduction in down time, near 100 percent[15] diagnostic accuracy and a single consolidated view of your environment. By connecting, you will receive 24x7 monitoring, pre-failure alerts, automatic call logging and automatic parts dispatch. HPE Proactive Care Service and HPE Datacenter Care Service customers will also benefit from proactive activities to help prevent issues and increase optimization. All of these benefits are already available to you with your server, storage and networking products, securely connected to HPE support.

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[14] IDC
[15] HPE CSC reports 2014–2015

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