DCIG

A Fast Track to Hybrid Cloud NAS Adoption: An Affordable and Practical Answer for Responding to Unstructured Data Challenges

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Technology Report

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Executive Summary

All size organizations face unprecedented challenges when it comes to responding to the explosive growth of file data. Unlike the past, much of this new growth comes from non-traditional sources. These sources include application logs, machine generated data, and video communications, downloads, and surveillance, among others.

To handle all this new unstructured data, organizations need access to a lot of storage … and fast. This explains why many want to use cloud storage and the virtually unlimited capacity it offers. The challenge they face is how to get their data from here (on-premises) to there (the cloud.)

Pairing networked attached storage (NAS) with cloud storage to create a hybrid cloud NAS solution often surfaces as an answer. A NAS appliance deploys easily on-premises and provides the fast response times that applications and users need. Marrying it with cloud storage to create a hybrid cloud NAS solution delivers the virtually unlimited capacity that organizations desire.

Three hybrid cloud NAS configurations have emerged that deliver on this concept:

- Physical NAS appliance
- Virtual NAS appliance
- NAS software bridge

Of these three, the NAS software bridge makes the most sense for many organizations. Many already have a NAS appliance in place and simply want to introduce cloud storage to augment it. A NAS software bridge fast tracks them on accomplishing that goal.

The Wasabi Cloud NAS, a NAS software bridge, exemplifies this type of hybrid cloud NAS solution. It requires no changes to an organization's NAS environment as the existing NAS appliance stays in place. Its software automatically connects to both the local NAS appliance and the Wasabi cloud. Once policies are set, it non-disruptively migrates files to the cloud regardless of size.

Perhaps best of all, the Wasabi Cloud NAS removes concerns about cloud storage cost, management, and performance. It stores all files on a single tier of high performance, highly available cloud storage. It costs one-half to one-fifth of competitive cloud storage solutions plus it possesses no hidden API or data egress fees.

Wasabi Cloud NAS positions organizations to affordably and practically fast track their adoption of a hybrid cloud solution. Organizations may migrate away from NAS appliances while gaining access to the cloud storage they desire. In so doing they address their new data growth challenges without disrupting their current IT environment.

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Unstructured Data Growth Challenges Await All Size Organizations

In the past, only the largest of organizations could lay claim to data growth challenges. No more. Now organizations of all sizes must deal with them. One of the drivers behind this growth comes in the number of files increasingly generated by non-traditional sources.

According to IDC, these new, non-traditional data sources will collectively grow annually at about 26 percent. Some data types, such as entertainment data, may grow even faster, at around 40 percent annually.

Further fueling this data growth, more organizations make multiple copies of their original files. They may store these files as backups or copies in other locations. All these copies equate to organizations keeping up to ten copies of the original file.[1]

ROBOs Not Exempt from Data Growth Challenges

The challenges unstructured data growth places on remote and branch offices (ROBOs) differ little from those placed on small and midsize organizations. If anything, ROBOs may face greater challenges than small and midsize organizations.

Thanks to improvements in technology, and large enterprises spreading out, more ROBOs exist. This leads to individual ROBOs having the same or more employees than a small or midsize organization (250 – 5,000 employees.)

This growth leads to ROBOs having greater technical staffing demands than a small or midsize organization. Further, enterprises may place greater unstructured data demands on their ROBOs than those placed on similar-sized small and midsize organizations.

To respond, these ROBOs need solutions that match their specific requirements. Specifically, they need a cost-effective, low maintenance, scalable storage solution. This solution must store the data ROBOs generate without becoming a burden to acquire, deploy, manage, or maintain.

1. https://www.idc.com/getdoc.jsp?containerId=prUS46286020, Referenced 1/2/2021.

The creation of all these files adds another twist—more organizations want to archive them. Whether archived for compliance requirements, legal reasons, or for ongoing analysis, archiving introduces still more storage requirements and management overhead.

Taken together, these new sources of file data collectively introduce overwhelming storage and management requirements for organizations. While enterprises can theoretically respond to these new demands, smaller organizations often cannot. These amounts of new file data often strain their abilities to easily, and cost-effectively, store and manage them.

Trade-offs of On-premises NAS

To house files generated by traditional and non-traditional sources, organizations often turn to on-premises networked attached storage (NAS) appliances. Organizations choose NAS appliances as they possess many of the following desirable features:

- Highly available
- Scalable
- Secure
- Self-healing

While many on-premises NAS solutions possess these attributes, organizations face trade-offs when acquiring them. These challenges include one or more of the following:

- ***Selecting the right size NAS appliance.*** The unpredictable file growth associated with new applications makes selecting the right NAS appliance a guessing game.

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New Non-traditional Sources of Unstructured Data

The continuing drop in the cost of computing, networking, and storage have laid the foundation for unstructured data growth. As a result, every organization, regardless of its size or location, generates and stores many more files. Much of this data gets stored as files on corporate NAS appliances. New, non-traditional applications and use cases that generate much more file data include:

Application logs. Organizations want to analyze and optimize applications regardless of where they place them. Increasingly they host applications in the location where they run. As they do so, they want to capture and store the logs generated by these applications to perform real-time and long-term analytics.

Machine generated data. Closely related to application logs, this unstructured data often originates from sensors that may run anywhere equipment resides. This equipment includes air conditioners, furnaces, motors, production machinery, and more. Here again, organizations want to capture and monitor this data to perform analytics and break/fix operations. They may also look to use this data to optimize how the equipment operates or the environment in which it runs.

Video communications and downloads. Increased network bandwidth and the introduction of wireless 4G and 5G networks has made video a practical reality. As a result, almost all business professionals frequently create and use video as part of their daily activities. They may also download and save video files during their workday.

Video surveillance. While many organizations deploy video surveillance for improved security, it serves many more purposes. They may use it to analyze traffic flows, customer behavior, and stocking levels, among others. These and other use cases drive the deployment of more cameras and result in the creation of more file data.

Replicated data. Many of the new storage requirements for organizations come not from new files but copying pre-existing ones. In these cases, they replicate files to the location that needs them. They may copy files to access or process them faster, for backup, or for disaster recovery purposes.

Smaller ones cost less but have capacity and performances limitations. Larger NAS appliances address these limitations. However, they come with a higher price tags. In either case, if an organization guesses wrong, it ends up paying. It must either upgrade sooner than expected or it overpays for unused capacity and performance.

- ***Data center quality floor space.*** Cabling, cooling, flooring, heating, power, and security requirements vary by NAS appliance. However, the larger the appliance, the more physical demands it places upon the site into which one installs it. An organization must account for these variables as it sizes an appliance for its environment.
- ***Costly annual support contracts.*** DCIG finds that many NAS appliances only include 90 days of maintenance and support with the purchase price. After that, an organization must budget 16 - 20 percent or more of the appliance's original cost for annual support.
- ***Costly storage upgrade options.*** Anyone can see what hard disk drives (HDDs) cost. Yet when buying a NAS appliance, an organization may only have the option to purchase HDDs from that provider. It then must pay its marked-up prices for HDDs.
- ***Staffing needs.*** Properly configuring and maintaining NAS appliances requires individuals with the appropriate knowledge and training to manage them. This may require hiring dedicated staff or engaging outside consultants to perform these tasks.

These trade-offs give organizations pause about using on-premises NAS appliances to store all the file data that new applications generate. Organizations want the enterprise benefits these NAS appliances offer. However, they may fail to account for all the hidden costs and limitations they impose.

Ideally, organizations want NAS appliances with enterprise availability, reliability, and scalability features. However, they want to mitigate or avoid its hidden (or not-so-hidden) ongoing costs and management overhead associated with deploying them.

Hybrid Cloud NAS: A Marriage of NAS and Cloud Storage

To deal with the unpleasant trade-offs associated with on-premises NAS, more organizations look to hybrid cloud NAS solutions to close this gap. Hybrid cloud NAS solutions capitalize on the best features of on-premises NAS appliances and marry them with cloud storage offerings.

The affordability and flexibility of hybrid cloud NAS solutions immediately jump out as differentiators. Organizations no longer must choose between "smaller and more affordable" or "larger with more features" when evaluating these solutions. Hybrid cloud NAS offers the best of both.

Organizations may select a hybrid cloud NAS solution model that meets their current file storage needs at an affordable price. They may then introduce more storage capacity on-premises, in the cloud, or both to meet new storage needs as they arise. In so doing, they keep their upfront filer and cloud storage costs minimal and only acquire storage when they need it.

This leads to another important differentiator feature of hybrid cloud NAS solutions: their scalability. By offering connectivity to cloud storage providers, organizations gain access to virtually unlimited storage capacity. Further, storing data both on-premises and with cloud storage providers delivers performance that closely matches on-premises NAS appliances.

To meet different application requirements, hybrid cloud NAS solutions place files based on preset policies. To satisfy performance sensitive applications, these solutions keep frequently accessed files on-premises while placing infrequently accessed files in the cloud.

Organizations may also set policies to satisfy specific regulatory requirements, business needs, or cost constraints. For example, organizations may need to keep certain files on-premises or in specific cloud regions to meet regulatory obligations. Alternatively, they may need to keep copies of files offsite to control costs or to meet business continuity or disaster recovery demands.

Organizations will find these features and others in many hybrid cloud NAS solutions. However, the differences between them emerge in how they implement these various features. These differences impact how organizations may deploy them and the flexibility they afford to organizations once in production.

Three Differentiators Between Hybrid Cloud NAS Solutions

All hybrid cloud NAS solutions perform the same basic function. They manage the placement and storage of files on-premises and in the cloud. However, the techniques they use to perform this function may differ significantly between each one. These solutions differ in three ways.

Differentiator #1: Deployment Options

Organizations may choose a hybrid cloud NAS solution in one of three deployment options.

- ***Physical appliances.*** An organization acquires a pre-integrated hybrid cloud NAS hardware appliance equipped with the needed hardware and software. An organization installs it, connects it to a cloud storage provider, and configures its file management policies.

- ***Virtual appliances.*** In this configuration, a provider ships its NAS solution as a virtual appliance. This virtual appliance installs on a physical machine with a hypervisor (Microsoft HyperV, VMware vSphere, etc.). Some virtual appliances also deploy to a dedicated server without a separate hypervisor. Once installed, an organization allocates storage, new or pre-existing, to the virtual appliance. It then connects the hybrid cloud NAS to a cloud storage provider and configures the file management policies.

- ***NAS software bridge.*** Using this option, a provider ships hybrid cloud NAS software that installs on a new or pre-existing virtual or physical server. An organization first connects the bridge to a new or pre-existing NAS solution. An organization completes the bridge's setup by connecting it to a cloud storage provider and configuring its file management policies.

The NAS software bridge option differs from the physical and virtual appliance deployment options in an important way. The bridge connects to and augments a new on-premises NAS appliance; an existing one; or both new and existing NAS appliances.

A NAS software bridge should work with any provider's NAS solution. This gives organizations flexibility to use any NAS appliance such as a Windows file server or a physical or virtual NAS appliance.

Finally, a NAS software bridge deploys more easily into an existing NAS environment. A NAS software bridge effectively converts an existing on-premises NAS appliance into a hybrid cloud NAS solution. As a result, applications and end users will neither see any changes nor will an organization need to make any changes to them.

Differentiator #2: Data Migration Options

To implement a hybrid cloud NAS solution, an organization may need to prepare to migrate its existing files. To do so, the organization must determine the file migration's scope and the challenges associated with performing this task.

The difficulty of the file migration will vary depending upon the following variables:

- Solution selected
- Destination(s)
- Total amount of file data

On-premises and Cloud File Migrations

The solution selected may necessitate doing both on-premises and cloud file migrations. Replacing an existing physical or virtual appliance with another one (one with hybrid cloud NAS capabilities) prompts such an event.

In this case, an organization may need to migrate files from the existing on-premises appliance to the new one. An organization will also need to migrate files to the cloud. This creates multiple migration considerations for an organization to manage both local and cloud migrations.

The NAS software bridge may mitigate or avoid the need to perform an on-premises file migration. The bridge uses default or user-defined parameters to determine which data to migrate.

For example, file data accessed frequently (within the last 30 days) may remain on the existing on-premises NAS appliance. Organizations may also identify additional file data to always remain on-premises that is subject to specific application or compliance requirements. The other infrequently accessed file data it will migrate from the on-premises NAS appliance to the cloud.

Migrating Limited Amounts of File Data

The total file data capacity and the hybrid cloud NAS solution selected influence the complexity of the file migration. Organizations with minimal file data (less than 10 TBs) will find migrating it, whether on-premises or to the cloud, easier to perform.

Of the available hybrid cloud NAS architectures, NAS software bridges make file migrations of this size the easiest to perform. Applications and users continue to access files on the current NAS appliance. In the background, the NAS software bridge migrates files over existing organizational WAN connections.

In contrast, a new physical or virtual NAS appliance may require both on-premises and cloud migrations. This results in extra steps and potential application and user disruptions.

Migrating Large Amounts of File Data

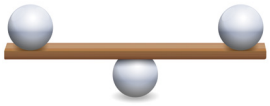
Organizations with tens or hundreds of terabytes of file data to migrate face more daunting challenges. Using a NAS software bridge helps mitigate them.

The NAS software bridge only requires an organization to navigate the file migration to the cloud. Physical and virtual hybrid NAS appliances often require both an on-premises file migration and a migration to the cloud.

All hybrid cloud NAS configurations (appliance and bridge) must account for the time it takes to perform the initial data migration. Migrating tens or hundreds of terabytes of data may take weeks or months to complete over WAN links.

To shorten the migration time, choose a hybrid cloud NAS solution that works with a cloud provider that offers a transfer appliance. Using this approach, the cloud provider ships the appliance to the organization which migrates file data to it. The organization then ships the appliance filled with its file data back to the cloud provider. Once the cloud provider receives it, it uploads the file data into its cloud enabling the organization to access it.

Differentiator #3: Balancing Cloud Costs and Performance



In deploying a hybrid cloud NAS solution, an organization ideally wants to:

- Control its storage costs
- Maintain or improve performance
- Keep the overall solution simple to manage

Delivering on these ideals sounds simple. However, it becomes complex to achieve. On the cost side, they may have a choice of different tiers of cloud storage on which to place their files. These different tiers offer varying levels of availability, cost, and performance.

The lower the cloud storage tier's availability and performance, the lower the cloud storage costs. The challenge becomes placing files correctly in the cloud. This requires an organization to place files on the right tier at the right time.

Failure to do so risks incurring new, additional data transfer charges. Additionally, applications or users may experience disruptions due to slow response times. These initial and ongoing decision points contribute to making cloud storage unnecessarily complex.

In selecting the cloud storage component of a hybrid cloud NAS solution, an organization always considers cost. However, placing files on the lowest cost storage tier may not equate to the lowest costs. Application or user productivity decreases negate the benefits of using lower cost cloud storage.

Organizations should seek out cloud storage that keeps cloud storage management simple even as performance remains consistent and predictable. Not all hybrid cloud NAS solutions deliver equally on this cloud storage component.

Wasabi Cloud NAS

Wasabi Cloud NAS offers organizations the affordable, practical hybrid cloud NAS solution they seek. Delivered as a NAS software bridge, the Wasabi Cloud NAS software installs on a single Windows server. The software installation requires no changes to an organization's existing NAS environment nor any server reboots. Once installed, the Wasabi Cloud NAS software connects directly to the Wasabi cloud.

The Wasabi Cloud NAS solution immediately converts an existing on-premises NAS appliance into a hybrid cloud NAS solution. An organization may introduce Wasabi Cloud NAS without needing to purchase any hardware. Further, it can continue to use its existing NAS appliances or devices and likely extend their life in the process.

Customized Policy Management

Wasabi Cloud NAS starts to migrate infrequently accessed or unused files to the Wasabi cloud once policies get set. Created by the organization, these policies control which files stay on-premises and which ones go to the cloud.

Organizations may create policies that apply universally to all files or folders. Alternatively, they may create more granular polices that apply to only specific files or folders. The simplicity or complexity of the policy settings resides solely with an organization.

A Single No-hassle Cloud Tier

The Wasabi cloud component of the hybrid cloud NAS solution silently addresses many key concerns about using cloud storage. Wasabi only uses one tier of cost-effective, highly available, high performance cloud storage.

This simple, single tier approach eliminates the hidden costs, complexities, and overhead of using cloud storage. Wasabi makes this option practical by delivering cloud storage at one-half to one-fifth the price of its competitors. This pricing mitigates an organization's need for using and managing multiple tiers of cloud storage. It also alleviates potential concerns about application or user performance.

The Wasabi cloud also comes with another desirable benefit: no data egress fees. Most cloud storage providers charge retrieval and egress fees for all the data that exits their cloud. These fees may show up unexpectedly and are in addition to monthly cloud storage costs. Wasabi does not charge for data retrieval or egress from its cloud.

Non-disruptive File Migrations

Wasabi Cloud NAS also answers the challenges associated with migrating files to the cloud. In an ideal Wasabi Cloud NAS deployment, an organization may discover it has to do nothing to migrate files to the cloud. This ideal plays out in two scenarios.

1. If the total amount of file data to migrate is minimal.
2. If an organization has a sufficient length of time to migrate the files.

Should either of these conditions hold true, Wasabi Cloud NAS transparently handles the file migration in the background.

Should an organization need to move large amounts of file data quickly, Wasabi Cloud NAS can optionally address that. A Wasabi Ball, a transfer appliance, first gets sent to the organization. Wasabi Cloud NAS then copies files to the local Wasabi Ball. Once copied, the Wasabi Ball gets sent back. Wasabi then restores the files and makes them available to the organization, only now they reside in the Wasabi cloud. In both examples, applications and users should experience continual access to their files without disruption.

A Better On-Premises Experience at a Lower Cost

The process of Wasabi Cloud NAS moving files to the Wasabi cloud frees up available storage on the on-premises NAS appliance. This has multiple positive effects for an organization.

Minimally, it extends the life of the existing on-premises NAS appliance. Rather than needing to replace or upgrade it, an organization may continue to use it for a longer time. This may result in cost savings for the organization. While using Wasabi cloud incurs cloud storage costs, they are usually less than replacing or upgrading a NAS appliance.

If an organization should decide to upgrade or replace its NAS appliance, using Wasabi Cloud NAS still makes sense. An organization may acquire less on-premises storage, install higher performing SSDs in the appliance, or both. In this manner, an organization obtains both the additional performance it seeks and the virtual, infinite capacity of the cloud.

Even in cases where applications or users need to retrieve files from the Wasabi cloud, this retrieval only adds a nominal amount of latency. Storing all files on a single, high performance tier in the Wasabi cloud makes file retrievals from the cloud a non-event.

Wasabi Cloud NAS: A Fast Track to Hybrid Cloud NAS

Most organizations already have NAS in their environment. Now, they want to introduce the benefits of cloud storage into their NAS environment with minimal disruption or hassle. The Wasabi Cloud NAS offers a solution that puts them on a fast track toward achieving that objective.

The Wasabi Cloud NAS solution makes introducing hybrid cloud NAS into an existing NAS environment an affordable and practical exercise. Its software installs on-premises on a Windows servers with files and folders accessible to both Mac and Windows clients. An organization will need to make few or no configuration changes to its existing NAS environment to implement it. It imposes no requirement on an organization to purchase new hardware.

Once deployed, an organization only needs to connect it to the Wasabi cloud and create the appropriate policies. Migrating existing files to the cloud occurs in the background, and without interruption. Should an organization need to migrate large amounts of file data to the cloud, it can accomplish that task non-disruptively.

Perhaps most notably, Wasabi Cloud NAS utilizes the Wasabi cloud as its cloud storage solution. Its single tier of highly available, high performance cloud storage helps ensure fast, reliable access to any files in the cloud. Wasabi then delivers this solution with predictable storage costs without any unexpected or hidden fees.

Wasabi Cloud NAS represents the type of hybrid cloud NAS solution that organizations should explore. It offers the hybrid cloud NAS architecture they want minus the unexpected gotchas and fees that everyone loathes. ■

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