

1U low-profile IBM NAS solution for central management
of remote and distributed locations



IBM TotalStorage™ Network Attached Storage 100 Model R12



IBM Network Attached Storage 100 Model R12

Highlights

- **Reliable**—480GB¹ of network attached storage in a 1U tabletop configuration with a rack-mounting chassis option and hot-swappable hard drives help protect against downtime.
- **Secure**—Software RAID 0, 1, 5 designed to help guard against the loss of data in the event of a hard disk failure and designed to support business continuance.
- **Flexible**—Cross-platform file sharing (Windows® [CIFS], UNIX® [NFS], HTTP, FTP, Apple File Protocol and Novell® NetWare®) can help reduce network complexity and maintenance expense and allows data to be used across the organization.
- **Systems management**—Advanced systems diagnostic and management tools can help minimize downtime.
- **Performance**—Innovative design incorporates an advanced Intel® Pentium® III processor to help keep performance high, even during peak usage periods.
- **Data consolidation**—Centralized data management can help increase operational efficiency and can contribute to a lower total cost of ownership.
- **Simple and flexible backup solutions**—Quick and efficient backup and restore through interoperable solutions with popular backup and restore software programs.

- **Ease of use and ease of management**—Web-browser interface helps simplify installation. Comprehensive centralized management tools include support of IBM Director 3.1.1, Microsoft® Multiple Device Manager and other management tools.

- **Tested interoperability**—The IBM TotalStorage Proven program is an interoperability testing program for IBM and third-party storage products intended to help customers identify interoperable configurations and solutions to help lower integration costs and support faster deployment.

IBM, NAS and Storage Networking

One of the most recent additions to the IBM TotalStorage™ Network Attached Storage (NAS) family, the IBM NAS 100 R12 features a 1U tabletop deployment or rack-mounting option. With a comprehensive systems management offering, it centrally manages storage for your distributed branch and remote locations. The IBM NAS 100 is designed to deliver an affordable, dedicated storage solution within a distributed or remote environment to support file sharing for office automation tasks, e-mail storage, file archiving or backup for connected clients. Because the IBM NAS 100 is designed for interoperability, it can often be integrated into existing IT infrastructures by connecting directly to existing

Feature	Potential Benefits
Windows Powered OS	Optimized Windows Powered OS helps support high throughput (I/O) performance.
Advanced data protection	Comprehensive data protection through automatic boot disk and OS failover/mirroring and automatic failover of LAN Gigabit Ethernet controllers is designed to help protect your data for business continuance.
Simplified installation	Simplified installation helps deliver storage typically within 30 minutes without tying up valuable IT resources.
Versatility	Multiple network protocol support offers better data integration across the organization and helps eliminate the need for a separate file server for each format. Tabletop with rack mounting kit is optional.
Reliability	Hot-swap, redundant hard disk drives as well as IBM Director Agent help protect against downtime.
Performance	Excellent performance for Windows users and excellent overall performance for mixed platform environments is provided.
Affordability	The IBM TotalStorage NAS 100 requires a low initial investment, which helps to lower the total cost of ownership for workgroups and departmental environments.

local area networks (LANs) using existing management environments for easy deployment. The IBM NAS 100 offers the option of a SCSI controller for a variety of tape backup solutions.

Affordable storage for rapid deployment

Easily installable and configurable, the IBM NAS 100 is designed to provide a cost-effective solution for customers who require network attached storage for storage consolidation, file sharing or simply adding incremental storage to the network for clients and/or servers. Its support of multiple protocols allows file sharing in Microsoft Windows, UNIX or mixed environments and helps eliminate the need for a separate storage arrangement for each protocol. File permissions can be enforced across platforms and its Web-browser interface helps simplify installation.

The IBM NAS 100 is designed for deployment in 30 minutes or less for the tabletop configuration, with little or no additional configuration or network downtime. Ease of installation, ease of management, comprehensive system

management and centralized management tools offer the storage strategy you are looking for in your remote and distributed branch locations.

High-reliability design

Hot-swappable and redundant hard disk drives and automatic failover of the Gigabit Ethernet ports are among the reliability features of the IBM NAS 100. The hot-swappable drives support the plug-in and plug-out of a hard disk drive (HDD) while the ATA bus is active. Once the plug-in of the HDD is detected, the operating system adds the new HDD or removes it and then powers it off. This redundant feature contributes to overall network dependability by reducing network downtime, since IT staff typically do not have to take the IBM NAS 100 offline when replacing disk drives. In addition, two failover Gigabit Ethernet controllers contribute to NAS 100 reliability.

The operating system and application code are mirrored between the first and second drive and protected by failover in the event of a failure on any one of the drives, thus adding to its overall reliability.

If the primary drive fails, the second one takes over automatically.

Data protection when you need it

The IBM NAS 100 provides a variety of features to help safeguard your most valuable asset—your data. By providing a choice of software RAID levels, the NAS 100 helps protect against the failure of any individual disk. The IBM NAS 100 also is interoperable with a variety of backup options, including popular backup software such as Tivoli® Storage Manager™ (TSM) agent and client v4.2 and Microsoft Windows NT® Backup agents, both pre-installed on the product.

In addition to RAID and backup support, the IBM NAS 100 supports data protection with Persistent Storage Manager™ (PSM), included as part of the basic NAS configuration package. Using Columbia Data Products® PSM, up to 250 Persistent True Image™ views of data can be created. These point-in-time views can be created on a scheduled basis, and with the proper permissions, users can usually restore previous file levels without administrator involvement.

Administrators can also typically restore entire drives and volumes in a single step, saving precious IT time by reducing or eliminating the need to drag and drop thousands of files back to the original location. By incorporating its own open file manager, PSM can also help to administer the consistent backup of in-use files. The open file manager can help to reduce or eliminate system access issues during backup, supporting continued access to data.

Intelligent systems and device management

The IBM Director Agent, with its Universal Manageability Services, works with the IBM Director Console to help manage systems intelligently. It functions as the client-side software for use with IBM Director, but it can also be used independently of the IBM Director Console for added flexibility and remote management for both IBM and non-IBM systems. This client management application is designed to allow IT administrators to view, monitor and control systems from its easy-to-use Web interface.

The Director Agent provides general system information including details on the operating system, basic system hardware, system health, drivers, services, disk drives and ports. In addition, proactive systems management functions include power management, AssetID and event logs.

Microsoft Multiple Device Manager (MDM) is also supported. MDM provides administrators the capability of managing multiple appliances and enables them to have greater control over access to the devices. It manages multiple server appliances from a central location including system discovery function. Its features include auto-discovery of new devices added to the network, the ability to track and audit operational histories of the devices, grouping capabilities for management purposes, updated security and SAK Alert aggregation for sets of devices.

High-capacity storage designed for a variety of network environments

As storage networks become more complex, organizations are faced with finding cost-effective ways to manage their exponential growth. The IBM Network Attached Storage 100 helps provide solutions for these expanding requirements.

The IBM NAS 100 is designed to work well in distributed and remote settings and where central management of branch locations is a requirement. It delivers 480GB of storage and supports excellent performance for Windows and mixed Windows/UNIX environments. Whether delivering affordably priced storage for a large retail chain with thousands of remote locations or a large or mid-market enterprise with hundreds of branch locations, the IBM NAS 100 is designed to meet expanding storage requirements.

The IBM NAS 100 is well suited for the following storage environments, among others:

- *Remote retail locations*
- *Distributed locations of the Storage Service Provider (SSP)*
- *Remote financial services*
- *Healthcare locations*

Preloaded system software

The IBM NAS 100 series is preloaded with a tightly integrated suite of software, including a Microsoft Windows Powered operating system tuned for storage. This software typically helps to simplify the installation, configuration and management of the NAS 100 compared to general-purpose file servers. It also allows IT staff to focus on client issues rather than purchasing and configuring additional software. The entire software image is loaded into the engine's hard disk drive and includes:

- *Microsoft Terminal Services and IBM Director Agent, with its Universal Manageability Services (Web-based GUI), supports efficient, centralized management via IBM Director Management Server software*
- *Web browser and IBM Advanced Appliance Configuration Utility for headless setup and configuration*
- *Windows NT Backup*
- *Tivoli Storage Manager agent and client for storage management and backup*
- *Columbia Data Products Persistent Storage Manager for True Image data views of files, drives and volumes (backup enablement)*

Network Attached Storage 100 at a glance

IBM NAS 100 1U (5190 Model R12)

Product packaging

Form factor	1U
Disk type	ATA IDE/120GB/7200 rpm
Number of disks	4 x 120GB
Power supply	162 watts
Tape backup	Optional through Ultra2 SCSI PCI adapter
Physical dimensions	425mm W x 468mm D x 42mm H (16.73 in. W x 18.43 in. D x 1.65 in. H) Weight 9.3 kg (20.5 lb)

Operating environment

Temperature	16° to 32° C (61° to 89° F) at 0 to 2133 meters (7000 feet)
Relative humidity (non-condensing)	8% to 80%
Maximum altitude	2133m (7000 ft)
Electrical	90 - 240 V ac; 50Hz - 60Hz; 3.0A - 1.5A

Performance

Processor type	One 1.26GHz ² Intel Pentium III with 133MHz front-side bus
Level 2 cache	512KB on CPU
ECC SDRAM memory	512MB PC-133 Registered SDRAM memory with ECC
RAID accelerator supported	Software RAID (0, 1, 5 RAID supported)
RAID level	Software RAID (0, 1, 5 RAID supported)
File protocols supported	CIFS, NFS, HTTP, Novell NetWare, Apple File Protocol, FTP

Performance

	RAID-5	RAID-0
NetBench 7.0	100Mbps	380Mbps
SPECsfs v3.0 (nfs2.0)	100ops	600ops

Connectivity

PCI slots available	1 for optional SCSI adapter
Standard network connectivity	Dual copper 10/100/1000Gbps Ethernet Copper controllers shipped standard
External Tape Backup PCI options	SCSI Ultra2 ports

Software

Operating system	Windows Powered OS
Backup software	Windows NT Backup Tivoli Storage Manager agent and client v4.2 (see Interoperability list and TotalStorage Proven list on ibm.com for additional supported backup software)
Storage management software	Storage Central v1.01 Columbia Data Products Persistent Storage Manager v2.2
Systems management software	IBM Director v3.1 agent SNMP CIM Microsoft Multiple Device Manager (MDM)
Remote administration	Web browser Universal Manageability Services Microsoft Terminal Services
Configuration tools	Web browser IBM Advanced Appliance Configuration Utility

Network Attached Storage 100 at a glance

High availability	Hot-swap, redundant disk drives and automatic failover of dual Gigabit Ethernet Controllers IBM Director agent 3.1.1 with UMS
Standards	MPS 1.4, PCI specification 2.1, ISO 9241 Part 3 SNMP CIM ASF MIBS supported MIB-II
Approvals and safety	EMC - FCC Class A, CISPR-22 class A, VCCI Class A CE, u-UL, IEC950/EN60950
Support features	IBM Start-Up Support IBM Global Services IBM Hardware Services—IBM installation and configuration services for IBM TotalStorage IBM operational support services—Support Line Data migration services IBM Storage Consulting
Configurations	480GB
Options and accessories	Rack-mounting kit SCSI controllers for tape backup solutions HDD for spare Optional SCSI Ultra2 SCSI port IGS Storage Consulting Services
Backup interoperability	IBM has tested the IBM NAS 100 for interoperability with a variety of backup devices and software; visit our Interoperability or IBM TotalStorage Proven pages for the most current list of tested vendors
Warranty	U.S. and Canada: first year, on-site repair; second and third year, parts only EMEA: one year parts, one year labor AP: three years parts, three years labor Japan: one year parts, one year labor LA: three years parts, three years labor

¹ All references to storage capacity refer to raw storage. Usable storage is dependent upon the RAID level and number of hot spares employed.

² GHz only measures microprocessor internal clock speed, not application performance.

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

For more information

To find out more about the IBM NAS offerings and other high-performance IBM Storage Networking products, contact your IBM representative, IBM Business Partner or call IBM Direct at 1 800 IBM-CALL (1 800 426-2255) or visit ibm.com/storage/nas



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