

# HP StorageWorks File System Extender

Data sheet



HP StorageWorks File System Extender (FSE) is new generation data management software that is part of the HP Information Lifecycle Management portfolio of products and solutions. FSE has capabilities beyond traditional hierarchical storage management (HSM) software making it a cost-effective solution to managing massive amounts of file system stored data. It is designed as a flexible client/server architecture that can build a consolidated or distributed data management infrastructure. In both installations, the FSE client manages migrating file system(s) used by application/file servers and the FSE server manages the secondary storage used for the file migration. The operation is automatic and transparent with a resulting increase in data management efficiency and reduced storage costs.

Using the FSE client, the storage administrator can optimize the FSE partitions. Each partition is associated with a file system. Based on business needs, parameters are defined to identify files for migration from the production storage system to the secondary storage for each partition. Rules are typically created to maintain active data on the high performance production storage systems and migrate inactive data to the lower cost secondary storage. File migration can be further aligned with organizational requirements using options to keep permanently specified files and file types on primary storage and by creating rules for file expiration (deletion) after a specified period of inactivity. A FSE client managed file system can be optionally upgraded to a write-once-read-many (WORM) file system. This means that any file written to the file system will, after a configurable period of time, be immutable. The WORM feature can be applied to a new or to an existing file system. Traditional HSM software does not have the WORM capability; instead this is achieved through the

migration of files to WORM capable hardware such as tape or optical media.

The FSE server controls the storage migration media. This can be Serial ATA (SATA) drive, Fibre Attached Technology Adapted (FATA) drive, Fibre Channel disk, SCSI disk or LTO (I and II) tape libraries. Future evolutions of FSE will extend the supported hardware for secondary storage. In particular, HP StorageWorks ultra density optical (UDO) libraries will be supported after FSE 3.0 is available. The FSE server manages the connected storage resources as media pools. A media pool contains media with the same characteristics. These media pools are either regular, WORM or backup depending upon their function.

For a consolidated FSE implementation, the FSE server and FSE client run on the same machine. In a distributed implementation, the FSE server and FSE client(s) are installed on separate machines. In a mixed implementation, the FSE server and FSE client run on the same machine and additional FSE client(s) run on separate machines. There are advantages to both implementations.

The consolidated FSE implementation provides appliance-like functionality to provision migrating storage capacity to application/file servers using regular (NFS, CIFS, FTP) protocols. This provides maximum flexibility for connection to any operating system that supports these file sharing protocols. In a consolidated installation, all files are first migrated to media (performance disk) controlled by the FSE client. This is effectively a cache and provides the fastest recall (de-migration) of migrated files. The FSE client moves files to the secondary media based on rules developed from business needs. The distributed implementation is suitable where there is a FSE client for the operating system that the file/application server is

HP StorageWorks File System Extender software is ideal for organizations whose activities require the storage of massive amounts of file system stored data. This allows efficient and cost-effective data storage.



running. In this implementation, the FSE client automates the file migration to reduce the work required by storage administrator. According to the rules configured for each FSE partition, files are migrated to the secondary media. One or more file copies are made depending upon the requirements of the application/file server.

#### Features and benefits

- *Single (not a hierarchy) storage migration layer that can be configured to store single or multiple copies of migrated files:* Some of the traditional HSM software products allowed users to create multiple tiers of storage for files to migrate down and de-migrate up. What users really wanted was to create copies of migrated files redundancy. FSE makes this possible. Typically two copies are made of migrated files. A single copy or more copies can be made to meet the performance and availability needs of the managed data.

- *Disk and/or tape in the storage migration layer:* The availability of low cost, high capacity storage systems like HP StorageWorks Modular Smart Array 1500 (MSA1500) make it economic to use disk and tape in parallel in the storage migration layer. The copy stored on disk allows fast access to migrated files, (an issue with traditional HSM products) while the copy to tape provides robust, low cost, long-term storage. When future UDO support is added, this will further increase the options for the storage migration media, allowing files to be migrated to UDO or to UDO and tape and/or disk.
- *Client-server architecture provides capability to migrate files from Microsoft® Windows® and Linux operating systems to a consolidated back-end FSE server:* FSE allows a single storage resource, managed by the FSE server, to be used for files migrated from both Windows and Linux file/application

# HP StorageWorks File Extender System software provides efficiency with the automatic and transparent movement of data between production storage media and secondary storage media according to user defined rules.

servers. This consolidation makes this a cost-effective data management tool in heterogeneous environments. The addition of a HP-UX client in 2005 will further increase the consolidation capability of HP StorageWorks File System Extender software.

- *Capability to upgrade file system to WORM:* Increasingly data is required that can be shown to have been unaltered since it was created. A FSE partition (file system) is upgraded to read only through a simple configuration change. An existing, as well as a new, file system can be upgraded to read only. Traditional HSM relied on optical, and occasionally tape hardware for WORM capability on migrated files. FSE provides the benefit of WORM capability across the whole file system, combining it with disk recall performance.
- *Optimization of migrated file layout on tape for increased tape capacity utilization and removal of orphaned files:* To maximize tape capacity utilization, FSE has a tape consolidation feature to reorganize the layout of migrated files stored on tape. This reduces the number of pieces of media required and consequently

simplifies management and reduces cost. Some traditional HSM software did not include this feature and suffered from low tape media utilization.

- *Option to keep specified files and file types on primary storage using user configurable files matching patterns:* For business reasons, there may be a requirement to permanently store certain files or file types on the production storage even if their access pattern would make them candidate files for migration to the secondary storage media. FSE allows the creation of rules, based on business requirements, to maintain specified files on the production storage. This ensures these files are always available on the fastest media.
- *Inbuilt backup utility to protect the migrating file system:* This provides protection of the data and FSE databases, ensuring the file system can be rebuilt in the event of a disaster. It also protects production (non-migrated) files and eliminates the need to install a backup/recovery product.

<b>File System Extender Server OS support</b>	Microsoft Windows 2000 Server Service Pack 3 and newer SuSE Linux Enterprise Server 8 Service Pack 3 (kernel 2.4.19)
<b>File System Extender client OS support</b>	Microsoft Windows 2000 Server Service Pack 3 and newer SuSE Linux Enterprise Server 8 Service Pack 3 (kernel 2.4.19)
<b>Minimum CPU and hardware requirements for File System Extender server</b>	Any IA32 machine that exceeds the minimum hardware requirement of (newer processors, higher processor frequencies and more memory are recommended and required for most installations): <ul style="list-style-type: none"> <li>• Intel® Pentium® III processor</li> <li>• 500 MHz processor</li> <li>• 512 MB RAM</li> <li>• RAID protected disks to hold FSE server databases</li> </ul> Connectivity requirements: <ul style="list-style-type: none"> <li>• Ethernet network interface adapter card 10/100/1000 Mbps</li> <li>• SCSI or Fibre Channel adapters as required to connect migration storage systems</li> </ul>
<b>Minimum CPU requirements for File System Extender client</b>	Any IA32 machine that exceeds the minimum hardware requirement of: <ul style="list-style-type: none"> <li>• Intel Pentium III processor</li> <li>• 500 MHz processor</li> <li>• 512 MB RAM</li> </ul>
<b>Connectivity from application/file server to File System Extender server</b>	Ethernet network 10/100/1000 Mbps (shared or dedicated as performance requires)
<b>File System Extender server supported secondary storage</b>	Disk storage: <ul style="list-style-type: none"> <li>• HP StorageWorks Modular Smart Array (MSA) (SCSI disks)</li> <li>• HP StorageWorks MSA (S-ATA disks)</li> <li>• HP StorageWorks Enterprise Virtual Array (EVA) (Fibre Channel disks)</li> <li>• HP StorageWorks EVA (FATA disks)</li> </ul> Tape storage: <ul style="list-style-type: none"> <li>• HP StorageWorks MSL tape library (LTO I, LTO II)</li> <li>• HP StorageWorks ESL tape library (LTO I, LTO II)</li> <li>• Graur Data Storage InfiniStore TapeLibrary (Sony AIT III WORM)</li> </ul>
<b>File System Extender server supported primary storage</b>	The File System Extender client supports any storage that the operating system supports and can have a supported file system created on it

## HP StorageWorks File System Extender

Part number	Product name	Description
T3648A	Media kit for HP StorageWorks FSE clients and servers	Media kit contains all installable software, documentation and source code of open source software used
T3649A	Client for Microsoft Windows	FSE client for Windows 2000 operating system
T3651A	Client for Linux	FSE client for SUSE Linux operating system
T3653A	Server for Microsoft Windows	FSE server for Windows 2000 operating system; includes 1 TB of migrated file capacity
T3655A	Server for Linux	FSE server for SUSE Linux operating system; includes 1TB of migrated file capacity
T3656A	File System Extender server add 1 TB (1-20 TB)	Add an additional 1 TB of file migration capacity when the current paid for capacity is less than 20 TB
T3657A	File System Extender server add 1 TB (21-100 TB)	Add an additional 1 TB of file migration capacity when the current paid for capacity is less than 100 TB but more than 20 TB
T3658A	File System Extender server add 1 TB (100+ TB)	Add an additional 1 TB of file migration capacity when the current paid for capacity is more than 100 TB
<b>Options</b>		
T3659A	Upgrade file system to write-once-read-many (WORM) (1 TB)	The read only (WORM) capability is set on a per file system (partition) basis
<b>Supplies</b>		
T3648A	Media kit for HP StorageWorks FSE clients and servers	
<b>What's included</b>	Software CD containing all installable software, documentation and source code of open source software used. 9 hours/day x 5 days/week software phone-in and update support for one year.	

# HP StorageWorks File System Extender

## Warranty and support

HP warrants only that the Software media will be free of physical defects for a period of ninety (90) days from delivery.

In addition to the bundled 9 x 5 software phone-in and update support for one year after the date of purchase. HP Care Packs are available for all File System Extender part numbers except the media kit (T3648A).

## Service options

- HP Care Pack is defined as an upgrade to the product warranty attribute, available for a specific duration and hours of coverage
- HP Care Pack is not available for less than the product's warranty duration
- HP Care Pack is available for sale anytime during the warranty period but the commencement date will be the same as the Warranty Start Date (delivery date to end user customer)
- Proof of purchase may be required

HP Care Pack services are prepaid

Available Care Pack Services:

- HA106A3 3-year, 9x5 software support
- HA106A4 4-year 9x5 software support
- HA106A5 5-year 9x5 software support
- HA107A1 1-year 24x7 software support
- HA107A3 3-year 24x7 software support
- HA107A4 4-year 24x7 software support
- HA107A5 5-year 24x7 software support
- HA111A1 1-year Proactive 24 Service
- HA111A3 3-year Proactive 24 Service
- HA111A4 4-year Proactive 24 Service
- HA111A5 5-year Proactive 24 Service

## Financial Services

HP Financial Services provides innovative financing and financial asset management programs to help you cost-effectively acquire, manage, and ultimately retire your HP solutions. For more information on these services, please contact your HP sales representative or find us on the web at: [www.hp.com/go/hpfinancialservices](http://www.hp.com/go/hpfinancialservices)

## For more information

For more information on HP StorageWorks File System Extender visit: [www.hp.com/go/ilm](http://www.hp.com/go/ilm)

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