Replacing Windows File Servers with Google Cloud and Nasuni

Brien M. Posey

Executive Summary

Although Windows Server based file servers have long been a staple of the enterprise data-center, there are numerous factors that are driving organizations to migrate their Windows file servers to the cloud. By and large these organizations are finding that by migrating their file servers to the Google Cloud with Nasuni, they can simplify IT operations while also reducing costs and improving scalability.

Windows Server 2008 End of Life

One of the factors that has been driving file server to cloud migrations is the fact that Windows Server 2008 and 2008 R2 both reached their end-of-life date in January 2020. While it is true that both Windows Server versions will continue to function indefinitely, Microsoft is no longer providing security updates. This leaves organizations who continue to run Windows Server 2008 or 2008 R2 vulnerable to attack.

Organizations that continue to operate Windows file servers with unsupported operating system versions have a few different options available to them. One option is to simply upgrade to a newer Windows Server version. While this is a viable option, the required licenses could potentially be cost prohibitive. Additionally, upgrading to a newer version of Windows Server may require an organization to purchase updated hardware. Finally, organizations must also consider the longevity of their investment. Microsoft has retirement dates scheduled for all its products. As previously noted, Windows Server 2008 and 2008 R2 recently reached their end-of-life date, and the end-of-life date for Windows Server 2012 and Windows Server 2012 R2 will be coming up in a couple of years.

The second option that is available to organizations who wish to continue running Windows Server 2008 R2 is to purchase extended security updates from Microsoft. Microsoft has committed to making extended security updates available to customers who wish to continue running Windows Server 2008 or 2008 R2. However, these updates are extremely costly.

Microsoft has committed to making extended security updates available to customers who wish to continue running Windows Server 2008 or 2008 R2. However, these updates are extremely costly.

Organizations who wish to purchase the extended updates are required to pay upfront for a full year of updates. Even if an organization chooses to purchase the updates late in the year, they will be required to pay for a full year of updates. The updates themselves are priced at 75% (per year) of the Enterprise Agreement or Server and Cloud Enrollment license cost for the latest Windows Server version. This means that the annual cost of purchasing extended updates is only slightly less than that of upgrading to a new Windows Server version.

Being that these costs apply to each server that an organization is operating, it will often be far less expensive for an organization to migrate its Windows file servers to Google Cloud then to purchase extended security updates or to upgrade to a new Windows Server version.

The Transition to Work-From-Home

Even if an organization is not running an outdated version of Windows Server, it is still likely to be beneficial for the organization to migrate its Windows file servers to Google cloud.

One such reason is that the pandemic of 2020 has forever changed the way that knowledge workers operate. While it was once common for nearly all of an organization's employees to do their jobs on-site, the pandemic forced companies around the world to transition to a work from home model.

One of the side effects to this transition was that organizations had to completely rethink how employees would access data. Many organizations initially allowed their employees to access file servers by establishing a VPN connection to the corporate network. This approach, however, has often proven to be problematic.

Some organizations for instance, have found that the sheer number of users working remotely has caused their VPNs to become congested, resulting in excess latency or even dropped connections.

Another common problem associated with the transition to work from home is that some VPNs are licensed based on the number of connections. As such, allowing users to access enterprise file servers by way of a VPN can prove to be expensive if the organization is forced to purchase a significant number of VPN licenses.

Transitioning away from on-site file servers to a Google Cloud-based alternative can help organizations to avoid VPN related latency problems, as well as the support and licensing costs that are so often associated with VPN access.

Some organizations, have found that the sheer number of users working remotely has caused their VPNs to become congested, resulting in excess latency or even dropped connections.

Compliance and Logistics

Many enterprise class organizations are transitioning away from on-site Windows file servers in favor of a cloud-based solution for compliance and logistical reasons.

End-users rarely work in a vacuum. There is almost always a need for users to be able to share file data with one another. Enabling end-users to efficiently share unstructured data with their coworkers was a challenge even before users began working remotely. The rapid transition to nearly universal work from home, however, forces users to adopt new and creative ways of sharing data with one another.

Often times, users resorted to sharing files through consumer grade services such as Dropbox. Even though such services can help users to do their jobs, they present numerous problems for enterprise IT, both from a logistical and from a compliance standpoint.

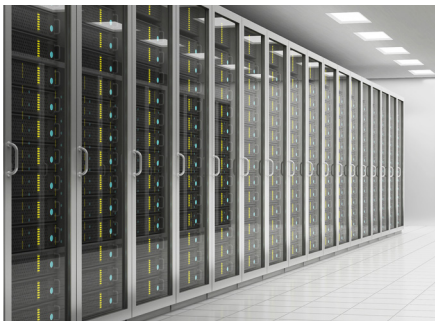
From a logistical perspective, the use of services such as Dropbox pose many of the same problems that have long been associated with shadow IT. When a user shares a file through Dropbox or through a similar service, they are creating a data silo. The shared data is completely inaccessible to the organization's IT department. This means that the IT department has no way of backing the data up, but it also means that the shared data falls outside of the IT departments control. This makes it impossible to apply Data Loss Prevention policies that prevent users from sharing sensitive data with people outside of the organization.

From a logistical perspective, the use of services such as Dropbox pose many of the same problems that have long been associated with shadow IT.

When an end user relies on a consumer grade service such as Dropbox to share data with others, it can completely undermine in organization's compliance initiatives. After all, there is no guarantee that the data will be encrypted, or that the data will be secured in such a way as to prevent unauthorized access. Additionally, the use of consumer grade file sharing services circumvents the logging and other mechanisms that the organization has put into place to make the handling of data transparent to auditors. Additionally, because the consumer grade file sharing tool falls outside of the IT departments control, data that is locked away in the file sharing tool will not be included within eDiscovery related searches.

These types of compliance violations can subject an organization to substantial fines and may incur additional civil or criminal penalties.

Ongoing Server Maintenance



Another factor that is driving the migration of Windows file servers to the Google Cloud is the cost of ongoing server maintenance.

There are any number of costs associated with operating and maintaining physical file servers. For example, organizations must replace failed components as well as perform preventative maintenance tasks such as replacing aging hard disks before they can fail. Most organizations also perform a hardware refresh every 3 to 5 years.

Additionally, as data grows the organization will need to increase its storage capacity to accommodate the new data. Although various data lifecycle management techniques can be used to slow the data growth by purging or archiving aging data, data growth remains inevitable for nearly every organization. The cost associated with growing storage hardware to accommodate new data, adopting higher capacity data backup hardware, and archiving aging data can be substantial.

One of the best ways that an organization can reduce the operational cost associated with its Windows file servers is to migrate those file servers to Google Cloud.

Of course, those are just some of the costs related to physical hardware. There are also ancillary costs to consider such as those associated with software licensing. The organization will also need to consider the cost of patch management and similar server maintenance tasks.

One of the best ways that an organization can reduce the operational cost associated with its Windows file servers is to migrate those file servers to Google Cloud. This frees the organization from having to perform hardware upgrades or maintenance, and eliminates the associated costs. This alone can save an organization a substantial amount of money, especially if its file servers are running on aging hardware that will soon need to be replaced.

Migrating Windows file servers to the Google Cloud also eliminates most of the management and maintenance related costs. Cloud based file servers are treated as a managed service, meaning that the cloud provider is responsible for keeping the server and the underlying infrastructure healthy. This can help to reduce the organization's overall costs, while also helping to reduce the IT department's workload.

Cloud-Based File Server Alternatives

There are any number of cloud based alternatives to Windows file servers, but most suffer from major shortcomings. SharePoint Online for example, is often positioned as a file server alternative. However, SharePoint Online can be costly and has some significant capacity limitations. For example, performance begins to diminish if users attempt to sync more than 300,000 files (https://docs.microsoft.com/en-us/office365/servicedescriptions/sharepoint-online-service-description/sharepoint-online-limits). Similarly, a site collection can only accommodate up to 25 TB of data. While it is possible to create multiple site collections, doing so can result in the creation of data silos.

Google Drive is another popular option for cloud-based file storage. While Google Drive does have its place, it was never designed to act as a replacement for enterprise file servers. A shared Google Drive can only accommodate up to 400,000 files, which is far less than the number of files that the average enterprise has on its Windows file servers. Likewise, Google Drive limits users to uploading 750 GB of data each day, and has a maximum file size of 5 TB. These limits do not exist in Google Cloud.

The Google Cloud + Nasuni Approach

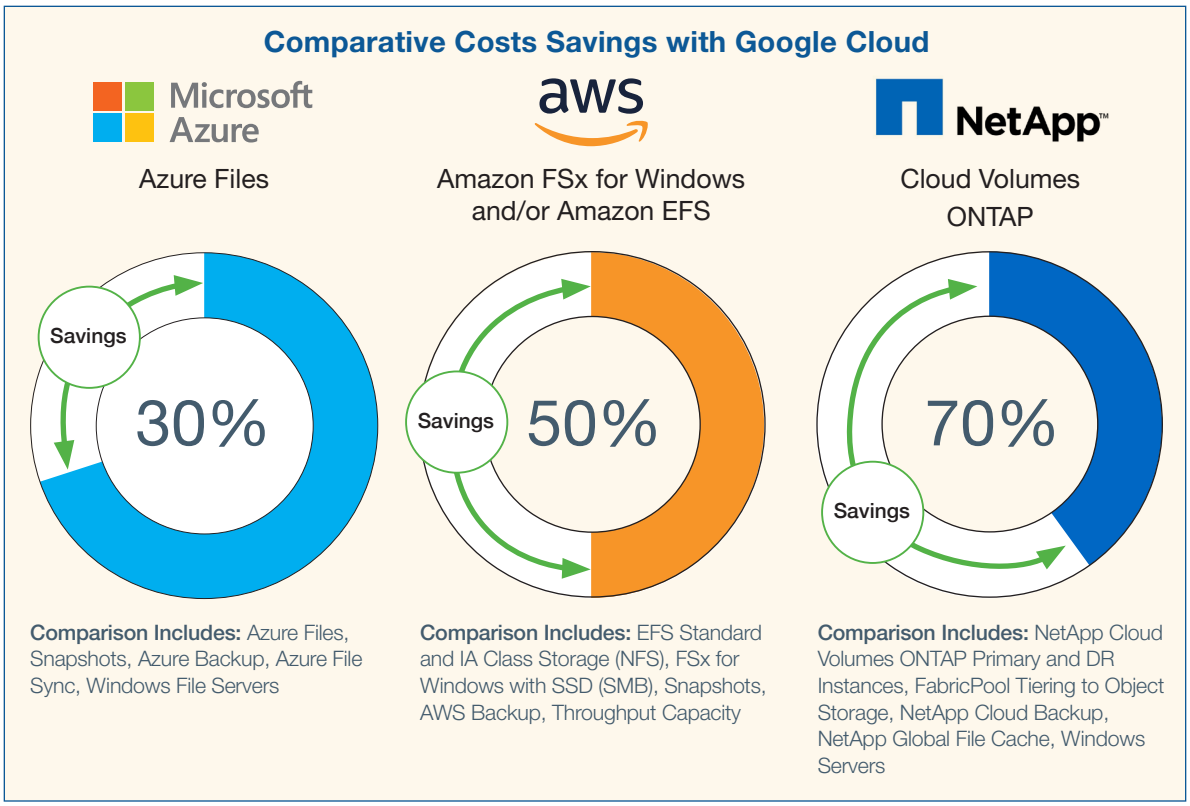
Nasuni and Google Cloud collectively remove the pain points associated with maintaining traditional Windows file servers, helping organizations to lower their costs, while also providing a better end user experience.

Performance

One of the main factors that has traditionally held organizations back from operating file servers in the cloud is the latency incurred when files are accessed over a WAN link. Nasuni solves this problem by caching recently used files (hot data) to Nasuni virtual edge appliances. The caching process gives users low latency access to their data. These edge appliances are kept in sync with the data residing in the cloud, meaning that users are always accessing the current copy of their data.

Migrating Windows file servers to the Google Cloud also eliminates most of the management and maintenance related costs. Cloud based file servers are treated as a managed service, meaning that the cloud provider is responsible for keeping the server and the underlying infrastructure healthy.

This in turn allows Nasuni to store data residing in the cloud on inexpensive object storage. Object storage differs from other storage types in that it lacks a true file system and does not support the hierarchical folder structure commonly used on Windows file servers. However, Nasuni overlays their own global file system over Google Cloud's object storage, creating a familiar and comfortable environment for both admins and users.



One of the most immediate ways that Nasuni can help its customers to realize cost savings is through the elimination of on premises infrastructure. Costs related to hardware and operating system maintenance are eliminated, resulting in immediate savings. Additionally, organizations who migrate their Windows file servers to Google Cloud may realize additional cost savings in the form of hardware maintenance contracts that are no longer needed, and reduced power and cooling costs in the organization's datacenter. An organization may even be able to reduce its licensing costs, since a Windows file server's Windows Server licenses and Client Access Licenses (CALs) will no longer be required once the server has been retired.

Organizations that choose to migrate their Windows file servers to the Google Cloud with Nasuni will also see direct cost savings through Nasuni's native deduplication and compression capabilities.

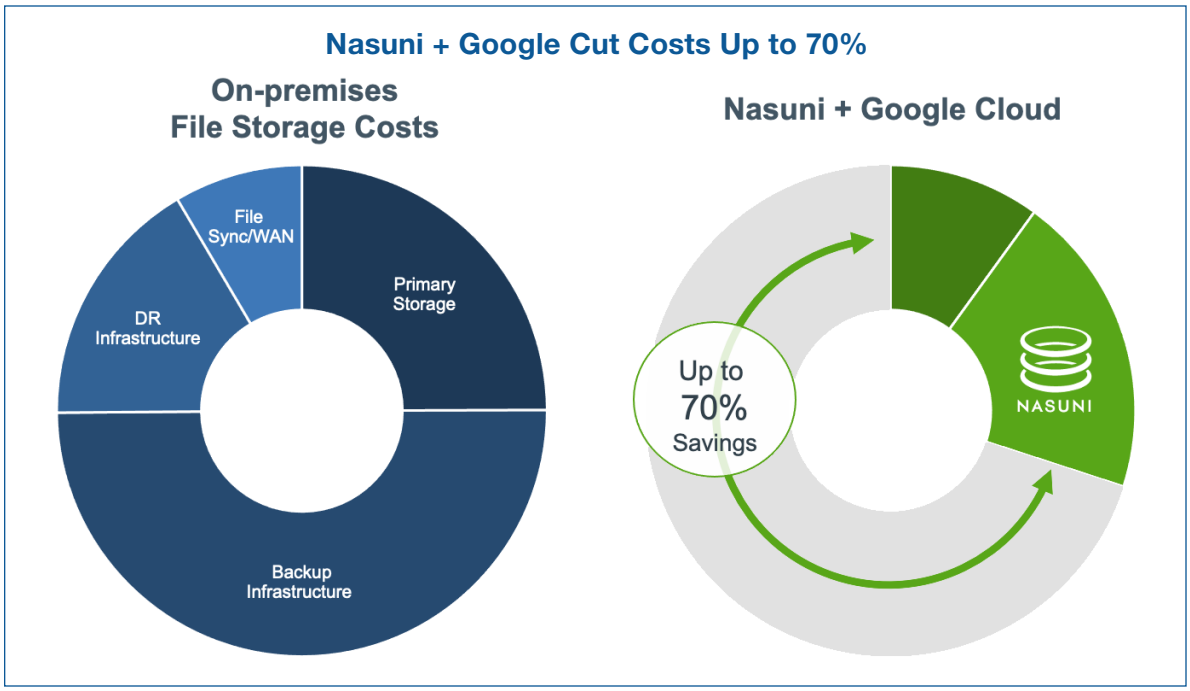
Another way that Nasuni and Google Cloud can help an organization to save money is by eliminating the need for traditional backup and recovery capabilities. As previously noted, Nasuni uses a multi-site file synchronization engine to keep cached file copies in sync with one another as files are modified. This same mechanism also allows Nasuni to perform continuous, immutable file versioning. This means that organizations can perform extremely rapid disaster recovery operations, with recovery jobs typically completing in under 15 minutes. It also means that if an organization suffers a ransomware attack, there is a way to recover the data without paying a ransom.

Organizations that choose to migrate their Windows file servers to the Google Cloud with Nasuni will also see direct cost savings through Nasuni's native deduplication and compression capabilities. Deduplicating and compressing file data helps to reduce the data's physical storage footprint thereby also reducing storage costs.

Nasuni and Google Cloud can help an organization to dramatically drive down its file storage costs by as much as 70%

- *Elimination of on premises fine infrastructure*
- *Hardware and maintenance contracts that are no longer needed*
- *Reduced power and cooling costs for hardware*
- *Retiring Windows Server licenses and Client Access Licenses (CALs)*
- *Eliminating traditional backup and recovery tools*
- *Storage deduplication and compression*
- *Cancelling remote hardware and data cloning for DR purposes*

Collectively, these three cost savings measures can yield significant savings. Organizations that move to Nasuni and Google Cloud typically see a 70% savings in their file server costs.



Scalability

Scalability has long been a major challenge associated with file storage. Organizations have historically struggled with providing the capacity required to store an ever-growing collection of unstructured data. A secondary, but no less important challenge is that of providing access to the data from all the organization's sites.

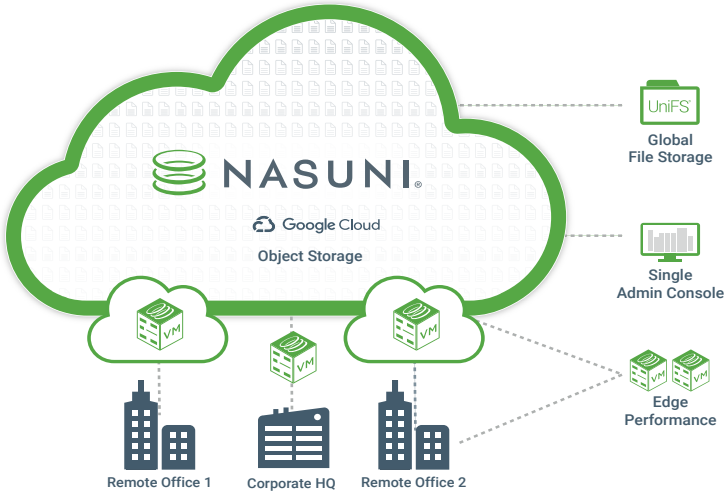
Like Google's object storage, the Nasuni file system was created with scalability in mind. The Nasuni file system is cloud native and is not constrained by hardware, which allows the file system to easily accommodate even the largest collections of unstructured data.

Nasuni and Google Cloud are well-positioned to meet the scalability needs of even the largest enterprises. File data is stored within Google Cloud object storage, which provides unlimited scalability. One of the biggest challenges associated with using object storage, however, is that object storage is flat and does not include a file system. However, Nasuni addresses this challenge by overlaying its own global file system over Google's object storage. This means that organizations can have the best of both worlds, with Google's limitless capacity object storage, and a file system that allows files to be arranged into a familiar hierarchical folder structure.

Like Google's object storage, the Nasuni file system was created with scalability in mind. The Nasuni file system is cloud native and is not constrained by hardware, which allows the file system to easily accommodate even the largest collections of unstructured data.

Simplicity

One of the biggest concerns that organizations usually have when contemplating a file server migration is that of compatibility. Administrators must make sure that the migration does not introduce problems with applications or with users' ability to access the data that they depend on.



Nasuni and Google Cloud have created a solution that makes it easy for an organization to migrate its Windows file servers to the cloud. Nasuni for example provides native Active Directory and LDAP support, which means that even after an organization migrates its file servers to Google Cloud, it will still continue to be able to leverage its existing file access policies.

Similarly, Nasuni supports commonly used protocols including SMB, CIFS, and NFS. This means that organizations do not have to refactor their applications to make them work with object storage. Instead, applications are able to access cloud data through the same protocols that they would normally use to access data that is stored on a standard Windows file server.

Additionally, Nasuni has simplified file server to Google Cloud migrations by providing centralized management capabilities for the entire environment. An administrator can of course manage an individual appliance from the admin console if necessary, but Nasuni also allows admins to collectively manage groups of appliances through a single interface.

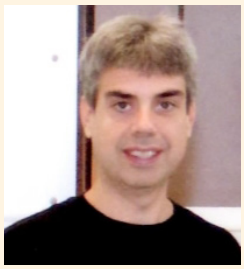
Conclusion

Moving Windows file servers to Google Cloud with Nasuni can help to resolve the biggest pain points that organizations are dealing with today. Google and Nasuni's "better together" strategy can help to drive down costs, while also simplifying IT operations and delivering the scalability that the cloud has come to be known for.

While there are a number of different options for storing an organization's file data in the cloud, these solutions are not created equal. As such, it is important to evaluate any cloud-based file storage solutions that you may be considering, by comparing them against the organization's business objectives and with the factors that are driving the organization's cloud migration.

About Nasuni

Nasuni is a file storage platform built for the cloud, powered by the world's only global file system, UniFS. Nasuni consolidates Network Attached Storage (NAS) and file server silos in cloud storage, delivering infinite scale, built-in backup, global file sharing, and local file server performance, all at half the cost of traditional file infrastructures. The Nasuni software-as-a-service platform is most often used for NAS consolidation; backup and recovery modernization; multi-site file sharing; and rapid, infrastructure-free disaster recovery, while also serving as a foundation for data analytics and multi-cloud IT initiatives.



About Brien M. Posey

As an internationally best selling technology author and 19 time Microsoft MVP, Brien Posey has written or contributed to dozens of books, and created numerous full-length video training courses on a huge variety of IT and space related topics. In addition, Brien has published over 7000 technical articles and white papers for various Web sites and periodicals. In addition to his writing, Brien routinely records webcasts and speaks internationally at various live events IT on subjects ranging from information technology to astronautics.

Prior to going freelance, Brien was CIO for a national chain of hospitals and healthcare facilities. He has also served as the lead Network Engineer for the United States Department of Defense at Fort Knox, and has worked as a Network Administrator for some of the nation's largest insurance companies. Brien also previously served in a volunteer capacity as the Association of Spaceflight Professionals' Technology and Engineering Group lead.

In addition to his ongoing work in information technology, Brien is a Commercial Scientist-Astronaut Candidate. Over the last several years, Brien has been training extensively in preparation for a mission to study polar mesospheric clouds from space.

One Marina Park Drive
Boston, USA
www.nasuni.com

SAL-0185 01/21