

**Enterprise-strength storage for today's
demanding business environments**





Designed to support the highest business efficiency requirements

Meeting the voracious demands for data in today's interconnected world of business requires much more than the capability to store terabytes of data. It requires that data is available 24x7x365 regardless of the size of your network, the diversity of your platforms, or the operating systems and connection types you employ. Meeting this demand is critical, especially given the heightened importance of data backup and the role of storage in disaster recovery. Cost control is another key issue as enterprises try to operate more efficiently. In short, it requires a whole new approach to storage.

The IBM TotalStorage™ Enterprise Storage Server™ (ESS) Model 800, with optional turbo feature, has been designed to meet and exceed these requirements. The fault-tolerant technology of the ESS Model 800 has been designed from the ground up to offer the performance, accessibility, security and reliability needed to support 24x7 operations. Add the flexibility, ease of management and price performance that come "standard" with the ESS Model 800 and you get a world-class product and low cost of ownership as well. While architected for today's most demanding applications, the ESS Model 800 is also designed to easily integrate into your Storage Area Networks (SANs).

Performance for today's business needs

The IBM Total Storage ESS Model 800 is designed to meet—and exceed—the performance requirements of today's demanding OLTP and database transaction application environments. The flexibility to utilize 10,000 rpm and 15,000 rpm disks helps support rapid data access. Internal serial SCSI disk paths support pipelined data movement. The ability of the ESS Model 800 to stripe data automatically across multiple disks to enhance I/O parallelism and reduce the need for manual tuning is key to efficiency, data protection and manageability. Electronic cache, with flexible capacity options ranging from 8GB up to 64GB, is efficiently managed to provide faster access to more of your data.

Bolster business continuity

The ESS Model 800 provides the flexibility to share data across multiple platforms and environments. The IBM Enterprise Storage Server Model 800 is designed to work with a variety of hardware and software technologies such as Windows NT®, UNIX®, Linux® Novell® NetWare® operating systems, the entire IBM @server family, and a variety of interfaces including Fibre Channel, 2 Gigabit Fibre Channel/FICON, Ultra SCSI and ESCON®. This flexibility helps to make it ideal for mission-critical, multiplatform and Internet-based applications.

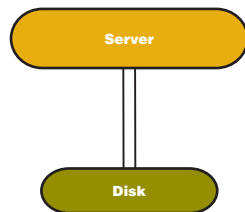
With the ESS Model 800, you can now protect and manage distributed data with the same level of performance previously available only in the mainframe environment. Data from various servers can be stored onto a single disk server. This process can reduce data redundancy and increase administrative productivity through centralized management—for a more comprehensive, more efficient and less costly enterprise solution. If any platform needs added capacity on-demand (a common occurrence in e-business applications), storage can be allocated dynamically using a Web-based interface, which provides extraordinary flexibility and responsiveness to changing business conditions.

ESS efficiency

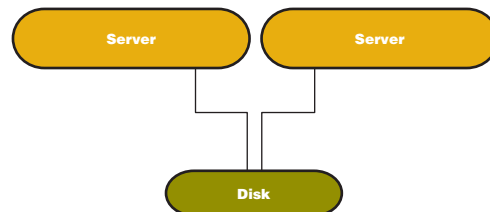
Gain an edge

Use fast, intelligent storage management to keep pace with escalating demands for data. Standard on the ESS Model 800 are high-performance RISC processors, large cache and serial disk attachment. Also available is an optional turbo feature that is designed for even higher performance (up to two and a half times the previous Model F20) for specific application requirements. This optional turbo feature gives the IBM ESS Model 800 the performance for not only large mainframe data center environments, but also for open system environments. Host systems can be attached with many of the leading high-speed interfaces including 2 Gigabit Fibre Channel/FICON, Ultra SCSI and ESCON. Building on this capability, the IBM ESS Model 800 also has S/390®-specific function and performance features available:

- **Parallel Access Volumes**—enables multiple I/Os from any operating system to access the same volume at the same time
- **Multiple Allegiance**—enables different operating systems to perform multiple, concurrent I/Os to the same logical volume; together, Parallel Access Volumes and Multiple Allegiance can help reduce queuing and significantly increase performance
- **Priority I/O Queuing**—enables the storage server to ensure that important applications have priority access to storage resources



Parallel Access Volumes



Multiple Allegiance

“The new ESS Model 800 continues the ESS tradition of increasing performance, functionality and cost benefits in a very big way. Mainline sees nothing but upside in terms of competitive positioning, increased market opportunities and real value to customers.”

Bill Colestock, Storage Executive, Mainline Information Systems

optimize

Respond on demand

No company has done more to advance the state of disk storage technology than IBM. With more than 50 years of disk experience leveraged in its designs, IBM has designed the Enterprise Storage Server to support 24x7x365 operations. The ESS Model 800 offers the options of both RAID-5

and RAID-10 as well as redundant hardware components, dual-processor clusters with failover, a nonvolatile fast-write cache and hot-swappable disk drives. Unique advanced features further strengthen the overall reliability and availability of the IBM Enterprise Storage Server Model 800. For example:

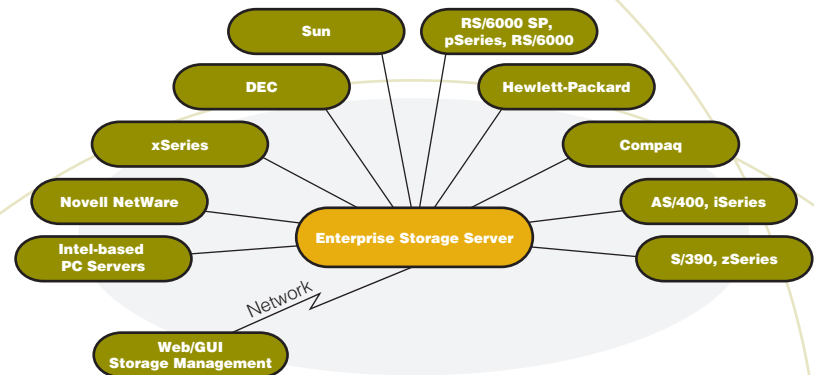
- **FlashCopy®** supports fast duplication, which eliminates the need to stop applications for extended periods of time to perform backups and restores. Logical completion time is up to 50 percent faster on the ESS Model 800 compared to the previous ESS Model F20.
- **Peer-to-Peer Remote Copy (PPRC)** maintains a synchronous copy of data that is up to date with the primary copy and performs up to 125 percent faster on the ESS Model 800 than on the F20.
- **Peer-to-Peer Remote Copy Extended Distance (PPRC-XD)** adds even greater flexibility to the ESS and PPRC with a non-synchronous long-distance copy option suitable for data migration, off-site backups and remote transmission of data logs. The ESS Model 800 demonstrates performance improvements for PPRC-XD of up to 118 percent over the F20.
- **Extended Remote Copy (XRC)** provides an asynchronous copy of S/390 data at remote locations.

What's more, the Enterprise Storage Server has built-in intelligence that constantly monitors internal functions. Autonomic storage can help reduce storage administrator skill level and time. Even if a potential problem is detected, the ESS can automatically "call home" to alert service personnel that a potential problem could be developing.

Prepare for the unexpected

The IBM Enterprise Storage Server Model 800 can scale from 582GB up to 55.9TB of physical storage, and additional capacity typically can be installed without disrupting operations or taking the ESS offline. For enterprise resource planning, server consolidation, e-business and other fast-growing applications, the ability to scale quickly in large increments is important for success. Accordingly, the IBM ESS 800 Model supports a wide variety of disk drives, including those running at 10,000 rpm and 15,000 rpm.

Even more significant for long-term investment protection and growth, the IBM Enterprise Storage Server is optimized for SANs and is engineered to deliver storage that can improve the way enterprises use data to enhance their core business. With its multiplatform support, the IBM ESS is SAN-ready. Therefore, it can act as an essential SAN building block to support true storage consolidation and management, virtually future-proofing your network and providing added investment protection. The ESS Model 800 is designed to provide the performance, scalability and connectivity that offers the flexibility to accommodate the unexpected as your business changes.





Increase performance and productivity while reducing costs

With its high reliability, scalability and performance, multiplatform support and broad-based connectivity options, the ESS Model 800 provides a compelling enterprise storage solution offering superior business value. Equally important, the IBM Enterprise Storage Server Model 800 addresses one of the biggest contributors to lowering the total cost of ownership: the labor associated with managing storage-related issues. IT professionals can easily and centrally manage configuration and capacity requirements online via a Web interface.

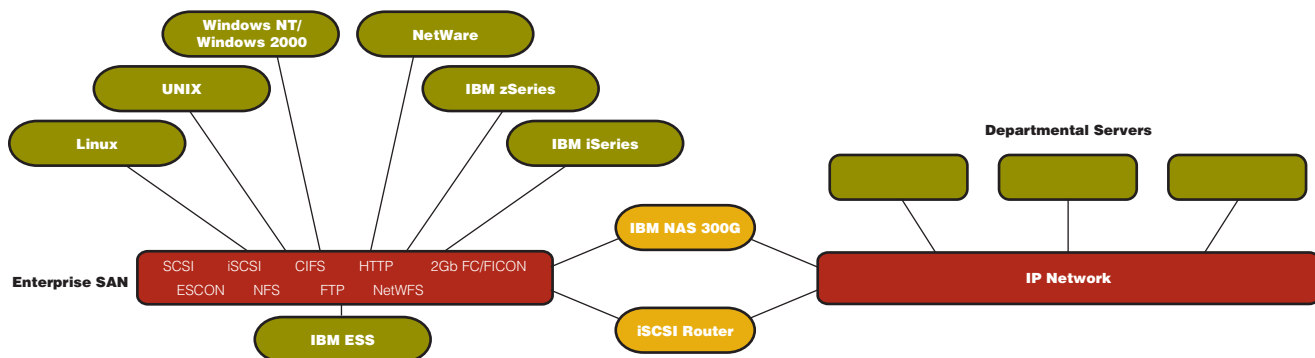
“The IBM Enterprise Storage Server is incredibly scalable. Our goal was to migrate all of our data storage in the student environment to the Enterprise Storage Server so that we could continue to be highly responsive to our users. It was probably the most cost-effective solution that we could have implemented.”

Jack Spang, Director of Enterprise Computing Services, Boston College

Using the Web, administrators can access the IBM ESS from work, from home or on the road via a secure network connection. Administrators can then review or modify the configuration; receive error, space and fragmentation and subsystem-level performance reporting; and perform device discovery activities. By simplifying administration in a multiplatform environment and increasing control and responsiveness with powerful online tools, the IBM Enterprise Storage Server can help drive down total cost of ownership.

Delivering storage networking value

The ESS Model 800 handles SAN 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 it goes further still, supporting the IBM NAS 300G 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.





**Build for the future with IBM
TotalStorage solutions**

Given the ever-accelerating pace of change in today's business environment, it is important that your information technology systems not only keep pace reliably and affordably, but that they also be able to adapt rapidly. It's a tall order. As a technology leader, IBM has invented and continues to invent many of today's most advanced technologies in hard disk drives, storage systems, media, tape and optical drives, and storage management software. Our industry-leading storage products, software and services can help ease the implementation of storage networks. Our solutions can help maximize your efficiency and help minimize costs so you can exploit the benefits of new technology and innovations.

“We selected the ESS because of its superior technology compared to that of the competition. This technology has allowed us to better manage our information and it provides us the flexibility to address our changing business needs. We’ve been able to reduce the time-to-market for new applications because of the ESS.”

Joe Giacometti
Senior Vice President of Information Technology
Ahold USA

Enhance your enterprise storage solution with an IBM TotalStorage Virtual Tape Server

Driven by business demands, your tape libraries are probably growing in size: the greater the demand for storage, the more tapes you will have. Although tape capacity has increased over time, conventional tape systems typically cannot take full advantage of the increase. The result is that you need more people to manage the tapes, more space for storage and more power to run and cool the systems.

The TotalStorage Virtual Tape Server can help meet your future storage demands while curbing this escalation in costs. It offers significant potential economic and productivity benefits from increased overall system performance to lower tape processing and storage costs—all of which can help lead to reduced operating costs related to media, real estate, environmental and personnel expenses.

Enhanced tape sharing with cross-enterprise attachment

The IBM TotalStorage Enterprise Tape System 3590 consists of a family of powerful, integrated storage solutions that are designed to provide high levels of performance and data reliability for both stand-alone and automated systems. Since its first shipment in September 1995, it has met with wide marketplace acceptance. Over 90,000 3590 Tape Drives have been installed in both IBM and non-IBM systems across industry sectors.

Obtain complete storage solutions

IBM storage products span the entire storage hierarchy, including a full range of tape, disk, optical and storage networking products, storage media and storage management software. IBM storage technologies reduce the number of components in storage systems, leverage the power of software and pack more data onto smaller devices than ever before. Whatever your requirement, IBM can match it with a complete storage system that includes the hardware, the software and the support services to plan, implement and maintain it.

Through IBM Global Services, you can receive comprehensive storage assistance, including planning and design as well as implementation and migration support. IBM TotalStorage Proven means that the applications and hardware you choose from leading companies, combined with IBM state-of-the-art technology, provide you with flexible, ready-to-run, easily installed solutions that address your software and infrastructure needs.

You also can go to an IBM TotalStorage Solution Center for a hands-on test drive of IBM storage solutions and a platform for proof-of-concept and benchmarking activities. IBM works with IBM Business Partners and other leading technology companies to deliver the right storage solutions for your business to succeed in today's dynamic marketplace.

With IBM as your technology provider, you can take advantage of the new and emerging technologies that have become critical to business success.