Overview

The HP StorageWorks 2TB Tiered Storage Archive Solution is part of the File System Extender (FSE) family of file archive solutions. The family includes three main products:
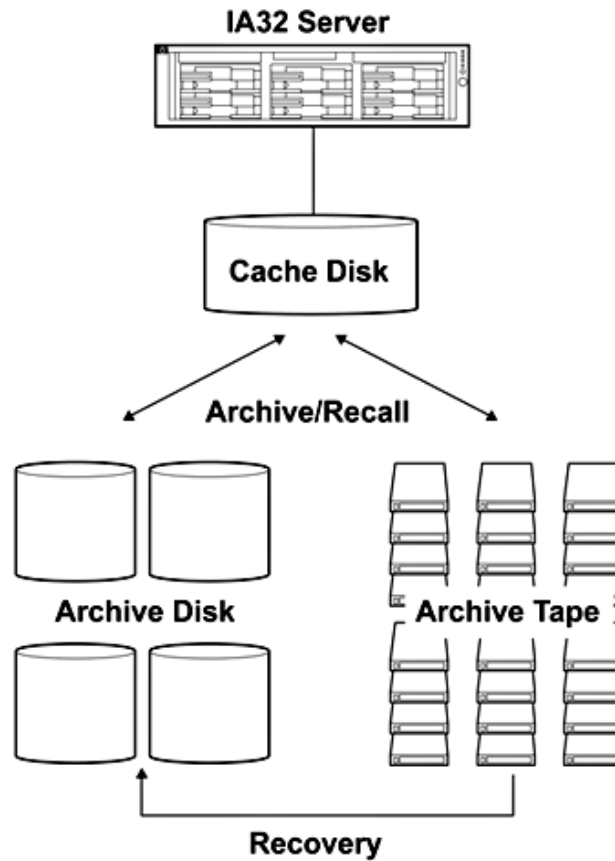
- FSE Software standalone, a-la-carte version, which is file archiving software designed for offloading old content from product applications into a variety of disk and tape storage. FSE software has been qualified to run seamlessly in flexible environment of LTO tape library, Disk arrays and Windows and Linux environments.
- Low cost server bundled with FSE software, called HP Tiered Storage Server which is a combination of Proliant server and FSE software, designed to address the archive needs of up to 20TB archive capacity. The Tiered Storage Server is especially beneficial for customers that want to leverage their existing tape or disk storage for archiving purpose.
- Tape and disk hardware bundled with FSE, called HP 2-20TB Tiered Storage Archive Solution, designed for addressing the archive needs of up to 20TB capacity. It comes as factory assembled with Proliant Storage Server DL380 G5, MSA1500 disk array and MSL4048 tape library with the FSE software in the box.

These offerings are provided in an integrated solution addressing current customer demands for flexible archiving solutions that meet the demands of corporate policies and industry regulations for consolidated data capture, storage, retrieval and retention. The bundle architectures combine existing and proven technology components in an easy to use, easy to order, cost-effective archiving solution. The FSE family of archive solutions provides a unique tiered storage archiving set of solutions unparalleled in the industry and is designed to lower customer Total Cost of Ownership by migrating historical data and information from production applications to low cost, SATA based disk storage and tape libraries capable of WORM technology. The HP StorageWorks 2TB Tiered Storage Archive Solution and its complimentary family of solutions addresses current customer archiving requirements including easy access, read/write performance, and data retention needs. The FSE family of solutions provides a cost-effective, flexible and extensible archive solutions eclipsing current monolithic disk archive architectures, and provides disaster secured tape archiving solutions, including WORM, while providing best in class performance, scalability, reliability, and affordability; attributes ideally suited for managing historical yet persistent data.

The NAS interface provides a standard file system solution, allowing seamless integration with customer environments and offers a range of application sources including email, imaging, content management and ERP, while providing the performance and flexibility consistent with typical challenging customer archive requirements.
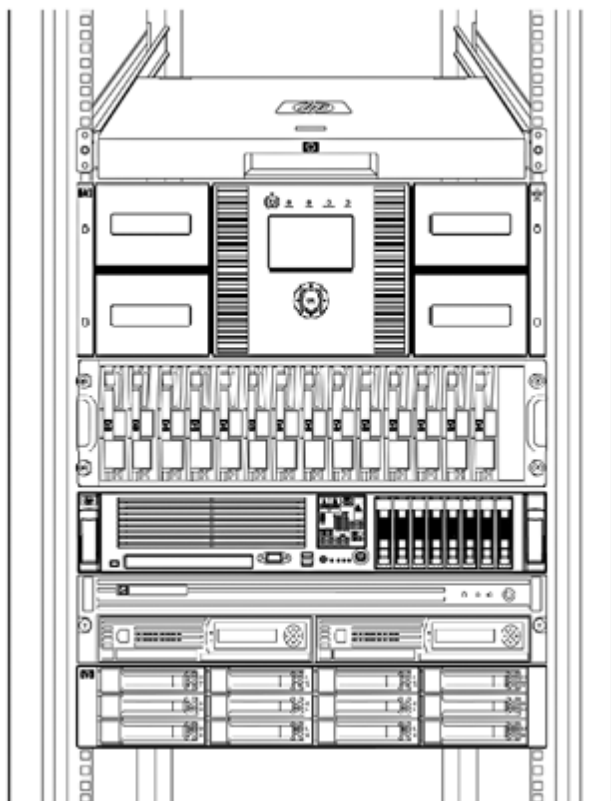
CIFS, FTP Network

All archived data is initially cached on Cache Disk for rapid access and immediately committed to the archive layer for long-term retention. The combination of online access and large capacity MSA1500 with the LTO WORM tape library provides a level of media longevity and record authenticity that cannot be matched by a monolithic disk archive, positioning the Archive Solution as an optimal replacement for Magneto-Optical and UDO Jukeboxes.

The FSE software and hardware bundle offering consists of a 2TB base capacity, which is split across an MSA1500 disk archive (SATA Based) and an MSL 4048 tape archive (LTO3 WORM based), and can easily scale to 20TB total capacity. The FSE ala-carte offering remains as it currently exists.

Overview

Scalable in design and in capacity

The FSE 2TB software and hardware bundle is assembled at the factory with high fidelity components, each pre-selected and tested to obtain maximum performance. The 2TB capacity equally is allocated across MSA1500 storage and MSL4048 WORM capable tape library components. This solution will easily scale to a maximum of 20TB in MSA1500 disk and 19.2TB in MSL4048 library

The HP Tiered Storage Server provides a bundle of FSE software with the Proliant DL380 G5 server and includes the FSE buffer disk. This configuration provides low cost, scalable options for customers who want to leverage their existing tape or disk array environments. Please consult the HP QuickSpecs for currently supported FSE disk and tape library components compatible with the HP Tiered Storage Server

A flexible FSE A-la-carte version is also available for customers that have more than 20TB and want to leverage their tape library and/or disk library, or Windows 2003 Server component. Flexibility and reuse are fundamental attributes of the FSE family of solutions.

Overview

A bundled solution built on high performance, compliant and cost effective infrastructure

Consistent with current FSE offerings, this family of solutions simply appear as an external drive to existing customer applications with following value-added services:

- High performance read/write capability for frequently accessed files targeting the staging or cache disk components.
- High performance read/write capacity for less frequently accessed files are moved into the extended archive consisting of low-cost capacity disk (MSA1500) and an WORM capable and disaster secured MSL4048 tape library.

File recall from the MSA1500 is provided at the speed of the Cache disk.
In the unlikely event that the MSA1500 is unavailable, all archived data can be recovered from the MSL4048 tape library.

- Delivering compliant record authenticity thru a WORM LTO capability for storing highly sensitive files.

Industry open interface. CIFS interface

Applications that write thru an CIFS interface can directly write to the archive. Additional APIs are not needed. Example: Opentext

Low Total Cost of Ownership

Dramatically less expensive than competitive solutions

- Combination of online and removable storage device in the same archive.

NOTE: Centera and NetApps are disk only archive

- Built-in backup at no additional charge

Additional features

- Library partitioning for those tape libraries that provide the partitioning capability
- Secondary copy of the archived file is created automatically and stored on tape library for enhanced disaster recovery purpose
- Antivirus software
- Built-In redundancy, thru RAID1 and RAID5.
- WORM partition in Cache disk

Lowers TCO

- Reduces primary storage growth and associated costs of migrating historical, less frequently accessed data
- Frees up file server & application server capacity by removing historical content
- Leverages advantages of tiered storage, lower cost capacity for managing massive amounts of data consistent with business needs

Improves IT Service Levels

- Shortens backup and recovery windows, accelerates application migration
- Improves application performance
- Reinforces data protection strategy and disaster recovery

Supports compliance initiatives

- Support tamper-proof media via LTO3 WORM
- Facilitates audit/legal requests while maintaining operational efficiency
- Provides ability to produce information as part of a discovery process in a timely manner

Models

HP StorageWorks 2TB Tiered Storage Archive Solution	Base unit of 2TB archive capacity, consisting of following components	
	Archive capacity	2TB base unit. Scaleable to 20TB. (20TB in MSA1500 and in 19.2TB in MSL4048)
	Archive software	FSE 3.4 software
	Server	ProLiant DL 380 G5, WSS R2
	Interface	CIFS Interface to connect to Windows environments
	Buffer Disk	SAS, RAID 0
	Cache Disk	1.8TB in MSA30 Disk, RAID1, Hot Spare
	Archive Disk	2TB in MSA1500 with MSA20, RAID5, Hot Spare
	Archive Tape	2TB in MSL4048 with HP 960 Ultrium WORM
	Additional features	• Library partitioning • Built-In Backup • Antivirus software • Built-In redundancy • WORM partition in Cache disk

Software Components

Feature Description	Customer Benefit or Business Value
Automatic and transparent movement of data between production storage media and secondary storage media according to business data needs	Based on customer requirements for archiving files/data, rules are created to move files/data between storage tiers to maximize existing or appropriate media. Migration is automatic and policy driven, recalls are automatic and on demand. Thus the file grooming and storage management burden on IT is reduced, allowing more time for productive operations. Additionally, storing active data only on the highest performance, highest cost storage systems and moving historical or less frequently accessed date to lower tier storage will immediately reduce the overall cost of storage.
Can be configured to store single or multiple copies of archived files for resiliency against failures and disasters	With this solution, it is simple to create one, two or more copies of archived files. These copies can easily be stored on different or remote media including disk or tape, and provides users the performance benefit of online disk recall and the long term durability of tape. Multiple copies can be physically remote for resiliency against a site disaster consistent with customer business practices.
Interoperability with Anti-Virus software	The FSE family of solutions interoperates with the full range of Ant-Virus software: McAfee, Symantec, Sophos, and Trend Micro.
Supports compliance initiatives	The FSE family of solutions enable rapid response to changing compliance demands, discovery requests, service requirements and business growth. This solution set also meets the customer and regulatory non-tamper ability requirements by migrating data into an LTO3 WORM device. Additionally, this solution set allows end users to retrieve information quickly and easily.
Multiple secondary tier media types supported	The FSE family of solutions is extremely flexible. The availability of lower cost, high capacity storage systems such as the HP Modular Storage Array (MSA) with SATA disks and HP Enterprise Virtual Array with FATA disks are prime examples of economic options for use as disk based archive storage devices. Disk storage necessarily permits fast access to archived files. Tape library technology, such as HP Ultrium, allows very dense archiving , further reducing cost. Tape libraries provide the lowest cost option for extended and protected archival.
Powerful features that are simple to manage	The HP FSE family of solutions provides a rich set of policy based, easily tune rules that dictate migration, release and recall of files/date reflecting requirements. Management of these rules is provided, locally or remotely, through the FSE Management Console (GUI) or a command line interface (CLI).
Never release and file expiration options	The FSE family of solutions provides a rich set of policy based, easily tuned rules for creating archiving policies including rules to never release specified files to the archive or to expire (delete) files. These rules are created using the FSE Management Console (GUI) or a command line interface (CLI) and follow user defined file matching patterns.
File system restore and recovery options	The FSE family of solutions provides both restore and recovery options protecting the FSE server in the event of hardware or software failure, without the need for additional backup and recovery products.
Support for multiple archives	The FSE family of solutions supports multiple logical archives per installation. This permits multiple, user defined file movement policies/rules and targeting of secondary storage devices by application, department or business need by allocating multiple, different logical archives. This provides the added benefit of physical separation of archive data between applications and departments as necessary.
Seamless integration with HP storage	FSE fully supports the full HP eco-system and supports full compatibility with HP-based storage environments

QuickSpecs

Compatibility

HP Server Compatibility	The HP Tiered Storage Server is compatible with the HP Proliant Storage Server DL380 R05, with Windows Storage Server 2003 R2

The flexible a-la-carte solution, the FSE software, is compatible with Windows 2003 R2 server, LTO3 tape libraries, Please consult the QuickSpeck for details on the specific supported platforms.

Proliant Server	http://h18004.www1.hp.com/products/servers/platforms/
Online storage	http://h18006.www1.hp.com/storage/disk_storage/index.html
Tape storage	http://h18006.www1.hp.com/storage/tapestorage/index.html
FSE software	http://h18006.www1.hp.com/products/storageworks/fse/index.html

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Client OS Supported

The Bundle solution (Tiered Storage Server and 2-20TB Tiered Storage Archive Solution) is CIFS based solution designed to perform file archiving from Windows applications

The a-la-carte version which is the FSE software can perform file archiving thru NFS or CIFS Interfaces, allowing to offload off mixed, Windows, Linux or Unix application.

In Windows environment, FSE uses HP File Migration Agent (FMA) for moving old, less accessed contents from the production environments into the FSE archive.
For more information on HP File Migration Agent, please consult:
http://h18006.www1.hp.com/products/storage/software/fma/index.html

Files may be written to the FSE Archive through open-standard CIFS or NFS interfaces.

- Any application that uses standard (CIFS, NFS, FTP) protocols
- Any application that can write to NTFS or Ext3 file system
- Qualified 3rd party archiving application as of today:
    - For messaging applications
        - KVS Enterprise Vault
        - Group technologies
    - For SAP ERP application
        - Opentext/IXOS eCONserver
        - SER
    - For data on NetApp filers
        - Enigma Data System SmartMove
    - For document and workflow management
        - Ceyoniq

For information about 3rd party applications certified or that are being certified or that are planned to be certified with HP FSE solution, please contact the HP regional Sales Representatives and the local Alliance Managers

Service and Support, HP Care Pack and Warranty Information

HP Care Pack Services offer upgraded service levels to extend and expand your standard product warranty with easy to buy, easy to use support packages that help you make the most of your hardware and software investments. They let you choose the support levels that meet your business requirements, from basic to mission-critical. They help you contain total cost of ownership.

HP Care Pack warranty extensions can be purchased along with HP products to cost-effectively upgrade or extend your warranty. For many products, post-warranty HP Care Pack Services are available when your original warranty has expired.
Why purchase an HP Care Pack service?

Your standard warranty protects against product defects. HP Care Pack Services help you guard against unplanned downtime, which can reduce your productivity and profitability. These convenient service packages:

- Protect your investment in HP products
- Provide consistent, predictable levels of support across your entire department or business
- Ease budget planning with fixed-cost support that includes parts and labor
- Give you direct access to proven technical and problem-solving expertise
- Offer a choice of response-time and repair-time commitments
- Deliver prompt, measurable results
- Are available whenever and wherever you do business

HP Care Pack availability may vary by country and product.

Supporting your Adaptive Enterprise journey

HP Services helps you make the Adaptive Enterprise real for your organization. The breadth, depth, and quality of HP hardware and software support services can help you improve the performance of your IT support processes and resolve the complex software and hardware problems that tax user productivity. HP Care Pack services help you increase IT environment stability, efficiency, and agility from the desktop to the data center, and improve the productivity of your employees.

Warranty and Services Included with the Product   HP warrants only that the Software media will be free of physical defects for a period of ninety (90) days from delivery.
- Includes one year of HP Software Support 9 x 5 (HP software technical support and HP software product and documentation updates).
- Includes one year of HP Hardware Support 4 hour onsite 9 x 5.

For more information about HP's Global Limited Warranty and Technical Support, visit
ftp://ftp.compaq.com/pub/products/storageworks/warranty/EN_321708-008.pdf

Recommended Services   Installation and Start Up Service:

- Cost-effectively obtain specialized expertise for a complex, one-time task
- Enjoy top performance right from the start
- Shorten your time-to-ROI

Three years of combined Hardware and Software Support Plus 24:

- Improve the productivity of system managers and operators
- Improve system performance and reduce downtime due to software defects
- Expedite problem resolution through expert-level technical resources
- Enjoy consistent service coverage across geographically dispersed sites
- Update HP and selected third-party software at a predictable cost
- Take advantage of subscription savings on software updates
- Keep your license compliancy up-to-date

Service and Support, HP Care Pack and Warranty Information

Available HP Care Pack Services

Extend your product warranty with a wide choice of cost-saving support packages.

HP Care Pack Services are sold by HP and HP authorized enterprise and commercial resellers. Services for customers purchasing via direct and enterprise resellers are quoted using HP order configuration tools. Additional information about HP Care Pack Service features and benefits is available at http://www.hp.com/hps/carepack/services/.

Key for HP Care Pack Service availability in the table below:
   E = Service available for customers purchasing direct and via enterprise resellers
   C = Service available for customers purchasing via commercial resellers
   na = Service not applicable

HP Care Pack Services Deployment and Per Event Services	Service Available
HP Installation & Startup	E

For more information about Deployment and Per Event Services for HP Storage, visit http://www.hp.com/hps/storage/.

HP Care Pack Services Availability Services	1 yr	3 yr	4 yr	5 yr
HP Support Plus	Included	E	E	E
HP Support Plus 24	E	E	E	E

To find HP Care Pack Services available via HP authorized commercial resellers, visit http://h30125.www3.hp.com/csn/salesmktg/elfpack/elf_nonlkup_ctrylang.asp?code=ELNL

Deployment and Per Event Service Descriptions

The HP Installation and Startup Service ensures a smooth implementation of HP StorageWorks Continuous Information Capture software into your IT infrastructure. The service provides a documented implementation designed to help meet the needs of your business providing:

- Greater ability for your IT resources to stay focused on their core tasks and priorities
- Reduced implementation time and impact to your storage environment

eSupport

HP eSupport is a portfolio of technology-based services that assist you with managing your business environment - from the desktop to the data center.

Support Portal
The HP support portal provides one-stop access to the information, tools and services you need to manage the daily operations of your IT environment.

Features include:

- Access to self-solve tools (including search technical knowledge base)
- Efficient logging and tracking of support cases
- Collaboration with other business and IT professionals
- Download of patches and drivers
- Access to diagnostic tools
- Proactive notification of relevant information

Access to certain features of the support portal requires an HP service agreement. To access the support portal, visit http://www.hp.com/support

Service and Support, HP Care Pack and Warranty Information

HP Education Services	For more information about HP Education Services for Storage and SAN, visit http://education.hp.com/curr-storsan.htm

Additional Services Information

For more information about Deployment, Per Event, Consulting and Education services for HP Storage, visit: http://www.hp.com/hps/storage/

For more information about HP Care Pack Services for Storage, visit: http://www.hp.com/hps/carepack/storage/cp_networked.html

For more information about HP Storage Software, services and updates, visit: http://h18006.www1.hp.com/storage/software.html

If you have specific questions, contact your local HP representative. Contact information for a representative in your area can be found at "Contact HP" http://www.hp.com

Configuration Information

Step 1 - Base Configuration

Model Name	Model Description	Part Number
2TB base Unit	HP StorageWorks 2TB Tiered Storage Archive Solution Base Unit	AG695A

A bundle of 2TB storage consisting of

- HP Universal Rack 10642 G2 Shock Rack
- Tiered Storage Server
  - 1 x Proliant SS 380 G5, WSS R2
  - 8 x Buffer disk SAS
  - FSE Software LTU for 4TB
- Cache Disk: 1.8TB, RAID1, 1 Spare
  - 1 x MSA30 Enclosure
  - 13 x MSA30 disk
- Tape lib: 2TB
  - 1 x MSL4048 tape lib
  - 5 x LTO3 WORM
  - 2 x cleaning cartridges
- Disk array: 2TB, RAID5, 2 Spare
  - 1 x MSA1500 disk array
  - 1 x MSA20 Enclosure
  - 6 x MSA20 disk

Step 2 - Required option to come to higher capacity

2TB Upgrade	Each upgrade is 2TB increment, consisting of:	AG696A

- 6 x MSA 20 disk
- 5 x LTO3 WORM
- 4 x FSE Capacity upgrade

Step 3 - Additional option for customer who has already either the online storage or tape library in place

Tiered Storage Server	A bundle consisting of:	AG709A

- 1 x Proliant Server DL380 G5, with Windows SS R2
- FSE Software LTU for 4TB and media kit
- 8 x Buffer disk, SAS based

Related Options

2TB Base SSP	HP 2TB Tiered Storage Archive Solution - Base Unit consisting of below components -	
Rack	HP Universal Rack 10642 G2 Shock Rack	AF002A
	HP Rack Grounding Kit	AF074A
	HP 10K G2 600W Stabilizer Kit	AF062A
	HP 10642 G2 Sidepanel Kit	AF054A
	HP 16A High Voltage Modular PDU	252663-B24
	FE2 'Custom Racking'	HA452A1
Server	HP Tiered Storage Server	AG709A
	HP Installation - FSE Server & MSA30	HA114A1
MSA 30 **(Cache Disk)**	HP StorageWorks MSA 30 DB Storage	302970-B21
	HP 300GB 10k U320 HDD	350964-B22
	MSA20/30/50 Support	HA109A1
MSA1500 **(Archive Disk)**	MSA1500 controller shelf	AA986A
	HP MSA1000/1500 Controller 256 Cache All	218231-B22
	MSA 1500 Fibre Channel I/O Module	AA987A
	MSA 1500 Dual Channel SCSI I/O Module	AA988A
	HP 1y Support Plus SVC (MSA1500 Services)	HA109A1
	HP MSA1500 Support	HA109A1
	MSA1000/1500 Installation	HA114A1
	HP MSA20 Rack FIO Enclosure	377473-606
	MSA20/30/50 Support	HA109A1
	HP 500GB 7.2k HP SATA 1yr Wty HDD	395473-B21
	Storage Works LC/LC 2m Cable ALL	221692-B21
	MSA1000/1500 Installation	HA114A1
	HP MSA20 Rack FIO Enclosure	377473-606
MSL4048 **(Tape Lib)**	HP MSL4048 2 Ultrium960 4 Gb FC Library	AG325B
	HP C13/C14 Jumper Cord 2.5M	E7742A
	HP Ultrium Universal Cleaning Cartridge	C7978A
	HP Ultrium 800GB WORM Data Cartridge	C7973W
	MSL4048 Library Support	HA109A1
	HP Installation and Startup Service	HA114A1
	HP Startup for 1 MSL5U Lib SVC	HA114A1
	Storage Works LC/LC 2m Cable ALL	221692-B21

Technical Specifications

2TB Upgrade SSP (optional)	Optional	0 up to 9	HP 2TB Tiered Storage Archive Upgrade	AG696A
	Optional/Mandatory*	0 to 4	HP MSA20 Rack FIO Enclosure	377473-606
	Optional/Mandatory	0 to 4	HP Installation and Startup Service	HA114A1

*Please be aware that one MSA20 Enclosure is already included in the Base SSP. MSA20 Enclosure doesn't come with the upgrade SSP. When ordering the Upgrade SSP, make sure you have disk slot available in the MSA20 Enclosure.

Tiered Storage Server SSP (Optional)	Description	Model
	HP DL380R05 ModX CTO Svr	391835-B21
	HP X5050 DL380G5 FIO Kit	397326-L21
	HP 1GB FBD PC2-5300 2x512 Kit	397409-B21
	146GB 10K SAS 2.5 HP HDD	431958-B21
	HP PCI-X/PCI-E NHP 380G5/385G2 Riser	410570-B21
	HP Smart Array 6402/128MB Controller	273915-B21
	HP 512MB DDR Bbwc Upgrade	372538-B21
	HP Smart Array P400/256 38x FIO Ctr	405160-B21
	HP FC1243 4Gb PCI-X 2.0 DC HBA	AE369A
	HP RPS 350/370/380G5/385G2 Kit	399771-B21
	MS W2003 Srv R2 Std Ed FIO EN SW	409163-B21
	HP File System Extender Media Kit	T3648B
	HP File Sys Extender Archive Windows SW	T4431A
	HP 1TB inc cap license 2 to 20TB	T3656A

Physical Dimensions	Height in/cm	Width in/cm	Depth in/cm	Max Weight lb/kg
AG709A (Server Standalone) **2TB Upgrade**	34.95 (88.73)	34.81 (88.43)	23.31 (59.90)	70LB (31.75 kg)
AG696A (Upgrade kit Standalone) - **Tiered Storage Server**	24.00 (9.45)	13.00 (5.12)	18.50 (7.29)	20lb (9.07 kg)

Technical Specifications

	Rack Component	Weight		
Base TSA Components (not available without Rack and PDU's):	20U / EIA of rack space (35"/90cm)	~ 345lbs (157 kg)		
Minimum Capacity TSA Solution [42U10KG2 Rack with #0D2 Dual PDUs]:	22U / EIA of rack space consumed (38.5"/98cm)	weighs 743lbs (337kg)		
Minimum Capacity TSA Solution [42U10KG2 Rack with #0D1 or #0D6 Dual PDUs	20U / EIA of rack space consumed (35"/90cm)	weighs 743lbs (337kg)		
Minimum Capacity TSA Solution [36U10KG2 Rack with #0D2 Dual PDUs]:	22U / EIA of rack space consumed (38.5"/98cm)	weighs 733lbs (333kg)		
Minimum Capacity TSA Solution [36U10KG2 Rack with #0D1 or #0D6 Dual PDUs]	20U / EIA of rack space consumed (35"/90cm)	weighs 733lbs (333kg)		