COMPARING CLOUD STORAGE TO TRADITIONAL STORAGE
The cloud storage market is maturing, and a number of vendors offer solutions to bridge the gap between local and cloud storage. However, it’s important to understand the architectural differences and cost differential between the two before making an investment. In this e-guide, experts explain how cloud gateways can help to make cloud storage seamlessly available to a local network. And although cloud storage can be less expensive from a cost-per-gigabyte perspective, it’s important not to lose sight of other benefits as a value proposition.
Cloud storage offers enterprise organizations the potential to dramatically decrease storage costs. Even so, there are some significant architectural differences between cloud storage and commonly used forms of local storage. These differences can make it challenging to use both local and cloud storage in a seamless manner. Thankfully, the cloud storage market is maturing and there are a number of vendors who offer solutions for bridging the gap between local and cloud storage.

For those who might be new to cloud storage, it’s easy to assume that the only real difference between a cloud storage architecture and local storage is the storage location. If this were true, then implementing cloud storage connectivity might be as easy as setting up an iSCSI initiator. In most cases, there are major architectural differences between on-premises and cloud storage. These differences make cloud storage connectivity far more challenging than it would be if cloud storage was based around the same architecture as local storage.
Cloud storage differs from traditional storage in that most -- but not all -- cloud storage offerings are built on an object-based storage platform. The reason for this is that object-based storage platforms can scale to massive levels of capacity and still deliver a very high level of performance.

For an organization to establish connectivity to object-based cloud storage, there are two main obstacles that must be overcome:

- Local storage tends to be block based. If an organization wants to use local and cloud storage in a seamless way, then they’ll need a way to translate between block and object storage.

- Cloud storage is typically exposed as a Web service. As such, standard storage protocols can’t be used to communicate with cloud-based storage.

Because cloud storage is based on object storage and exposed as a Web service, access to it must be achieved programmatically via an application programming interface (API). These APIs are usually based around protocols such as the Simple Object Access Protocol.
**CLOUD STORAGE GATEWAYS**

In spite of the differences between cloud storage and local storage, there is a way to make cloud storage seamlessly available to the local network. The key is to use a cloud storage gateway, which is either a physical or virtual appliance that translates between commonly used file-based protocols (such as NFS) and cloud storage API protocols.

Although cloud storage gateways are designed primarily as a mechanism for making cloud storage accessible using standard file-based protocols, it’s common for vendors to design gateway appliances with features designed to enhance the use of cloud storage.

Some vendors include local storage within cloud gateway appliances. This storage is commonly used for caching purposes. Files that are read the most frequently might be copied to a local read cache so data doesn’t have to be remotely retrieved each time it’s needed. Read caching provides a better all-around end-user experience.

Similarly, most cloud storage appliances have a write cache. The write cache is important because data can be written to local storage faster than it can be to cloud storage. Having a write cache allows the appliance to quickly store data during write bursts and then copy that data to the cloud storage as
available bandwidth allows.

In addition, most cloud storage gateways include a deduplication engine that eliminates redundant data prior to copying the data to the cloud. This helps the data to be transferred more quickly and ensures WAN bandwidth is used efficiently.

OTHER KEY FEATURES

Accessing cloud storage from your local network is one thing, but using cloud storage in an efficient and meaningful way is quite another. If you plan to use cloud storage for file data, there are two important features that you should look for when selecting a cloud storage provider and a cloud storage gateway.

The first is a unified namespace, sometimes referred to as a global namespace. End users need to access their data, even after it’s been moved to the cloud. A unified namespace presents local and cloud storage collectively as a single file system. From a user’s standpoint, there’s no visual indication that some files reside locally while others do not.

Another important capability is automatic storage tiering. In a SAN environment, various types of storage are aggregated into storage tiers. For instance, solid-state drive storage can be treated as a high-speed tier, while commodity
Cloud storage can be treated as a standard tier. Like local storage, cloud-based storage has unique characteristics such as high latency and low cost. From a storage management perspective, that means cloud storage can be treated as a separate tier within your storage architecture.

To derive the greatest possible benefit from storage tiering, an organization must determine what type of data should be stored on each tier. Archive data, by its very nature, tends to be high volume, but accessed infrequently, which makes it an ideal candidate for cloud storage. A good cloud storage gateway should be able to automatically transfer archive data to cloud storage based on rules set forth by the administrator.

CONCLUSION

Organizations may be able to drive down storage costs by moving aging file data to cloud storage. Before settling on a cloud storage provider however, it’s important to investigate the gateway options for connecting to that provider. Cloud storage gateways differ significantly from one another with regard to their feature set.
IS THE COST OF CLOUD STORAGE REALLY CHEAPER THAN TRADITIONAL STORAGE?

To figure out if cloud storage is really cheaper, you first have to define “cheap.” Is it a better value? Is it lower cost? The process to figure this out might be comparable to that of leasing a car, which can sometimes be cheaper than buying one depending on how many miles you will drive it and how long you intend to keep it. You also need to consider your cash flow and current methods of evaluation.

There are values and economies of scale with cloud storage, as well as the application benefit to consider. If you’re just looking at cloud storage because of its cheaper cost, you may not be taking into account some of the other benefits of cloud storage.

Notice I didn’t say “costs,” I said “benefits,” which refers to having somebody else taking care of your data and ensuring it’s protected, and providing the infrastructure or leveraging those economies of scale that may in fact complement what you’re doing. In other words, cloud is another tier; it’s another resource.
However, determining the cost of cloud storage can be tricky; there are up-front costs to consider in relation to the low cost per gigabyte to store data, but you also need to know how your current costs compare. Do you know your own cost for general-purpose, database or virtual machine storage? Do you know your own costs for protecting to a given level of service? If you don’t, how do you know if the cloud will be a cheaper proposition or not?

You not only need some insight into your own environment, but you have to understand the costs within the cloud -- the upfront costs and the additional fees.

The big providers document what those fees are, the limits on I/O, the durability and availability, and all the other caveats. They don’t hide it, but you usually need to go to the site and find it.

In some cases, the cost of cloud storage can be cheaper upfront, but you have to look at it at different sizes and scales, and ultimately from the standpoint of what the business benefit to your environment will be. There should be a benefit to using the cloud beyond simply the cost per month.
FREE RESOURCES FOR TECHNOLOGY PROFESSIONALS
TechTarget publishes targeted technology media that address your need for information and resources for researching products, developing strategy and making cost-effective purchase decisions. Our network of technology-specific Web sites gives you access to industry experts, independent content and analysis and the Web’s largest library of vendor-provided white papers, webcasts, podcasts, videos, virtual trade shows, research reports and more — drawing on the rich R&D resources of technology providers to address market trends, challenges and solutions. Our live events and virtual seminars give you access to vendor neutral, expert commentary and advice on the issues and challenges you face daily. Our social community IT Knowledge Exchange allows you to share real world information in real time with peers and experts.

WHAT MAKES TECHTARGET UNIQUE?
TechTarget is squarely focused on the enterprise IT space. Our team of editors and network of industry experts provide the richest, most relevant content to IT professionals and management. We leverage the immediacy of the Web, the networking and face-to-face opportunities of events and virtual events, and the ability to interact with peers — all to create compelling and actionable information for enterprise IT professionals across all industries and markets.