



Highlights

- Provides extreme scalability to accommodate capacity growth
 - Enables ubiquitous access to files from across the globe quickly and cost effectively with IBM Active Cloud Engine™
 - Achieves operational efficiency with automated, policy-driven tiered storage
 - Lowers TCO by up to 40 percent with automated life-cycle management and migration to tape
 - Satisfies bandwidth hungry applications with scale-out performance
 - Supports both random access and streaming workloads
 - Enables disaster recovery and business continuity
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IBM Scale Out Network Attached Storage

Most advanced architecture, flexible clustered scale-out solution

The demand to manage and store massive amounts of file data continues to challenge data centers. IBM® Scale Out Network Attached Storage (SONAS) is designed to embrace and deliver cloud storage in the petabyte age. SONAS can meet today's storage challenges with quick and cost-effective IT-enabled business enhancements designed to grow with unprecedented scale.

SONAS can also deliver storage services that make the supporting technology almost invisible. It allows applications and services to be uncoupled from the underlying infrastructure, enabling businesses to adjust to change quickly. As a result, SONAS can easily integrate with your organization's strategies to develop a more dynamic enterprise.

- Organizations with fast-growing, rapidly multiplying file systems are beginning to discover that traditional NAS—even clustered NAS—has serious problems. Managing and supporting storage as it scales to millions then billions, of active files is extremely complex. When such massive numbers of files require separate file systems connected with many separate servers operational complexity grows exponentially. Consolidating tens, even hundreds, of these file servers into high-end scale out NAS becomes a necessity. This is where SONAS helps. SONAS is designed to scale out to store millions to billions of active files in a single namespace. SONAS offers operational efficiency and administrative savings, combining massive scalability with automated file management to quickly deliver information around the world.



- SONAS is an ideal solution for cloud storage implementations. It is designed to consolidate files that are scattered in multiple storage locations and allow them to be efficiently shared and managed. The IBM Active Cloud Engine is a unique capability of SONAS (offered at no charge) that enables this and more. The Active Cloud Engine is a suite of capabilities specifically designed to manage files in an automated, scalable manner. It creates the appearance of a single system despite geographic, physical, media or other discrepancies that may exist in the physical world. It is designed to put the right file in the right place at the right time to give users the fastest possible access with the same view of their data no matter where they are. It enables ubiquitous access to files from across the globe quickly and cost effectively. The Active Cloud Engine offers clients not only a high performance file serving function, but also reduced network costs. It localizes file data where it is needed. It can prepopulate files to remote sites in advance of that file request coming in, which allows for high availability and very fast access of those files at remote sites. This capability allows for file sharing and content distribution while it shields applications from fluctuating WAN latencies (performance fluctuations and outages during accessing data across a WAN). In addition, it eliminates unnecessary replication of files to remote sites thereby significantly lowering network and storage costs.
- When managing millions to billions of files, the protection and availability of these files are critical. SONAS is a reliable, scalable storage solution with built-in high availability and redundancy. The Active Cloud Engine within SONAS provides automated policy-based file management that enables backups and restores, snapshots and remote replication. SONAS has a specific exploitation and integration with IBM Tivoli® Storage Manager to provide very efficient and extremely fast backup and restore processes, and the movement of files to an external disk or tape. In addition, SONAS provides support for the Network Data Management Protocol (NDMP) “at scale” to provide both full and incremental backup of files as well as restoration of these files and related file system data if needed. Support for the NDMP allows for backing up SONAS with ISV backup applications like Symantec, Commvault, Legato and other backup applications over the LAN. The SONAS policy engine increases the efficiency of backing up billions of files by scanning their metadata in just minutes.



- SONAS provides central deployment and management of automated tiered storage, with high performance and high storage utilization. Based on an industry-standard SPECsfs benchmark using a realistic, standard configuration, SONAS demonstrated excellent near-linear performance for a single file system without compromising capacity or cost.
- Protecting business information from malware and viruses is a business imperative. Integration with McAfee and Symantec Antivirus is designed to provide the ability to isolate or delete compromised files, and protect data from risks due to viruses that can potentially compromise data in a SONAS.
- SONAS provides ease of use for administrators through an intuitive GUI. This user interface is similar to those used in IBM XIV® or Storwize® V7000. SONAS's highly intuitive GUI and built-in policy-driven management tools through IBM Active Cloud Engine make administrative tasks easy and efficient.

IBM Systems and Technology
Data Sheet

Feature	Benefits
Massive scalability	<ul style="list-style-type: none"> Supports billions of files (up to 21 petabytes of storage) in a single file system. Supports up to 256 file systems.
Flexibility	<ul style="list-style-type: none"> Allows access to your data in a single global namespace, allowing all users a single, logical view of files through a single drive letter such as a Z drive. Provides efficient distribution of files, images and application updates and fixes to multiple locations quickly, cost-effectively. Offers internal (SAS, Nearline SAS) and external (tape) storage pools, and automated file placement and file migration based on policies. It can store and retrieve any file data in or out of any pool transparently and quickly without administrator involvement. Provides multiple storage tiers for flexible, efficient management of petabytes of files. Supports industry standard protocols: CIFS, NFS, FTP, HTTPS. Includes up to two dual port 10 GbE cards per interface node, which provides each interface node with more flexibility, connectivity and performance enablement. It offers additional connectivity to manage multiple data streams and functions (NDMP, TSM, antivirus or asynchronous replication or both).
Operational savings and TCO	<ul style="list-style-type: none"> Consolidates multiple individual filers and their management, thereby avoiding problems associated with administering an array of disparate NAS storage systems. Localizes files to improve file access performance and reduced network costs. Automates file placement by transparently moving files to another internal or external storage pool, optimizes your storage resources and offers tremendous time and cost savings in administering petabytes of files. Enables automated file migration to external storage devices (i.e. tape), managed by Tivoli Storage Manager to help lower TCO by up to 40 percent over the long term. Helps conserve floor space (up to a petabyte of data in less than a square meter), is highly scalable, and can help reduce your capital expenditure and enhance operational efficiency. Its advanced architecture virtualizes and consolidates your file space into a single, enterprise-wide file system, which can translate into reduced TCO.
Performance	<ul style="list-style-type: none"> Scans billions of files in minutes with the robust IBM Active Cloud Engine, and take action (i.e. migrate, backup, delete, replicate etc.). Leverages two dual port (all ports active) 10 GbE interface cards offering high bandwidth and additional connectivity in each SONAS interface node to manage multiple data streams and functions (i.e. backup, replication, antivirus). Offers scale-out performance by adding more interface nodes (front end) and storage pods (back end). Provides fast asynchronous replication performance with the ability to define up to 10 replication processes per node.
Data protection	<ul style="list-style-type: none"> Asynchronous replication for site-to-site protection provides disaster recovery and business continuity. File system and filesset level snapshots (up to 256 per file system). Snapshots of a filesset provides a way to partition the namespace into smaller, more manageable units. File level cloning provides a full copy of a file at better granularity. Tivoli Storage Manager integration provides very efficient and extremely fast backup and restore processes, and policy-driven migration of files to an external disk or tape based. NDMP support provides both full and incremental backup of files. RAID 6.

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Data Sheet

Feature	Benefits
Cloud storage	<ul style="list-style-type: none"> • IBM Active Cloud Engine enables ubiquitous access to files from across the globe quickly and cost effectively. • Self-managing, autonomic system enables capacity, provisioning and other IT service management decisions to be made dynamically, without human intervention or increased administrative costs. • Seamless elasticity allows you to scale computing resources up or down, as required, to meet changing organizational needs without service interruption. • Highly resilient and secure applications and an underlying infrastructure help meet expected levels of availability, reliability and integrity. • Highly standardized environment facilitates simultaneous service deployment and upgrades for all users, no matter where they reside. • Economies of scale lower the cost of service access. • Capital preservation. • Clouds can provide rapid access to computing capacity at a lower cost of ownership enabling companies to perform operations that may have previously been unaffordable or impractical.
Antivirus	<ul style="list-style-type: none"> • Integration with McAfee and Symantec Antivirus allows customers to secure their data from malware and leverage the most commonly deployed ISV antivirus applications.
User interface	<ul style="list-style-type: none"> • Command line interface (CLI) and browser-based simple, intuitive GUI.
Advanced features	<ul style="list-style-type: none"> • The IBM Active Cloud Engine in SONAS is an industry unique, powerful capability designed to leverage the integrated Tivoli Storage Manager (TSM) backup and archive client to increase efficiency when backing up billions of files.
Disk drive support	<ul style="list-style-type: none"> • 600 GB or,900 GB SAS drives • 2 TB or 3 TB Nearline SAS drives.
Storage efficiency	<ul style="list-style-type: none"> • Reduce infrastructure and administrative complexity and cost, and increase resource efficiency, with a consolidated, virtualized infrastructure. • Achieve time and cost efficiencies with tiered storage (disk and tape) and policy driven automated file management. • Scale out performance and capacity while managing a single, global namespace.

Specifications	
Host interface	CIFS, NFS, FTP, HTTPS
Supported drives	SAS: 600 GB (15K rpm), 900 GB (10K rpm) Near-line SAS: 2 TB , 3 TB (7200 rpm)
RAID levels	RAID 6
Maximum drives supported	7,200
Fans and power supplies	Fully redundant, hot swappable
Rack support	42 Electronics Industries Alliance (EIA) units
Management software	SONAS software
Warranty	One year 9 x 5 next business day, upgrade to 24 hour x 7 days a week x 4 hour response

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Specifications	
Dimensions	Width: 644 mm (25.4 in.) Depth: 1329 mm (52.3 in.) Height: 2015 mm (79.3 in.)
Weight	Fully populated Model weight: 2851-RXA Fibre Channel 9003 794 Kg (1750 lbs) 2851-RXA Fibre Channel 9004 749 Kg (1650 lbs) 2851-RXA Fibre Channel 9005 1044 Kg (2300 lbs) 2851-RXB 1343 Kg (2960 lbs) 2851-RXC 817 Kg (1800 lbs)
Environment	Allowable: <ul style="list-style-type: none"> • Temperature: 15°C to 32°C (derate maximum allowable temperature 1°C per 300 m above 900 m) • Relative humidity: 20% to 80% RH • Maximum dew Point: 17°C • Maximum altitude: 3050 m (10,000 ft.) Recommended: <ul style="list-style-type: none"> • Temperature: 18°C to 27°C (derate maximum recommended temperature 1°C per 300 m above 1800 m) • Relative humidity: 60% maximum • Dew point: 5.5°C to 15°C Conforms to the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Class 1 Nonoperating (equipment powered off) <ul style="list-style-type: none"> • Temperature: 5°C to 45°C • Relative humidity: 8% to 80% • Maximum dew point: 27°C Shipping: <ul style="list-style-type: none"> • Temperature: -40°C to 60°C • Relative humidity: 5% to 100% (noncondensing) • Maximum wet bulb: 29°C
Supported systems	For supported servers, operating systems, host bus adapters, clustering applications, SAN switches and directors, consult your IBM sales representative.
Certifications	For ISV solutions, please visit the ISV Solutions resource library at: ibm.com/systems/storage/solutions/isv/index.html

For more information

To learn more about the [IBM Scale Out Network Attached Storage](#), please contact your IBM marketing representative or IBM Business Partner, or visit: ibm.com/systems/storage/network/sonas/

Additionally, IBM Global Financing can tailor financing solutions to your specific IT needs. For more information on great rates, flexible payment plans and loans, and asset buyback and disposal, visit: ibm.com/financing



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Route 100
Somers, NY 10589

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