IBM

Enterprise storage options: technology leadership at work

Netfinity

e-business tools
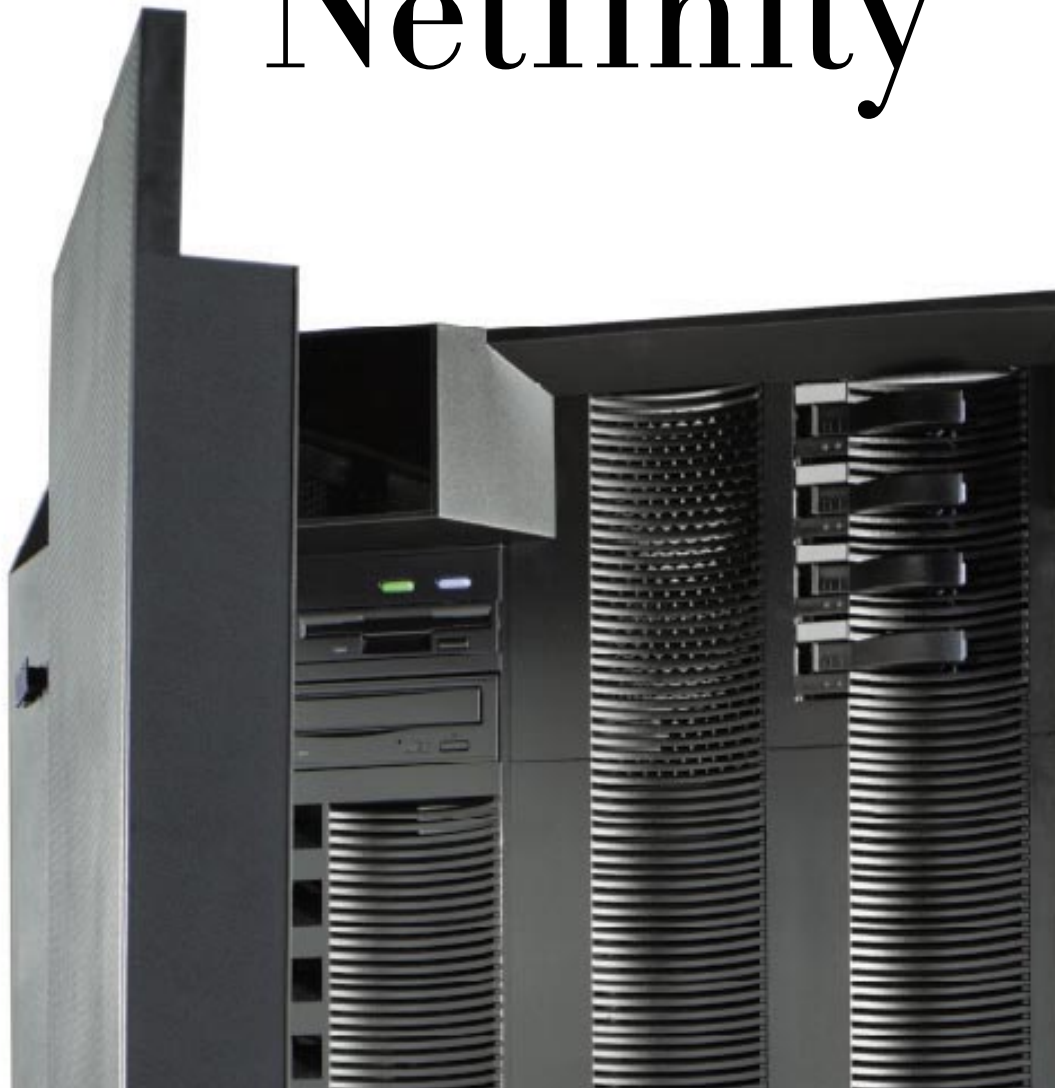
*P*ut the leader in enterprise storage technology to work for your business

Enterprise Storage Technology Leadership
The definition of "enterprise storage" has changed dramatically over the years, from centralized, mainframe-based storage to storage distributed across a client/server network. Your enterprise has changed as well: you've become global, thanks in large measure to the Internet, which has helped introduce your business to the world. The change in your customers is equally dramatic because they demand answers and require information in real time. Today. Right now.

Our storage patent leadership and long-term involvement with every facet of enterprise storage enables us to understand the diverse information technology challenges that face your growing business. It also helps us develop a multitude of solutions you need to meet these challenges. Solutions characterized by:

• **Maximum control and reliability** derived from extensive testing for compatibility of hardware and software to industry-leading local and remote system management tools

• **Flexible scalability** provided by a wide array of rack, RAID and Netfinity Fibre Channel storage solutions that allow your network to grow with your business

• **Unrivaled service and support** that stays with you from Day One through post-sale. It's the best of the best: world-class, worldwide technical programs, flexible financing and even an innovative technology exchange option that lets you update your hardware after just two years.[1] So that technical obsolescence disappears from your vocabulary.

• **Peak performance** delivered by the latest industry-standard Intel® processors, high-capacity hard disk drives and high-speed tape drives

IBM enterprise storage solutions. Everything your business needs from one vendor.

IBM Hard Disk Drives

IBM Hard Disk Drives
It's all about your business data. Data your end users need to keep you up and running. To keep you on a par with your competition. To help you surpass them. Your reliance on hard disk drive storage is why we test every one of our drives for system compatibility, component reliability, optimum performance and data integrity. All of which underscores our commitment to deliver the highest performing, most reliable hard disk drives available to you regardless of where in the world you do business.

*18.2GB 10,000rpm Wide
Ultra SCSI Hard Disk Drive*

You can depend on IBM hard disk drives to take your business where you want it to go, because we invented magnetic disk storage technology. IBM has acquired an expansive patent portfolio for such advances as MR (magneto-resistive) Heads, No-ID sector formatting and more. Today, our extensive line of hard disk drives includes industry-leading SCSI and Serial Storage Architecture (SSA) interfaces and hot-swap hard drives, with storage capacities up to 18.2GB[2] at rotational speeds up to 10,000rpm.

IBM Tape Backup Solutions

IBM Tape Backup Solutions

It's a business truth that system downtime can cost you money. Unproductive end users. Customers who go elsewhere because you're not "up and running." Given the pace at which your business operates, downtime isn't a viable option. That's why reliable, high-capacity tape backup that protects your data is a necessity. You can restore availability to your users across your enterprise in the event of a system failure. You can make copies of your data to test for future challenges such as the Year 2000 (Y2K). Tape backup can help you avoid what a recent study by 3M estimates to be the cost of re-creating lost data: $3,000 **per MB**.

Since most of your tape backup activities occur overnight, you need to know you can get help when you need it…even at 3 A.M. your time. Choosing IBM tape backup solutions for your Netfinity server system eliminates the need for multiple support calls. With IBM, you get one vendor…the one with the best technical support staff worldwide.

Efficient backup and quick restore ensure you are prepared for anything

For a total backup solution, the value and proven reliability of IBM tape backup technology makes good sense for your business. Tape offers the lowest cost per gigabyte for backup and archival storage and uses the lowest cost media. IBM offers a complete line of tape products in most popular industry-standard tape formats and capacities (4GB to 1TB).

Available Tape Formats:
- *DLT* • *DAT*
- *Magstar* • *8mm*
  • *Travan NS*

All tape drives for Netfinity servers ship with award-winning Seagate Backup Exec software at no extra cost. This upgradable, industry-leading software provides comprehensive protection for your data, as well as your investment in it.

As your backup needs increase, consider the storage management possibilities of IBM tape libraries. With hardware data compression, tape library automation delivers up to one terabyte (1,050GB) of data backup capability. For large enterprise storage management, look at IBM's ADSTAR Distributed Storage Manager (ADSM). This renowned family of software products can integrate your unattended network backup and archive with storage management and powerful disaster recovery planning functions.

enterprise storage

35/70GB DLT Internal Tape Drive[3]

12/24GB 4mm DAT Internal Tape Drive

IBM RAID for Netfinity Servers

IBM RAID for Netfinity Servers

It's a sad fact that the contemporary business landscape is littered with the remnants of companies that left their key assets unprotected. Because your business-critical applications and data are the key resources around which your enterprise revolves, they must be protected. Utilizing a Redundant Array of Independent Disks (RAID) adapter is an excellent storage solution for businesses of all sizes to ensure the high availability and protection of these assets. The recently introduced third-generation of the IBM ServeRAID-3 family offers exciting new possibilities for expanding your RAID capabilities.

ServeRAID-3H and -3L Ultra2 SCSI Adapters

When paired with the Netfinity 7000 M10 server, the ServeRAID-3H provides phenomenal performance today, with room for growth tomorrow, making it particularly suitable for clustering. The 3H also lets you add an optional battery backup (with its *own* cache) that can actually save your data even if the system loses power. For less demanding network environments or for departmental use, you should consider the Netfinity 5000 server teamed with the single-channel ServeRAID-3L. Both ServeRAID-3s offer Ultra2 technology capable of incredibly long SCSI cable lengths at impressive data transfer speeds.

The IBM Serial Storage Architecture Technology is yet another innovation in storage performance. A full range of SSA RAID options complements our expansive portfolio of storage options, all of which provide industry-leading availability of data stored in your enterprise's networked systems.

The best RAID solutions for greater availability and protection of your business-critical data

IBM *Fibre Channel Storage Solutions*

Fibre: The Future of Storage...Today

Your business might be spread across a multi-building campus. Or it might be on the top floor of a high-rise office building. Whatever your situation, you need to be able to configure your storage solution based upon your unique requirements. You need flexible solutions that give you the ability to separate hardware: your Netfinity server in one building, your external storage devices in another, for example. Solutions that can take you beyond current technology for storing your vital business information—and make it available to your end users at high speeds over distances once thought impossible.

IBM Netfinity Fibre Channel storage solutions can support the massive data storage requirements of your business-critical applications and provide the scalability needed to meet the increased demands of your growing enterprise. For example, because Netfinity Fibre Channel storage solutions can support transfers over distances up to 10km (6.2 miles), companies can more easily configure off-site server and storage systems to keep critical data available around the clock—even in the event of a catastrophe.

The key to taking maximum advantage of the high data transfer rate and long distance capabilities of Netfinity Fibre Channel storage solutions is making sure the data or application is always available. That's where IBM Netfinity Fibre Channel hot-pluggable and redundant RAID controllers, power supplies and cooling systems support the uninterrupted flow of your business.

High-speed data transfer, highly expandable and flexible storage and the reliability to meet the growing demands of your enterprise

An excellent example of a high-availability storage solution is clustering, which permits the partnering of several servers and their fault-tolerant subsystems to keep up with end user demand for data. Utilizing Netfinity Fibre Channel storage solutions in this scenario helps move data fast enough that the interconnectivity links between servers and external storage are virtually invisible to the users. Netfinity Fibre Channel storage solution's high-speed data transfer also helps eliminate storage bottlenecks, so clustering in the enterprise is more powerful—and more flexible—than ever before.

As the storage requirements of enterprises continually increase—especially as more companies compete in the ever-growing, high demand, no-room-for-errors arena of worldwide e-business—the performance, capacity and reliability of IBM Netfinity Fibre Channel storage solutions are increasingly important to help business keep pace with information demand.

IBM Storage Expansion Solutions

Accommodate your business growth, increase your storage flexibility options and achieve a high level of data security

Tape Backup Expansion Solutions

It's one of your business goals to grow. To get bigger. To get better. To keep pace with your growth, you'll need to expand your tape backup systems. The flexible Netfinity NetMEDIA Storage Expansion Unit EL can help. It can house two DLT or four 8mm, DAT or Travan tape drives in your Netfinity rack or stack solution. It features dual independent power supplies and high-efficiency cooling. When used with the Netfinity NetMEDIA Systems Management Adapter and appropriate software, the NetMEDIA EL can help you implement tape mirroring or arrays for even greater data security.

Additionally, the flexible NetMEDIA Systems Management Adapter provides the added benefit of an Ultra-2 SCSI channel (also known as low voltage differential SCSI or LVDS) that handles both Ultra2 and earlier generation SCSI devices. Plus, the onboard electronic self-termination function lets you power off the NetMEDIA unit without disrupting the controlling server.

*NetMEDIA Storage Expansion Unit EL
with two DLT Tape Drives*

SCSI Hard Disk Drive Expansion Units

For increased hard disk drive storage expansion, look to the 10-bay Netfinity EXP15. The 3U[4] rack-mountable EXP15 offers high data availability thanks to redundant components that include powerful hot-pluggable cooling and power supplies. Further, by allowing increased cable distances, the EXP15 can be located away from the server, promoting the growth of DASD farms and other flexible storage configurations. The Netfinity EXP15 also offers investment protection by providing a high-performance platform for mounting future generations of hard disk drives required by your growing business.

Netfinity EXP15

Added systems management functionalities of the EXP15 include the provision for remote monitoring and diagnostics capability. For example, if the system self-diagnoses a potential overheating problem, it can automatically send a high temperature alert to your systems management console for immediate action.

SSA Storage Expansion Units

The IBM SSA disk subsystem is another high-availability enterprise storage management solution. Like the Netfinity EXP15, its rackable design has hot-pluggable cooling and power systems and can operate at greater distances from the host server for increased floor space flexibility. If SSA is your storage technology of choice, you should know that IBM offers the widest range of SSA components in the world.

IBM Rack Solutions

Don't grow out of your floor space; grow within it

IBM Rack Solutions

Let's assume your business and the technology that supports it grow in concert, but your floor space remains the same. Even if your IT budget can't support a new building this year, you can still effectively manage your floor space while maintaining easy access to crucial components with an IBM rack solution. An IBM rack solution can conveniently house multiple servers, SCSI or Netfinity Fibre Channel Solutions, an uninterruptible power supply (UPS) or NetMEDIA and EXP15 Storage Expansion Units.

For scalability and investment protection, all IBM NetBAY products promote easy configuration flexibility, tidy, efficient cabling and easy access to key system components within the enclosure. Plus, you can connect additional NetBAY enclosures to gain "intra-rack" solutions and capabilities. It's the perfect building block for protecting your equipment investment because it lets you easily implement rack and/or stacking expansion options as your business expands.

With the innovative NetBAY3 stackable enclosure you can add up to three pedestals—for a total 9U of expansion space—in your Netfinity 7000 or 5500 server system. If you need more, consider the NetBAY22 half-height rack with 22U capacity. Or move to the full-size IBM Netfinity Rack with 42U capacity, capable of holding up to eight servers (or five when configured with a console and UPS).

Netfinity RACK

NetBAY22

NetBAY3

For performance, control, scalability and security, IBM has the enterprise storage solutions you need.

So what's your best answer to the two-fold challenge of obtaining outstanding performance today while ensuring a path to meet the storage issues of the future? Trust your data to the company that's the global leader in enterprise storage technology. Work with the company that pioneered enterprise storage technology. The company that continually delivers an unmatched breadth of cutting-edge solutions that help you optimize your Netfinity investment.

Take some time. Carefully consider your storage needs. And then choose IBM storage solutions. For breakthrough products. Reliable, innovative technology. And uncompromising, world-class service and support.

Your best choice for storage today—and tomorrow—is the company that invented it yesterday: IBM.

Netfinity Solutions	
Options by IBM www.ibm.com/pc/us/accessories	The established way to add capacity and function to your Netfinity server with a wide range of options specifically designed and optimized for your Netfinity system. Options by IBM also offer the added benefit of assuming the three-year warranty term of the Netfinity server system they are installed on to provide seamless warranty coverage.
ServerProven[5] www.ibm.com/pc/us/netfinity/serverproven	To provide a broad selection of easy-to-install-and-use software and hardware, IBM's Netfinity ServerProven Program works with vendors to test hundreds of products, options, network operating systems and applications.
The best in the business working together	As an integral part of system design, IBM brings the best in the business together for you through strategic alliances with key industry leaders such as Microsoft, Intel, Lotus, Oracle, Novell, SCO, SAP, J.D. Edwards and Baan.

tech library

Server Tech Library:
www.pc.ibm.com/us/netfinity/tech_library.html

- **technical specs**
- **white papers**
- **information briefs**
- **hardware service manuals**

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IBM Reseller and general information

United States	1 800 426-7255 ext. 4752
Canada	1 800 426-2255

World Wide Web

U.S.	www.ibm.com/netfinity
SSA and Magstar Storage Solutions	www.ibm.com/storage

Y2K **Get Year 2000 Ready** — www.ibm.pc.com/year2000

IBM Fax Information Service — **1 800 IBM-3395**

	Doc#		Doc#
Netfinity Family Brochure	43010	Hard Disk Drives Quick Reference	43102
Netfinity 7000 M10	43040	Netfinity Hot-Swap Hard Disk Drives	43110
Netfinity 7000	43014	Netfinity ServeRAID 3	43046
Netfinity 5500 M10	43042	Netfinity ESCON Adapter	43045
Netfinity 5500	43030	7133 Serial Disk System	43116
Netfinity 5000	43043	7131 SSA Multi-Storage Tower Model 405	43117
Netfinity 3500	43021	3527 SSA Storage Subsystem	43118
Netfinity 3000	43026	IBM SSA RAID Adapter for PC Servers	43119
Netfinity rack solution	43018	IBM SSA RAID Cluster Adapter	43120
System Management	43011	IBM and Microsoft	43023
Clustering for high availability	43012	IBM and Baan	43027
Fibre Channel Solutions	43044	IBM and Lotus	43028
Netfinity service and support	43031	IBM and Oracle	43025
Netfinity Tape Backup Solutions	43103	IBM and SAP	43026
Tape Drives Quick Reference	43106	IBM and SCO	43022
Magstar MP for Netfinity	43122		

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[1] Eligibility for the Technology Exchange is based on total IBM PC hardware acquisition commitment for a 12-month period; minimum qualifying levels apply.

[2] When referring to hard drive capacity, GB means one billion bytes. Total user-accessible capacity may vary depending on operating environments.

[3] Actual storage capacity will vary based upon many factors and may be less than 35/70GB.

[4] A single "U", or rack unit, is 1.75" or 44.45mm.

[5] Warranty and service for Server Proven products are provided by the third party manufacturer, not IBM.

For Position Only

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