

A resilient enterprise disk storage system at midrange prices



IBM TotalStorage Enterprise Storage Server (ESS) Model 750



Conducting business in the on demand era demands fast, reliable access to information anytime, day or night. The requirements on storage devices are ever increasing—greater speed, greater reliability, more data protection features, and so on. Yet at the same time, IT costs are under pressure. The payback on IT investments must be faster than ever.

Highlights

- ***Designed to provide outstanding price/performance***
- ***Scales from 1.1TB up to 4.6TB of physical capacity***
- ***Offers high availability with redundant hardware to support mission-critical applications***
- ***Supports business continuity with a suite of advanced copy functions designed to protect up-time during planned and unplanned outages***
- ***Attaches to a wide-variety of hosts, including all IBM @server@ platforms (zSeries®, pSeries®, iSeries™, xSeries®) and a large number of different UNIX®, Linux, and Intel™ processor-based servers***
- ***Designed to help lower total costs through efficient, centralized management features***
- ***Designed to offer excellent investment protection with field upgradability to an ESS Model 800, which can scale to over 55TB of physical capacity***

IBM® designed the TotalStorage® Enterprise Storage Server® (ESS) Model 750 to address these needs. The ESS Model 750 is a new member of the IBM family of Enterprise Storage Servers, which includes the ESS Model 800 and the ESS Model 800 with Turbo processor.

The ESS Model 750 includes many of the functions and all the reliability of the ESS Model 800, but is packaged for affordability. Available at a

midrange price point, the ESS Model 750 includes a two-way processor, 8GB cache, and up to six Fiber Channel/FICON® or ESCON® host adapters for hundreds of host connections.

The ESS Model 750 provides a lower price point than the ESS Model 800 and is well-suited for the large number of customer environments which have midrange capacity and performance needs. It is designed to provide excellent reliability and availability and includes support for ESS advanced copy services which are designed to enable disaster recovery and backup solutions for enhanced business continuity and to support 24x7 operations.

While the ESS Model 750 is suitable for storage environments of up to 4TB, it is designed to offer non-disruptive field upgradeability to the ESS Model 800. This can help extend the value of the ESS Model 750 and opens a path to the full scalability and performance of the ESS Model 800.

Shared storage for many server platforms

The ESS family is well-suited for environments with multiple heterogeneous servers. Among the types of servers

that can concurrently attach to the ESS are the IBM @server zSeries, S/390®, IBM @server iSeries, AS/400®, IBM @server pSeries and xSeries as well as PC servers running Linux, Novell® NetWare®, Microsoft® Windows NT®, Windows®2000 and Microsoft Windows Server 2003 operating systems, along with SGI Origin® servers with the IRIX® operating system and many types of UNIX® servers. As a result, the ESS family can serve many storage needs within an enterprise, helping reduce complexity and IT support costs. For the most recent list of supported servers, visit

ibm.com/totalstorage/ess

Advanced copy functions for business continuance

The ESS does more than simply enable shared storage across enterprise platforms—it is designed to improve the performance, availability, scalability and the manageability of enterprise-wide storage resources through a variety of advanced copy options. The following functions are designed to provide a resilient storage infrastructure—helping to increase data availability during planned outages and protect data from planned and unplanned outages.

FlashCopy V1

FlashCopy® V1 is an advanced, fast replication facility designed to help reduce application outages needed for backups and other copy applications.

FlashCopy V1 NOCOPY option

FlashCopy's "copy on write" NOCOPY option allows flexible reuse of disk capacity that would otherwise be dedicated to copy operations. With the NOCOPY option, the only data copied to the target is that which is about to be changed or overlaid by the application, not a physical byte-for-byte copy of the source volume.

FlashCopy V2

FlashCopy V2 includes all the features of FlashCopy V1 as well as the following enhancements designed to improve capacity management and utilization.

Data Set FlashCopy

This feature brings a new level of granularity to the z/OS® environment and helps to allow more efficient use of ESS capacity. Data Set FlashCopy is designed to allow the source and target copy to be different sizes and allows the copied data to reside at a different location than where the source data was originally located in the volume.

Multiple Relationship FlashCopy

This function is designed to allow a volume to participate in multiple FlashCopy relationships (up to 12 simultaneous relationships), so that multiple copies of the same data can be made for testing, backup and other applications. This feature is designed to offer increased flexibility and improved capacity management and utilization over FlashCopy Version 1.

Incremental FlashCopy

The Incremental FlashCopy function is designed to track changes that are made to the source and target volumes once FlashCopy relationships are established. FlashCopy time can be decreased by refreshing a LUN or volume—using only the changed data—to the source or target point-in-time content. The refresh can occur in either direction. This means that the source can be refreshed to match the target or the target can be refreshed to match the source.

Peer-to-Peer Remote Copy (PPRC) V1

PPRC V1 includes a synchronous remote data-mirroring technique (Metro Mirror) designed to constantly maintain a current copy of the local application data at a remote site.

PPRC-XD (Extended Distance), included in PPRC V1, provides an asynchronous global distance copy function for remote data migration, off-site backups and transmission of inactive database logs over virtually unlimited distances.

Peer to Peer Remote Copy (PPRC) V2

Peer-To-Peer Remote Copy (PPRC) V2 includes all of the functionality of PPRC V1 plus the following features.

Asynchronous PPRC functions (Global Mirror and Metro/Global Copy)

These mirroring functions are designed to provide high-performance, long-distance data replication for disaster recovery and backup. They maintain a remote copy of data asynchronously at virtually unlimited distances via two- or three-site implementations.

PPRC support of Fibre Channel

This function enables Fibre Channel to be the communications link between the primary and secondary ESS. The use of Fibre Channel for the PPRC link can help significantly increase throughput and reduce the PPRC link infrastructure of networking hardware/communications lines.

High availability to safeguard data access

Support for 24x7 operations is built into the ESS. The ability to implement RAID-5 and RAID-10 disk arrays helps protect data while the remote copy function helps to allow fast backups for disaster recovery. The ESS features dual active processing clusters with failover switching, hot spares, hot-swappable disk drives, mirrored write cache and redundant power and cooling.

The ESS also contains integrated proactive self-diagnostics designed to help prevent downtime by constantly monitoring system functions. For example, Predictive Failure Analysis can proactively notify an administrator of potential issues with some hardware components so repairs can be made before the issues affect performance.

A technician can be dispatched to make repairs, often before the data center staff notices the problem. Maintenance—including licensed internal code upgrades—often can be performed without interrupting operations.

The flexibility to adapt to your environment

The ESS 750 is designed to provide outstanding configuration flexibility, including the choice of 72.8GB and 145.6GB physical capacity hard disk drives, intermixable RAID-5 and RAID-10 protection, a variety of host attachments, centrally managed logical volume sizes and online reassignment of capacity among servers. A range of advanced business continuance functions enables the ESS to be configured to meet specific disaster preparedness objectives.

IBM Standby Capacity On Demand for ESS (Standby CoD) is designed to provide “standby” storage for the ESS, allowing you to access the extra storage capacity whenever the need arises. With Standby CoD, IBM will install two Standby CoD Disk Eight-Packs in your ESS for a nominal charge. At any time, you can logically configure your Standby CoD for use—a nondisruptive activity that does not require intervention from IBM. Upon logical configuration, you will be charged for the capacity. IBM offers capacity on demand solutions that are designed to meet the changing storage needs of rapidly growing e-businesses. Standby CoD is designed to provide you with the

ability to tap into additional ESS storage and is particularly attractive if you have rapid or unpredictable growth, or if you simply want the knowledge that the storage will be there when you need it.

Storage networking value

The ESS integrates well to storage area networks (SANs) with its high-speed 2 Gigabit Fibre Channel attachments, the ability for multiple servers to share each Fibre Channel port and built-in support for LUN masking (SAN security). Support for a Network Attached Storage (NAS) gateway allows the ESS to handle both traditional block I/O over a SAN as well as file I/O over a TCP/IP network.

IBM @server zSeries integration

IBM GDPS® Solution for Business Continuance

The business continuance capabilities of the ESS Model 750 are integrated with zSeries Geographically Dispersed Parallel Sysplex™ (GDPS) environments. GDPS is one of the industry-leading availability solutions for zSeries server installations. It is a multi-site solution designed to provide the capability to manage the storage

and server remote copy configurations to help enable near transparent disaster recovery and continuous operations. The GDPS Open LUN Management capability is designed to provide a cross-platform disaster recovery capability for both zSeries and open systems data.

Parallel Access Volumes

Previous S/390 systems allowed only one I/O operation per logical volume at a time. The ESS PAV function can help improve performance by enabling multiple I/Os from any supported operating system to access the same volume at the same time.

Multiple Allegiance

This feature is designed to enable multiple zSeries operating systems to perform multiple concurrent I/Os to the same logical volume. By enabling the ESS to process more I/Os in parallel, the Multiple Allegiance function and optional Parallel Access Volumes function are designed to help reduce queuing, improve the system performance and enable more effective use of larger volumes.

Priority I/O Queuing

The ESS can help important jobs gain priority access to storage resources. Priority I/O Queuing is designed to

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Capacity	1.1TB to 4.6TB
Physical disks	Up to 4.6 TB using either 72.8GB or 145.6GB (physical capacity) 10k rpm disk drives
Cache size	8GB
Architecture	Server-based using 2-way processor
Host server attachments	Up to 6 Fibre Channel/FICON (1 port each) or ESCON adapters (2 ports each)
Physical characteristics	
Dimensions	75.25" H x 54.50" W x 35.75" D (1913 mm x 1383 mm x 909 mm)
Weight	2322 lb (1054 kg)
Operating environment	
Temperature	60° to 90° F (16° to 32° C)
Relative humidity	20% to 80%
Wet bulb maximum	73° F (23° C)
Caloric value	14,840 BTU/hr
Power supply	Three phase 50/60 Hz
Electrical power	4.83 kva
Supported systems¹	S/390 and zSeries (z/OS, OS/390, VM/ESA®, VSE/ESA™ TPF, Linux); AS/400 and iSeries; Compaq; DEC; Hewlett-Packard; Intel processor-based servers (Novell NetWare, Linux, Windows NT, Windows 2000, Windows Server 2003); RS/6000®; RS/6000 SP™; pSeries; Sun™; and SGI Origin servers (IRIX)

allow the ESS to use information provided by the OS/390® Workload Manager to manage the sequence in which I/Os are processed—matching I/O priority to application priorities.

A complete management solution

The IBM TotalStorage Open Software Family of products includes an integrated storage management toolset that enables storage administrators to centrally monitor and manage the ESS.

One of these products, the IBM TotalStorage Enterprise Storage Server Specialist, helps storage administrators to control and manage storage assets for the ESS. With a browser interface, storage administrators can access the ESS Specialist from work, home or on the road through a network connection.

The IBM TotalStorage Enterprise Storage Server Expert is designed to allow storage administrators to centrally monitor the performance of all connected IBM Enterprise Storage Servers in an enterprise. This innovative software tool provides performance and capacity statistics and flexible asset management functions through a Web browser.

For more information

For more information, contact your IBM representative, IBM Business Partner or visit ibm.com/totalstorage/ess.



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