Overview

HPE StoreOnce Systems

Does data growth leave you struggling with complex, distributed, and costly data protection? Do you have data that's not being protected because backup windows aren't long enough or backup jobs are failing? Tackle the cost, risk and complexity of data protection with HPE StoreOnce; disk-based, deduplicating, backup systems providing automated backup, data recovery and data retention for the new style of IT. Cut the cost of data protection with a single, unified deduplication architecture offering best in class price-performance across the range. HPE StoreOnce spans from small, remote offices to enterprise data centers with highly scalable dedicated appliances to agile virtual appliances and with your choice of backup and recovery software to deliver robust, flexible enterprise-wide data protection. StoreOnce can reduce the amount of backup data you need to store by up to 95%, and with our scale-out architecture you can pay-as-you-grow to retain up to 34 petabytes of data in a single pool.

Reduce the risk with industry-leading backup speeds of up to 184 TB/hr* so you can meet shrinking backup windows and the most stringent SLAs. When it comes to backup, data recovery and data retention, HPE StoreOnce includes all the features you'd expect from disk backup, together with built-in data encryption to secure your Data at Rest and Data in Flight**.

Simplify and enable your converged infrastructure, with HPE's single StoreOnce deduplication technology managing the movement of data across the enterprise has never been easier. HPE StoreOnce Catalyst enables Federated Deduplication so you can choose where to deduplicate your data and eliminating the need for dedicated deduplication appliances. It also allows Catalyst stores to span nodes simplifying backup management and optimizing available storage in large environments. StoreOnce also provides seamless integration and flexible connectivity into Fibre Channel (FC), iSCSI SAN, GbE/10GbE, virtualized and other environments and is supported across a wide range of backup applications.

NOTES:
*Assumes the use of HPE StoreOnce Catalyst. In all cases, actual performance is dependent upon configuration, data set type, compression levels, number of data streams, number of devices emulated and number of concurrent tasks, such as housekeeping or replication and storage configuration. Actual usable capacity for customer data storage is dependent upon drive formatting, log file and meta data size, housekeeping backlog.
** Data in Flight encryption via IPSec is supported on HPE StoreOnce Catalyst only. In addition, write performance may be impacted, however performance improvements should be seen after first ingest.

What's New

New for July 2017

- Early availability for qualifying customers of Cloud Bank Storage to extend StoreOnce Catalyst to external object storage for the lowest cost long-term backup data retention - for more information and to apply for early access please go to **http://www.hpestorage.me/CloudBankEA**

HPE StoreOnce Backup Models

HPE StoreOnce Backup Models

Target deployment	Product options	Max usable capacity* (before dedupe) Max performance* with StoreOnce Catalyst
Enterprise data centers	**HPE StoreOnce 6600**	Scale from 72 to 1728 TB usable * Backup speeds up to 184 TB/hr*
	HPE StoreOnce 5500	Scale from 36 to 864 TB usable * Backup speeds up to 37.7 TB/hr*
Mid-range to enterprise data centers	**HPE StoreOnce 5100**	Scale from 36 TB to 216 TB usable * Backup speeds up to 26.7 TB/hr*
	HPE StoreOnce 3540	Scale from 15.5TB to 31.5 TB usable* Backup speeds up to 12.7 TB/hr*
Small to mid-range data centers and remote offices	**HPE StoreOnce 3520**	Scale from 7.5 to 15.5 TB usable * Backup speeds up to 12.7 TB/hr*
	HPE StoreOnce 3100	5.5 TB usable* Backup speeds up to 6.4 TB/hour*
	HP StoreOnce VSA	4, 10, 20, 32 or 50 TB usable* depending on license

For help with choosing the most appropriate StoreOnce Backup systems for your specific environment, we recommend you talk to your Hewlett Packard Enterprise partner or sales advisor about using the HPE Storage Sizing Tool which can be downloaded from the Downloads section of
http://www.hp.com/go/storeoncesizer
For previous versions of HPE StoreOnce Backup models please refer to:
http://h18004.www1.hp.com/products/quickspecs/13218_div/13218_div.html

NOTE:
*In all cases, actual performance is dependent upon configuration, data set type, compression levels, number of data streams, number of devices emulated and number of concurrent tasks, such as housekeeping or replication and storage configuration. Actual usable capacity for customer data storage is dependent upon drive formatting, log file and meta data size, housekeeping backlog.
To optimize capacity utilization and in accordance with performance requirements, your capacity requirements should be planned following Recommended Configuration guidelines:
http://h20565.www2.hpe.com/portal/site/hpsc/public/psi/manualsResults/?sp4ts.oid=5196525

Common Features and Benefits

The following features and benefits apply to all HPE StoreOnce products. Where differences exist between models, they are explained in the description of the benefit.

Scaling out capacity across the enterprise
Keeping pace with data growth, HPE StoreOnce Systems offer scale-out architecture that allows you to pay as you grow. Our scalable solutions span from an entry level 7.5-15.5 TB usable, up to an enterprise class 1728 TB usable.

Choose from dedicated backup appliances to match the capacity and performance requirements of larger offices and data center deployments or virtual appliances utilizing existing infrastructures for virtualized environments and smaller and remote offices.

Whatever the HPE StoreOnce solution that meets your needs, you can choose capacity points that start small and scale-out - just configure for a higher capacity (with StoreOnce VSA), or use upgrade kits with expansion licenses or shelves (3520, 3540, 5100) or simply add more disks (5500/6600) or additional couplets (StoreOnce 6600 only).

Please refer to the latest Concepts and Configuration Guide for more information:
http://h20565.www2.hpe.com/portal/site/hpsc/public/psi/manualsResults/?sp4ts.oid=5196525

NOTE: *To optimize capacity utilization and in accordance with performance requirements, your capacity requirements should be planned following Recommended Configuration Guidelines

Reducing your backup data storage needs
HPE StoreOnce deduplication reduces the disk space required to store backup data sets by typically 20x without impacting backup performance. Retaining more backup data on disk for longer, enables greater backup data accessibility for rapid restore of lost or corrupt files and reduces impact on business productivity while providing cost savings in disk storage, IT resource, physical space, and power requirements.

For example, using HPE StoreOnce deduplication with a fully configured HPE StoreOnce 6600 can provide extended data retention on the same disk footprint for up to 34 PBs of backup data.

Meeting shrinking backup windows
Industry leading performance - protect large amounts of data within short backup windows with native high performance or the enhanced speed of HPE StoreOnce Catalyst.

Consolidate multiple parallel backup streams via standard Ethernet or Fibre Channel network to a single disk-based system offering best in class performance across the portfolio, including backup speeds of up to 184 TB per hour* with the top of the range HPE StoreOnce 6600 and HPE StoreOnce Catalyst.

You can enhance performance by deduplicating anywhere; at the application source or at the backup server or at the target HPE StoreOnce System. Federated Deduplication means you can deduplicate where it makes sense for your business, not where technology vendor limitations mandate. Federated Deduplication is available across all HPE StoreOnce systems, in conjunction with all applications that support StoreOnce Catalyst.
NOTE: *Actual performance is dependent upon configuration data set type, compression levels, number of data streams, number of devices emulated and number of concurrent tasks, such as housekeeping or replication and storage configuration.

Reducing the time to restore data
High speed backup is important, but when system failure strikes being able to restore your data in the shortest time possible is critical to minimizing downtime. That's why Hewlett Packard Enterprise offers industry-leading restore speeds with its StoreOnce product line

Freeing up your IT
Reduce the time spent managing multiple data protection devices and processes and free-up IT resources by consolidating and automating all of your backup to a single HPE StoreOnce

Common Features and Benefits

resources	system.

Designed for the new style of IT, StoreOnce supports the converged infrastructure by using HPE StoreOnce Catalyst to enable the seamless movement of deduplicated data across the enterprise. There's no need to deduplicate and rehydrate at each step, data can be replicated from remote sites to a central data center or disaster recovery site in deduplicated form, reducing network bandwidth and cost. All backup and replication jobs may be seamlessly managed by the backup application at your central data center.

StoreOnce Federated Catalyst allows Catalyst stores to span nodes simplifying backup management and optimizing available storage in large environments yet continuing to provide failover and autonomic restart to ensure your backups do not fail.

For organizations that have branch and small offices, HPE StoreOnce Backup with supported backup software helps you automatically protect the remote sites to reduce the risk of data loss. You can eliminate the need for trained staff and the cost of dedicated hardware if you use StoreOnce VSA at these sites.

Lowering the cost of data protection	With a typical deduplication ratio of 20:1, more backup data can be stored in a smaller footprint meaning less capacity needs to be purchased. What's more, the highly scalable HPE StoreOnce portfolio allows you to pay-as-you grow.

HPE StoreOnce deduplication also enables network efficient offsite data replication. All HPE StoreOnce systems use StoreOnce Federated data deduplication to significantly reduce the amount of data that needs to be replicated, enabling the use of lower bandwidth, lower cost links to transmit data offsite.

StoreOnce enabled replication opens the way to cost-effective centralized backup from remote sites or branch offices, and delivers a consolidated disaster recovery solution for the data center.

Lowering the cost of long term backup data retention	Available to qualifying customers only: Cloud Bank Storage extends the usable capacity of StoreOnce and combines low object storage costs with StoreOnce deduplication in a hybrid cloud solution. This massively reduces the storage costs of long term backup data retention and enables off site data protection without investing in offsite facilities. This is delivered by an extension to StoreOnce Catalyst that leverages public cloud and private object storage. This external object storage is used to provide capacity to the Catalyst Store using Cloud Bank Storage. This integrates seamlessly into existing workflows. Backup data is written to a Catalyst Store and then, within the policy of the writing application, all or some of this backup data is copied to the Catalyst Store using Cloud Bank Storage store for long term retention. This Controlled Release will provide qualifying StoreOnce customers the ability to use Cloud Bank Storage in a production or test environment. For more information and to apply for early access please go to **http://www.hpestorage.me/CloudBankEA**

Reducing the risk to Data at Rest and Data in Flight**	With high-profile reports of data loss, and increasing levels of government legislation for data security, companies are increasingly seeking to encrypt their data. The HPE StoreOnce Security Pack provides for Data at Rest and Data in Flight encryption which prevents unauthorized access to data on disk that has been lost, stolen, or discarded, as well as, data being transmitted between devices. It also offers secure erase functionality. These functions can be configured on an application or store basis and are not restricted to the whole appliance. HPE StoreOnce Security pack is available for all HPE StoreOnce products. Data in flight encryption is intended to be used to secure links between data centers for StoreOnce Replication or Low Bandwidth Catalyst Copy operations. Using Data In Flight Encryption for direct backup operations to the StoreOnce System over a

Common Features and Benefits

local network is not supported due to the performance impact of the encryption.
NOTE: ** Data in Flight encryption via IPSec is supported on StoreOnce Catalyst only. In addition, write performance may be impacted, however performance improvements should be seen after first ingest.

Seamlessly integrating into your environment

The HPE StoreOnce systems offer flexible backup, flexible connectivity and flexible configuration to reduce integration overheads and disruption.

Flexible backup is available with NAS (NFS, CIFS), iSCSI and FC virtual tape libraries (VTL) and StoreOnce Catalyst targets for backup applications. Supported by all leading backup applications, this allows each StoreOnce Backup system to be installed and used without additional investment in software.

Flexible connectivity enables fast, easy integration into Fibre Channel (FC), iSCSI SAN, GbE, 10GbE, Virtualized and other environments without disruption.

The addition of Catalyst Copy over Fibre Channel, expands upon the current Catalyst release to utilize Fibre Channel as a protocol to transmit copies in addition to backup. For customers that may not want to expand their Ethernet capacity or have Fibre Channel only environments that want to utilize, or have utilized Catalyst, and the ability to copy is the final part of their backup solution.

Furthermore, the HPE StoreOnce systems are easily rack-mounted in standard racks, while the performance leading HPE StoreOnce 6600 is pre-integrated into an HPE 42U rack for efficient use of space in the data center.

Delivering reliable backup and restore

In any storage system it is essential to ensure that the integrity of the data stored is maintained so data can be recovered exactly as it was written. There's nothing worse than discovering corrupted backups when you need to restore your data, consequently StoreOnce Systems include HPE StoreOnce Integrity Plus - industry leading patented technology to deliver data integrity throughout the lifecycle. With Integrity Plus you get inbuilt protection which not only checks data at many stages both in the backup process and when recovered, but also continually checks the data when at rest, correcting errors if necessary.
Additionally, HPE StoreOnce systems feature hardware RAID 6* to reduce the risk of data loss due to disk failure.
Our enterprise powerhouse, the HPE StoreOnce 6600, extends this reliability even further with autonomic restart and no single point of failure in the appliance by offering redundancy at every level.
*Exception is entry level StoreOnce 3100 which features RAID 5

Protecting your primary storage directly

HPE StoreOnce Recovery Manager Central facilitates automated, efficient, non-intrusive backup and disaster recovery and provides converged data protection by integrating 3PAR StoreServ primary storage and StoreOnce Backup storage directly without the need for third-party ISVs. With Recovery Manager Central you get the simplicity and performance of snapshot-based protection to generate application-consistent recovery points combined with the reliability and efficiency of deduplicated backups for guaranteed recovery.

Protecting your remote offices

HPE StoreOnce systems are ideal for remote offices - providing a local backup target and an efficient deduplicated local data repository. If you are running a virtual server environment you can use the flexibility and simplicity of the HPE StoreOnce VSA, or choose dedicated appliances such as the StoreOnce 3100 depending on the infrastructure, performance and management requirements of your remote office deployments.

HPE StoreOnce also enables a Federated Deduplication solution for replication of backup to other sites, including the consolidation of backup and DR from multiple remote offices to the data center.
Multiple StoreOnce Systems and virtual machines can replicate to a single central StoreOnce System with for example 384 remote offices replicating to a single HPE StoreOnce 6600 target at

Common Features and Benefits

the data center.

For very small remote offices which don't need a local store for fast recovery StoreOnce Catalyst may be installed on a local server at no cost. This performs deduplication of new or changed data and sends the data over the WAN for disaster recovery.

With HPE StoreOnce Catalyst the movement of data between sites is configured and controlled using your backup application as a single interface for the data protection solution. StoreOnce Catalyst supports a range of flexible configurations that enable the concurrent movement of data from one site to multiple sites, and the ability to cascade data around the enterprise (sometimes referred to as multi-hop).

HPE StoreOnce VSA Backup

HPE StoreOnce VSA

The HPE StoreOnce VSA extends the deployment options for StoreOnce with the agility and flexibility of a virtual appliance, removing the need to install dedicated data protection hardware. This provides a flexible and a cost effective backup target, up to 50 TB, for virtualized server environments as part of a pure software defined data protection solution or in conjunction with StoreOnce purpose-built appliances. For simplicity, licenses are perpetual, all-inclusive and include 3 years HPE support and entitlement to software updates.

Product Editions
Base editions: All installations start with a base product or the freeware product. Base products are available with 4, 10, 20, 32 or 50 TB licenses. See the 'Purchasing Information' section below. The freeware product has a 1 TB license. It is easy to start with a smaller capacity based license and later upgrade to a larger capacity as backup storage requirements increase.

Capacity upgrades: These are added to a base product to increase the licensed capacity. Licenses are available to expand the capacity from the current capacity to the next largest base product. There are no capacity upgrade licenses to increase capacity beyond the next largest base product. e.g. There are capacity upgrade licenses to expand from 4 TB to 10 TB and to expand from 10 TB to 20 TB. There is no capacity upgrade license to expand directly from 4 TB to 20 TB. See the 'Purchasing Information' section below.

Trialware: StoreOnce VSA can be evaluated for up to 60 days without the need to acquire a license. During this trial period all product features are enabled and up to 50 TB capacity can be configured. Self-service support is available during the 60 day trial period. If a license is not added during the 60 day trial period all backup targets on the StoreOnce VSA will become read only at the end of day 60. This means no more backups are possible but data can still be restored. When a license is added to the trialware StoreOnce VSA all configurations and backup data from the trial period are retained. Note that the added license must be of equal or greater capacity than the storage configured during the trial period. See the 'Allocating Storage' section below. For more information and to download the trialware go to
http://www.hpe.com/storage/TryStoreOnceVSA.

Freeware: A 1 TB freeware edition is available for extended evaluation and non-critical deployments. This offers the same features as the larger products but comes without entitlement to HPE support or the ability to buy HPE Support Services. The freeware is activated for three years by a zero cost license. At any time the freeware can be upgraded, to a higher capacity and for entitlement to HPE support, by purchasing and applying a base license. For more information and to download the trialware go to
http://www.hpe.com/storage/FreeBackup.

Product Specifications
Interoperability and Support

License	Freeware 1 TB	4 TB	10 TB	20 TB	32 TB	50 TB
Backup targets supported	Catalyst, VTL, NFS, CIFS over Ethernet Catalyst, VTL over Fibre Channel (VMware only)					
Host support	VMware ESXi, Microsoft Hyper-V, Microsoft Azure For more detailed information see **http://www.hpe.com/storage/DAPRCompatibility**					
Included technical support and access to software updates	Self-service support only	9x5 Next Business Day support services for 3 years from license activation				
Additional support services	None	Available to upgrade and/or extend included technical support				

Base resource requirements for licensed capacity

HPE StoreOnce VSA Backup

This table shows the resources needed to support the configured backup capacity. This table should be used in conjunction with the following table that shows the resources needed to achieve the required backup performance.

License	Freeware 1 TB	4 TB	10 TB	20 TB	32 TB	50 TB
Usable configurable capacity	1 TB	1 to 4 TB	1 to 10 TB	1 to 20 TB	1 to 32 TB	1 to 50 TB
Memory (min)	16 GB	16 GB	24 GB	26 GB	28 GB	32 GB
Replication fan-in/fan-out (per VSA)	8/2	8/2	8/2	8/2	8/2	8/2
Backup targets (recommended max)	4	4	6	6	6	8
Concurrent data streams (max)	16	16	24	24	24	32

Resource requirements for required performance

These tables shows the resources needed to achieve a required backup performance. This should be used in conjunction with the previous table that shows the resources needed to support a given configured capacity.

Catalyst write performance (max)[1]	2 TB/hr	4 TB/hr	6 TB/hr	8 TB/hr	12 TB/hr
Processor (min @ 1.5GHz)	2 vCPU	4 vCPU	6 vCPU	8 vCPU	12 vCPU
Storage IOPs	600	1,200	1,800	2,400	3,600
Dedicated HDDs (7,200 rpm SAS)[2]	4	8	12	16	24

NAS, VT write performance (max)	0.5 TB/hr	1.0 TB/hr	1.5 TB/hr	2.0 TB/hr	3.0 TB/hr
Processor (min @ 1.5GHz)	2 vCPU	4 vCPU	6 vCPU	8 vCPU	12 vCPU
Storage IOPs	150	300	450	600	900
Dedicated HDDs (7,200 rpm SAS)[2]	1	2	3	4	6

1. This is the performance for low bandwidth backup using Catalyst source side deduplication. High bandwidth backup performance using Catalyst target deduplication will give similar performance to VT and NAS backup.

2. Number of spindles net of RAID overhead and spares

Performance and Reliability Considerations

The performance of the StoreOnce VSA is dependent upon the storage, memory, processor and networking resources it accesses from the host. The tables above show the minimum resources to support the required capacity and the additional resources needed to achieve a required backup performance.
It is important to be aware of the characteristics of the physical storage used by the datastore where the virtual disks allocated to the StoreOnce VSA are created. This will impact the performance and reliability of the StoreOnce VSA. The most reliable performance will come from creating virtual disks from a datastore dedicated to the StoreOnce VSA to avoid resource contention from other virtual machines. It is recommended that the datastore is created from dedicated physical resources to avoid potential I/O bottlenecks and latencies that can result from shared resources. The IOPS numbers stated in the table above are maximum numbers. The read/write mix, hypervisor caching and application caching may make the stated performance achievable with lower storage IOPS. Deploying a StoreOnce VSA provisioned with lower than the stated storage IOPS should only be done after validation of performance in a test environment.
To be resilient to hard disk failure it is recommended that RAID protection is used for the physical resources providing the datastore capacity. To further reduce risk from physical hard disk failure, the physical storage

HPE StoreOnce VSA Backup

used for StoreOnce VSA backup data storage should not be shared with physical resources that provide storage for the protected data and virtual machines particularly if backup data copy/replication is not used. It is strongly recommended to reserve all memory and CPU allocated to the Storeonce VSA. Overprovisioning memory or CPU can lead to insufficient resources available to deliver the expected performance. The CPU resource usage increases as more data streams are written/read in parallel, as used capacity approaches available capacity and as features such as data encryption and data compression are configured. It is recommended to periodically monitor allocated CPU utilization and allocate additional vCPUs if the CPU resources are approaching saturation. Additional vCPUs should be added in multiples of two.

StoreOnce VSA performance can be seen using hypervisor performance monitoring tools. These vary between VMware and Windows Hyper-V. This can indicate if more resources need to be provisioned for the StoreOnce VSA. Adding resources requires the StoreOnce VSA to be restarted so these upgrades should be done outside backup times.

Allocating Storage

Once the StoreOnce VSA is deployed, it is allocated storage to store the backup data. Storage is allocated by adding virtual disks sized in multiples of 1 TB (1,024 GB). It is recommended that at least one virtual disk is allocated before the first power on. Additional virtual disks can be added later to increase capacity up to the licensed capacity. Note that once a virtual disk is added to the StoreOnce VSA it cannot be removed without destroying the StoreOnce VSA.

When running the trialware or in evaluation mode, up to 50 TB of capacity can be allocated. When a license is added to continue using the StoreOnce VSA beyond the 60 day evaluation period that license (50 TB, 32 TB, 20 TB, 10 TB, 4 TB or 1 TB freeware) must be for a greater or equal capacity than the existing allocated capacity. If it is attempted to add a license key with a lower capacity than the allocated storage the license addition will fail.

VMware Configuration Notes

- Typical Installation will take 20 minutes depending on the installation method used and the environment. Other factors that determine the installation time are the storage used, the host platform and the storage capacity configured.
- It is recommended that the virtual disks used to provide capacity for StoreOnce VSA are in a .vmdk format from a VMFS3 or VMFS5 data store. NFS data stores are supported but careful consideration of the performance implications should be made before deployment. RAW disks are not supported.
- If the VMware host has AMD CPUs some configuration is needed to run the StoreOnce VSA. It is necessary to create a single host cluster with the EVC (Enhanced vMotion Compatibility) mode set to AMD generation 3 or earlier.
- Thick and thin provisioned virtual disks are supported to provision storage for backup data. If thin provisioned virtual disks are selected, care should be taken to ensure that the datastore is backed by sufficient physical storage.
- StoreOnce VSA is supported for use with vMotion and Storage vMotion during backup and recovery operations. It is also supported in environments using High Availability (HA) and Distributed Resource Scheduler (DRS). Support for Fault Tolerance (FT) is limited to the StoreOnce VSA 4 TB model due to VMware limitations.

Hyper-V Configuration Notes

- Unzipping the virtual machine file can take up to 15 minutes. Installation time depends upon how heavily the Hyper-V Server is being used and how much capacity is configured.
- StoreOnce VSA requires NTFS storage. There is no support for NFS data stores or pass-through disks. StoreOnce VSA can run on all processors supported for Windows Server Hyper-V provided the performance and quantity meets the minimum requirements for the capacity of StoreOnce VSA configured.
- Fixed and dynamically expanding virtual hard disks (.VHDX or .VHD) are supported to provision storage for backup data. If dynamically expanding virtual hard disks are selected, care should be taken to ensure that the NTFS Logical Volume is backed by sufficient physical storage.

HPE StoreOnce VSA Backup

- StoreOnce VSA supports use of Hyper-V Live Migration during backup and recovery operations.

Microsoft Azure Configuration Notes

StoreOnce VSA is available as a Virtual Machine Service offering in Microsoft Azure ARM (Azure Resource Manager) model.

Only the freeware, 4 TB, 10 TB, 20 TB and 32 TB products are supported for deployment in Microsoft Azure.

StoreOnce VSA in Azure will be supported on the Azure VM sizes (Compute Model Templates) in the table below.

Compute Model Template	CPUs	RAM (GB)	Max. no of disks (Page Blobs of 1,023 GB)	Max. StoreOnce VSA capacity for the given Compute Model Template
Standard_D11_v2	2	14	4	4 TB
Standard_D12_v2	4	28	8	8 TB
Standard_D4_v2	8	28	16	16 TB
Standard_D5_v2	16	56	32	32 TB

Users can instantiate the StoreOnce VSA via Microsoft Azure Market Place or by selecting the Virtual Machine Offering from Microsoft Azure using the StoreOnce Product Image from Azure Virtual Machine Images along with any one of the above Compute Templates.
StoreOnce VSA on Microsoft Azure only supports Page blobs of 1,023 GB. Standard and Premium storage are supported. Premium storage is recommended.
Storage is allocated to the StoreOnce VSA in Azure by adding individual disks (page blobs) of 1,023 GB.
The same StoreOnce license process is used to acquire the license to use (LTU) for StoreOnce VSA instances running in Azure as is used to acquire the license to StoreOnce VSA running on a local hypervisor.
StoreOnce VSA is licensed using a Bring Your Own License (BYOL) model. The contract for Azure resources is between the user and Microsoft. It is independent of the StoreOnce VSA license.
Azure allows users to change the Compute Model of an existing VM at any given time. Thereby, users can change the StoreOnce VSA compute template to a larger template (e.g. from Standard_D11_v2 to Standard_D4_v2) during the StoreOnce VSA lifetime, to support capacity expansion of an existing StoreOnce VSA.
StoreOnce VSA on Azure does not support Catalyst over Fiber Channel (CoFC) or Virtual Tape over Fiber Channel.
StoreOnce VSA performance on Azure is dependent on multiple parameters including the Azure compute template, page blob/storage account backing disk performance and the network bandwidth to/from Azure for the StoreOnce VSA.
For performance reasons, StoreOnce VSA instances running in Azure are recommended as replication targets, not as backup targets, when using NAS or VTL targets. StoreOnce VSA instances running in Azure are supported for backup and copy targets when using StoreOnce Catalyst targets.
For detailed information, please refer StoreOnce VSA Deployment & Configuration Guide.

Licensing notes

All products ending in AAE (xxxxxAAE) are for eDelivery. These are delivered via an email that contains a link to download the software and the Entitlement Order Number (EON) that is used to

HPE StoreOnce VSA Backup

acquire the license key.

All products ending in A (xxxxxA) are for physical delivery. Delivery takes several days. A paper letter is delivered with a link to download the software and the license key Entitlement Order Number (EON) that is used to acquire the license key. A DVD is also delivered containing the software.

All editions of the StoreOnce VSA are fully functional from installation for 60 days. If no license key is added during this 60 day instant on period all backup targets become read-only. Once a license key is added full functionality is returned.

The StoreOnce VSA has an all-inclusive license - a single license key enables all product functionality.

Licenses are purchased with a perpetual license and three years HPE support entitlement.

A capacity upgrade license can be added only if there is a valid base license installed on the StoreOnce VSA.

For example, a 4 TB to 10 TB capacity upgrade license can be applied only if a 4 TB base license is installed on the StoreOnce VSA.

For example, a 10 TB to 20 TB capacity upgrade license can be applied only if a 10 TB base license is installed on the StoreOnce VSA.

All StoreOnce VSA 3.16 licenses are perpetual licenses with three years included HPE support. At the end of the 3 years, support services are available for purchase to enable continued access to technical support and access to software upgrades.

The usage of a StoreOnce VSA with an existing term-based license can be extended by applying a perpetual license. The new license can be applied at any time within 180 days of the end of the license term to enable continued usage. The StoreOnce VSA with the term-based license must be running StoreOnce 3.13.3 or newer software to be able to have a perpetual license added.

A perpetual capacity upgrade license can be applied to a StoreOnce VSA with an existing term-based license, at any time, to increase the licensed capacity. The StoreOnce VSA with the term-based license must be running StoreOnce 3.13.3 or newer software to be able to have a perpetual capacity upgrade license added. Once the capacity upgrade license is added the StoreOnce VSA will have a perpetual license with 3 years HPE support for the new licensed capacity.

Support Services

The StoreOnce VSA licenses include 9x5 Next Business Day Next Business Day support services for 3 years.

HPE 9x5 Next Business Day Next Business Day support service connects you to HPE during business hours for assistance on resolving issues. This service features need based next business day software call back within two hours.

For more information see the Service Data Sheet here:

https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA4-8876ENW.pdf

Support Services are available to upgrade the included 9x5 Next Business Day Next Business Day support services for greater coverage and a faster response level. For more information see the HPE Proactive Care Services data sheet here: **https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf**

Support Services are available to extend access to Support Services to 4 years or 5 years.

If there is no active support contract there is no entitlement to technical support or product updates. The 1 TB freeware edition and the trialware edition have self-service support only and no entitlement to access HPE technical support.

For more information on HPE Support Services see 'HPE Support Services and Warranty Information' below.

HPE StoreOnce VSA Backup

Related Services

StoreOnce VSA is a user installable product and there are no installation and startup services for the product. There are services for deployment of backup and replication with StoreOnce Catalyst and deployment of StoreOnce replication.

HPE StoreOnce single node Catalyst Startup Service. This service provides implementation and verification of the backup and remote copy features of HPE StoreOnce Catalyst functionality. For more information see the data sheet here: **http://h20195.www2.hpe.com/v2/GetPDF.aspx/4aa4-9988ENW.pdf**

HPE StoreOnce Catalyst Solution Service. This service provides implementation and verification of the backup and remote copy features of HPE StoreOnce Catalyst functionality. For more information see the data sheet here: **http://h20195.www2.hpe.com/v2/GetPDF.aspx/4AA4-4489ENW.pdf**

HP StoreOnce Data Replication Solution Service. This service provides the analysis, design, implementation, and testing services necessary to deploy increased functionality of real-time data replication on your HP StoreOnce systems. For more information see the data sheet here: **http://h20195.www2.hpe.com/v2/GetPDF.aspx/4AA4-3945ENW.pdf**

Purchasing information

Base editions - perpetual licenses to use

Description	E-LTU	LTU
HPE StoreOnce VSA 4 TB	P9L02AAE	P9L02A
HPE StoreOnce VSA 10 TB	P9L03AAE	P9L03A
HPE StoreOnce VSA 20 TB	P9L04AAE	P9L04A
HPE StoreOnce VSA 32 TB	Q0Q47AAE	Q0Q47A
HPE StoreOnce VSA 50 TB	P9L05AAE	P9L05A

Capacity upgrades - perpetual license to use

Description	E-LTU	LTU
HPE StoreOnce VSA 4 TB to 10 TB Capacity Upgrade	P9L06AAE	P9L06A
HPE StoreOnce VSA 10 TB to 20 TB Capacity Upgrade	P9L07AAE	P9L07A
HPE StoreOnce VSA 20 TB to 32 TB Capacity Upgrade	Q0Q48AAE	Q0Q48A
HPE StoreOnce VSA 32 TB to 50 TB Capacity Upgrade	Q0Q49AAE	Q0Q49A

HPE StoreOnce Systems

HPE StoreOnce 3100 System

HPE StoreOnce 3100 delivers entry-level disk-based backup and disaster recovery that's ideal for smaller remote or branch offices and data centers. This 1U Backup system offers 5.5 TB of usable capacity (8 TB RAW) and speeds of up to 6.4 TB/hour* with StoreOnce Catalyst.

Overview Product Specifications

	StoreOnce 3100
Form Factor	1U Rack
Total capacity (raw)	8 TB
Total capacity (usable*)**	5.5 TB
Write performance (max)	1.6 TB/hour
Catalyst performance (max)	6.4 TB/hour
Max fan-in/backup targets	8

See **Detailed Technical Specifications** and **Physical Dimensions** later in this document for more details.

NOTE:
*Actual performance is dependent upon: configuration, data set type, compression levels, number of data streams, number of devices emulated, and number of concurrent tasks such as housekeeping or replication and storage configuration.
***Actual usable capacity for customer data storage is dependent upon drive formatting, log file and meta data size, housekeeping backlog.

Compatibility:
Hewlett Packard Enterprise extensive compatibility testing program assures that your HPE Systems work with leading servers, operating systems, and backup applications, including those not manufactured by Hewlett Packard Enterprise.

Compatibility details on specific servers and the latest hardware compatibility information, can be found **HERE**

Purchasing information:
Also refer to **Software Options**

HPE StoreOnce Systems

Product name	Part-number	Description	Includes
HPE StoreOnce 3100 8 TB System	BB913A	HPE StoreOnce 3100 System with 8 TB of RAW disk storage	- HPE 3100 system (4x 2 TB Hot swap hard drives) - Easy Install Rail Kit - EAC Card - Accessory Kit featuring: - Important Card - Start Here Poster - Ethernet cable(Cat 5e) 3m (x2) Power cable (IEC 320 C13 Connector for Rack PDU)

HPE StoreOnce 3520 System

HPE StoreOnce 3520 delivers scalable backup and restore for small to midsized data centers, and provides an ideal replication target device for up to 24 remote and branch offices. This scalable 2U appliance offers from 7.5 to 15.5 TB* of usable capacity (12-24 TB RAW) using an upgrade license, and provides a solution to shrinking backup windows with speeds of up to 12.7 TB/hour* using HPE StoreOnce Catalyst.

Overview Product Specifications

	StoreOnce 3520
Form Factor	2U Scalable Rack
Total capacity (raw)	Up to 24 TB
Total capacity (usable*)	Up to 15.5 TB
Write performance (max*)	4.6 TB/hour
Catalyst performance (max*)	12.7 TB/hour
Max fan-in/backup targets	24

See **Detailed Technical Specifications** and **Physical Dimensions** later in this document for more details.

NOTE *Actual performance is dependent upon configuration, data set type, compression levels, number of data streams, number of devices emulated and number of concurrent tasks, such as housekeeping or replication and storage configuration.

Scalability:

Start out with the HPE StoreOnce base unit at 2U with 12 TB of RAW capacity (7.5 TB usable*). When you're ready, simply purchase a capacity upgrade license to increase available capacity to a total of 24 TB RAW (15.5 TB usable*).
NOTE: The StoreOnce 3520 comes fully populated with 12x 2 TB disks. However, initial working capacity is 12 TB RAW, a capacity upgrade license is required to activate the additional disk capacity.

Compatibility:

Hewlett Packard Enterprise extensive compatibility testing program ensures that StoreOnce systems work with leading servers, operating systems, and backup applications, including those not manufactured by HPE.
Compatibility details on specific servers and the latest hardware compatibility information, can be found **HERE**

HPE StoreOnce Systems

Configuration notes

- HPE StoreOnce 3520 systems can be connected to the servers they protect via 1 GB Ethernet as well as 10 GbE Ethernet, 8 Gb, or 16 Gb Fibre Channel when the appropriate optional hardware is installed.
- They are supported on all 10 Gb Ethernet network interface cards (NICs) and switches, dependent on product. 1Gb Ethernet network connections are also supported for sites without 10 Gb Ethernet networks (with reduced performance)
- HPE StoreOnce systems are also supported on 100 base-T Ethernet networks, for connection for the Web GUI and CLI access, such as a management network in a Data Centre.
- This product is not supported on networks using slower Ethernet technology

Purchasing information:

Product name	Part-number	Description	Includes
HPE StoreOnce 3520 12 TB System	BB922A	HPE StoreOnce 3520 System with 24 TB of RAW disk storage	• HPE StoreOnce 3520 System (12 x 2 TB disks) • Easy Install Rail Kit • EAC Card • Accessory Kit featuring: - Important Card - Start Here Poster - Ethernet cable(Cat 5e) 3m (x2) - Power cable (IEC 320 C13 Connector for Rack PDU)
HPE StoreOnce 3520 12 TB Capacity Upgrade LTU/E-LTU	BB944A/AAE	StoreOnce 3520 12 TB Capacity Upgrade LTU/E-LTU	• Entitlement certificate

Also refer to **Software Options** to add licenses for:
- HPE StoreOnce Replication
- HPE StoreOnce Catalyst
- HPE StoreOnce Enterprise Manager
- HPE StoreOnce Security Pack

Also refer to Network/Chanel cards:

HPE StoreOnce 10 GbE Network Card

HPE StoreOnce 10 GbE-T Network Card

HPE StoreOnce 8 Gb Fibre Channel Card

HPE StoreOnce 16 Gb Fibre Channel Card

NOTE: A total number of 4 in any combination can be used.

HPE StoreOnce 3540 Systems

HPE StoreOnce Systems

HPE StoreOnce 3540 delivers scalable backup, restore and data retention with seamless integration into midsized data centers, as well as an ideal replication target device for up to 24 remote and branch offices. This scalable 2U appliance offers from 16 to 31.5 TB of usable* capacity (24 to 48 TB RAW), using a simple and cost effective capacity upgrade and provides a solution to shrinking backup windows with speeds of up to 12.7 TB/hour* using HPE StoreOnce Catalyst.

Overview Product Specifications

	StoreOnce 3540
Form Factor	2U Scalable Rack
Total capacity (raw)	Up to 48 TB
Total capacity (usable*)	Up to 31.5 TB
Write performance (max*)	4.6 TB/hour
Catalyst performance (max*)	12.7 TB/hour
Max fan-in/backup targets	24

See **Detailed Technical Specifications** and **Physical Dimensions** later in this document for more details.

NOTE :*Actual performance is dependent upon configuration, data set type, compression levels, number of data streams, number of devices emulated and number of concurrent tasks, such as housekeeping or replication and storage configuration. Actual usable capacity for customer data storage is dependent upon drive formatting, log file and meta data size, housekeeping backlog.

Scalability:

Start out with the HPE StoreOnce base unit at 2U with 24 TB of RAW capacity (15.5 TB usable*). When you're ready, simply purchase a capacity upgrade license to increase available capacity to a total of 48 TB RAW (31.5 TB usable*).

NOTE: The StoreOnce 3540 comes fully populated with 12x 4 TB disks. However, initial working capacity is 24 TB RAW, a capacity upgrade license is required to activate the additional disk capacity.

Compatibility:

Hewlett Packard Enterprise extensive compatibility testing program ensures that StoreOnce systems work with leading servers, operating systems, and backup applications, including those not manufactured by HPE.
 Compatibility details on specific servers and the latest hardware compatibility information, can be found **HERE**

Configuration notes

- HPE StoreOnce 3540 systems can be connected to the servers they protect via 1 Gb Ethernet as well as 10 GbE Ethernet, 8 Gb, or 16 Gb Fibre Channel when the appropriate optional hardware is installed.
- They are supported on all 10 Gb Ethernet network interface cards (NICs) and switches, dependent on product.
  1 Gb Ethernet network connections are also supported for sites without 10 Gb Ethernet networks (with reduced performance)
- HPE StoreOnce Backup systems are also supported on 100 base-T Ethernet networks, for connection for the Web GUI and CLI access, such as a management network in a Data Centre.
- This product is not supported on networks using slower Ethernet technology

Purchasing information:

HPE StoreOnce Systems

Product name	Part-number	Description	Includes

HPE StoreOnce 3540 24 TB System	BB914A	HPE StoreOnce 3540 System with 24 TB of RAW disk storage	• HPE StoreOnce 3540 System (12 x 4 TB disks)
			• Easy Install Rail Kit
			• EAC Card
			• Accessory Kit featuring:
			  - Important Card
			  - Start Here Poster
			  - Ethernet cable(Cat 5e) 3m (x2)
			  - Power cable (IEC 320 C13 Connector for Rack PDU)
			• Entitlement certificate

HPE StoreOnce 3540 24 TB Capacity Upgrade LTU/E-LTU	BB943A/AAE	StoreOnce 3540 24 TB Capacity Upgrade LTU/E-LTU	

Also refer to **Software Options** to add licenses for:
- HPE StoreOnce Replication
- HPE StoreOnce Catalyst
- HPE StoreOnce Enterprise Manager
- HPE StoreOnce Security Pack

Also refer to Network/Channel Cards
- HPE StoreOnce 10 GbE Network Card
- HPE StoreOnce 10 GbE-T Network Card
- HPE StoreOnce 8 Gb Fibre Channel Card
- HPE StoreOnce 16 Gb Fibre Channel Card

NOTE: A total number of 4 in any combination can be used.

HPE StoreOnce 5100 Systems

HPE StoreOnce 5100 delivers cost-effective, scalable disk-based backup with deduplication for longer term on-site data retention and off-site disaster recovery for midrange to enterprise data centers. It also provides an ideal replication target device for up to 24 remote or branch offices. This highly scalable 2U to 12U appliance offers from 36 TB to 216 TB* of usable capacity (48 TB to 288 TB RAW) and combats shrinking backup windows with speeds of up to 26.7 TB/hour* with HPE StoreOnce Catalyst for protection of over 106.8 TB* of data in a 4-hour window

Overview Product Specifications

	StoreOnce 5100
Form Factor	2U Scalable Rack
Total capacity (raw)	Up 288 TB
Total capacity* (usable)	Up to 216 TB
Write performance* (max)	13.8 TB/hour
Catalyst performance* (max)	26.7 TB/hour
Max fan-in/backup targets	24

See **Detailed Technical Specifications** and **Physical Dimensions** later in this document for more details.

NOTE: *Actual performance is dependent upon configuration, data set type, compression levels, number of data streams, number of devices emulated and number of concurrent tasks, such as housekeeping or replication and storage configuration. Actual usable capacity for customer data storage is dependent upon drive formatting, log file and meta data size, housekeeping backlog.

Scalability:

HPE StoreOnce Systems

Start out with the HPE StoreOnce base unit at 2U with 48 TB RAW (36 TB usable) capacity. When you're ready, simply purchase up to 5 additional shelves using the corresponding storage expansion/capacity upgrade kit for up to 288 TB RAW (216 TB) of total usable storage. A fully configured StoreOnce 5100 is 12U.

Compatibility:

Hewlett Packard Enterprise extensive compatibility testing program ensures that StoreOnce systems work with leading servers, operating systems, and backup applications, including those not manufactured by HPE.

Compatibility details on specific servers and the latest hardware compatibility information, can be found **HERE**

Configuration notes

- HPE StoreOnce 5100 systems can be connected to the servers they protect via 1 Gb Ethernet as well as 10 GbE Ethernet, 8 Gb, or 16 Gb Fibre Channel when the appropriate optional hardware is installed.
- They are supported on all 10 Gb Ethernet network interface cards (NICs) and switches, dependent on product. 1 Gb Ethernet network connections are also supported for sites without 10Gb Ethernet networks (with reduced performance)
- HPE StoreOnce Backup systems are also supported on 100 base-T Ethernet networks, for connection for the Web GUI and CLI access, such as a management network in a Data Centre.
- This product is not supported on networks using slower Ethernet technology.

Purchasing information:

Product name	Part-number	Description	Includes
HPE StoreOnce 5100 48 TB System	BB915A	HPE StoreOnce 5100 with 48 TB of RAW disk storage	- HPE 5100 System (includes 12 x 4 TB disks for data storage and 2 x 900 GB SAS disks for OS) - Easy Install Rail Kit - EAC Card - Accessory Kit featuring: - Important Card - Start Here Poster - Ethernet cable(Cat 5e) 3m (x2) - Power cable (IEC 320 C13 Connector for Rack PDU)
HPE StoreOnce 5100 48 TB Capacity Upgrade Kit	BB916A	HPE StoreOnce 5100 48 TB System upgrade kit - a D3650 base enclosure offering additional 48 TB of RAW disk storage	- D3650 storage enclosure with 12 x 4 TB disks, redundant power supplies and fan modules. - Rack-mounting hardware kit 1m mini-SAS cable + 2m mini-SAS cable - Two AC power cords and two PDU interconnect cords - Entitlement certificate - Installation instructions

Also refer to **Software Options** to add licenses for:
- HPE StoreOnce Replication
- HPE StoreOnce Catalyst
- HPE StoreOnce Enterprise Manager
- HPE StoreOnce Security Pack

HPE StoreOnce Systems

Also refer to Network/Channel Cards
- HPE StoreOnce 10 GbE Network Card
- HPE StoreOnce 10 GbE-T Network Card
- HPE StoreOnce 8 Gb Fibre Channel Card
- HPE StoreOnce 16 Gb Fibre Channel Card

NOTE: A total number of 4 in any combination can be used.

HPE StoreOnce 5500 Systems

HPE StoreOnce 5500 offers disk-based backup with deduplication for longer term on-site data retention and off-site disaster recovery with best-in-class scalability and performance, and seamless integration for larger midsize and enterprise data centers. It also provides an ideal replication target device for up to 50 remote or branch offices. This highly scalable 7U to 12U appliance delivers from 36 TB to 864 TB* of usable capacity (60 to 1120 TB RAW), and easily tackles shrinking backup windows with up to 37.7 TB/hour* using HPE StoreOnce Catalyst for protection of 150 TBs* of data in a 4-hour window.

Overview Product Specifications

	StoreOnce 5500
Form Factor	7 to 22U Scalable Rack (plus 1U support shelf- not shown)
Total capacity (raw)	Up 1120 TB
Total capacity (usable***)	Up to 864 TB
Write performance (max)	20.4 TB/hour
Catalyst performance (max)	37.7 TB/hour
Max fan-in/backup targets	50

See **Detailed Technical Specifications** and **Physical Dimensions** later in this document for more details.

*Actual performance is dependent upon configuration, data set type, compression levels, number of data streams, number of devices emulated and number of concurrent tasks, such as housekeeping or replication and storage configuration. Actual usable capacity for customer data storage is dependent upon drive formatting, log file and meta data size, housekeeping backlog.

Scalability

Start out with the 7U HPE StoreOnce base unit with 60 TB RAW (36 TB usable*) capacity. When you're ready, simply purchase up to 5x 44 TB (36 TB usable*) capacity upgrade kits to complete the first two storage enclosures for up to
280 TB RAW (216 TB usable*).

If more storage is needed, simply purchase additional expansion kits containing 60 TB RAW (36 TB usable*) capacity and again add up to 5 additional 44 TB (36 TB usable*) capacity upgrade kits to complete the second set of storage enclosures. A total of 3 additional storage enclosures can be added for a total capacity of up to 1120 TB RAW (864 TB usable*). Note that fully expanded the HP StoreOnce 5500 includes 8 enclosures of disk (2 enclosures in each unit). A fully configured HP StoreOnce 5500 is 22U (or 39.3 TB usable capacity* per U in terms of density).

Compatibility:

HPE StoreOnce 5500 Systems

Hewlett Packard Enterprise extensive compatibility testing program assures that StoreOnce systems work with leading servers, operating systems, and backup applications, including those not manufactured by HPE.

Compatibility details on specific servers and the latest hardware compatibility information, can be found **HERE**

Configuration Notes

- The StoreOnce 5500 can only be installed in racks which provide a distance from the front mounting-rail of the rack to the rear rack-face (the vertical rack surface onto which the rear doors close, the depth of the doors themselves should not be included) of at least 920mm to allow sufficient clearance at the rear for cabling and to allow the hot-swapping of fan modules, PSU modules and I/O modules. Additionally, 35mm of space is required between the front mounting-rail and the nearest point on the inside surface of the front door of the rack to provide sufficient space for the front panels of the system components when the front door is closed.
- HPE StoreOnce 5500 systems can be connected to the servers they protect via a 10 Gb Ethernet, 8Gb or 16Gb Fibre Channel hardware options.
- They are supported on all 10 Gb Ethernet network interface cards (NICs) and switches when configured with the 10Gb Ethernet hardware option. Default 1Gb base-T Ethernet network connections are also supported for sites without 10Gb Ethernet networks (with reduced performance)
- HPE StoreOnce Backup systems are also supported on 100 base-T Ethernet networks, for connection for the Web GUI and CLI access, such as a management network in a Data Centre.
- This product is not supported on networks using slower Ethernet technology.
- If a second disk enclosure is to be installed, Hewlett Packard Enterprise recommends installing the second disk enclosure below the head server unit. If the second disk enclosure is installed above the head server unit, a 1U support shelf supplied with the disk enclosure, should be installed immediately above the head server unit to protect it from the weight of the disk enclosure.
- **NOTE:** The StoreOnce 5500 systems can support up to four of any combination of the 10GbE SFP+, 8Gb FC and 16Gb FC connectivity hardware options

Purchasing information:

Product name	Part-number	Description	Includes
HPE StoreOnce 5500 System	BB917D	HPE StoreOnce 5500 Backup with 60 TB of RAW disk storage	- HPE 5500 Backup (15 x 4 TB disks) - Ethernet cable(Cat 5e) 3m (x2) 6 x Power cords (with IEC 320 C13 plug for Rack PDU) - SAS cabling included - Installation poster - Documentation is pointed to on the web at HPE.com
HPE StoreOnce 5500 60TB Drawer/Capacity Upgrade Kit	BB933D	HPE 5500 System additional storage enclosure and capacity upgrade kit	1 storage enclosure with 15 x 4 TB discs, redundant power supplied and fan modules. - Rack-mounting hardware kit - SAS cabling included 4 x Power cords (with IEC 320 C13 plug for Rack PDU) - Entitlement certificate - HPE StoreOnce 5500 Capacity Upgrade guide

HPE StoreOnce 5500 Systems

HPE StoreOnce 5500	BB941D	HPE 5500 System 44 TB
44 TB Capacity		Capacity Upgrade Kit
Upgrade Kit		

- 11 x 4 TB disks and entitlement certificate
- HPE StoreOnce 5500 Capacity Upgrade guide

Also refer to **Software Options** to add licenses for:
- HPE StoreOnce Replication
- HPE StoreOnce Catalyst
- HPE StoreOnce Enterprise Manager
- HPE StoreOnce Security Pack

HP StoreOnce 6600 Backup

HPE StoreOnce 6600 System

HPE StoreOnce 6600 is the disk-based backup and deduplication powerhouse of the enterprise data center, providing industry-leading scalability and performance for cost effective, longer term on site data retention and off site disaster recovery. The highest performance HPE StoreOnce system, this immense scale-out solution offers cost-effective scalability from 72 TB to 1728 TB of usable* capacity (120 to 2240 TB RAW), and blisteringly high aggregate speeds of up to 184 TB/hr* with StoreOnce Catalyst to match enterprise performance requirements and meet ever shrinking backup windows.

Overview Product Specifications

	StoreOnce 6600
Form Factor	Provided in a 42U rack
Total capacity (raw)	Up to 2240 TB
Total capacity (usable*)	Up to 1728 TB
Write performance (max)	151 TB/hour
Catalyst performance (max)	184 TB/hour
Max fan-in/backup targets	384

See **Performance Specifications**, **Detailed Technical Specifications** and **Physical Dimensions** later in this document.

NOTE *Actual performance is dependent upon configuration, data set type, compression levels, number of data streams, number of devices emulated and number of concurrent tasks, such as housekeeping or replication and storage configuration. Actual usable capacity for customer data storage is dependent upon drive formatting, log file and meta data size, housekeeping backlog.

Special feature: Highly Resilient
HPE StoreOnce 6600 is designed with no single point of hardware failure. The hardware of the HPE StoreOnce 6600's couplet is resilient to any one component failing. This means the following high availability features:

- Autonomic Restart and node failover
- The front-end controllers (nodes) within a couplet are configured in failover mode so that if one controller fails all critical non-replaceable aspects of that controller are transparently moved to another controller and the failed controller is disabled.

- RAID storage, with RAID6 as the minimum redundancy level (so each RAID set can survive a double disk failure)
- Dual storage controllers (RAID and JBOD), with cache mirroring between the RAID controllers (so that if a controller fails the data is preserved and is still written to media by the other controller)
- Dual paths to the disk drives
- 8 hot spare drives included within each couplet in the event of a disk failure
- Power failure protection for all caching within the storage
- Dual power supplies, such that the hardware will continue operating at full performance if one power supply is offline.
- Redundant fans, such that the hardware will continue operating at full performance if one fan is offline
- Mirrored system disks in each controller (node) to store the device operating system and software
- Front-end high availability (dual fabric support): each controller will have at least two front-end ports per port type to support the customer's external LAN/SAN fabrics. Thus if any fail there is still full access to every node in the device.
- Hot add additional storage or server nodes without scheduled downtime.

HP StoreOnce 6600 Backup

- A single GUI/CLI interface is presented from any one node in the system, if that controller fails then the GUI will automatically move to a different controller whilst still being presented at the same network address.

Scalability

Upgrading with HPE StoreOnce 6600:

- Start out with the HPE StoreOnce 6600 120 TB system consisting of two nodes connected in failover configuration as a couplet. This is delivered pre-integrated into HPE's 42U racks (P9K38A - 1075mm or P9K40A - 1200mm) which also contain the necessary networking capabilities for future expansion within the entire rack using an HPE StoreOnce 6600 switch assembly.

- To scale-out in terms of capacity, simply add up to 5 capacity upgrade kits to each couplet. Each upgrade kit comprises 22 disks which are added symmetrically. Each upgrade kit contains 22 x 4 TB disks, giving 88 TB RAW capacity (72 TB usable*), allowing up to a maximum of 560 TB RAW capacity (432 TB usable*) associated with the original couplet. Capacity upgrade kits can be added to the couplet while the system is online in order to reduce unnecessary downtime.

  A fully configured couplet with 5 capacity upgrade kits, can be managed as a single file system of up to 560 TB RAW capacity (432 TB usable*), however to optimize performance within a couplet, capacity usage should be balanced across both nodes within a couplet. To scale-out in terms of performance, add in one more HPE StoreOnce 6600 120 TB system and again scale up by adding capacity upgrade kits. This gives you a maximum configuration of two fully configured HPE StoreOnce 6600 120 TB systems of two couplets with a total capacity of 1120 TB RAW capacity (864 TB usable*) in a single rack.

  To scale-out to 2240 TB RAW (1728 TB usable*) purchase the HPE StoreOnce 6600 120 TB Backup 3rd Couplet (contains additional base couplet, switch, cables and pulls in another 42U rack), and populate as before.

- Additionally, customers with existing StoreOnce 6500 appliances can add StoreOnce 6600 couplets to scale-out to the maximum 4 couplet limit.

NOTE *Actual usable capacity for customer data storage is dependent upon drive formatting, log file and meta data size, housekeeping backlog.

Compatibility:

Hewlett Packard Enterprise's extensive compatibility testing program assures that StoreOnce systems work with leading servers, operating systems, and backup applications, including those not manufactured by HPE.

Compatibility details on specific servers and the latest hardware compatibility information, can be found **HERE**

Purchasing information:

HP StoreOnce 6600 Backup

Product name	Part-number	Description	Includes
HPE StoreOnce 6600 120 TB 1st couplet	BB918D	HPE StoreOnce 6600 Backup with 120 TB of RAW disk storage	HPE StoreOnce Couplet consisting of: • 2* HPE 6600 Processing Nodes • 2* HPE 6600 Storage Enclosures (each with 15* 4 TB HDDs) • 2* HPE 10GbE Switches • Installed in a HPE 42U rack (P9K38A - 1075mm as default, P9K40A - 1200mm optional) with all required cabling and PDUs* **NOTE** *Only certified PDUs available for configuration
HPE StoreOnce 6600 88 TB Capacity Upgrade Kit	BB942D	HPE StoreOnce 6600 88 TB upgrade kit, offering additional 88 TB of RAW disk storage	• 22 * 4 TB HDDs • HPE 6600 88 TB Capacity Upgrade License Entitlement Certificate
HPE StoreOnce 6600 120 TB 2nd/4th couplet **NOTE:** for use in existing StoreOnce 6600 systems only	BB919D	HPE StoreOnce 6600 Backup with 120 TB of RAW disk storage	HPE StoreOnce Couplet consisting of: • 2* HPE 6600 Processing Nodes • 2* HPE 6600 Storage Enclosures (each with 15* 4 TB HDDs) • All power and data cabling included* **NOTE:** *Requires existing BB918D StoreOnce 6600
HPE StoreOnce 6600 120 TB 3rd couplet **NOTE:** for use in existing StoreOnce 6600 systems only	BB920D	HPE StoreOnce 6600 Backup with 120 TB of RAW disk storage	HPE StoreOnce Couplet consisting of. • 2* HPE 6600 Processing Nodes • 2* HPE 6600 Storage Enclosure (each with 15* 4 TB HDDs) • 2* HPE 10GbE Switches • Installed in a HPE 42U rack with all required cabling and PDUs* **NOTE** *Only certified PDUs available for configuration

Also refer to **Software Options**

HPE StoreOnce 6600 Detailed Performance Specifications

StoreOnce 6600 maximum RAW capacity TB

	1 couplet	2 couplet	3 couplet	4 couplet
Base storage	120	240	360	480
1 * 88 TB expansion kit	208	416	624	832
2 * 88 TB expansion kit	296	592	888	1184
3 * 88 TB expansion kit	384	768	1152	1536
4 * 88 TB expansion kit	472	944	1416	1888
5 * 88 TB expansion kit	560	1120	1680	2240

NOTE: A maximum of 5 expansion kits can be used per couplet.

StoreOnce 6600 maximum usable* capacity TB

HP StoreOnce 6600 Backup

	1 couplet	2 couplet	3 couplet	4 couplet
Base storage	72	144	216	288
1 * 88 TB expansion kit	144	288	432	576
2 * 88 TB expansion kit	216	432	648	864
3 * 88 TB expansion kit	288	576	864	1152
4 * 88 TB expansion kit	360	720	1080	1440
5 * 88 TB expansion kit	432	864	1296	1728

StoreOnce 6600 with Data Deduplication (usable* capacity using data deduplication at 20:1*)

	1 couplet	2 couplet	3 couplet	4 couplet
Base storage	1440	2880	4320	5760
1 * 88 TB expansion kit	2880	5760	8640	11520
2 * 88 TB expansion kit	4320	8640	12960	17280
3 * 88 TB expansion kit	5760	11520	17280	23040
4 * 88 TB expansion kit	7200	14400	21600	28800
5 * 88 TB expansion kit	8640	17280	25920	34560

NOTE: *Actual results of data deduplication will vary with data type, change rates over time and backup methodologies used.
A maximum of 5 expansion kits can be used per couplet.

StoreOnce 6600 Performance*(maximum aggregated data transfer rate using VTL)

	1 couplet	2 couplet	3 couplet	4 couplet
Write Performance	37.8 TB/hr	75.6 TB/hr	113.4 TB/hr	151.2 TB/hr
Read Performance	32.2TB/hr	64.4TB/hr	96.6TB/hr	128.8TB/hr

StoreOnce 6600 with StoreOnce Catalyst Performance*(maximum aggregated data transfer rate using Catalyst)

	1 couplet	2 couplet	3 couplet	4 couplet
Write Performance	46 TB/hr	92 TB/hr	138 TB/hr	184 TB/hr

NOTE: *Actual performance is dependent upon configuration, data set type, compression levels, number of data streams, number of devices emulated and number of concurrent tasks, such as housekeeping or replication. Actual usable capacity for customer data storage is dependent upon drive formatting, log file and meta data size, housekeeping backlog.

Configuration Notes

Sizing the StoreOnce 6600:

- The HPE Storage Sizer tool must be used to correctly size a deduplication and replication enabled system
- To optimize capacity utilization and in accordance with performance requirements, your capacity requirements should be planned following Recommended Configuration Guidelines. Please refer to the latest Concepts and Configuration Guide for more information:
  http://h20565.www2.hpe.com/portal/site/hpsc/public/psi/manualsResults/?sp4ts.oid=5196525

Rack-configuring the StoreOnce 6600:

- The StoreOnce 6600 is mandatory factory integrated and shipped in a 42U rack. Either 1075mm (P9K38A) or 1200mm (P9K40A)
  - It can be re-racked, subject to a number of constraints.
  - Splitting the switch, server and\or storage of a 6600, between racks is not supported.

HP StoreOnce 6600 Backup

- A minimum contiguous space of 18U is required to house a couplet and its associated switches.
- If a customer does choose to re-rack, then future storage and\or couplet expansion must be taken into account and additional contiguous rack space allowed.
- Full details of the re-racking constraints and process are available - please ask your sales representative or partner for details.
- To configure the StoreOnce 6600 use the steps below as a guide, but to place actual orders use Watson and CLIC to configure a system.
  - This is especially true for the customers 1st or 3rd 6600 which require mandatory factory express integration of the 6600 couplet and required switch kit into the 42U rack that does not need to be ordered separately, but is automatically added to the order configuration when the associated BB918D or BB920D SKU's are ordered.
  - When wishing to expand an existing system, the customers 2nd or 4th 6600 couplet (BB919D) is not factory integrated and can be ordered without the #OD1 option, as the 1st and 3rd 6600 couplets are already housed in the 42U racks and have been factory integrated with switch kits
- It is NOT possible to order BB919D or BB920D without first ordering BB918D. It is NOT possible to order BB918D without the factory integrated rack (P9K38A)
- Option #0D1 must be added to products listed for essential factory integration, i.e. BB918D HPE StoreOnce 6600 120 TB 1st couplet and BB920D HPE StoreOnce 6600 120 TB 3rd couplet

Factory Integrated Cluster:

	Couplet 1 HPE StoreOnce 6600 120 TB 1st Couplet BB918D	Couplet 2 HPE StoreOnce 6600 120 TB 2nd/4th couplet BB919D	Couplet 3 HPE StoreOnce 6600 120 TB 3rd Couplet BB920D	Couplet 4 HPE StoreOnce 6600 120 TB 2nd/4th couplet BB919D
Rack (P9K38A - 1075mm)	Automatically added to Config when BB918D ordered		Automatically added to Config when BB920D ordered	
Add capacity	BB942D	BB942D	BB942D	BB942D
Add capacity	BB942D	BB942D	BB942D	BB942D
Add capacity	BB942D	BB942D	BB942D	BB942D
Add capacity	BB942D	BB942D	BB942D	BB942D
Add capacity	BB942D	BB942D	BB942D	BB942D
HPE 6000 StoreOnce Replication License	Qty 1 - EJ026A\AAE	Qty 1 - EJ026A\AAE	Qty 1 - EJ026A\AAE	Qty 1 - EJ026A\AAE
HPE 6000 StoreOnce Encryption License	Qty 1 - BB894A\AAE	Qty 1 - BB894A\AAE	Qty 1 - BB894A\AAE	Qty 1 - BB894A\AAE
HPE 6000 StoreOnce Catalyst License	Qty 1 - BB895A\AAE	Qty 1 - BB895A\AAE	Qty 1 - BB895A\AAE	Qty 1 - BB895A\AAE

NOTE: When ordering BB919D as an individual SKU, no rack or internal network is provided. BB919D is designed to be added to either BB918D or BB920D.

Factory Integrated Cluster - Additional Form Factors

HP StoreOnce 6600 Backup

	Couplet 1	Couplet 2	Couplet 3	Couplet 4
	HPE StoreOnce 6600 120 TB 1st Couplet BB918D		HPE StoreOnce 6600 120 TB BB920D	
Couplet	16U	14U	16U	14U
Add capacity	N/A	N/A	N/A	N/A
Add capacity	N/A	N/A	N/A	N/A
Add capacity	N/A	N/A	N/A	N/A
Add capacity	N/A	N/A	N/A	N/A
Add capacity	N/A	N/A	N/A	N/A

NOTE: Capacity additions are housed within the existing Couplet footprint thus require no additional rack space

HPE G2 1075mm Shock Intelligent Series Rack (P0K38A)	42U	42U

Software and Software Options

HPE StoreOnce Catalyst

HPE StoreOnce Catalyst supports the Hewlett Packard Enterprise converged infrastructure strategy and realizes the vision of seamless movement of deduplicated data across the enterprise. This is enabled by the single, integrated enterprise-wide deduplication algorithm. This means that you can benefit from:

- Simplified management of data movement from a single pane of glass: tighter integration with your backup application to centrally manage file replication across the enterprise.
- Seamless control across complex environments: supporting a range of flexible configurations that enable the concurrent movement of data from one site to multiple sites, and the ability to cascade data around the enterprise (sometimes referred to as multi-hop).
- Enhance performance: distributed deduplication processing using StoreOnce Catalyst stores on the StoreOnce systems and on multiple servers can optimize loading and utilization of backup hardware, network links and backup servers for faster deduplication and backup performance.
- Faster time to backup to meet shrinking backup windows: up to 184 TB/hour* aggregate throughput.

Note that Catalyst over Fibre Channel provides all the ISV control and source side deduplication benefits of current StoreOnce Catalyst but via your Fibre Channel fabric, meaning that you don't have to invest in additional infrastructure

In addition, Catalyst copy over Fibre Channel expands the current Catalyst capabilities to utilize Fibre Channel as a protocol to transmit copies in addition to backup. This is especially useful for customers that may not want to expand their Ethernet capacity or have Fibre Channel only environments that want to utilize, or have utilized Catalyst, and the ability to copy completes their backup solution.

Cloud Bank Storage - early access for qualifying customers
Cloud Bank Storage is an extension to StoreOnce Catalyst that combines the low cost of object storage with the storage efficiency of StoreOnce deduplication. It connects to external object storage to provide capacity for the Cloud Bank Storage store. The primary use case is to backup to a Catalyst Store and copy the backup data to a Cloud Bank Storage store for low cost long term retention.

Initially, the supported object storage will be Amazon S3, Microsoft Azure Blob and Scality S3. Other object storage providers will be supported when this feature is generally available. Cloud Bank Storage is available for all the current generation StoreOnce products covered in this QuickSpec. It is not available for previous StoreOnce models.
For an overview of Cloud Bank Storage watch the video here **https://youtu.be/6Vr6lJz8v3I**. For more detailed information and to apply to use Cloud Bank Storage go to:
http://www.hpestorage.me/CloudBankEA

Federated Catalyst
Federated Catalyst is now available for the StoreOnce multi-node products (HPE StoreOnce 6500, 6600) allowing Catalyst stores to span nodes, simplifying backup management and optimizing available storage in large environments while continuing to provide high resiliency and optimized performance.

NOTE *Actual performance is dependent upon configuration data set type, compression levels, number of data streams, number of devices emulated and number of concurrent tasks, such as housekeeping or replication and storage configuration.

Software and Software Options

HPE StoreOnce Catalyst Ordering Information

HPE StoreOnce Catalyst is available by electronic license for customers of any of the latest StoreOnce systems with a wide range of backup applications via:
https://myenterpriselicense.hpe.com/cwp-ui/auth/login

Model / license for	StoreOnce LTU/E-LTU	Part number
HPE StoreOnce 6000	StoreOnce LTU/E-LTU	BB895A/AAE
HPE StoreOnce 4900/5500	StoreOnce LTU/E-LTU	BB906A/AAE
HPE StoreOnce 4500/5100	StoreOnce LTU/E-LTU	BB888A/AAE
HPE StoreOnce 2000/3000	StoreOnce LTU/E-LTU	BB887A/AAE

NOTE: HPE StoreOnce VSA license already includes StoreOnce Catalyst. No additional license required.

Configuration notes

- A StoreOnce Catalyst license is required for each appliance that will host Catalyst Stores. The license enables backup and copy to Catalyst Stores on the appliance.
- The license is locked to the appliance and cannot be transferred to another appliance.
- There is no need to purchase a replication license when using StoreOnce Catalyst Copy. However, if VTL or NAS replication is configured on the same appliance, a replication license will be required for each target appliance.
- Every StoreOnce system (and 6600 couplet) that uses StoreOnce Catalyst requires a license
- StoreOnce Catalyst also provides seamless control of data movement across the organization and better utilization of servers, network bandwidth.
- StoreOnce Catalyst is supported by:
    - HPE Data Protector (for supported versions see
    - **http://www.hpe.com/storage/buracompatibility**
    - BridgeHead Software (for supported versions see
    - **http://www.hpe.com/storage/buracompatibility**
    - Veritas NetBackup (via an HPE OST plug-in) available
    - www.hpe.com/storage/StoreOnce/VERITAS
    - Veritas Backup Exec (via an HPE OST plug-in available
    - **http://www.hpe.com/storage/StoreOnce/VERITAS**
    - Oracle RMAN (via an HPE plug-in) available from
    - **http://www.hpe.com/storage/StoreOnce/OracleRMAN**
    - Microsoft SQL Server (via HPE plug-in) available from
    - **http://www.hpe.com/storage/storeOnce/SQLServer**
    - SAP HANA (via HPE plug-in) available from
        http://www.hpe.com/storage/StoreOnce/SAP

HPE StoreOnce Replication

Hewlett Packard Enterprise data replication feature includes replication bandwidth limiting functionality, constraining the amount of bandwidth being used when replicating data for even more network-efficient replication. Without replication bandwidth limiting, a replication job could use as much bandwidth as is available, potentially making other network activities unresponsive. Replication bandwidth limiting is customer configurable at the appliance level via the graphical user interface and is set as a percentage of the available network bandwidth.

Software and Software Options

Ordering Information

Hewlett Packard Enterprise delivers replication by license, either as a standalone replication solution, or as part of the **HPE StoreOnce Catalyst licensing**. With HPE StoreOnce systems, replication is licensed by VTL/NAS target, this means that with one replication license:

Model / license for	Max number of targets supported	Replication License/E-LTU	Part number
HPE StoreOnce 6000	384	Replication LTU/E-LTU	EJ026A/AAE
HPE StoreOnce 4900/5500	50	Replication LTU/E-LTU	BB905A/AAE
HPE StoreOnce 4500/5100	24	Replication LTU/E-LTU	BB885A/AAE
HPE StoreOnce 2000/3000	8	Replication LTU/E-LTU	BB884A/AAE

NOTE: HPE StoreOnce VSA license already includes replication. No additional license required.

- Replication licenses enable an appliance to host replication target libraries. (No license is required for appliances which only act as a replication source)
- Licensing is "per appliance" i.e. a single license is required to enable an appliance to host as many replication target libraries as it is capable of.
- The license is locked to the appliance and cannot be transferred to another appliance.
- For the 6600 a separate license is required per couplet (EJ026A or EJ026AAE)
- No license is required for StoreOnce VSA to act as a replication target

HPE Reporting Central and StoreOnce Enterprise Manager

Monitor multiple HPE StoreOnce appliances through a single interface with HPE StoreOnce Reporting Central, a default feature shipped with all HPE StoreOnce Systems within the StoreOnce GUI. Reporting Central provides a rolled up status of up to 20 registered StoreOnce appliances in a single pane of glass and allows drill-down reporting into areas of interest such as deduplication ratio, capacity usage for StoreOnce Catalyst stores, VTL libraries, NAS shares, read/write throughput, replication throughput, stream count, CPU, memory, disk I/O and networking FC channel utilization, threshold alerts, customize history data retention and email notification. Reports for a desired time frame can be exported to a CSV or PNG format file.

For larger installations HPE StoreOnce Enterprise Manager (SEM) is a centralized management console to analyze up to 400 physical and virtual StoreOnce devices across multiple sites. It provides advanced monitoring, reporting, and forecasting and trend analysis in NAS, VTL, and StoreOnce Catalyst environments and integrates with the StoreOnce GUI for single pane-of-glass management - for both physical appliances and the StoreOnce VSA.

Specifically, SEM provides granular reporting and trends analysis of vital parameters such as disk capacity utilization, deduplication ratios, and performance and helps customers plan ahead by providing forecasts of disk usage and replication duration. SEM can be installed on a separate Windows server management station and contains a full database of statistics that is pulled periodically from each device and allows reporting over a long period. In addition to reporting capacity, performance and device status the tool allows logical groupings of devices with different polices and then allows these virtual groups to be managed independently. Through SEM the user is able to drill down to individual StoreOnce appliances and launch their GUI's to manage them in more depth. All reports and graphs can be exported in CSV or PNG formats for further analysis. Users can also schedule e-mail reports for alerts and notifications, such as when pre-set capacity thresholds are crossed. SEM is supported on 64 bit machines only. StoreOnce Enterprise Manager software is available as a free download from **http://www.hp.com/go/StoreOnce/SEM**

In order to benefit from StoreOnce Enterprise Manager, StoreOnce systems require the latest firmware, which can be obtained via a free firmware upgrade by following the "Support & Drivers" link on **http://www.hpe.com/storage/storeonce** or by following the "HPE Support & Drivers" link

Software and Software Options

HPE StoreOnce REST API SDK

The StoreOnce REST API SDK provides a well-defined RESTful application programming interface (API) that customers can use for integrating and automating reporting/management capabilities with StoreOnce appliances. The SDK essentially delivers a programming interface for polling StoreOnce systems with reporting queries at a desired granularity, and the information extracted from the appliances can then be integrated with the customer's own reporting tool allowing for considerable flexibility in monitoring large StoreOnce environments. The SDK also allows customers to automate select management tasks such as creating and deleting backup targets (StoreOnce Catalyst stores, VTL libraries, NAS shares) and this capability can be integrated with the customer's own management tools. The StoreOnce SDK can be downloaded at **http://h20564.www2.hpe.com/hpsc/doc/public/display?docId=c04608993**

HPE StoreOnce Security Package

The HPE StoreOnce Security Package delivers a Data at Rest and Data in Flight encryption solution and secure Data Shredding features for data privacy, confidentiality, and integrity of your critical business data while supporting compliance requirements. These are configurable on a by application or by store basis ensuring that you have maximum control over the data you are protecting.

- HPE StoreOnce Data at Rest encryption feature is a software-based solution which provides protection against unauthorized access to data through a stolen, discarded or replaced disk.
- Encryption occurs after data has been deduplicated and prior to writing the data onto disk
- Encryption is enabled on a per store basis (StoreOnce Catalyst, VTL, and NAS targets)
- Meets compliance needs using industry standard Advanced Encryption Standard (AES)-256 encryption algorithm
- Standard FIPS 140-2 level 1 capable
- It enables the StoreOnce System to request encryption keys from HPE ESKM version 4.0 or greater using KMIP 1.2 protocol or SafeNet's KeySecure key manager using KMIP protocol for centralized encryption key management.
- Local Key Management is included with one key per store and the ability to backup and restore keys
- HPE StoreOnce Data in Flight encryption feature protects against unauthorized access of data being transferred over the wire between devices.
- Data in Flight encryption via IPSec is supported on StoreOnce Catalyst only. Encryption is enabled via the operating system utilizing IPSec. In addition, write performance may be impacted, however performance improvements should be seen after first ingest.
- Works between client and StoreOnce device or between StoreOnce devices
- HPE StoreOnce Secure Erase feature protects against unauthorized recovery of deleted data by allowing customers to securely and permanently shred confidential data.
- Secure Erase can be carried out on all data backed up to a VTL, NAS or StoreOnce Catalyst Store
- The HPE StoreOnce Secure Erase feature meets industry standards of NIST SP 800-88
- Secure Erase can erase with 1-pass or multiple random overwrites of 3, 5 or 7 passes

Ordering Information

An HPE StoreOnce Security Pack license is required for each appliance .The

Software and Software Options

StoreOnce Security Pack license for the 6X00 is required per couplet. A 90 day trial license is available. Each license includes HPE StoreOnce Data at Rest, Data in Flight Encryption, Centralized Encryption Key Management and Secure Erase.

Model / license for	Security Pack License/E-LTU	Part number
HPE StoreOnce 6000	Security Pack LTU/E-LTU	BB894A/AAE
HPE StoreOnce 4900/5500	Security Pack LTU/E-LTU	BB907A/AAE
HPE StoreOnce 4500/5100	Security Pack LTU/E-LTU	BB892A/AAE
HPE StoreOnce 2000/3000	Security Pack LTU/E-LTU	BB891A/AAE

Cabling and other options

HPE 10GbE Connectivity	**The following cables are recommended for HPE 10GbE SPF connectivity.**	
	NOTE: Optical 10GbE SFPs are included in the StoreOnce 10GbE Network Card kits	
HPE ProCurve 10GbE Connectivity	The following cables are recommended for 10GbE connectivity with HPE ProCurve network switches.	
Direct Attach Copper Cables	HPE X242 10G SFP+ to SFP+ 1m Direct Attach Copper Cable	J9281B
	HPE X242 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	J9283B
	HPE X242 10G SFP+ to SFP+ 7m Direct Attach Copper Cable	J9285B
	HPE X244 10G XFP to SFP+ 1m Direct Attach Copper Cable	J9300A
	HPE 10G X244 XFP to SFP+ 3m Direct Attach Copper Cable	J9301A
	NOTE: Direct Attach Cable (DAC) must be purchased separately for copper environments.	
Fibre Optic Cables	**PremierFlex OM4 FC cables**	
	HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable	QK732A
	HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable	QK733A
	HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable	QK734A
	HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable	QK735A
	HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable	QK736A
	HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable	QK737A
	OM3 FC cables	
	HPE LC to LC Multi-mode OM3 2-Fiber 0.5m 1-Pack Fiber Optic Cable	AJ833A
	HPE LC to LC Multi-mode OM3 2-Fiber 1.0m 1-Pack Fiber Optic Cable	AJ834A
	HPE LC to LC Multi-mode OM3 2-Fiber 2.0m 1-Pack Fiber Optic Cable	AJ835A
	HPE LC to LC Multi-mode OM3 2-Fiber 5.0m 1-Pack Fiber Optic Cable	AJ836A
	HPE LC to LC Multi-mode OM3 2-Fiber 15.0m 1-Pack Fiber Optic Cable	AJ837A
	HPE LC to LC Multi-mode OM3 2-Fiber 30.0m 1-Pack Fiber Optic Cable	AJ838A
	HPE LC to LC Multi-mode OM3 2-Fiber 50.0m 1-Pack Fiber Optic Cable	AJ839A
	NOTE: Fibre transceivers and cables must be purchased separately for Fibre-optic environments. For additional information on 10Gb cable specifications go to: **http://www.Hewlett Packard Enterprise.com/rnd/pdfs/10gig_cabling_technical_brief.pdf**	
Fibre Optic Cables	**The following cables are available for connectivity with other 10GbE switch environments**	
	HPE LC to LC Multi-mode OM3 2-Fiber 0.5m 1-Pack Fiber Optic Cable	AJ833A

Cabling and other options

	HPE LC to LC Multi-mode OM3 2-Fiber 1.0m 1-Pack Fiber Optic Cable	AJ834A
	HPE LC to LC Multi-mode OM3 2-Fiber 5.0m 1-Pack Fiber Optic Cable	AJ836A
	HPE LC to LC Multi-mode OM3 2-Fiber 15.0m 1-Pack Fiber Optic Cable	AJ837A
	HPE LC to LC Multi-mode OM3 2-Fiber 30.0m 1-Pack Fiber Optic Cable	AJ838A
	HPE LC to LC Multi-mode OM3 2-Fiber 50.0m 1-Pack Fiber Optic Cable	AJ839A

NOTE: Fibre transceivers and cables must be purchased separately for fibre-optic environments.

Power Supply

The following power supply is available for StoreOnce 3100 only

HPE 500W Flex Slot Platinum Hot Plug Power Supply Kit	720478-B21

Network/Fibre Channel Cards

The following flexible configuration cards are available for StoreOnce - check notes for details

HPE StoreOnce 10 GbE Network Card	BB926A
HPE StoreOnce 10 GbE-T Network Card	BB927A
HPE StoreOnce 8 Gb Fibre Channel Card	BB928A
HPE StoreOnce 16 Gb Fibre Channel Card	BB929A

NOTE: A total number of four in any combination can be used. These optional hardware cards come with a license that is pre-installed and activated when ordered with the initial product. However, if not ordered at the same time as the base product, these licenses will need to be installed and activated.

NOTE: The cards are supplied with the necessary SFPs, with the exception of the 10GbE- T network card. The 10GbE-T card uses RJ45 connectors.

NOTE: The 10GbE Network Card, 8Gb and 16Gb Fibre Channel Card options are supported on the 3520, 3540, 5100, 5500 and 6600.

The 6600 must have the same optional hardware cards installed in all 4 slots per couplet. All couplets in a cluster must also have the same optional hardware cards installed.

Technical Specifications

	StoreOnce VSA 4 TB, 10 TB, 20 TB, 32 TB, 50 TB	StoreOnce 3100	StoreOnce 3520	StoreOnce 3540	StoreOnce 5100	StoreOnce 5500	StoreOnce 6600
Form Factor	Virtual appliance	1U rack	2U rack	2U rack	2 to 12U scalable rack	7 to 22U scalable rack	Provided in 42U 1075mm rack
Total Capacity (RAW)		8 TB	24 TB	48 TB	288 TB	Up to 1120 TB	Up to 2240 TB
Total Capacity (Usable***)	Up to 50 TB	5.5 TB	15.5 TB	31.5 TB	216 TB	Up to 864 TB	Up to 1728 TB
Data retention with deduplication	Up to 1000 TB	110 TB	282 TB	573 TB	3360 TB	17 PB	34 PB
Fan-in Max	8	8		24		50	384
Write Performance	Up to3.0 TB/hr.	1.6 TB/hr.	4.6 TB/hr.	4.6 TB/hr.	13.8 TB/hr.	20.4 TB/hr.	151.2 TB/hr.
				(max aggregated data transfer rate using VTL)			
Read Performance	Up to 1.8 TB/hr.	1.4 TB/hr.	4.1 TB/hr.	4.1 TB/hr.	14.2 TB/hr.	14.8 TB/hr.	128.8 TB/hr.
				(max aggregated data transfer rate using VTL)			
StoreOnce Catalyst Performance	Up to 12 TB/hr.	6.4 TB/hr.	12.7 TB/hr.	12.7 TB/hr.	26.7 TB/hr.	37.7 TB/hr.	184 TB/hr.
				(max aggregated data transfer rate)			
Targets for backup applications				HPE StoreOnce Catalyst, Virtual Tape Library (VTL) NAS (CIFS and NFS)			
Device Interfaces							
I/O standard	2 x vNICs 8 Gb FC[1]			4 x 1 GbE			
	n/a	None		Up to 4 I/O modules 10GbE SFP, 10GbE Base-T, 8Gb FC, 16Gb FC		Up to 4 I/O modules 10GbE SFP, 8Gb FC, 16Gb FC	4 I/O modules per couplet 10GbE SFP, 8Gb FC, 16Gb FC
Disk drives	n/a			2 TB, SAS 7200rpm, 3.5-inch		4 TB, SAS 7200rpm, 3.5-inch	
Number of Disk Drives	n/a	4	12	12	12 to 72 (max)	15 (min), 280 (max)	30 (min), 140 (max) Per Couplet
	***Actual usable capacity for customer data storage is dependent upon drive formatting, log file and meta data size, housekeeping backlog. [1]: See the **support matrix** StoreOnce VSA pages for more information						
RAID Support	n/a	Hardware RAID 5		Hardware RAID 6			
			StoreOnce Catalyst, Virtual Tape Libraries and NAS backup targets combined				
Max Number of Cartridges Emulated	8192	768	24,576	24,576	32,768	819,200	6,553,600

Power requirements for StoreOnce 5500

Technical Specifications

Appliance	Qty D6020	HDD	208V A	W	VA	BTU/hr	220V A	W	VA	BTU/hr	240V A	W	VA	BTU/hr
5500 Base	1	15	8	1559	1564	5622	7	1558	1564	5619	7	1559	1566	5620
5500 1 Enc Max	1	70	10	2143	2149	7814	10	2142	2150	7811	9	2142	2153	7812
5500 2 Enc Min	2	85	15	3029	3038	11142	14	3028	3040	11138	13	3029	3044	11139
5500 2 Enc Max	2	140	17	3613	3624	13334	16	3612	3626	13330	15	3612	3630	13331
5500 3 Enc Min	3	155	22	4499	4512	16661	21	4498	4516	16658	19	4499	4521	16659
5500 3 Enc Max	3	210	25	5083	5098	18853	23	5082	5102	18850	21	5082	5107	18851
5500 4 Enc Min	4	225	29	5969	5987	22180	27	5968	5991	22177	25	5969	5998	22178
5500 4 Enc Max	4	280	32	6553	6572	24372	30	6552	6577	24369	27	6552	6585	24370

Power requirements for StoreOnce 6600

Appliance	Qty Couplet	HDD	208V A	W	VA	BTU/hr	220V A	W	VA	BTU/hr	240V A	W	VA	BTU/hr
6600 Base	1	30	18	3783	3795	13514	17	3782	3797	13508	16	3782	3802	13510
6600 1 Couplet Max	1	140	24	4951	4966	17898	23	4949	4969	17892	21	4950	4975	17894
6600 2 Couplet Min	2	170	39	8002	8027	28914	37	7999	8031	28901	34	8000	8041	28907
6600 2 Couplet Max	2	280	44	9170	9198	33298	42	9166	9203	33285	38	9168	9215	33290

NOTE: First rack and second rack have the same power ratings.

Physical Dimensions

Please refer to refer to the latest Concepts and Configuration Guide for more information:
http://h20565.www2.hpe.com/portal/site/hpsc/public/psi/manualsResults/?sp4ts.oid=5196525

StoreOnce Backup system:		3100	3520	3540	5100	5500	6600120 TB for 1st couplet
	Form factor	1U		2U		7U	42U
Dimensions	Out of box	1.7 x 17.1 x 29.5 inches (4.32 x 43.46 x 75.0 cm)	3.44 x 17.54 x 28.75 in (8.73 x 44.55 x 73.02 cm)			17.6 x 35.1 x 12.2 in (44.7 x 89.12 x 30.83 cm)	23.54 x 44.30 x 79.00 in (59.78 x 112.52 x 200.66 cm)
	Shipping	10.4 x 38.4 x 24 in (26 x 96 x 60 cm)	10.4 x 38.4 x 24 in (26 x 96 x 60 cm)			24.1 x 43 x 31.9 in (61 x 109 x 81 cm)	35.43 x 50.87 x 85.35 in (90 x 129.20 x 216.80 cm)

Technical Specifications

Weight	Out of box	37 lb. (16.78kg)	66 lb (30kg)	67.1 lb (30.5kg)	68.2 lb (31kg)	249.28 lb (113 kg)	953 lb (433 kg)
	Shipping	70 lb (31.8 kg)	90 lb (41 kg)	92 lb (42 kg)	93 lb (42.5 kg)	297.62 lb (135 kg)	1162 lb (528 kg)

Environmental	Operating temperature	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 20°C/hr (36°F/hr). The upper limit and rate of change may be limited by the type and number of options installed. **NOTE:** System performance during standard operating support may be reduced if operating with a fan fault or above 30°C (86°F).
	Shipping temperature	For 3XXX and 51XX and their storage expansions: Non-operating Temperature (Shipping Temperature) -30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr). Non-operating Humidity (Shipping Humidity) 5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing. For 55XX and 6600 and their storage expansions: Non-operating Temperature (Shipping Temperature) -30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr). **NOTE:** Maximum Rated 20°C/hr (68°F/hr) Non-operating Humidity (Shipping Humidity) 5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
	Operating humidity	Minimum to be the higher (more moisture) of -12°C (10.4°F) dew point or 8% relative humidity. Maximum to be the lower (less moisture) of 24°C (75.2°F) dew point or 90% relative humidity.

StoreOnce Backup Upgrade Kits:		StoreOnce 5100 48 TB Upgrade Kit	StoreOnce 5500 44 TB Drawer/Cap Upgrade Kit	StoreOnce 5500 60 TB Drawer/Cap Upgrade Kit	6600 120 TB for 3rd couplet	6600 120 TB for 2nd/4th couplets	6600 88 TB Capacity Upgrade Kit
	Form factor	2U		5U	42U	14U	N/A
Dimensions	Out of box	3.44" x 17.64" x 23.54" in (8.7 x 44.8 x 59.8 cm)	n/a	17.6 x 35.1 x 8.8 in (44.7 x 89.12 x 22.1 cm)	23.54 x 44.30 x 79.00 in (59.78 x 112.52 x 200.66 cm)	17.6 x 35.1 x 24.3 in (44.7 x 89.12 x 61.66 cm)	N/A
	Shipping	11.13 x 38.12 x 23.75 in (27.8 x 95.3 x 59.3 cm)	35.5 x 23 x 9.5 in /90.2 x 54.4 x 24.1 cm	24.1 x 43 x 21.3 in (61 x 109 x 54 cm)	35.43 x 50.87 x 85.35 in (90 x 129.20 x 216.80 cm)	24.1 x 43 x 63.8 in (61 x 109 x 162 cm)	21.5 x 12.5 x 19.3 in (54.5 x 31.5 x 49 cm)
Weight	Out of box	60 lb (27.2 kg)		198.68 lb (90.31 kg)	953 lb (433 kg)	556.87 lb (253.12 kg)	43.56 lb (19.8 kg)
	Shipping	78lbs (35.38kg)		238.78 lb (108.31 kg)	1162 lb (528 kg)	615.35 lb (279.12 kg)	50.16 lb (22.8 kg)

Technical Specifications

HPE Pointnext Support Services and Warranty Information

Protect your business beyond warranty with HPE Support Services
HPE Pointnext Services delivers confidence, reduces risk and helps customers realize agility and stability. Our integrated portfolio of Services for storage help customers reduce costs, optimize data, streamline storage management, and improve backup and recovery. HPE Pointnext Services enable you to choose the right service level, length of coverage and response time as you purchase your new storage solution, giving you full entitlement for the support for need for your IT and business.

Warranty:
Hewlett Packard Enterprise provides a 1 year parts exchange, 1 year labor, 1 year on site, normal business hours, next business day response for StoreOnce 3100, 3520, 3540 and 5100 systems, plus 9x5 phone support for the duration of the warranty.

Hewlett Packard Enterprise provides a 3 year parts exchange, 3 year labor, 3 year on site, normal business hours, next business day response for StoreOnce 5500 and 6600 systems, plus 9x5 phone support for the duration of the warranty

Recommended Support Services StoreOnce 3100, 3520, 3540 and 5100:

Optimized Care	HPE Proactive Care with 6 hour call-to-repair commitment, three year Support Service HPE Proactive Care gives customers an enhanced call experience plus helps prevent problems and maintains IT stability by utilizing tailored, proactive reports with recommendations and advice when your products are connected to HPE. This Service combines three years' proactive reporting and advice with our highest level of hardware support - HPE's 24x7, six hour hardware call-to-repair. HPE is the only leading manufacturer who makes this level of coverage available as a standard service offering for your most valuable storage systems. **https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf**
Standard Care	**HPE Proactive Care with 24x7 coverage, three year Support Service** HPE Proactive Care gives customers an enhanced call experience plus helps preventing problems and maintains IT stability by utilizing personalized proactive reports with recommendations and advice when your products are connected to HPE. This Service combines three years' proactive reporting and advice with our 24x7 coverage, four hour hardware response time when there is a problem. **https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf**
Basic Care	**HPE Foundation Care 24x7, three-year Support Service** HPE Foundation Care 24x7 gives you access to HPE 24 hours a day, seven days a week for assistance on resolving issues. This service includes need based Hardware onsite response within four hours. Simplify your support experience and make HPE your first call to help resolve hardware or software problems. **https://www.hpe.com/h20195/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en**

Recommended Support Services StoreOnce 5500:

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Optimized Care	**HPE Proactive Care Advanced - 24x7 coverage, three year Support Service + 20 service credits for 1st year** This services helps achieve a higher return on your product investment with personalized support from a local assigned Account Support Manager who will share best practice advice and personalized recommendations designed to help improve availability and performance to increase stability and reduce unplanned downtime. Leverage your system's ability to connect to HPE for pre-failure alerts, automatic call logging and parts dispatch. For business critical incidents, this service offers critical event management to reduce mean time to resolution. This recommendation provides 24x7 coverage with four-hour response for hardware and collaborative support that offers two-hour callback for supported software issues. Collaborative software management is included with independent software vendors unless you have your software support from HPE where we own all cases from start through to resolution. **https://www.hpe.com/h20195/V2/GetDocument.aspx?docname=4AA5-3259ENW&cc=us&lc=en**
Standard Care	**HPE Proactive Care with 24x7 coverage, three year Support Service + 20 services credits for 1st year** HPE Proactive Care gives customers an enhanced call experience plus helps preventing problems and maintains IT stability by utilizing personalized proactive reports with recommendations and advice when your products are connected to HPE. This Service combines three years' proactive reporting and advice with our 24x7 coverage, four hour hardware response time when there is a problem. **https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf**
Basic Care	**HPE Proactive Care with 24x7 coverage, three year Support Service + 10 services credits per year** HPE Proactive Care gives customers an enhanced call experience plus helps preventing problems and maintains IT stability by utilizing personalized proactive reports with recommendations and advice when your products are connected to HPE. This Service combines three years' proactive reporting and advice with our 24x7 coverage, four hour hardware response time when there is a problem. **https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf**
HPE Support Service Credits	Service Credits offer flexible services and technical skills to meet your changing IT demands. With a menu of service that is tailored to suit your needs, you get additional resources and specialist skills to help you maintain peak performance of your IT. Offered as annual credits, you can plan your budgets while proactively responding to your dynamic business.

Recommended Support Services StoreOnce 6600:

Technical Specifications

Optimized Care	**HPE Proactive Care Advanced - 24x7 coverage, three year Support Service + 70 service credits for 1st year** This services helps achieve a higher return on your product investment with personalized support from a local assigned Account Support Manager who will share best practice advice and personalized recommendations designed to help improve availability and performance to increase stability and reduce unplanned downtime. Leverage your system's ability to connect to HPE for pre-failure alerts, automatic call logging and parts dispatch. For business critical incidents, this service offers critical event management to reduce mean time to resolution. This recommendation provides 24x7 coverage with four-hour response for hardware and collaborative support that offers two-hour callback for supported software issues. Collaborative software management is included with independent software vendors unless you have your software support from HPE where we own all cases from start through to resolution. **https://www.hpe.com/h20195/V2/GetDocument.aspx?docname=4AA5-3259ENW&cc=us&lc=en**
Standard Care	**HPE Proactive Care with 24x7 coverage, three year Support Service + 80 services credits for 1st year** HPE Proactive Care gives customers an enhanced call experience plus helps preventing problems and maintains IT stability by utilizing personalized proactive reports with recommendations and advice when your products are connected to HPE. This Service combines three years' proactive reporting and advice with our 24x7 coverage, four hour hardware response time when there is a problem. **https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf**
Basic Care	**HPE Proactive Care with 24x7 coverage, three year Support Service + 10 services credits per year** HPE Proactive Care gives customers an enhanced call experience plus helps preventing problems and maintains IT stability by utilizing personalized proactive reports with recommendations and advice when your products are connected to HPE. This Service combines three years' proactive reporting and advice with our 24x7 coverage, four hour hardware response time when there is a problem. **https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf**
HPE Support Service Credits	Service Credits offer flexible services and technical skills to meet your changing IT demands. With a menu of service that is tailored to suit your needs, you get additional resources and specialist skills to help you maintain peak performance of your IT. Offered as annual credits, you can plan your budgets while proactively responding to your dynamic business.

Connect your devices:
Unlock all of the benefits of your technology investment by connecting your products to HPE. Achieve up to 77%[1] reduction in down time, near 100%[2] diagnostic accuracy and a single consolidated view of your environment. By connecting, you will receive 24x7monitoring, 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.

1- IDC

2 - HP CSC reports 2014 - 2015

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NOTE: HPE Proactive Care and HPE Proactive Care Advanced require that the customer connect their devices to make the most of these services and receive all the deliverables.

Discover, plan, and design

Choose from a rich portfolio of services to make the most of HPE StoreOnce Storage, so you can efficiently and affordably consolidate, manage, and extract value from unstructured data.
Start here to understand your data protection options. Next, develop a methodical plan and design the optimal HPE StoreOnce Storage solution that addresses your unique technology requirements.
HPE Backup Recovery Impact Analysis - Focus placed on service requirements and design as the key to success for gaining a clear understanding of the role of increasingly diverse data protection strategies**.**
http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-1175ENW.pdf

Deploy and integrate

Implement HPE StoreOnce Storage correctly-right from the start-so you can count on reduced risk and accelerated deployment, while implementing a best-practice configuration from day one. Then move on to proactively leverage products, tools, and technology to avoid problems and optimize performance. In this way, you get the most out of your HPE StoreOnce Storage investment, as you keep your staff certified through project-based or residency services.

Flexible Installation and Startup SKU's and option bands

HPE StoreOnce 6600 System Installation and Startup service

Part	Description	Up to 4-Couplets, Initial Installation Same Site	Add-On Couplet without #0D1 Same Site	Add-On 2 or 3 Couplets with Expansion Rack Same Site	Capacity Upgrade Same Site
			(Quote qty one for each additional site)		
		Service SKU			
BB918D	HPE StoreOnce 6600 120 TB 1st Couplet	HA124A1#5RZ			
BB919D	HPE StoreOnce 6600 120 TB 2nd/4th Couplet		HA124A1#5S0		
BB920D	HPE StoreOnce 6600 120 TB 3rd Couplet			HA124A1#5S1	
BB942D	HPE StoreOnce 6600 88 TB Capacity Upgrade Kit				HA124A1#5S2

HPE StoreOnce 6600 non-Factory integrated FC and Network card installation Service
This service provides the Installation and Startup of one or more non-Factory integrated (non #0D1) FC and Network cards (BB826A, BB828A BB829A) on the same site - HA124A1#5V1

HPE StoreOnce 6600 Rack Transition Service
This service provides for the re-racking of HPE StoreOnce B6200, 6500 and 6600 products into a rack other

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than originally installed in. Per rack - HA124A1#5UK

HPE StoreOnce 3100, 3520, 3540, 5100 and 5500 System Installation and Startup service

Description		Service SKU (*)
		Additional StoreOnce system on same site
HPE StoreOnce 3100, 3520, 3540, 5100 and 5500 System	HA124A1#55Q	HA124A1#55R
HPE StoreOnce 5500 system (additional for non #0D1)	HA124A1#5V0	
HPE StoreOnce 5500 capacity upgrade (additional for non #0D1)	HA124A1#5V0	
HPE StoreOnce 5100 Capacity upgrade (non #0D1)	HA113A1#5KK	

NOTE (*) Optional for HPE StoreOnce 3100, 3520, 3540, 5100 and 5500

Advanced start-up services

HPE StoreOnce Catalyst and Replication Solution Service
HPE StoreOnce Catalyst Solution and Replication Solution Services. These are for the HPE StoreOnce 6600 and 5500 systems mandatory service included when the appropriate licenses are ordered. They provide a configuration and verification service in the Customer environment to optimize the benefits of deploying Replication and\or Catalyst functionality. These service are optional for the HPE StoreOnce 3100, 3520, 3540 and 5100 and are available in 3 levels.

Description	Service SKU
HPE StoreOnce Catalyst solution service lvl1	HA124A1#58E
HPE StoreOnce Catalyst solution service lvl2	HA115A1#58F
HPE StoreOnce Catalyst solution service lvl3	HA115A1#58G
HPE StoreOnce Replication solution service lvl1	HA124A1#5TY
HPE StoreOnce Replication solution service lvl2	HA115A1#5TZ
HPE StoreOnce Replication solution service lvl3	HA115A1#5UO
NOTE: One service is required for each site when the appropriate licenses are ordered	

Three levels of service to deliver the right level of business continuity that enables you to easily manage disaster recovery while providing data replication across distances with HPE StoreOnce Storage.
http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-3945ENW.pdf

Configuration of the best possible performance for HPE StoreOnce Catalyst software environments with your choice of three levels of service, based on the complexity of the environment and the level of service desired.
Catalyst Solution Service**: http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-4489ENN.pdf**

Installation of StoreOnce VSA and all aspects of the Virtual environment and are a customer responsibility. To configure StoreOnce VSA to act as a replication target or to host Catalyst Stores the appropriate service is required. The HPE StoreOnce Data Replication Solution Service is required if the StoreOnce VSA is to

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act as a replication target. The HPE StoreOnce Catalyst Solution Service is required if the StoreOnce VSA is to host Catalyst Stores and use Catalyst Copies.

HPE StoreOnce single node Catalyst Startup Service for 3100, 3520, 3540, 5100 and 5500

HPE StoreOnce single node Catalyst Startup Service provides implementation and verification of the backup and remote copy features of HP
StoreOnce Catalyst functionality - HA124A1#5T7
NOTE: one service is required for each site when the appropriate licenses are ordered
Catalyst single node startup service: **http://h20195.www2.hpe.com/v2/GetPDF.aspx/4aa4-9988ENW.pdf**

HPE StoreOnce Recovery Manager Central software installation and startup service

The HPE StoreOnce Recovery Manager Central software installation and startup service provides deployment of the HPE
StoreOnce Recovery Manager Central software, with features designed to both help ensure proper installation in the storage environment and increase the benefit from the storage investment.

Description	Service SKU
HPE StoreOnce RMC for 3PAR and StoreVirtual VSA	HA124A1#5WD
HPE StoreOnce RMC-V for 3PAR	HA124A1#5WE
HPE StoreOnce RMC-S for 3PAR	HA124A1#5ZB
HPE StoreOnce RMC-O for 3PAR	HA124A1#5ZG
HPE StoreOnce RMC-SH single node for 3PAR	HA124A1#5F0
HPE StoreOnce RMC-SH multi node for 3PAR	HA124A1#5FN
Consultative RMC Solution Service for HPE RMC SAP HANA on 3PAR Level 1	H5UR7A1
Consultative RMC Solution Service for HPE RMC SAP HANA on 3PAR Level 2	H7RF6A1
Consultative RMC Solution Service for HPE RMC SAP HANA on 3PAR Level 3	H7RF7A1
HPE RMC Solution for SAP HANA on 3PAR Custom SOW Service	H1WV1A1

Provides deployment of HPE StoreOnce RMC software with features designed to help enable proper installation in the customer's storage environment and increase the benefit from the storage investment
http://h20195.www2.hpe.com/v2/GetPDF.aspx/4aa5-6254ENW.pdf

HPE Recovery Manager Central (RMC) Solution for SAP HANA® on HPE 3PAR service is designed to assist in achieving a higher speed and lower cost backup in comparison to traditional backup applications
https://www.hpe.com/h20195/v2/getpdf.aspx/a00016443enw.pdf

HPE StoreOnce System Health Check Service

Proactive review of your HPE StoreOnce Storage solution or other HPE deduplication systems, including a review of operational, capacity, and performance data so you can rest assured that everything is operating effectively.

Description	Support Service SKU	Per Event	Contractual
StoreOnce Backup System Health Check Service	HM006A1	HM006AE	HM006AC

Technical Specifications

Proactive review of your HPE StoreOnce Storage solution or other HPE deduplication systems, including a review of operational, capacity, and performance data so you can rest assured that everything is operating effectively. **http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-3821ENN.pdf**

HPE StoreOnce Firmware Analysis and Implementation Service

HPE Firmware Analysis and Update Implementation Services are technical services that provides the analysis and implementation of firmware updates, taking into account the relevant revision dependencies within the IT environment.

Description	Support Service SKU	Per Event	Contractual
StoreOnce Firmware update analysis service	HM001A1	HM001AE	HM001AC
StoreOnce Firmware update implementation service	HM002A1	HM002AE	HM002AC

Provides the analysis and implementation of firmware updates, taking into account the relevant revision dependencies within the IT environment.
http://h20195.www2.hpe.com/v2/GetPDF.aspx/4AA4-7728ENW.pdf

HPE Storage Data Migration Services - End-to-end data migration service providing seamless discovery, assessment, planning, and design, completely customizable to your organization's storage area network or network attached storage environment and using innovative software to help you migrate to HPE storage quickly and efficiently.
http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA3-0774ENW.pdf

For more information on HPE Services and Support

To learn more on HPE Storage Services, visit: **http://www.hpe.com/services/storage**

Or contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner
Or take a look at the following resources:
- HPE StoreOnce Replication Solution Service Sales Brief
  http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-4540ENW.pdf
- HPE StoreOnce Replication Solution Service data sheet
  http://h20195.www2.hpe.com/v2/GetPDF.aspx/4AA4-3945ENW.pdf
- HPE StoreOnce Catalyst Solution Service Sales Brief
  http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-4480ENW.pdf
- HPE StoreOnce Catalyst Solution Service data sheet
  http://h20195.www2.hpe.com/v2/GetPDF.aspx/4AA4-4489ENW.pdf

Summary of Changes

Date	Version History	Action	Description of Change
25-Sept-2017	From Version 21 to 22	Changed	Changes made throughout the entire document
07-Aug-2017	From Version 20 to 21	Changed	Changes made throughout the entire document
11-Jul-2017	From Version 19 to 20	Changed	Changes made throughout the QuickSpecs
05-Jun-2017	From Version 18 to 19	Changed	Changes made throughout the entire document
13-Feb-2017	From Version 17 to 18	Changed	Changes made throughout the entire document
26-Sept-2016	From Version 16 to 17	Changed	Changes made throughout the entire document
16-Sept-2016	From Version 15 to 16	Changed	Changes made to the VSA Section
27-May-2016	From Version 14 to 15	Changed	Changes made to cover new perpetual StoreOnce VSA LTUs and the added 20 TB LTU. Clean up HP ☞ HPE. Cleaned up units e.g. 20 TB ☞ 20 TB (for consistency).
25-Apr-2016	From Version 13 to 14	Changed	Changes made throughout the entire document
31-Mar-2016	From Version 12 to 13	Changed	Changes made throughout the entire document
17-Dec-2015	From Version 11 to 12	Changed	Fixed some typos from last version.
01-Dec-2015	From Version 10 to 11	Changed	Changes made throughout the entire document
24-Jul-2015	From Version 9 to 10	Changed	Changes made throughout the entire document
19-Jun-2015	From Version 8 to 9	Changed	Changed made to the Storeonce VSA Backup and the Software Options Sections.
8-May-2015	From Version 7 to 8	Changed	Corrected some SKU numbers for the StoreOnce VSA and corrected some URLs
6-Apr-2015	From Version 6 to 7	Changed	Changed the version to 7 to match Product Bulletin.
30-Mar-2015	From Version 5 to 6	Changed	Changes made throughout the entire document
30-Jan-2015	From Version 4 to 5	Changed	Edits made to 4900 support shelf, 6500 what's in the box contents and 'What's new' June '14 date removal
9-Jan-2015	From Version 3 to 4	Changed	Changes to the HPE StoreOnce 6600 purchasing information table
15-Sep-2014	From Version 2 to 3	Changed	Update the firmware version number of the 6500 model.
18-Aug-2014	From Version 1 to 2	Changed	Changes were made throughout the Overview, Technical Specifications, and Software Options Sections. Product Descriptions Updated.

Summary of Changes

Hewlett Packard Enterprise

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