

A high-performance disk storage solution
for systems across the enterprise



IBM TotalStorage™ Enterprise Storage Server™ Model 800



Highlights

- **Provides storage sharing for IBM@server pSeries™ and UNIX®, Windows NT®, Windows® 2000, Novell NetWare, Linux, IBM @server iSeries™ and AS/400®, IBM@server zSeries™ and S/390® servers**
- **Provides outstanding performance with dual cluster RISC SMP processors, large cache and serial disk attachment**
- **Features advanced copy services—designed for rapid backup and disaster recovery**
- **Uses redundant hardware, including mirrored write caches**
- **and RAID-5 and RAID-10 protection for disks to provide high availability for mission-critical business applications**
- **Provides fast data transfer rates with attached hosts via ESCON®, FICON™, Fibre Channel, 2Gigabit Fibre Channel/FICON or SCSI**
- **Can increase administrative productivity by centralizing operations management and providing users with a single interface through a Web browser**
- **Enables enterprises with multiple heterogeneous hosts to scale up to 55.9TB physical disk capacity while maintaining excellent performance**

Performance for today's business needs

The IBM TotalStorage Enterprise Server (ESS) is designed to meet—and exceed—the performance requirements of most of today's demanding applications. High-speed disks provide rapid data access. Internal serial SCSI disk paths support pipelined data movement. Data is automatically striped across multiple disks to enhance I/O parallelism and reduce the need for manual, after-the-fact tuning. Electronic cache is efficiently managed to provide faster access to more of your data.

Shared storage for major server platforms

The IBM ESS is a third-generation Seascope® disk storage system. It helps support today's business continuity and data availability requirements so that employees, customers and trading partners can access data 24x7 through a reliable, disaster-tolerant shared storage system. In addition, it helps address business efficiency needs through heterogeneous connectivity, high performance and manageability functions, thereby helping to reduce total cost of ownership.

Many types of server platforms can concurrently attach to the ESS—including iSeries and AS/400, Linux, Novell NetWare, Windows NT,

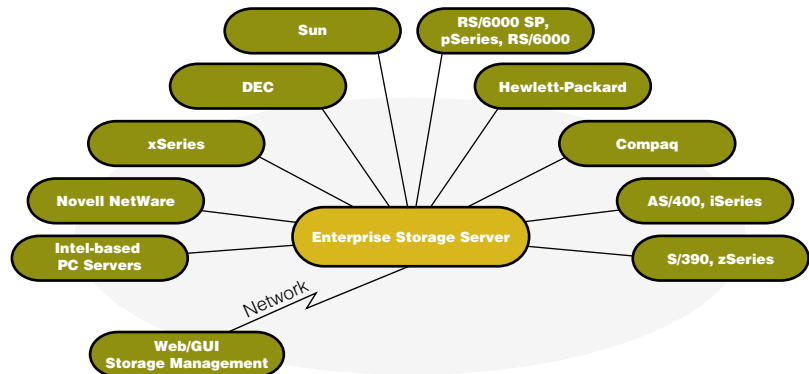
Disaster recovery protection in a scalable, flexible disk system

Windows 2000, zSeries and S/390 and many types of UNIX servers. As a result, ESS is suitable for growing organizations with multiple heterogeneous servers.

Enterprise-strength storage for distributed systems

With more business-critical information processing being performed on distributed systems (running several different operating systems), the IBM ESS offers outstanding value while delivering excellent performance. The ESS does more than simply enable shared storage across enterprise platforms—it can improve the performance, availability, scalability and manageability of enterprise-wide storage resources through a variety of powerful functions:

- *FlashCopy™ provides an advanced volume replication facility that can significantly reduce application outages for backups and other copy applications. FlashCopy's efficient copy-on-write NOCOPY option helps reduce overhead while also allowing flexible reuse of disk capacity that would otherwise be dedicated to copy operations.*
- *Peer-to-Peer Remote Copy maintains a synchronous copy (always up-to-date with the primary copy) of data in a remote location. This backup copy of data can be used to quickly recover from a failure in the primary system without losing any transactions—an optional capability that can literally keep your e-business applications running non-stop.*



The IBM TotalStorage Enterprise Storage Server provides superior storage sharing for a range of servers.

- *Extended Remote Copy (XRC) provides a copy of z/OS™ data at a remote location (which can be connected using telecommunications lines at unlimited distances) to be used in case the primary storage system fails. XRC is designed to support continuous, fully asynchronous remote copy with data integrity protected.*
- *Physical capacity can be flexibly and efficiently divided into logical volumes of different sizes. These volumes are assigned to desired hosts and may optionally be shared among multiple hosts to support clustered applications. Moreover, capacity may be reassigned among hosts under customer control while the ESS remains online.*
- *Custom volumes enable volumes of various sizes to be defined for S/390 servers, enabling administrators to configure systems for optimal performance.*

High availability to safeguard data access

Support for 24x7 operations is built into the ESS. RAID-5 and RAID-10 disk arrays help provide data protection while remote copy technologies allow fast data backup and 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 to further help prevent downtime by constantly monitoring system functions.

For example, Predictive Failure Analysis proactively notifies you of pending issues with select hardware components so that you can remedy difficulties before they affect performance.

IBM TotalStorage Enterprise Storage Server at a glance

2105 Enterprise Storage Server

Physical disk storage capacity
Cache size
Host server attachments

2105 Model 800

582GB to 55.9TB
8, 16, 24, 32 or 64GB
Up to 32 SCSI or ESCON ports, up to 16 Fibre Channel/FICON ports, and intermix configurations

Physical characteristics

Dimensions 75.25" H x 54.50" W x 35.75" D
(1913mm x 1383mm x 909mm)
Weight 2,200 lb. (998 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 16,000 BTU/hr
Power supply Three phase 50/60Hz
Electrical power 6.4 kVA

Supported systems¹

S/390 and zSeries (z/OS®, OS/390, VM, VSE, TPF, Linux); AS/400; iSeries; Compaq; DEC; Hewlett-Packard; Intel®-based servers (Novell NetWare, Linux, Windows NT, Windows 2000); RS/6000®; RS/6000 SP; pSeries; Sun™

¹For more details on supported servers, visit ibm.com/totalstorage/ess.

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

Built-in flexibility

The ESS provides outstanding flexibility which includes: intermixable disk sizes and speeds to optimize price/performance/scalability; intermixable RAID-5, RAID-10 protection; independent scalability of disk capacity, cache size, and host attachments; customer-controlled logical volumes sizes and online reassignment of capacity among servers.

Scalability for fast-growing environments

The ESS is well suited for e-business and other applications with unpredictable

growth requirements. It provides high scalability while maintaining excellent performance.

Disk drives for the ESS are provided as integrated packages of eight disk drives (known as eight-packs). Disk drive capacities include 10,000 rpm 18.2GB, 36.4GB, 72.8GB and 145.6GB drives and 15,000 rpm 18.2GB and 36.4GB drives.

The server's base frame can hold a maximum of 16 eight-packs (128 disk drives) which, when used with 145.6GB disks, yields physical capacity of up to 55.9TB.

Delivering storage networking value

ESS adds value to Storage Area Networks (SANs). The ESS handles the basics well, including high-speed 2 Gigabit Fibre Channel attachments, the ability to share each Fibre Channel

port among heterogeneous servers, and built-in support for LUN masking (SAN security). And the ESS goes further, supporting a NAS gateway that allows the ESS to simultaneously handle both traditional block I/O over a SAN as well as file I/O over a TCP/IP network.

Total cost of ownership (TCO)

ESS is an excellent choice to help lower total cost of ownership. Key ESS features such as advanced business continuance functions, performance, scalability, ability to mix and match drive capacity and speeds, heterogeneous connectivity and the flexibility offered by an open software architecture provide a few reasons why ESS offers excellent value. It is an optimum choice for storage consolidation and an intelligent choice when evaluating the total cost of ownership.

Performance leadership for S/390 and zSeries servers

- *Parallel Access Volumes: Previous S/390 systems allowed only one I/O operation per logical volume at a time. Now, performance can be improved 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 different operating systems to perform multiple, concurrent I/Os to the same logical volume—helping to reduce queuing and significantly increasing performance. By enabling the ESS to process more I/Os in parallel, Multiple Allegiance and optional Parallel Access Volumes can help dramatically improve performance and enable more effective use of larger volumes. This can result in simplified storage management at a reduced cost.*
- *Priority I/O Queuing: The storage server helps allow important jobs to have priority access to storage resources. With Priority I/O Queuing, the Enterprise Storage Server uses information provided by the OS/390 Workload Manager to manage the sequence in which I/Os are processed—matching I/O priority to your application priorities.*

A complete management solution

The IBM TotalStorage software family of products offers an integrated storage management toolset that enables storage administrators to centrally monitor and manage the ESS.

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

The IBM TotalStorage Enterprise Storage Server Expert helps storage administrators monitor the performance of all connected IBM Enterprise Storage Servers in the enterprise. This innovative software tool provides performance statistics and flexible asset management, and tracks a variety of capacity information through a common available browser interface. As such, this optional tool enables the administrators to centrally manage all Enterprise Storage Servers located anywhere in the enterprise.

For more information

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



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GB equals one billion bytes when referring to hard drive capacity; accessible capacity may be less.

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