Brochure

Hewlett Packard Enterprise

Eliminate compromise

HPE 3PAR StoreServ Storage family

Get started >

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Flash-optimized, modern Tier-1 storage

IT has never been more important to doing business, which means that storage infrastructure must be simpler, smarter, faster, more flexible, and more business aligned than ever. In the idea economy, business success is defined by how quickly your business can turn ideas into value. Is your data center ready?

With a flexible, **flash-optimized architecture**, HPE 3PAR StoreServ Storage provides the only primary storage architecture you'll ever need. Regardless of whether you are a small to midsize enterprise experiencing rapid growth, a large enterprise looking to support IT as a Service (ITaaS), or a global service provider building a hybrid or managed private cloud, **HPE 3PAR StoreServ Storage** features a modern architecture to support better business outcomes. A range of models bring Tier-1 data services to the midrange, deliver all-flash array performance for the cost of a spinning disk array, and provide mission-critical resiliency and quality of service (QoS).

Consolidate with confidence

HPE 3PAR StoreServ Storage offers true convergence of block, file, and object access while eliminating single points of failure so you can consolidate with confidence. By delivering Tier-1 resilience and secure administrative segregation of users, hosts, and application data using virtual machine technology, 3PAR StoreServ Storage lets you serve multiple user groups, applications, and workloads from a single storage system with complete confidence that access to your data will not be compromised or interrupted.

Full hardware redundancy paired with software features that perform error checking and seamless failover/failback help ensure complete system resilience, even when the unexpected happens. Autonomic configuration prevents human error, while remote diagnostics let you tap into proactive monitoring and management to protect against unforeseen issues.

Don't just take our word for it.

With the **HPE 3PAR Get 6-Nines Guarantee Program**, HPE stands behind the ability of 3PAR StoreServ Storage systems to deliver data high availability with 99.9999 percent uptime.[1]

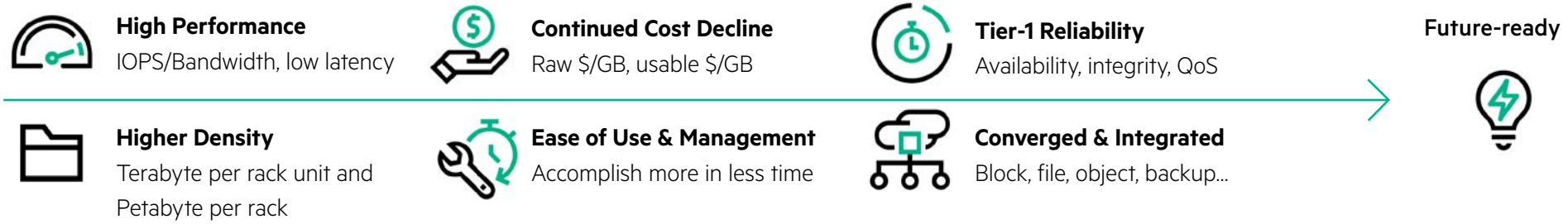


Figure 1. Storage requirements for the idea economy

[1] Contact HPE for full terms and conditions.

Deliver uncompromising QoS

HPE 3PAR StoreServ Storage lets you deliver higher service levels to more users and applications with less infrastructure. When combined with Tier-1 resiliency, the multi-controller scalability and extreme flexibility built into the platform eliminates the need to deploy and maintain separate storage silos to deliver different QoS levels.

System-wide striping of data provides high and predictable service levels for a wide range of workload types through the massively parallel and fine-grained striping of data across all internal resources (disks, ports, loops, cache, processors, etc.). As a result, as the use of the system grows—or in the event of a component failure—service conditions remain high and predictable.

Prioritization controls let you specify minimum thresholds for your most mission-critical applications and workloads to help deliver consistency and help ensure that you always meet the necessary QoS levels for your highest priority applications.

Sony Network Entertainment—Breaking Boundaries with Flash Storage (Video)

"We literally did a side-by-side bake-off in our data center, utilizing real workloads to evaluate **performance, scalability, resiliency,** and **TCO...** when we looked at the detail level in the four categories mentioned, 3PAR flash hit the ball out of the park."

- Lee Pedlow, Senior Director of Production Services, Sony Network Entertainment International (SNEI)

Accelerate performance

HPE 3PAR StoreServ Storage makes innovative use of flash-based storage technologies to give **you a choice between all-flash arrays, converged flash arrays that use solid-state storage** tiered with spinning media, and the use of flash-based media to extend system cache.

The only all-flash array to deliver inline deduplication at scale with hardware acceleration, 3PAR StoreServ Storage supports this capability across all systems in its product family that have a flash tier to increase usable capacity, lower total cost of ownership, and extend the life expectancy of flash media.

In cases where there is a large amount of duplicate data, inline 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 as HPE 3PAR StoreServ Storage.

HPE 3PAR Flash Advisor Toolset

Wondering about the return on investment of adding flash to your existing infrastructure? With the **HPE 3PAR Flash Advisor Toolset**, you can get the most out of your current storage investment by understanding the benefits of adding flash.

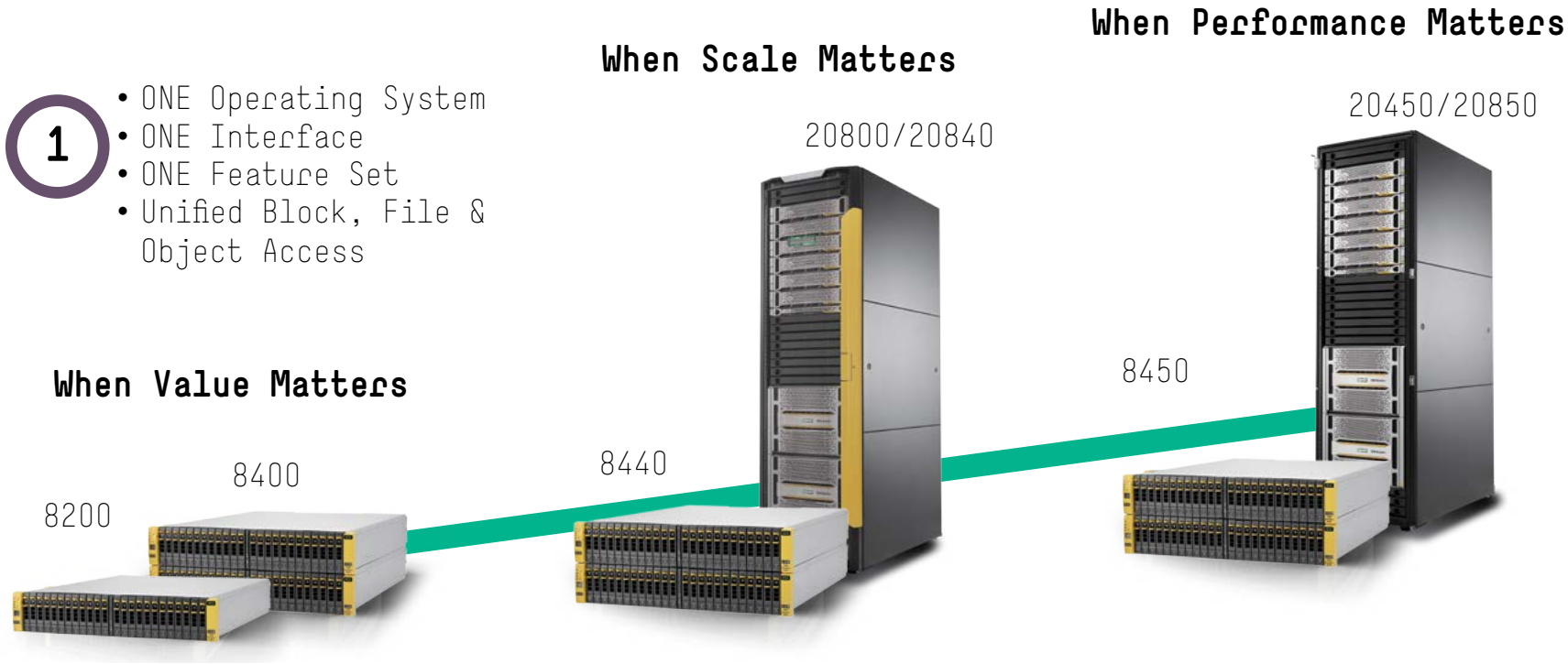


Figure 2. All-flash HPE 3PAR StoreServ Storage

Serve a broad spectrum of workloads

HPE 3PAR File Persona Software Suite is a licensed feature of the **HPE 3PAR Operating System** that 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.

This software suite 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.

Truly unified management is delivered via the **HPE 3PAR StoreServ Management Console** and the powerful, scriptable HPE 3PAR CLI.

With this software, you can:

- Save up to 71 percent on data center space and power requirements with agile provisioning of block, file, and object access[2]
- Get seamless compaction of file data with built-in zero-detection capabilities
- Enjoy a single thin capacity pool for block and file
- Get fully unified management with rich file protocol support and object access
- Protect your data and your applications with continuous access, user-driven recovery, DAR encryption, anti-virus & backup.
- Simplify management of block and file data with support for file provisioning groups of up to 64 TB in size—4x that of the competition

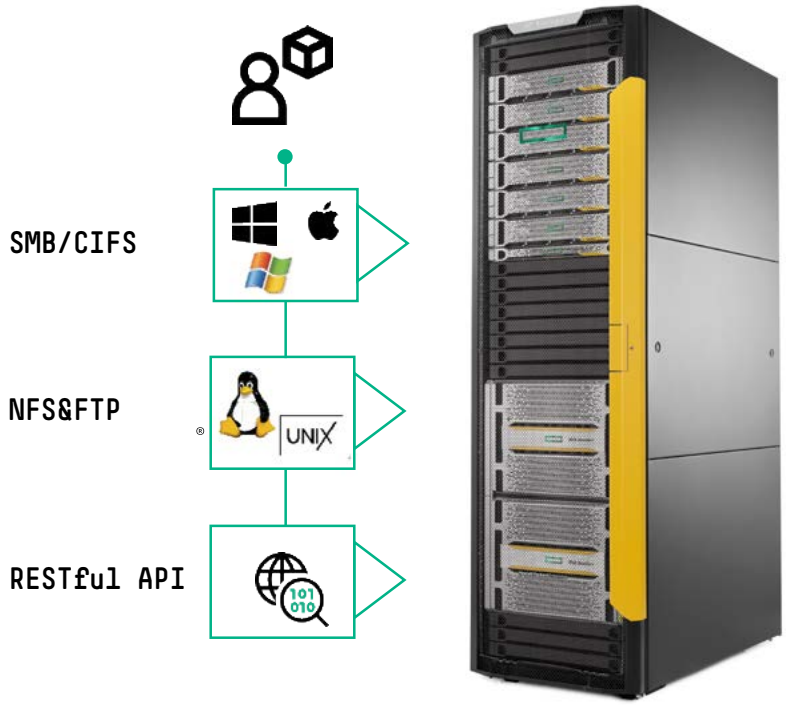


Figure 3. HPE 3PAR File Persona Software built into the HPE 3PAR OS

[2] HPE internal analysis compared to EMC VNX, September 2014.

Cut capacity requirements by 75 percent

HPE 3PAR StoreServ Storage features **industry-leading thin technologies** that reduce capacity requirements with a comprehensive approach to space efficiency that eliminates overprovisioning and uses fast and simple space reclamation. HPE 3PAR Gen5 Thin Express ASICs in each storage controller deliver mixed workload support and provide the high-performance engine behind these unique thin technologies. This lets you purchase 75 percent less storage to meet your application requirements without compromising performance or utilization.[3]

Need a sure thing?

The **HPE 3PAR Get Thinner Guarantee Program** promises up to 75 percent reduction in capacity requirements when you replace legacy storage with all-flash HPE 3PAR StoreServ Storage—guaranteed.[4]

Free storage efficiency assessment

Do you know how to reduce energy, floor space, and disk capacity requirements while slashing administrative time by up to 90 percent?

Get a FREE storage assessment from HPE that includes:

- A complete efficiency audit of your current storage
- Storage utilization ratios and standard capacity
- Array sizing needed to meet SLAs

Read more about the benefit of the free assessment

Sign up now

[3] [4] Contact HPE for full terms and conditions.

ALLIANCE RESOURCE PARTNERS, L.P.

ARLP sees 70% performance increase with HPE storage

When ARLP needed increased availability and performance for their mission-critical applications, they chose HPE 3PAR StoreServ Storage.

Read the Case Study

zayo GROUP

Zayo gains advantage with HPE 3PAR StoreServ

With HPE 3PAR StoreServ 7450's hardware-assisted thin storage, significantly reducing the effective cost of flash media, capacity savings turns out to be four to one.

Read the Case Study

Microsoft

Microsoft Visual Studio Counts on 3PAR StoreServ

Stability, reliability and superb hands-on global support were major selection criteria together with long term partnership.

Read the Case Study

Respond 8X faster

Simplify, automate, and expedite management with storage that is **self-configuring, self-provisioning, and self-optimizing**. HPE 3PAR StoreServ Storage eliminates traditional manual storage planning and changes management with autonomic management and optimization features that are intelligent, take place at a subsystem level, and don't require administrator intervention.

These features let you respond 8X faster than our main competitor by shrinking provisioning time from hours, weeks, and days to just seconds. Automation also reduces the opportunity for human error.

- Provision a volume in only 15 seconds.
- Deliver high performance to all applications, even under failure conditions.
- Quickly adapt to the unpredictable by optimizing QoS levels with one click.

Making the move has never been easier

Are you an HPE EVA Storage customer interested in modernizing your storage? If you liked your EVA array, you're going to love 3PAR. HPE makes it simple and painless to modernize your infrastructure with **three ways to make the move to HPE 3PAR StoreServ Storage**. Get started today!

Load balance without virtualization complexity

HPE 3PAR StoreServ Storage supports **federated data mobility** across Tier-1, midrange, and flash arrays so you can manage resources at the data center level without external virtualization appliances.

- Respond to unpredictable and dynamic demands by moving data and workloads between arrays without impact to applications, users, or services
- Eliminate additional virtualization layers and management overhead with peer-based storage federation
- Map workloads to the right resources and establish tiers of storage across the data center for different service-level objectives
- Improve data availability and protection in clustered VMware® and Microsoft® Hyper-V environments

Painless modernization onto Tier-1 storage

This federated data mobility also simplifies technology refreshes by eliminating data migration as a pain point—including:

- **Upgrading from HPE EVA Storage**
- **Replacing legacy EMC VMAX, CLARiiON CX4, and VNX arrays**
- **Replacing HDS TagmaStore Network Storage Controller (NSC), Universal Storage Platforms (USP), and Virtual Storage Platforms (VSP)**
- **Replacing legacy IBM XIV systems**

Shield your business from application downtime

Application downtime can be fatal to your business and can come from a variety of sources—from human error to natural disasters. As a result, data protection is a continuum that must cover a wide range of scenarios.

HPE 3PAR StoreServ Storage offers **a highly resilient, Tier-1 architecture** that provides the first line of defense against application outages with high availability features such as fault tolerance and hardware redundancy. **Point-in-time (PIT) snapshots** add additional protection against application errors and data corruption or loss.

Low-cost remote replication protects against site-wide outages and natural disasters with the flexibility to replicate between any member of the HPE 3PAR StoreServ family—regardless of model. Add to this online, disk-based backup with **HPE StoreOnce Systems** and you have comprehensive data protection that minimizes your risk from all angles.

HPE StoreOnce increases your application protection level by letting you maintain more frequent snapshots for longer and for less. Free up flash capacity on your HPE 3PAR StoreServ array by **offloading snapshots to more cost-effective backup**. Free your data center from dependence on traditional backup infrastructure by taking advantage of **flat backup** to reduce backup ISV licensing costs.

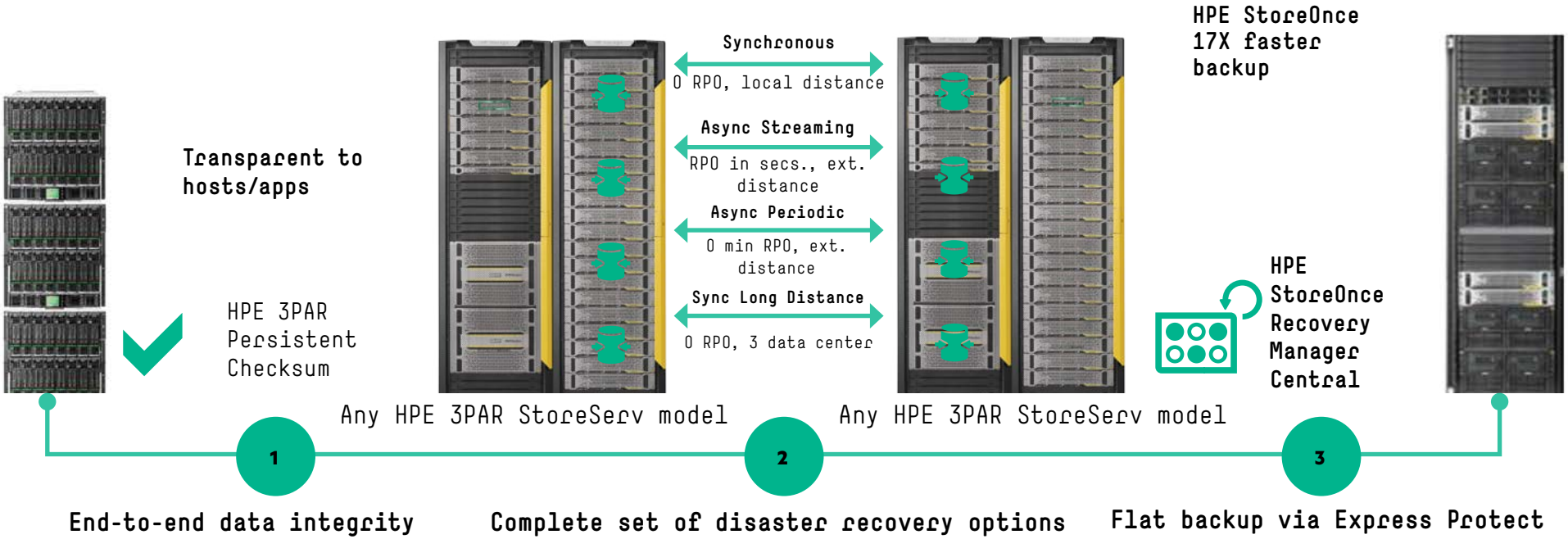


Figure 4. End-to-end availability and protection for enterprise applications with HPE StoreOnce Recovery Manager Central

Setting new standards for agility and efficiency

With a **modern architecture built for virtualization, the cloud, and ITaaS**, HPE 3PAR StoreServ Storage anticipates new requirements with a resilient, secure, multi-tenant platform that lets you:

- Provision instantly
- Improve provisioning agility for block and file
- Serve diverse and unpredictable workloads
- Deliver sustainable performance
- Flexibly adapt to shifting business demands
- Drive up resource utilization across the data center
- Drive down total cost of ownership for storage

A tightly clustered, multi-controller, scale-out architecture lets you grow into rather than out of your storage. Add new applications and workloads affordably and non-disruptively—all within a single, autonomically tiered, flash-optimized array.

High Performance
Flash-optimized architecture

Application Integration
Integration with VMware, Oracle, Microsoft SQL and Exchange

Reliability
Proven, highly resilient architecture

Ease of Use
Self-configuring, self-optimizing, and self-tuning

Scalability
Scale-out architecture with multiple Active-Active nodes

Drive Efficiency
Get the most out of your flash investments

Disaster Recovery
Data protection with multi-site synchronous and asynchronous remote copy

Data Mobility
Federate across systems and sites for greater efficiency

Flash-optimized architecture featuring a Mesh-Active design

HPE 3PAR StoreServ Storage features a Mesh-Active design based on a unique system of controller interconnects. **This flash-optimized architecture** combines the benefits of monolithic and modular architectures while eliminating price premiums, scaling complexities, and the performance bottlenecks of legacy storage designs.

Unlike legacy Active-Active controller architectures, **the HPE 3PAR Mesh-Active design** allows each volume to be active on every controller in the system. This delivers robust, load-balanced performance and greater headroom for cost-effective scalability.

A high-speed, full-mesh interconnection joins multiple storage controllers to form a cache-coherent, flash-optimized Mesh-Active cluster that is ideal for low-latency, high-performance, internode communication. Purpose-built 3PAR Gen5 Thin Express ASICs in each node connect all controllers via dedicated, high-bandwidth, low-latency links and spread I/O workloads widely across the array using direct memory access (DMA) to reduce latency times.

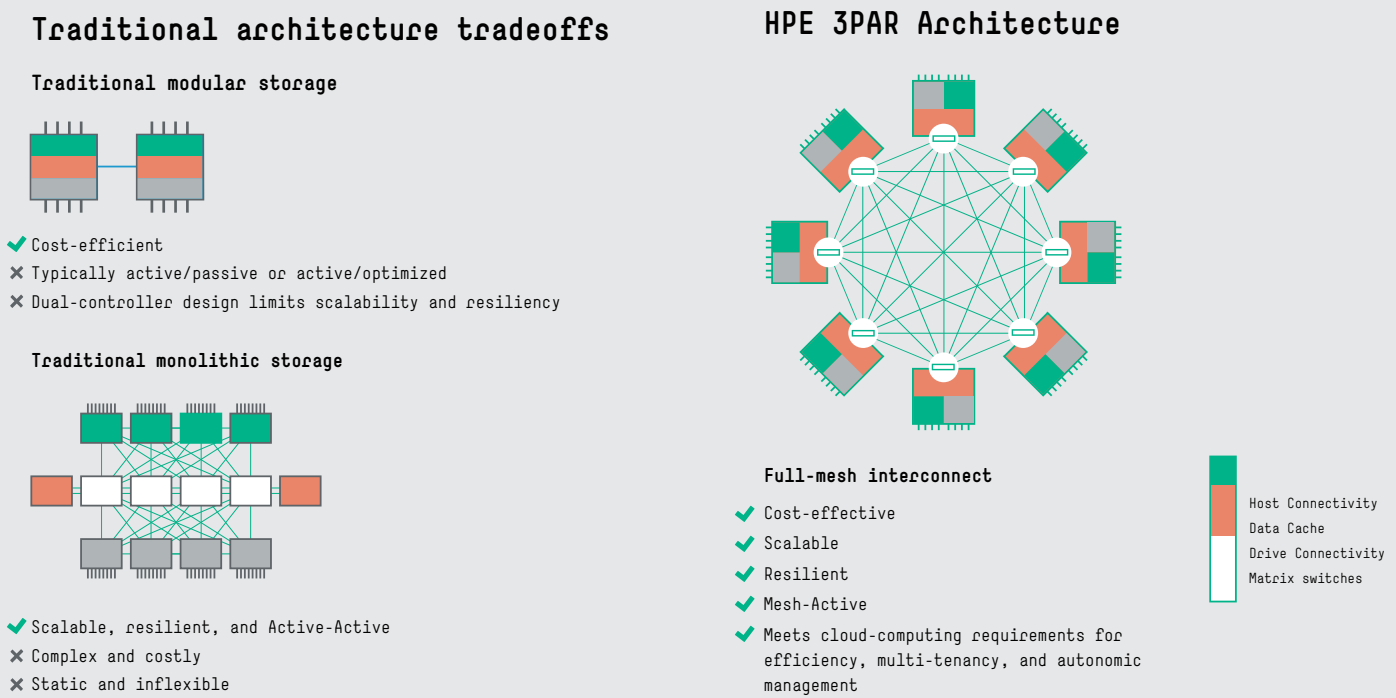


Figure 5. Legacy architectures versus HPE 3PAR StoreServ Storage

Fine-grained virtualization and system-wide striping

The **HPE 3PAR Architecture** uses three levels of storage virtualization to drive up capacity utilization and accelerate performance. This fine-grained approach to storage virtualization:

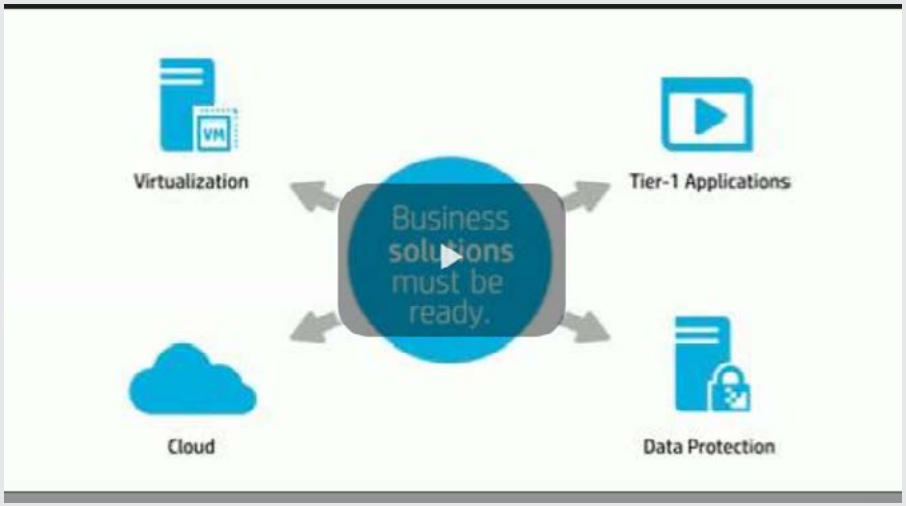
- Divides each physical disk into granular allocation units that can be independently assigned and dynamically reassigned to different logical disks to create virtual volumes
- Enables mixed RAID levels on the same physical drive
- Supports flash and other nonvolatile memory types

Logical disks are the virtualization layer in which QoS parameters are applied (availability level, drive media type, RAID level, etc.). This enables sub-LUN tiering and system-wide striping of data, increasing capacity utilization and performance levels. Fine-grained virtualization combined with system-wide striping drives uniform I/O patterns by spreading wear evenly and system-wide. System-wide sparing also helps guard against performance degradation if there is a media failure by enabling faster, "many-to-many" rebuilds.

Learn more

Download the **HPE 3PAR StoreServ Architecture** technical white paper.

HPE 3PAR StoreServ Storage



HPE 3PAR StoreServ Storage provides a single product family across midrange, high-end, and all flash arrays designed to meet the demands of ITaaS. It is the only primary storage platform you need to respond to change with agility and efficiency.

Unique technologies extend your flash investments

HPE innovations around flash not only help bring down the cost of flash media, but 3PAR Gen5 Thin Express ASICs within each node also provide an efficient, silicon-based, zero-detection mechanism that "thins" your storage and extends your flash media investments. These ASICs **power inline deduplication for data compaction** that removes allocated but unused space without impacting your production workloads—extending the life of flash-based media by avoiding unnecessary writes. The unique Adaptive Read and Write feature also serves to extend the life of flash drives by automatically matching host I/O size for reads and writes.

Adaptive Sparing technology

HPE 3PAR Adaptive Sparing is a patented technology that improves flash performance and endurance through a unique approach to sparing (the practice of reserving capacity to be used in the event of a drive failure). The latest generation of this technology--Adaptive Sparing 2.0--is so powerful that it can increase SSD endurance by up to 5x as compared to the standalone endurance offered by individual SSDs while simultaneously improving write performance in the process.

The mechanism behind this improved endurance and performance is a more efficient, system-wide approach to sparing that alleviates the need to designate entire drives or a significant portion of each drive for sparing purposes. Instead, much of the spare capacity typically reserved by individual drives can be unlocked at the firmware level then used by the 3PAR OS to improve performance and endurance at a system level—a capability entirely unique to 3PAR.

Due in part to Adaptive Sparing technology, HPE is able to offer an unconditional 5-year warranty on all HPE 3PAR StoreServ SSDs, including media failure and drive wear-out. In addition, this technology is a fundamental enabler of HPE's continued leadership in bringing new flash drive technologies and sizes to market more rapidly and cost-efficiently than other platforms today.

Persistent technologies for Tier-1 resiliency

HPE 3PAR StoreServ Storage systems deliver Tier-1 resiliency via built-in hardware redundancy reinforced with persistent software technologies:

- **Peer Persistence**
  - Keeps your business-critical applications running seamlessly with automated, transparent failover and failback
  - Improves overall availability with peer federation for **VMware** or **Windows® clusters**
- **Persistent Cache**
  - Removes performance impacts resulting from unplanned component failures; is ideal for maintaining service levels in the virtual data center
  - Leverages the unique Mesh-Active design to preserve write caching in the event of a failure by rapidly "remirroring" cache to other nodes within the cluster
- **Persistent Ports**
  - Supports high availability in virtualized environments
  - Automatically fails over any front-end controller port that experiences laser loss
  - Enables transparent switchover of host path connections
  - Keeps host paths online throughout the software upgrade process
- **Persistent Checksum**
  - Ensures end-to-end data integrity, protecting against silent corruption from the host to the storage array

HPE 3PAR Software Suites

Building on the **HPE 3PAR Operating System**, HPE offers a range of standalone software products and bundled software suites to enhance the agility and efficiency of your infrastructure.

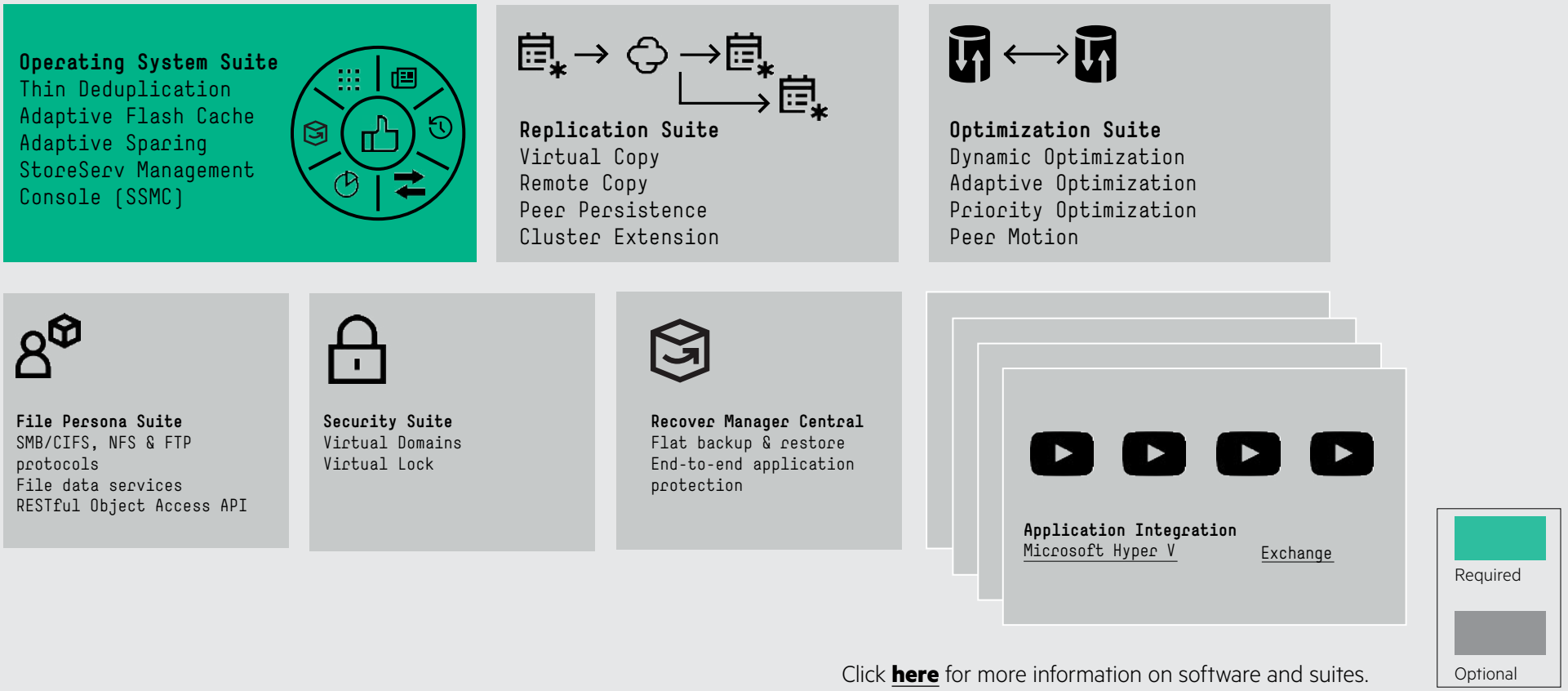
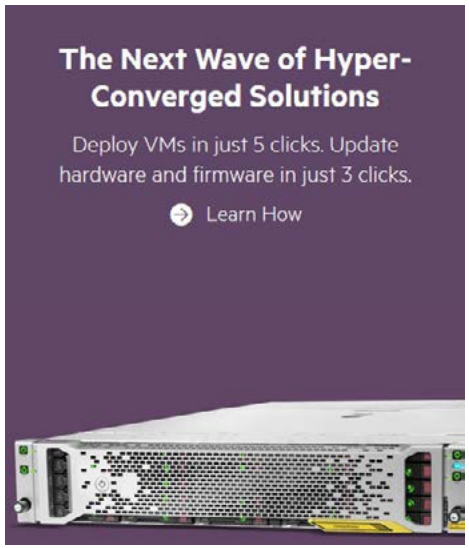
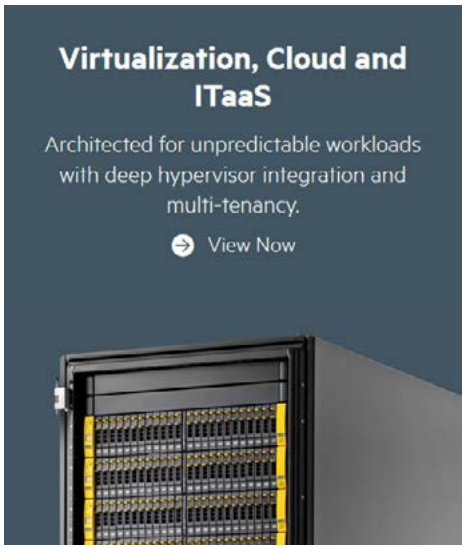


Figure 6. HPE 3PAR Software Suites enhance the agility and efficiency of your infrastructure

Application-managed storage

HPE invests in technologies to support key strategic IT initiatives by working with partners such as VMware, Citrix®, Red Hat®, Oracle, Symantec, Microsoft, and SAP® to develop **integrated, platform-specific storage solutions** that work with HPE 3PAR StoreServ Storage.





Take five minutes to estimate your savings

Calculate the potential three-year cost savings and ROI from migrating your data from traditional storage to HPE 3PAR StoreServ Storage. Click **here** to get started saving with the HPE Storage Quick ROI Tool.

Learn more at
hpe.com/storage/3PAR

Download the full version of the HPE 3PAR StoreServ Family Brochure here.

Sign up for updates

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