

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? Do you want to use local and cloud-based storage to take advantage of hybrid data protection? Tackle the cost, risk and complexity of data protection with HPE StoreOnce; disk-based, deduplicating, cloud integrated, 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 protects small, remote offices to enterprise data centers with highly scalable dedicated appliances and 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%. With our scale-out architecture you can pay-as-you-grow to retain over a 100 PB (assuming 20:1 deduplication) of protected data on local and cloud storage, managed through a single console.

Reduce the risk with industry-leading backup speeds of up to 184 TB/hr* so you can shrink backup windows and meet 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 including data encryption to secure your data at rest, data in flight** and data in the cloud.

Simplify and enable your hybrid infrastructure, with HPE's single StoreOnce deduplication technology. Managing the movement of backup data has never been easier. The backup-optimized HPE StoreOnce Catalyst interface enables deduplication where you choose; at the data source, on the StoreOnce System and in the cloud.

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

- General availability of Cloud Bank Storage as part of StoreOnce 3.18. Cloud Bank Storage extends StoreOnce Catalyst to external object storage for the lowest cost long-term backup data retention. Cloud Bank Storage immediately cloud enables your current backup applications and processes so you can benefit from a hybrid data protection infrastructure.
- Memory Upgrade Kits to expand the memory to enable maximum Cloud Bank Storage capacity and/or increase system performance and scalability.
- Data immutability option for StoreOnce Catalyst for additional protection against malicious or unintended backup data deletion.

HPE StoreOnce Backup Models

Designed for protection of	Product options	Max usable capacity* (before dedupe) Max performance* with StoreOnce Catalyst
Enterprise data centers	HPE StoreOnce 6600 System	Scale from 72 to 1728 TB usable local capacity* and up to 5184 TB with Cloud Bank Storage. Backup speeds up to 184 TB/hr*
Mid-range to enterprise data centers	HPE StoreOnce 5500 Systems	Scale from 36 to 864 TB usable local capacity* and up to 2592 TB with Cloud Bank Storage. Backup speeds up to 37.7 TB/hr*
	HPE StoreOnce 5100 Systems	Scale from 36 TB to 216 TB usable local capacity* and up to 648 TB with Cloud Bank Storage. Backup speeds up to 26.7 TB/hr*
	HPE StoreOnce 3540 Systems	Scale from 15.5TB to 31.5 TB usable local capacity* and up to 94.5 TB with Cloud Bank Storage usable. Backup speeds up to 12.7 TB/hr*
Small to mid-range data centers and remote offices	HPE StoreOnce 3520 System	Scale from 7.5 to 15.5 TB usable local capacity* and up to 46.5 TB with Cloud Bank Storage. Backup speeds up to 12.7 TB/hr*
	HPE StoreOnce 3100 System	5.5 TB usable local capacity* and up to 16.5 TB with Cloud Bank Storage. Backup speeds up to 6.4 TB/hour*
	HPE StoreOnce VSA	4, 10, 20, 32 or 50 TB usable local capacity* depending on license and up to 150 TB with Cloud Bank Storage

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 <https://sizersllb.itcs.hpe.com/swdsizerweb/>

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>

NOTE: The use of Cloud Bank Storage may require the system to be upgraded with a memory upgrade. This memory upgrade is required if the combined local and Cloud Bank Storage capacity will exceed the maximum possible local storage. For more information please see below.

NOTE: Cloud Bank Storage is supported for use a Catalyst Copy target. The performance of object storage means it is not supported to use Cloud Bank Storage as a backup target.

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 span from an entry level 5.5 TB model to an enterprise class model with 1728 TB that can be expanded to 5184 TB with Cloud Bank Storage. 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. StoreOnce deduplication can be extended across cloud storage to create a hybrid backup infrastructure. StoreOnce Catalyst can be scaled out over your choice of on premise or cloud object storage to increase capacity and reduce the cost of backup data that requires extended retention times.

Please refer to the latest [Concepts and Configuration Guide](#) for more information.

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.

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 resources

Reduce the time spent managing multiple data protection devices and processes and free-up IT resources by consolidating and automating all of your backup data onto HPE StoreOnce systems.

For organizations that have branch and small offices, HPE StoreOnce helps you protect the data at remote sites. You can eliminate the need for dedicated hardware if you use StoreOnce VSA at these sites.

Common Features and Benefits

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

Cloud Bank Storage extends the usable capacity of StoreOnce by combining 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/or private object storage. This external object storage is used to provide capacity to the Catalyst Cloud Bank Store. 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 Cloud Bank Store for long term retention.

Note that Cloud Bank Storage is supported for use a Catalyst Copy target. The performance of object storage means it is not supported to use Cloud Bank Storage as a backup target.

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 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

Flexible backup is available with NAS, (NFS, CIFS (SMB), iSCSI and FC virtual tape libraries (VTL) and StoreOnce Catalyst backup targets. This allows each StoreOnce Backup system to be installed and used with all leading backup applications.

Flexible connectivity enables fast, easy integration into Fibre Channel (4 Gb, 8 Gb, 16 Gb) and Ethernet (1 Gb, 10 GbE, iSCSI) networks. 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.

Common Features and Benefits

Extensive compatibility

- Hewlett Packard Enterprise extensive compatibility testing program assures that your HPE Systems work with leading, operating systems, data protection software and business application. Please consult <http://www.hpe.com/Storage/StoreOnceSupportMatrix> for specific compatibility information.

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.

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.

NOTE: *The Exception is the entry level StoreOnce 3100 which is protected with 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 efficient replication to an offsite location. If you are running a virtual server environment in our remote offices you can use the flexibility and simplicity of the HPE StoreOnce VSA. 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



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>.

HPE StoreOnce VSA Backup

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/StoreOnceSupportMatrix					
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

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)	16.4 GB	16.4 GB	24.4 GB	26.4 GB	28.4 GB	32.4 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
Additional memory	0 GB	0.4 GB	0.8 GB	1.4 GB	2.0 GB
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
Additional memory	0 GB	0.4 GB	0.8 GB	1.4 GB	2.0 GB
Storage IOPs	150	300	450	600	900
Dedicated HDDs (7,200 rpm SAS) ²	1	2	3	4	6

Resource requirements to support Cloud Bank Storage

Each terabyte of Cloud Bank Storage requires 100 MB of incremental RAM allocated to the StoreOnce VSA.

¹This 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.

²Number of spindles net of RAID overhead and spares.

HPE StoreOnce VSA Backup

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 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.

HPE StoreOnce VSA Backup

- 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.
- 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.

HPE StoreOnce VSA Backup

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 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.

HPE StoreOnce VSA Backup

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.

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.hp.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.hp.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.hp.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 local capacity, (8 TB raw) up to 16.5 TB with Cloud Bank Storage 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
Local usable capacity*	5.5 TB
Effective local usable capacity*	110 TB (with 20:1 deduplication)
Maximum Cloud Bank Storage usable capacity*	11 TB
Effective Cloud Bank Storage capacity*	220 TB (with 20:1 deduplication)
Effective total usable capacity*	330 TB (with 20:1 deduplication)
Maximum write performance*	1.6 TB/hour
Maximum Catalyst write performance*	6.4 TB/hour
Maximum fan-in/backup targets	8

NOTE: 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.

Purchasing information

NOTE: Also refer to the Software Options section of this QuickSpecs.

Product name	Part-number	Description	Includes
HPE StoreOnce 3100 8 TB System	BB913A	HPE StoreOnce 3100 System with 5.5 TB of usable local disk storage	<ul style="list-style-type: none"> • HPE 3100 system (4x 2 TB Hot swap hard drives) • Easy Install Rail Kit • EAC Card • Accessory Kit featuring: <ul style="list-style-type: none"> • Important Card • Start Here Poster • Ethernet cable(Cat 5e) 3m (x2) • Power cable (IEC 320 C13 Connector for Rack PDU)

HPE StoreOnce Systems

HPE StoreOnce 3520 System



HPE StoreOnce 3520 delivers scalable backup and restore for small to midsize 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 local capacity (12-24 TB raw) using an upgrade license and up to 31 TB with Cloud Bank Storage, 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
Maximum local usable capacity*	Up to 15.5 TB
Effective local usable capacity*	310 TB (with 20:1 deduplication)
Maximum Cloud Bank Storage usable capacity*	31 TB
Effective Cloud Bank Storage capacity*	620 TB (with 20:1 deduplication)
Effective total usable capacity*	930 TB
Maximum write performance*	4.6 TB/hour
Maximum Catalyst write performance*	12.7 TB/hour
Maximum fan-in/backup targets	24

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

NOTE: *Actual performance depends on multiple factors including configuration, data type, data deduplication, data compression, number of data streams, number backup targets and concurrent tasks such as housekeeping or replication. Actual capacity depends on multiple factors including data deduplication, data compression, storage formatting, log file size, meta data size and housekeeping backlog.

Scalability

Start out with the HPE StoreOnce base unit at 2U with 7.5 TB usable*. When you're ready, simply purchase a capacity upgrade license to increase available local capacity to a total of 15.5 TB usable*. Cloud Bank Storage can extend the maximum Catalyst capacity by 31 TB using external object storage for a total usable capacity of 46.5 TB.

NOTE: The StoreOnce 3520 comes fully populated with 12 x 2 TB disks. However, initial usable capacity is 7.5 TB. A capacity upgrade license is required to activate all the installed disk capacity to give a usable capacity of 15.5 TB.

Configuration notes

- HPE StoreOnce 3520 systems can be connected to the servers they protect via 1 GbE as well as 10 GbE, 8 Gb, or 16 Gb Fibre Channel when the appropriate optional hardware is installed.

HPE StoreOnce Systems

- They are supported on all 10 GbE network interface cards (NICs) and switches, dependent on product. 1GbE network connections are also supported for sites without 10 GbE 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 7.5 TB of usable local disk storage	<ul style="list-style-type: none"> • HPE StoreOnce 3520 System (12 x 2 TB disks) • Easy Install Rail Kit • EAC Card • Accessory Kit featuring: <ul style="list-style-type: none"> - 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 Capacity Upgrade LTU/E-LTU offering an additional 8TB of usable storage	<ul style="list-style-type: none"> • Capacity Upgrade License Entitlement Certificate

NOTE: Also refer to the Software Options section of this QuickSpecs to add licenses for:

- HPE StoreOnce Replication
- HPE StoreOnce Catalyst
- HPE StoreOnce Security Pack
- HPE Cloud Bank Storage

NOTE: Also refer to section detailing Network/Fibre 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 Systems

HPE StoreOnce 3540 Systems



HPE StoreOnce 3540 delivers scalable backup, restore and data retention with seamless integration into midsize 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 local capacity, (24 to 48 TB raw), up to 63 TB of Cloud Bank Storage capacity and using a simple and cost effective capacity upgrade and provides a solution to shrinking backup speeds 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 Maximum local usable capacity* (usable)	Up to 31.5 TB
Effective local usable capacity*	630 TB (with 20:1 deduplication)
Maximum Cloud Bank Storage usable capacity*	63 TB
Effective Cloud Bank Storage capacity*	1260 TB (with 20:1 deduplication)
Effective total usable capacity*	1890 TB (with 20:1 deduplication)
Maximum write performance*	4.6 TB/hour
Maximum Catalyst write performance*	12.7 TB/hour
Maximum fan-in/backup targets	24

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

NOTE: *Actual performance depends on multiple factors including configuration, data type, data deduplication, data compression, number of data streams, number backup targets and concurrent tasks such as housekeeping or replication. Actual capacity depends on multiple factors including data deduplication, data compression, storage formatting, log file size, meta data size and housekeeping backlog.

Scalability

Start out with the 2U base unit with 15.5 TB usable capacity*. When you're ready, purchase a capacity upgrade license to increase usable capacity to 31.5 TB*. Cloud Bank Storage can extend the maximum Catalyst capacity by 31 TB using external object storage for a total usable capacity of 46.5 TB.

NOTE: The StoreOnce 3540 comes fully populated with 12 x 4 TB disks. Initial usable capacity is 16 TB. A capacity upgrade license is required to activate all the installed disk capacity to give a usable capacity of 31.5 TB.

HPE StoreOnce Systems

Configuration notes

- HPE StoreOnce 3540 systems can be connected to the servers they protect via 1 GbE as well as 10 Gb Ethernet, 4 Gb, 8 Gb, or 16 Gb Fibre Channel when the appropriate optional hardware is installed.
- They are supported on all 10 GbE network interface cards (NICs) and switches, dependent on product. 1 GbE network connections are also supported for sites without 10 GbE 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 Center.
- This product is not supported on networks using slower Ethernet technology.

Purchasing information

Product name	Part-number	Description	Includes
HPE StoreOnce 3540 24 TB System	BB914A	HPE StoreOnce 3540 System with 15.5 TB of initial usable disk storage	<ul style="list-style-type: none"> • HPE StoreOnce 3540 System (12 x 4 TB disks) • Easy Install Rail Kit • EAC Card • Accessory Kit featuring: <ul style="list-style-type: none"> - Important Card - Start Here Poster - Ethernet cable(Cat 5e) 3m (x2) - Power cable (IEC 320 C13 Connector for Rack PDU)
HPE StoreOnce 3540 24 TB Capacity Upgrade LTU/E-LTU	BB943A/AE	StoreOnce 3540 Capacity Upgrade LTU/E-LTU offering an additional 16TB of usable storage	<ul style="list-style-type: none"> • Capacity Upgrade License Entitlement Certificate

NOTE: Also refer to the Software Options section of this QuickSpecs to add licenses for:

- [HPE StoreOnce Replication](#)
- [HPE StoreOnce Catalyst](#)
- [HPE StoreOnce Security Pack](#)
- [HPE Cloud Bank Storage](#)

Also refer to [Network/Fibre 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 Systems

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 local capacity, (48 TB to 288 TB RAW) up to 432 of Cloud Bank Storage capacity 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 to 288 TB
Maximum local usable capacity*	Up to 216 TB
Effective local usable capacity*	4320 TB (with 20:1 deduplication)
Maximum Cloud Bank Storage usable capacity*	432 TB
Effective Cloud Bank Storage capacity*	8640 TB (with 20:1 deduplication)
Max total usable capacity*	12.96 PB (with 20:1 deduplication)
Maximum write performance*	13.8 TB/hour
Maximum Catalyst write performance*	26.7 TB/hour
Maximum fan-in/backup targets	24

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

NOTE: *Actual performance depends on multiple factors including configuration, data type, data deduplication, data compression, number of data streams, number backup targets and concurrent tasks such as housekeeping or replication. Actual capacity depends on multiple factors including data deduplication, data compression, storage formatting, log file size, meta data size and housekeeping backlog.

Scalability

Start with the 2U base unit with 36 TB usable capacity. When you're ready, purchase up to 5 additional shelves to expand up to 216 TB of usable storage. A fully configured StoreOnce 5100 is 12U. Cloud Bank Storage can extend the maximum Catalyst capacity by 432 TB using external object storage for a total usable capacity of 648 TB.

Configuration notes

- HPE StoreOnce 5100 systems can be connected to the servers they protect via 1 GbE as well as 10 GbE, 8 Gb, or 16 Gb Fibre Channel when the appropriate optional hardware is installed.
- They are supported on all 10 GbE network interface cards (NICs) and switches, dependent on product. 1 GbE network connections are also supported for sites without 10GbE networks (with reduced performance).

HPE StoreOnce Systems

- 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 36 TB of usable disk storage	<ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> - 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 upgrade kit offering an additional 36 TB of usable storage	<ul style="list-style-type: none"> • 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 • Capacity Upgrade License Entitlement Certificate • Installation instructions

NOTE: Also refer to the Software Options section of this QuickSpecs to add licenses for:

- HPE StoreOnce Replication
- HPE StoreOnce Catalyst
- HPE StoreOnce Security Pack
- HPE Cloud Bank Storage

Also refer to Network/Fibre 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 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 for larger midsize and enterprise data centers. It also provides an ideal replication target for up to 50 remote or branch offices. This highly scalable 7U to 22U appliance delivers from 36 TB to 864 TB of usable local capacity (60 to 1120 TB RAW), up to 1728 TB of Cloud Bank Storage capacity and easily tackles shrinking backup windows with backup speeds up to 37.7 TB/hour* using HPE StoreOnce Catalyst for protection of up to 150 TB* 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 to 1120 TB
Total Maximum local usable capacity* (usable***)	Up to 864 TB
Effective local usable capacity*	17280 TB (with 20:1 deduplication)
Max Cloud Bank Storage usable capacity*	1728 TB
Effective Cloud Bank Storage capacity*	34.56 PB (with 20:1 deduplication)
Maximum total usable capacity*	51.84 PB (with 20:1 deduplication)
Maximum write performance*	20.4 TB/hour
Maximum Catalyst write performance*	37.7 TB/hour
Maximum fan-in/backup targets	50

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

NOTE: *Actual performance depends on multiple factors including configuration, data type, data deduplication, data compression, number of data streams, number backup targets and concurrent tasks such as housekeeping or replication. Actual capacity depends on multiple factors including data deduplication, data compression, storage formatting, log file size, meta data size and housekeeping backlog.

HPE StoreOnce 5500 System

Scalability

Start with the 7U base unit with 36 TB usable* capacity in two disk enclosures. As needed, purchase up to 5 x capacity upgrade kits to fully populate the disk enclosures for up to 216 TB usable* capacity.

If more storage is needed add additional disk enclosures and populate with disks as needed using the capacity upgrade kits for a total capacity of up to 864 TB usable*.

Note that fully expanded the HP StoreOnce 5500 includes 8 disk enclosures. A fully configured StoreOnce 5500 is 22U (39.3 TB usable capacity* per U).

Cloud Bank Storage can extend the maximum Catalyst capacity by 1,728 TB using external object storage for a total usable capacity of 2,592 TB.

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 GbE, 8Gb or 16Gb Fibre Channel hardware options.
- They are supported on all 10 GbE network interface cards (NICs) and switches when configured with the 10GbE hardware option. Default 1Gb base-T Ethernet network connections are also supported for sites without 10GbE 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 36 TB of usable disk storage	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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) • Capacity Upgrade License Entitlement Certificate

HPE StoreOnce 5500 System

HPE StoreOnce 5500 44 TB Capacity Upgrade Kit BB941D

HPE StoreOnce 5500 upgrade kit, offering an additional 36 TB of usable storage

- HPE StoreOnce 5500 Capacity Upgrade guide
- 11 x 4 TB disks and Capacity Upgrade License Entitlement Certificate HPE StoreOnce 5500 Capacity Upgrade guide

NOTE: Also refer to the Software Options section of this QuickSpecs to add licenses for:

- HPE StoreOnce Replication
- HPE StoreOnce Catalyst
- HPE StoreOnce Security Pack
- HPE Cloud Bank Storage

HP StoreOnce 6600 Backup

HPE StoreOnce 6600 System

HPE StoreOnce 6600 is designed for enterprise data centers to provide industry-leading scalability and performance for cost effective, longer term on site data retention and off site disaster recovery. This HPE StoreOnce system can scale out from one couplet to 4 couplets. A couplet is built from two nodes and has built in redundancy so there is no single point of hardware failure. Each couplet can scale up from 72 TB to 432 TB local usable capacity. A four couplet system can deliver backup speeds up to 184 TB/hr* with StoreOnce Catalyst. Each couplet can be expanded with an incremental 864 TB of Cloud Bank Storage.

Overview Product Specifications

	StoreOnce 6600 – single couplet	Fully configured StoreOnce 6600
Form Factor	In a 42U rack	In two 42U racks
Maximum local usable capacity*	Up to 432 TB	Up to 1728 TB (4 x 432 TB)
Effective local usable capacity*	8640 TB (with 20:1 deduplication)	Up to 34.56 PB (with 20:1 deduplication)
Maximum Cloud Bank Storage usable capacity*	864 TB	Up to 3456 TB (4 x 864 TB)
Effective Cloud Bank Storage capacity*	17.28 PB (with 20:1 deduplication)	Up to 69.12 PB (with 20:1 deduplication)
Maximum total usable capacity*	25.92 PB (with 20:1 deduplication)	Up to 103.68 PB (with 20:1 deduplication)
Maximum VTL write performance*	38 TB/hr	Up to 151 TB/hr (4 x 38 TB/hr)
Maximum Catalyst write performance*	46 TB/hr	Up to 184 TB/hr (4 x 46 TB/hr)
Maximum fan-in/backup targets	96	Up to 384 (4 x 96)

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

NOTE: *Actual performance depends on multiple factors including configuration, data type, data deduplication, data compression, number of data streams, number backup targets and concurrent tasks such as housekeeping or replication. Actual capacity depends on multiple factors including data deduplication, data compression, storage formatting, log file size, meta data size and housekeeping backlog.

Special feature: Highly Resilient

Each HPE StoreOnce 6600 couplet is designed with no single point of hardware failure. High availability features include:

- Autonomic Restart and node failover
- The nodes within a couplet are configured in failover mode so that if one controller fails all critical non-replaceable aspects of that node are transparently moved to the other node and the failed controller is disabled.
- RAID6 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 for use in the event of a disk failure.
- Power failure protection for all caching within the storage.
- Dual power supplies for continued operation at full performance if one power supply is offline.
- Redundant fans for continued operation at full performance if one fan is offline.
- Mirrored system disks in each node to store the operating system and software
- Front-end high availability (dual fabric support): Each node will have at least two front-end ports per port type to support the customer's external LAN/SAN fabrics so if one fails there is still full access to all nodes.
- Hot add additional storage or server nodes without scheduled downtime.
- A single GUI/CLI interface is presented from any one node in the system, if that controller fails then the GUI/CLI will automatically move to a different controller whilst still being presented at the same network address.

HP StoreOnce 6600 Backup

Scalability

Upgrading with HPE StoreOnce 6600:

- Start with the HPE StoreOnce 6600 120 TB system consisting of two nodes connected in failover configuration as a couplet, for 72 TB usable capacity. 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-up capacity, simply add up to 5 capacity upgrade kits to each couplet. Each upgrade kit comprises 22 disks which are added symmetrically within the disk enclosure. Each upgrade kit contains 22 x 4 TB disks giving an additional 72 TB usable*, allowing up to 432 TB usable* for the couplet. Capacity upgrade kits can be added to the couplet while the system is online.

A fully configured couplet with 5 capacity upgrade kits, has a usable capacity of 432 TB, however to optimize performance within a couplet, capacity usage should be balanced across both nodes. To scale-out performance, add one more HPE StoreOnce 6600 120 TB system and scale up by adding capacity upgrade kits. The maximum usable capacity of two couplets is 864 TB. This is housed in a in a single rack.

To scale-out capacity to 1728 TB usable* a second rack and two further fully populated couplets are added.

- Cloud Bank Storage can extend the maximum Catalyst capacity. Each couplet can support up to 864 TB of Cloud Bank Storage. For 4 couplet System, with each couplet supporting maximum Cloud Bank capacity this means an incremental capacity of 3456 TB, using external object storage, for a maximum total usable capacity of 5184 TB.
- To use maximum Cloud Bank Storage capacity each couplet must have the memory of its nodes upgraded. A memory upgrade kit (see below) has memory for both nodes in a couplet. Not all couplets have to be have their memory upgraded at the same time.
- Customers with existing StoreOnce 6500 appliances can add StoreOnce 6600 couplets to scale-out to the maximum 4 couplet limit. Note that Cloud Bank Storage is not supported on StoreOnce 6500, even if it is scaled out with StoreOnce 6600 couplets.

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

Purchasing information

Product name	Part-number	Description	Includes
HPE StoreOnce 6600 120 TB 1 st couplet	BB918D	HPE StoreOnce 6600 Backup with 72 TB of usable disk storage	HPE StoreOnce Couplet consisting of: <ul style="list-style-type: none"> • 2 x HPE 6600 Processing Nodes • 2 x HPE 6600 Storage Enclosures (each with 15 x 4 TB HDDs) • 2 x HPE 10GbE Switches • Installed in a HPE 42U rack (P9K38A – 1075mm as default, P9K40A – 1200mm optional) with all required cabling and PDUs*
HPE StoreOnce 6600 88 TB Capacity Upgrade Kit	BB942D	HPE StoreOnce 6600 upgrade kit, offering an additional 72 TB of usable disk storage	<ul style="list-style-type: none"> • 22 x 4 TB HDDs • HPE 6600 88 TB Capacity Upgrade License Capacity Upgrade License Entitlement Certificate
HPE StoreOnce 6600 120 TB 2 nd /4 th couplet NOTE: for use in existing	BB919D	HPE StoreOnce 6600 Backup with 72 TB of usable disk storage	HPE StoreOnce Couplet consisting of: <ul style="list-style-type: none"> • 2 x HPE 6600 Processing Nodes • 2 x HPE 6600 Storage Enclosures

NOTE: *Only certified PDUs available for configuration.

HP StoreOnce 6600 Backup

StoreOnce 6600 systems only.

HPE StoreOnce 6600 BB920D
120 TB 3rd couplet

NOTE: for use in existing StoreOnce 6600 systems only.

HPE StoreOnce 6600 Backup with
72 TB of usable disk storage

(each with 15 x 4 TB HDDs)

- All power and data cabling included*

NOTE: *Requires existing BB918D StoreOnce 6600.

HPE StoreOnce Couplet consisting of.

- 2 x HPE 6600 Processing Nodes
- 2 x HPE 6600 Storage Enclosure (each with 15 x 4 TB HDDs)
- 2 x HPE 10GbE Switches
- Installed in a HPE 42U rack with all required cabling and PDUs*

NOTE: *Only certified PDUs available for configuration.

NOTE: Also refer to the Software Options section of this QuickSpecs.

HPE StoreOnce 6600 Detailed Capacity and Performance Specifications

StoreOnce 6600 maximum usable* capacity TB				
	1 couplet	2 couplet	3 couplet	4 couplet
Base storage	72	144	216	288
1 x 88 TB expansion kit BB942D	144	288	432	576
2 x 88 TB expansion kit BB942D	216	432	648	864
3 x 88 TB expansion kit BB942D	288	576	864	1152
4 x 88 TB expansion kit BB942D	360	720	1080	1440
5 x 88 TB expansion kit BB942D	432	864	1296	1728

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

StoreOnce 6600 Usable Capacity (using data deduplication at 20:1*)				
	1 couplet	2 couplet	3 couplet	4 couplet
Base storage	1440	2880	4320	5760
1 x 88 TB expansion kit BB942D	2880	5760	8640	11520
2 x 88 TB expansion kit BB942D	4320	8640	12960	17280
3 x 88 TB expansion kit BB942D	5760	11520	17280	23040
4 x 88 TB expansion kit BB942D	7200	14400	21600	28800
5 x 88 TB expansion kit BB942D	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 VTL Performance* (maximum aggregated data transfer rate)				
	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

HP StoreOnce 6600 Backup

StoreOnce 6600 Catalyst Performance* (maximum aggregated data transfer rate)				
	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. Available from <https://sizersllb.itcs.hpe.com/swdsizerweb/>
- 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.
 - A minimum contiguous space of 18U is required to house a couplet and its associated switches.
 - 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 #OD1 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

HP StoreOnce 6600 Backup

Factory Integrated Cluster

	Couplet 1	Couplet 2	Couplet 3	Couplet 4
	HPE StoreOnce 6600 120 TB 1st Couplet BB918D	HPE StoreOnce 6600 120 TB 2 nd /4 th couplet BB919D	HPE StoreOnce 6600 120 TB 3 rd Couplet BB920D	HPE StoreOnce 6600 120 TB 2 nd /4 th 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

	Couplet 1	Couplet 2	Couplet 3	Couplet 4
	HPE StoreOnce 6600 120 TB 1 st Couplet BB918D		HPE StoreOnce 6600 120 TB 3 rd Couplet 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 (P9K38A)	42U		42U	

Software Options

HPE StoreOnce Catalyst

HPE StoreOnce Catalyst is a data protection optimized interface unique to HPE StoreOnce Systems. It provides higher performance and more flexible control than traditional emulated tape (VTL) targets or NAS Shares. 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.
- Scale out with external object storage to augment the local System storage with the Cloud Bank extension to Catalyst.
- Faster time to backup to meet shrinking backup windows: up to 184 TB/hour* aggregate throughput.

Catalyst over Fibre Channel (CoFC) provides the same benefits as Catalyst over Ethernet (CoE) via a Fibre Channel fabric. Catalyst copy over Fibre Channel (CCoFC) utilizes Fibre Channel to transmit copies between StoreOnce Systems. CoFC and CCoFC are useful for customers that have invested in Fibre Channel infrastructure and/or do not want to expand their Ethernet capacity.

Cloud Bank Storage

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 Catalyst Cloud Bank store. Using external storage in addition to the local System storage can triple the effective capacity of the StoreOnce System. Through cloud optimized data transfer and storage, Cloud Bank Storage minimizes cloud transfer and storage costs. The primary use case is to backup to a Catalyst Store and copy the backup data to a Cloud Bank store for low cost long term retention.

Many public cloud providers and on premise object storage systems are supported with Cloud Bank Storage. See the [StoreOnce Support Matrix](#) for details.

Cloud Bank Storage is available to extend all the current generation StoreOnce products covered in this QuickSpec. It is not available for previous StoreOnce models.

Cloud Bank Storage is a licensed feature. The licenses are available in 1 TB increments. Licenses are added in any multiple of 1 TB up to the maximum Cloud Bank Storage capacity for that System. See the table below for the maximum supported Cloud Bank Storage capacities for each model. The licensed capacity is the capacity written to the all the Cloud Bank Storage after deduplication and compression.

Cloud Bank Storage Capacities

Cloud Bank Storage can treble the usable capacity of StoreOnce Systems. The Cloud Bank Storage Detach option can further extend this, practically without limits, by enabling capacity to be recycled. System resources, particularly memory, are needed to support Cloud Bank Storage, in the same way that they are needed to support local storage. To use large capacities of Cloud Bank Storage a memory upgrade is required.

Cloud Bank Storage capacity with the Standard System Configuration

The maximum Cloud Bank Storage capacity that can be used is the maximum local storage capacity less the configured capacity as shown in the table below.

Software Options

Cloud Bank Storage capacity with a Memory Upgrade

Memory Upgrade Kits are available and are required to use the full capacity of Cloud Bank Storage. Once the Memory Upgrade is installed, Cloud Bank Storage can be used up to two times the maximum local storage capacity, regardless of the local storage configured, as shown in the table below.

Model	Standard System Configuration		With Memory Upgrade	
	Max local storage	Max Cloud Bank Storage	Max local storage	Max Cloud Bank Storage
StoreOnce 6600	1728 TB	1728 TB less local configured storage	1728 TB	3456 TB
StoreOnce 5500	864 TB	864 TB less local configured storage	864 TB	1728 TB
StoreOnce 5100	216 TB	216 TB less local configured storage	216 TB	432 TB
StoreOnce 3540	31.5 TB	31 TB less local configured storage	31.5 TB	63 TB
StoreOnce 3520	15.5 TB	15 TB less local configured storage	15.5 TB	31 TB
StoreOnce 3100	5.5 TB	5.5 TB less local configured storage	5.5 TB	11 TB
StoreOnce VSA	50 TB	100 TB less local configured storage	n/a	n/a

Cloud Bank Storage Detach Option

Many object storage vendors offer 'cold' tiers of that provide reduced cost. The performance of 'cold' tiers is not sufficient for Cloud Bank Storage operation. For Cloud Bank Storage Stores with backup data that will not need to be changed or updated the Store can be detached to enable it to be moved to a cold 'tier'.

The Cloud Bank Storage Detach option disconnects a Store from the host System and puts it into a read only state. It can then be moved, independently of StoreOnce or the backup application, to a 'cold' tier or other location for long term low cost retention. If the detached Store needs to be read for a restore, or other requirement, it has to be moved back to a supported storage tier and reconnected to a StoreOnce System. This can be the original StoreOnce System or to another StoreOnce.

Cloud Bank Storage Detach is a licensed feature. Licenses are available in 1 TB increments. Licenses are added, to a System with one or more Cloud Bank Storage licenses, in any multiple of 1 TB, with no upper limit. When a Store is detached, licenses equal to the capacity of the detached store are consumed and remain with detached Store. On detach the capacity of the detached store is available for other Cloud Bank stores.

Maximum Values for Cloud Bank Storage Licenses

Up to a total of 50 Cloud Bank Storage and Cloud Bank Storage Detach license keys can be added to a System. The capacity enabled by a license key is specified using the <https://myenterpriselicence.hpe.com/cwp-ui/auth/login>.

The capacity is specified in 1 TB multiples. For the larger Systems, it is recommended to generate license keys with larger multiples of 1 TB to avoid this 50 license key limit becoming a constraint.

Cloud Bank Storage Support Entitlement

Support for Cloud Bank Storage is entitled as part of the HPE Support entitlement for the StoreOnce System the Cloud Bank Storage licenses are installed on. No additional HPE Support Services are available or required.

Federated Catalyst

Federated Catalyst is a feature of 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.

Software Options

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.

HPE StoreOnce Catalyst Ordering Information

HPE StoreOnce Catalyst is a licensed feature for all StoreOnce Systems except the StoreOnce VSA. The license entitlement is available for electronic delivery (part number ends in AAE) or physical delivery (ends in A). The license entitlement is used to acquire the license key at <https://myenterpriselicense.hpe.com/cwp-ui/auth/login>

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

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/StoreOnceSupportMatrix>)
 - BridgeHead Software (for supported versions see <http://www.hpe.com/Storage/StoreOnceSupportMatrix>)
 - Veritas NetBackup (via an HPE OST plug-in) available <http://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 Catalyst Cloud Bank Storage Ordering Information

Cloud Bank Storage is a licensed feature for all StoreOnce Systems. The 1 TB licenses are added up to System in any multiple of 1 TB up to the maximum for that System. The license entitlement is available for electronic delivery (part number ends in AAE) or physical delivery (ends in A). The license entitlement is used to acquire the license key at:

<https://myenterpriselicense.hpe.com/cwp-ui/auth/login>

License	eLTU	LTU	Maximum licenses
HPE StoreOnce Cloud Bank Storage Read/Write for Gen3 Systems 1TB	Q8J92AAE	Q8J92A	Up to 2 x maximum local capacity

Software Options

HPE StoreOnce Cloud Bank Storage Detach for Gen3 Systems 1TB	Q8J93AAE	Q8J93A	Unlimited Prerequisite is Cloud Bank Storage License
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NOTE: For the StoreOnce 6600, Cloud Bank Storage licenses are added to the cluster. These licenses can be consumed by a service set from any couplet in the cluster.

Catalyst Data Immutability

Catalyst Stores can be configured with a data immutability period. During the specified period, the backup application(s) accessing the Store will not be able to delete backups that have been retained for less than this specified period. This provides additional protection against malicious or unintended backup data deletion where the role of backup application administrator and StoreOnce System administrator are filled by different people.

- See the <http://www.hpe.com/Storage/StoreOnceSupportMatrix> for backup software specific support for Catalyst data immutability.

NOTE: Data Immutability cannot be configured for Federated Catalyst Stores.

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.

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:

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

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.

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

<https://support.hpe.com/hpsc/doc/public/display?docId=c05273975>

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
- Data at Rest encryption standard FIPS 140-2 level 1 compliant with StoreOnce code ver. 3.18.2 and later. Current StoreOnce models supported are: HPE StoreOnce 3100, 3520, 3540, 5100, 5500, and 6600.*
- 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

NOTE: *Federal Information Processing Standard 140-2 (FIPS 140-2), defines the technical requirements to be used by Federal Agencies when cryptographic-based security is required for protection of sensitive or valuable data.

Hewlett Packard Enterprise (HPE) StoreOnce version 3.18.2 or later is using cryptographic algorithms and modules that have completed a FIPS 140-2 CAVP/CMVP (Cryptographic Algorithm Validation Program/Cryptographic Module Validation Program) validation. These validated modules are active when the product is configured in FIPS mode thus HPE StoreOnce meets your FIPS 140-2 requirements by:

- Integrating NIST validated cryptographic module(s) into the product to ensure that critical cryptography uses the module(s) to provide cryptographic services;

Software Options

- Using FIPS-validated cryptographic ciphers/functions

For more details of the FIPS Security Policy please go to <https://csrc.nist.gov/CSRC/media/projects/cryptographic-module-validation-program/documents/security-policies/140sp3018.pdf>

Ordering Information

An HPE StoreOnce Security Pack license is required for each appliance. The StoreOnce Security Pack license for the 6X00 is required per couplet. 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 numbers
HPE StoreOnce 6000	BB894A/AAE
HPE StoreOnce 4900/5500	BB907A/AAE
HPE StoreOnce 4500/5100	BB892A/AAE
HPE StoreOnce 2000/3000	BB891A/AAE

Cabling and other options

HPE 10GbE Connectivity	<p>The following cables are recommended for HPE 10GbE SPF connectivity.</p> <p>NOTE: Optical 10GbE SFPs are included in the StoreOnce 10GbE Network Card kits.</p>	
HPE ProCurve 10GbE Connectivity	<p>The following cables are recommended for 10GbE connectivity with HPE ProCurve network switches.</p>	
Direct Attach Copper Cables	<p>HPE X242 10G SFP+ to SFP+ 1m Direct Attach Copper Cable</p> <p>HPE X242 10G SFP+ to SFP+ 3m Direct Attach Copper Cable</p> <p>HPE X242 10G SFP+ to SFP+ 7m Direct Attach Copper Cable</p>	<p>J9281B</p> <p>J9283B</p> <p>J9285B</p>
<p>NOTE: Direct Attach Cable (DAC) must be purchased separately for copper environments.</p>		
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
<p>NOTE: Fibre transceivers and cables must be purchased separately for Fibre-optic environments. For additional information on 10Gb cable specifications go to: http://www.hpe.com/rnd/pdfs/10gig_cabling_technical_brief.pdf</p>		
Fibre Optic Cables	<p>The following cables are available for connectivity with other 10GbE switch environments.</p>	
	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 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
<p>NOTE: Fibre transceivers and cables must be purchased separately for fibre-optic environments.</p>		
Power Supply	<p>The following power supply is available for StoreOnce 3100 only.</p> <p>HPE 500W Flex Slot Platinum Hot Plug Power Supply Kit</p>	
		720478-B21

Technical Specifications

Network/Fibre Channel Cards

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

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

Memory Expansion Kits

The standard memory configuration can be expanded, with the upgrades listed below, to enable:

- Cloud Bank Storage up to 2x the maximum local storage capacity.
- Increased performance and scalability.

Description

Description	Part Number
HPE StoreOnce 6600 Memory Upgrade	BC028A
HPE StoreOnce 5500 Memory Upgrade	BC027A
HPE StoreOnce 5100 Memory Upgrade	BC026A
HPE StoreOnce 31/35XX Memory Upgrade	BC025A

NOTE: The 6600 model requires a mandatory service to install the Memory Upgrade – HA124A1#5RM.

NOTE: For the 5500, 5100, 31/35xx models there is an optional installation service to install the Memory Upgrade – HA124A1#5MV.

NOTE: The existing HPE Pointnext Support Service for the StoreOnce 6600 base system includes support for the replacement memory after the Memory Upgrade is installed.

NOTE: Additional HPE Pointnext Support Services are required for the extra memory added in the StoreOnce 3100, 35xx, 5100 and 5500 base systems. See the 'HPE Pointnext Support Services and Warranty Information' section below.

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
Max Local 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
Max Cloud Bank Storage capacity	100 TB	11 TB	31 TB	63 TB	432 TB	1728 TB	3456 TB
Max Total capacity	150 TB	16.5 TB	46.5 TB	94.5 TB	648 TB	2592 TB	5184 TB
Logical capacity with 20:1 deduplication	3 PB	330 TB	930 TB	1.9 PB	13 PB	52 PB	104 PB
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	24	32	50	384
Write Performance	Up to 3.0 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.
Target types	HPE StoreOnce Catalyst, Virtual Tape Library (VTL) NAS (CIFS and NFS)						
Max targets (Catalyst, VTL NAS combined)	8	8	24	50	50	50 + additional 50 Catalyst stores if memory upgrade installed	96 + additional 104 Catalyst stores per couplet if memory upgrade is installed
Max VTL Cartridges	8192	768	24576	24576	32768	819200	6553600
I/O standard	2 x vNICs 8 Gb FC ¹	4 x 1 GbE					

Technical Specifications

	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
	<p>NOTE: ***Actual usable capacity for customer data storage is dependent upon drive formatting, log file and meta data size, housekeeping backlog.</p> <p>- ¹: See the http://www.hpe.com/Storage/StoreOnceSupportMatrix StoreOnce VSA pages for more information.</p>						
RAID Support	n/a	Hardware RAID 5	Hardware RAID 6				

Technical Specifications

Power requirements for StoreOnce 5500

System	Qty		208V				220V				240V			
	D6020	HD D	A	W	VA	BTU/hr	A	W	VA	BTU/hr	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	5	3029	3038	11142	14	3028	3040	11138	13	3029	3044	11139
5500 2 Enc Max	2	140	7	3613	3624	13334	16	3612	3626	13330	15	3612	3630	13331
5500 3 Enc Min	3	155	2	4499	4512	16661	21	4498	4516	16658	19	4499	4521	16659
5500 3 Enc Max	3	210	5	5083	5098	18853	23	5082	5102	18850	21	5082	5107	18851
5500 4 Enc Min	4	225	9	5969	5987	22180	27	5968	5991	22177	25	5969	5998	22178
5500 4 Enc Max	4	280	2	6553	6572	24372	30	6552	6577	24369	27	6552	6585	24370

Power requirements for StoreOnce 6600

System	Qty		208V				220V				240V			
	Couplet	HDD	A	W	VA	BTU/hr	A	W	VA	BTU/hr	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	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	23.54 x 44.30 x 79.00 in (59.78 x

Technical Specifications

		(4.32 x 43.46 x 75.0 cm)		(44.7 x 89.12 x 30.83 cm)	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)	
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.					
	Shock and vibration	Levels of shock the product can withstand with no damage being incurred. The values represent a peak input acceleration during an 11ms half-sine shock pulse. <ul style="list-style-type: none"> Operating: 2 G's Non-operating: 15 G's Levels of vibration the product can withstand with no damage being incurred. The values represent a flat random vibration input acceleration profile across the given frequency range. <ul style="list-style-type: none"> Operating: Random vibration at 0.000075 G²/Hz, 10Hz to 300Hz, (0.15 G's nominal). Non-operating: Random vibration at 0.0005 G²/Hz, 10Hz to 500Hz, (0.5 G's nominal). NOTE: Levels of shock and vibration are for base units/server only.					

StoreOnce Backup Upgrade Kits:	StoreOnce 5100 48 TB Upgrade Kit	StoreOnce 5500 44 TB	StoreOnce 5500 60 TB	6600 120 TB for 3rd couplet	6600 120 TB for 2nd/4th couplets	6600 88 TB Capacity
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Technical Specifications

				Drawer/Cap Upgrade Kit	Drawer/Cap Upgrade Kit			Upgrade Kit	
				2U		5U	42U	14U	N/A
Dimensions	Form factor			2U		5U	42U	14U	N/A
	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)

Service and Support

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

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

Service and Support

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

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

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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 24x7 monitoring, pre-failure alerts, automatic call logging, and automatic parts dispatch. HPE Proactive Care Service and HPE Datacenter Care Service customers will also benefit from proactive activities to help prevent issues and increase optimization. All of these benefits are already available to you with your server storage and networking products, securely connected to HPE support.

1- IDC

2- HP CSC reports 2014 - 2015

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	Service SKU	Capacity Upgrade
		Up to 4-Couplets, Initial Installation	Capacity Upgrade
		Same Site	Same Site
		Same Site	Same Site
		Same Site	Same Site
		(Quote qty one for each additional site)	
BB918D	HPE StoreOnce 6600 120 TB 1 st Couplet	HA124A1#5RZ	
BB919D	HPE StoreOnce 6600 120 TB 2 nd /4 th Couplet	HA124A1#5S0	
BB920D	HPE StoreOnce 6600 120 TB 3rd Couplet		
			HA124A1#5S1

Service and Support

BB942D	HPE StoreOnce 6600 88 TB Capacity Upgrade Kit				HA124A1#5S2
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HPE Cloud Bank Storage Multi Node Memory Expansion (DIMM Replacement) Service

This is a mandatory service for users expanding the memory in their StoreOnce 6600 Systems. It provides the installation of the non-factory integrated (non #OD1) HPE StoreOnce 6600 Memory Upgrade (BC028A) – HA124A1#5RM.

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 #OD1) 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 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 #OD1)	HA124A1#5V0	
HPE StoreOnce 5500 capacity upgrade (additional for non #OD1)	HA124A1#5V0	
HPE StoreOnce 5100 Capacity upgrade (non #OD1)	HA113A1#5KK	

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

HPE Cloud Bank Storage Single Node Memory Expansion (DIMM Addition) Service

This is an optional service for users expanding the memory in their 3100, 3520, 3540, 5100 and 5500 Systems. It provides the installation of the non-factory integrated (non #OD1) HPE StoreOnce 5500 (BC027A), 5100 (BC026A) and 31/35XX (BC025A) Memory Upgrades – HA124A1#5MV.

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

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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 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#5FO
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>

Service and Support

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.

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

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.

	Support	Per Event	Contractual
Description	Service SKU		
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](#)
- [HPE StoreOnce Replication Solution Service data sheet](#)
- [HPE StoreOnce Catalyst Solution Service Sales Brief](#)
- [HPE StoreOnce Catalyst Solution Service data sheet](#)

Summary of Changes

Date	Version History	Action	Description of Change
07-May-2018	Version 28	Changed	Entitlement Certificate was updated to Capacity Upgrade License Entitlement Certificate. Software options section was revised.
02-Apr-2018	Version 27	Changed	Technical Specifications was revised SKU descriptions were updated.
		Removed	Obsolete SKUs were removed.
05-Mar-2018	Version 26	Changed	The http://www.hpe.com/Storage/DAPRCompatibility URL was updated to: http://www.hpe.com/Storage/StoreOnceSupportMatrix .
05-Feb-2018	Version 25	Changed	Overview section was revised.
08-Jan-2018	Version 24	Changed	Changes made throughout the QuickSpecs.
04-Dec-2017	Version 23	Changed	Changes made throughout the entire document.
25-Sep-2017	Version 22	Changed	Changes made throughout the entire document.
07-Aug-2017	Version 21	Changed	Changes made throughout the entire document.
11-Jul-2017	Version 20	Changed	Changes made throughout the QuickSpecs.
05-Jun-2017	Version 19	Changed	Changes made throughout the entire document.
13-Feb-2017	Version 18	Changed	Changes made throughout the entire document.
26-Sep-2016	Version 17	Changed	Changes made throughout the entire document.
16-Sep-2016	Version 16	Changed	Changes made to the VSA Section.
27-May-2016	Version 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	Version 14	Changed	Changes made throughout the entire document.
31-Mar-2016	Version 13	Changed	Changes made throughout the entire document.
17-Dec-2015	Version 12	Changed	Fixed some typos from last version.
01-Dec-2015	Version 11	Changed	Changes made throughout the entire document.
24-Jul-2015	Version 10	Changed	Changes made throughout the entire document.
19-Jun-2015	Version 9	Changed	Changed made to the StoreOnce VSA Backup and the Software Options Sections.
08-May-2015	Version 8	Changed	Corrected some SKU numbers for the StoreOnce VSA and corrected some URLs.
06-Apr-2015	Version 7	Changed	Changed the version to 7 to match Product Bulletin.
30-Mar-2015	Version 6	Changed	Changes made throughout the entire document.
30-Jan-2015	Version 5	Changed	Edits made to 4900 support shelf, 6500 what's in the box contents and 'What's new' June '14 date removal.
09-Jan-2015	Version 4	Changed	Changes to the HPE StoreOnce 6600 purchasing information table.
15-Sep-2014	Version 3	Changed	Update the firmware version number of the 6500 model.
18-Aug-2014	Version 2	Changed	Changes were made throughout the Overview, Technical Specifications, and Software Options Sections. Product Descriptions Updated.
10-Jun-2014	Version 1	New	New QuickSpecs

Summary of Changes



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