Hewlett Packard Enterprise

HPE 3PAR Security

Enabling secure data center with HPE 3PAR StoreServ

Agile tier-1 storage capabilities from midrange to enterprise

Explosive data growth, increased sophistication of data breaches, and the need to store data for longer periods of time as part of compliance and audit guideline have caused organizations to deploy a combination of storage security solutions. Also, there are penalties on organizations, which do not adhere to security compliance and regulations for data storage and management for their end customers. Customers must take proactive security measures in order to protect their Intellectual Property and digital assets from threat. To do so, customers need to strengthen access control, enable audit and logging of any users who accesses the Intellectual Property.

As an organization that constantly makes leaps and strides toward growth, you've seen firsthand what it means to maintain a perfect balance between managing large and increasing data volumes, rising business demands, cost efficiency, and sustainable growth. And, while you juggle these multiple facets within your business, you also consider advancements and changes on the outside that can deeply impact what goes on inside your business.

When it comes to tier-1 storage, HPE 3PAR StoreServ Storage has you covered. The foundation of the HPE Storage portfolio, HPE 3PAR StoreServ Storage offers a range of models that give you effortless, tier-1 flash with midrange affordability and helps you affordably consolidate all of your applications onto enterprise flash.

HPE 3PAR StoreServ Storage allows you to break down the silos that stand between you and the efficiency and agility required to succeed in the idea economy. It's the last primary storage architecture you need—regardless of whether you are a midsize enterprise experiencing rapid growth in your virtualized environment, a large enterprise looking to support IT as a Service (ITaaS), or a global service provider building a hybrid or managed private cloud.

In addition to HPE 3PAR StoreServ Storage being a high performance, massively scalable architecture, it also has inbuilt security and many additional security features to meet customer's compliance and regulatory requirements. Strong and secure software developments practices are continually part of the product development lifecycle in addition to the product security features and functionalities.

HPE 3PAR Security spans across multiple fundamental security areas

These features are built into the HPE 3PAR StoreServ Storage architecture and span across all models:

Authentication built into the HPE 3PAR StoreServ Storage ecosystem validates the identity of an entity (either a user or an application). Customer-installed X.509 certificates authenticate administrative interfaces and there is built in support for LDAP and Active Directory for centralized authentication. HPE 3PAR enables secure virtual implementation so that only authorized users have access to their domains and logical elements.

HPE 3PAR Certification/Compliance Landscape

- STIG Compliant
- Common Criteria Compliance
- FIPS 140–2 Compliant Data-at-Rest Encryption
- Trade Agreement Act (TAA) Compliant
- Section 508 Standards (Rehabilitation Act)
- DIACAP/Risk Management Framework
- ENERGY STAR®

Authorization provides privileges and access rights to the trusted user or application after authentication. There is support for multiple administrative roles, from browse to full storage administrator privilege. The appliance model protects against installation of unauthorized and malicious software.

Availability implies that data should be available and secure at all times, to all the authorized users and applications when requested. HPE 3PAR Peer Persistence ensures transparent autonomic failover over distances for extreme data protection. HPE 3PAR Remote Copy offers a simple and cost-effective data protection for efficient multi-tenant disaster recovery. HPE 3PAR StoreServ Storage delivers data high availability with 99.9999% uptime backed by the HPE 3PAR Get 6-Nines Guarantee Program.

Encryption enables hiding information from unauthorized presentation by providing confidentiality with FIPS 140–2 validated self-encrypting drives. Customers have the choice of a local key manager, or FIPS 140–2 validated external key managers. The external key managers can be deployed using high availability clusters.

Integrity ensures data is in the exact intended form while being written or read. HPE 3PAR Persistent Checksum provides end-to-end data integrity and protection against silent corruption from host to the storage array.

Auditing captures and retains various data center events for compliance purposes. There are protected, comprehensive audit records of all privileged administrative operations. There is remote logging capability available, wherein authorized users can access the remote logging of security-relevant events via a secured communication channel. There is also detailed hardening guidance for creating and auditing secure configurations. This includes the HPE 3PAR Security Technical Implementation Guide (STIG) and the Common Criteria Compliance Guidance document.

Consolidating and securing your data with bulletproof HPE 3PAR Virtual Domain

Security and performance concerns no longer stand in your way when it comes to infrastructure consolidation. You get an efficient and cost-effective way to meet data security compliance standards. As part of security, Virtual Domain enables up to 1024 secure virtual private arrays and provides secure access for separate application and user groups. This unified security offering provides a secure, consolidated environment that efficiently protects data from intentional or unintentional deletion. It delivers customized and secure storage to multiple administrators, applications, and departments—retaining the benefits of storage consolidation while providing peace of mind that comes with knowing that data and the HPE 3PAR data center environment is secure.

HPE 3PAR Virtual Domains is an extension of HPE 3PAR virtualization technologies that delivers secure segregation of virtual private arrays (VPAs) for different user groups, departments, and applications while preserving the benefits delivered by the massive parallelism architected into the HPE 3PAR StoreServ platform. By providing secure administrative segregation of users and hosts within a consolidated, massively parallel HPE 3PAR StoreServ Storage system, HPE 3PAR Virtual Domains allows individual user groups and applications to affordably achieve greater storage levels (performance, availability, and functionality) than previously before.

HPE Virtual Domain is used to provide logical segmentation of storage. With Virtual Domains, tenants view and utilize only the resources assigned to that given Virtual Domain. Storage Quality of Service (QoS) rules are assigned on a Virtual Domain basis. For example, if a customer has two tenants, the administrator can logically decide the performance capacity of each Virtual Domain.

The complete HPE 3PAR software portfolio

Manage	Protect	Optimize	Efficient
StoreServ Management	Remote Copy	Adaptive Sparing	Zero Detect
Console Command Line	Peer Persistence & CLX	Adaptive Flash Cache	Deduplication
Interface System Reporter	Recovery Manager Central	Priority Optimization	Compression
Service Processor File	Data-at-Rest Encryption	Federation (Peer Motion,	Data Packing
Persona Smart SAN	File Store snapshots	Online Import)	Thin Provisioning
HPE OneView integration	Persistent Checksum	Adaptive Optimization	Virtual Copy
WSAPI, SMI-S, and SNMP	Persistent Cache	Express Protect	Thin Conversion
OpenStack® integration	Persistent Ports	Adaptive Reads and Writes	Thin Persistence
VMware® integration	Virtual Lock and File Lock	Express Writes	Express Layout
Dockers containers	VSS Provider	Autonomic Cache Offload	Express Indexing
support		Mixed Workload Technology	Scan

Predictive analytics powered by StoreFront Remote

Manage: Everything you need to get up and running quickly and efficiently.

Simplified management is offered by the **HPE 3PAR StoreServ Management Console (SSMC)**. The scriptable **HPE 3PAR Command Line Interface (CLI)** gives you powerful customization capabilities that are simple to configure and reduce the need for extra management tools. **HPE 3PAR System Reporter** helps track performance and capacity utilization trends for multiple HPE 3PAR StoreServ systems. Remote error detection along with support for diagnostics and maintenance activities is offered via **HPE 3PAR Service Processor**. Rich file protocols from SMB/CIFS to NFS and FTP, and a RESTful Object Access API for programmatic access to files are offered with **HPE 3PAR File Persona**. Built-in automated SAN configuration is offered with **HPE 3PAR Smart SAN. HPE OneView integration**, gives you a web-based interface that is common across enterprise servers, storage, and networking. Support for the **Storage Management Initiative Specification (SMI-S)** provides simplified storage management from within the Microsoft® System Center Management framework. With **OpenStack integration**, over both iSCSI and Fibre Channel protocols, the flexibility and cost-effectiveness of a highly resilient cloud-based open source platform that meets the requirements of your mission-critical applications, is offered. HPE 3PAR StoreServ Storage **integration with VMware vSphere**® enables you to take advantage of architectural benefits such as wide striping, a Mesh-Active clustered controller design, mixed workload support, and hardware-assisted VMware vSphere APIs for Array Integration (VAAI) support. **Dockers containers support** helps deliver enterprise-grade storage availability, resiliency and performance for stateful containers.

Protect: Safeguard your most mission-critical of applications.

HPE 3PAR Remote Copy offers simple and cost-effective data protection for efficient multi-tenant disaster recovery. **HPE 3PAR Peer Persistence** ensures transparent autonomic failover over metropolitan distances. **HPE 3PAR Cluster Extension Software** enables automatic failover across data centers using Remote Copy Asynchronous mode. **HPE Recovery Manager Central** allows you to create, manage, and automate crash-consistent snapshots for any application and app-consistent snapshots for VMware vSphere, Microsoft SQL Server, Oracle, and SAP HANA®. **HPE 3PAR StoreServ Data-at-Rest Encryption** protects data from both internal and external security breaches by securely encrypting all data as it is written to the drive. End-to-end data integrity, protection against silent corruption from the host to the storage array is offered via **HPE 3PAR Persistent Checksum**. **HPE 3PAR Persistent Cache** maintains service levels, so they are not impacted by unplanned component failures—a key requirement for the virtual data center. Non-disruptive upgrades to HPE 3PAR StoreServ 8000 Storage systems without relying on multi-pathing software and without initiating failover is initiated via **HPE 3PAR Persistent Ports**. HPE 3PAR **Virtual Domains and HPE 3PAR Virtual Lock Software** helps 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 File Lock** enables data preservation to meet the enterprise governance requirements.

Optimize: Make the best use of the available storage capacity.

HPE 3PAR Adaptive Sparing leverages the system's sparing approach to improve the performance and endurance of flash. Performance acceleration is assured by **HPE 3PAR Adaptive Flash Cache**, which reduces application response times. **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 impact, applications, users, or services. **HPE 3PAR Online Import** is included to enable migration from HPE EVA, EMC, HDS, or IBM Storage systems. **HPE 3PAR Adaptive Optimization** improves storage utilization by enabling cost-optimized storage tiering. **HPE 3PAR Express Protect** enables backups to StoreOnce—all through the familiar RMC GUI. **HPE 3PAR Adaptive Reads and Writes** help to avoid unnecessary data reads and writes to reduce latency, enhance backend performance and extend flash media lifespan. **HPE 3PAR Express Writes** enhances write acceleration that helps optimize CPU utilization and depending on workload, delivers greater throughput. **HPE 3PAR Autonomic cache offload** helps reduce cache bottlenecks by automatically changing the frequency at which data is offloaded from cache to flash media based on utilization rate. **HPE 3PAR Multi-tenant I/O processing** enables performance improvement for mixed workloads or virtual desktop infrastructure (VDI) deployments by breaking large I/O into smaller chunks so that small read requests don't get held up behind larger I/O requests, ensuring reduced latency.

Efficient: Get maximum performance with minimum expenditure.

HPE 3PAR Zero Detect reduces the cost of storage by identifying and removing repeated data from incoming data streams. **HPE 3PAR Deduplication** helps reduce the amount of flash needed to store data by preventing the storage of duplicate data. **HPE 3PAR Compression** helps reduce the amount of flash needed to store data by reducing the data footprint. **HPE 3PAR Data Packing** helps improve storage efficiency and bandwidth by condensing multiple smaller data sets together. **HPE 3PAR Virtual Copy Software** protects and shares data affordably with rapid recovery using reservationless, non-duplicative, copy-on-write snapshots. **HPE 3PAR Thin Technologies**—including **HPE 3PAR Thin Provisioning, Thin Conversion, Thin Persistence, and Thin Copy Reclamation**—achieve data compaction by leveraging built-in hardware capabilities. **HPE 3PAR Express Layout** allows HPE 3PAR controller nodes to share access to SSDs in order to drive efficiency. **HPE 3PAR Express Indexing** helps deduplicate data inline and with a high degree of granularity. **HPE 3PAR Express Scan helps** remove redundant data inline and prevents wastage of CPU cycles.

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HPE Pointnext

HPE Pointnext provides a comprehensive portfolio including Advisory and Transformational, Professional, and Operational Services to help accelerate your digital transformation. From the onset of your transformation journey, Advisory and Transformational Services focus on designing the transformation and creating a solution road map. Professional Services specializes in creative configurations with flawless and on-time implementation, and on-budget execution. Finally, Operational Services provide innovative new approaches such as HPE Flexible Capacity and HPE Datacenter Care, to keep your business at peak performance. Hewlett Packard Enterprise has an eye on the future to make the complex simple.

HPE Foundation Care Support Service
HPE Foundation Care connects you to Hewlett Packard Enterprise 24x7 for assistance on resolving issues. This service includes available response times of next business day, 4-hour response or 6-hour to repair with answers to software questions within two hours. HPE is a leading manufacturer who makes this level of coverage available as a standard service offering for your most valuable servers. In addition, collaborative software support is included and provides troubleshooting assistance on industry-leading software running on your server. Simplify your support experience and make HPE your first call to help resolve hardware or software problems.

HPE Proactive Care Support Service
HPE Proactive Care gives customers an enhanced call experience. When your products are connected to HPE, we help you prevent problems and maintain IT stability by utilizing personalized proactive reports with recommendations and advice. This service includes available response times of next business day, 4-hour response or 6-hour to repair with answers to software questions within two hours. This service also includes collaborative software support for Independent Software Vendors (ISVs), such as Red Hat®, VMware, Microsoft, and others running on your HPE servers.
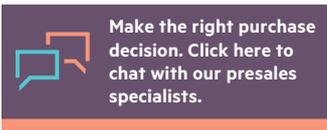
HPE Datacenter Care Service
HPE Datacenter Care helps improve IT stability and security, increase the value of IT, and enable agility and innovation. It is a structured framework of repeatable, tested, and globally available services building blocks. You can deploy, operate, and evolve your data center wherever you are on your IT journey. With HPE Datacenter Care, you benefit from a personalized relationship with HPE via a single point of accountability for HPE and others' products.

HPE Flexible Capacity
With Flexible Capacity, you get the speed, scalability, and economics of the public cloud in the privacy of your data center. Gain the advantages of the public cloud—consumption-based payment and rapid scalability without worrying about capacity constraints. Reduce the heavy lifting needed to operate a data center. And retain the advantages that IT provides the business such as control, security and others. Deliver the right user experience, choose the right technology for the business, manage privacy and compliance, and manage the cost of IT. And, you have the option to use the public cloud when needed.

Learn more at
hpe.com/us/en/storage/3par.html