

Solution Brief

Nasuni for macOS



Highlights

Enable high performance Apple macOS file access and collaboration across many sites

Use extended attributes like color tags and metadata to enhance macOS application files

Support unlimited file names and path sizes for greater usability

Ensure project and business continuity with access to all files even if entire offices go offline

Leverage cloud scalability and economics with support for all major private and public cloud storage platforms

Ensure security in transit and at rest with all data encrypted using customer-controlled keys

Archive cold files at low-cost but have them quickly accessible if needed

The Challenge: Slow File Server Performance and File Incompatibilities for macOS Clients

Many organizations, especially those in creative industries, utilize both Microsoft Windows and Apple Mac computers. While both support the SMB protocol for file sharing, significant variations in performance exist between the two major OS platforms when it comes to connecting both types of clients to traditional Network Attached Storage (NAS) or Windows file servers. Additionally, most the macOS and many macOS applications store Mac-specific file system metadata that is not supported by many traditional SMB file servers.

The result is performance and compatibility issues for macOS users, which in turn increases the burden on IT. Administrators must constantly look for ways to provide Mac users with high performance access to file data.

Furthermore, files generated by popular Mac applications such as Adobe Photoshop, InDesign, and Illustrator, as well as the images and multimedia files they use, are constantly increasing in size. The cost and complexity to keep up with this rapid file growth is often too great for traditional NAS and file servers, especially when files need to be shared across many locations.

The Solution: Nasuni's Advanced macOS Client Support

Nasuni Enterprise File Services is the solution many media, PR, advertising, retail, and other Mac-heavy enterprises are now using for primary file storage, data protection, and multi-site file sharing. Powered by the Nasuni UniFS® global file system, the Nasuni platform uses affordable, scalable object storage from leading on-premises and public cloud providers to store all file data, then caches the actively used files and metadata on edge appliances that can be deployed anywhere high performance file access is needed. These appliances support SMB and other file sharing protocols, along with Mac-specific SMB extensions that improve directory browsing performance and application compatibility.

With Nasuni, macOS users and applications can access files with the same performance as SMB-based Windows clients and enjoy a productive user experience that is compatible with both OS types.

Advanced SMB Support for macOS

The SMB protocol was originally designed for Windows and as such, provided no additional support for macOS users. Nasuni edge appliances use a hardened Linux OS with Samba to provide CIFS/SMB access. On top of this, additional capabilities have been added to accelerate macOS file sharing performance and improve compatibility in mixed Windows and macOS environments, including:

Samba vfs_fruit support - The vfs_fruit VFS module for Samba provides enhanced compatibility and performance for Apple SMB clients by implementing full support for Apple's AAPL SMB extensions.

Alternate data stream support (ADS) - Nasuni stores metadata and system information in alternate data streams whenever possible to minimize the amount of file system overhead associated with supporting Mac clients.

Full support for resource forks - Resource forks and AfplInfo are stored in the file system rather than utilizing alternate data streams to preserve full compatibility and remove resource size limitations.

Tag support - Users can use the Mac Finder to tag files and folders to provide an additional way to distinguish them from other files. Nasuni's SMB implementation supports applying both individual and multiple tags while ensuring that additional overhead isn't added for Windows users.

macOS Owner Permissions control - Nasuni provides macOS users extra permissions security by using the NTFS "Owners Rights" well-known SID. This prevents intentional as well as accidental macOS permissions changes on mixed Windows and macOS file shares, ensuring uninterrupted access to all files.

Support for special characters and long file names and path lengths - Unlike traditional Windows file servers, Nasuni has no limits on file names or path lengths. Users can take full advantage of macOS naming and storage semantics without worrying about losing access to files and folders.

Nasuni and macOS Architecture

Benefit Summary: Apple macOS users and clients

Improved macOS application compatibility and performance compared to traditional NAS or file servers

Collaborate on Mac and Windows projects across an unlimited number of offices

Supports the latest versions of macOS to ensure interoperability

Enable multi-site file synchronization from any location without version conflicts

Eliminate data sprawl with a single global file system that supports all types of user files

Recover lost, deleted, or archived files or work sets in seconds or minutes, not days or weeks

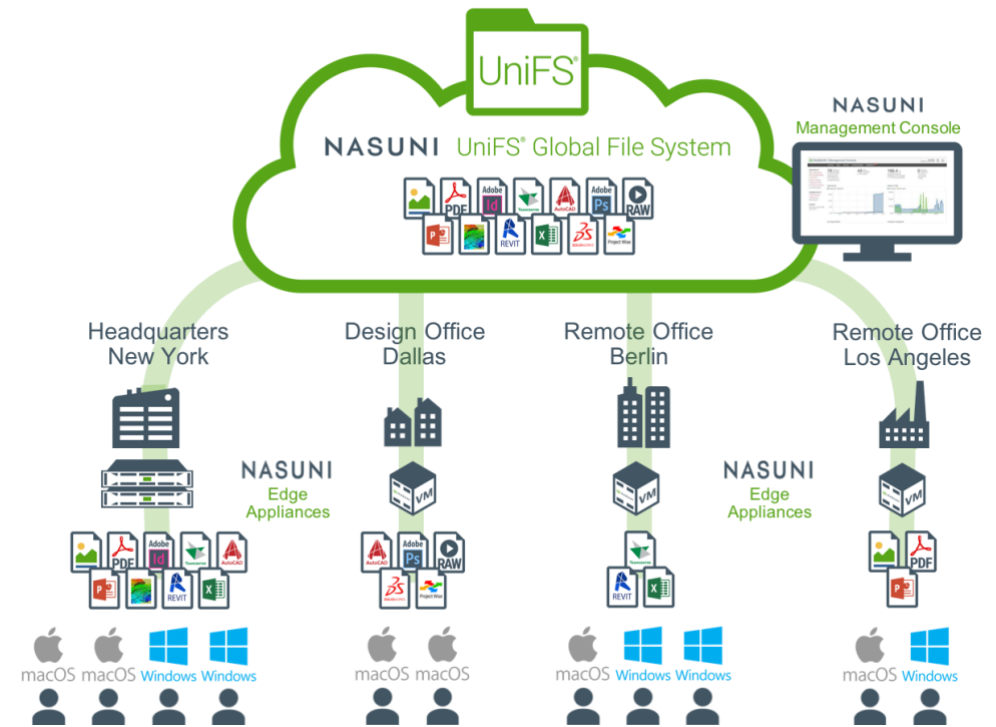
Move project files to expertise, not the other way around

Powered by the Nasuni UniFS® global file system, Nasuni stores all file data in object storage located in a private (on-premises) or public cloud. The small subset of file data that is actively used – along with its associated metadata, including macOS extended attributes and additional metadata – is cached by Nasuni Edge Appliances wherever high performance file access is needed.

Nasuni uses affordable, high-speed Internet bandwidth to keep active files and metadata synchronized across all edge appliances.

This flexible, transformational approach combines the limitless capacity and low cost of object storage with the security and performance of traditional NAS devices and file servers.

Beyond lower cost, more scalable, and easier to manage file storage, Nasuni enables files to be seamlessly shared across Mac and Windows clients in any number of locations.



Benefit Summary: IT

Reduce CapEx and OpEx up to 70%

Simplify support of mixed OS client environments

Reduce file storage resources in each office up to 80%

Reduce reliance on MPLS and remote access tools for cross-site file access

Eliminate backup, DR, and archive software maintenance, hardware, and media costs

Provision more capacity in minutes simply by expanding object storage and Nasuni subscription

Nasuni automatically synchronizes changes made to files in any location first with the master copy in cloud object storage, and then with all other edge appliances, maintaining all metadata attributes across every site.

To facilitate fast, secure propagation of file changes across locations, Nasuni chunks, de-duplicates and compresses all files and metadata, then encrypts the data with customer-controlled AES-256 encryption keys before it is sent from an edge appliance to object storage. This minimizes data transmission times while maximizing data camouflage. All files and metadata are transmitted to multiple locations simultaneously, eliminating point-to-point transmissions and the associated delays.

Just like traditional file servers and NAS, Nasuni edge appliances leverage existing LDAP and Active Directory infrastructure for authentication, and support standard file sharing protocols such as NFS and CIFS/SMB with extended attributes. SMB1, SMB2 and SMB3 are all supported.

The big difference, whether the appliances are physical models from Nasuni or virtual appliances using existing infrastructure, is they only require a fraction of the storage capacity of a full-sized file server or NAS device, since they are only caching active files. The resulting 80% reduction in hardware resources and cost enables edge appliances to be deployed in every location that needs access to the global file system.

With Nasuni, globally distributed teams can collaborate on all files from Windows or Mac clients as if they were in the same office, with the same levels of access and performance.

About Nasuni

Nasuni enables organizations to store, protect, synchronize and collaborate on files across all locations at scale. Nasuni Enterprise File Services™, powered by the Nasuni UniFS® global file system, leverages cloud storage to modernize NAS, file server, archiving, and backup, while offering transformational new capabilities for multi-site file sharing. By combining the low cost, unlimited capacity, and durability of object storage from leading cloud vendors such as Amazon, Azure, Dell EMC, and IBM, with the high performance, security, and broad application compatibility of traditional file storage, the Nasuni subscription service improves workforce productivity, simplifies IT operations, and reduces IT costs. The world's largest companies in 12 industry sectors rely on Nasuni to maximize the business value of their file data and ensure business continuity.

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