

STORAGE SWITZERLAND

A CLOUD STORAGE STRATEGY FOR THE SMB



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Many large enterprises have a well defined strategy for how they are going to leverage the cloud to enhance their storage infrastructure. However, smaller organizations are either ignoring the cloud, or leveraging it in an ad-hoc fashion. Developing a cloud strategy is potentially more important for small to medium sized business (SMB) environments as these organizations have smaller data centers and often operate from no more than a server closet in one location. As such, these types of organizations potentially have the most to gain from a more formal cloud strategy.

What Is Cloud Storage For The SMB?

Before defining a strategy it is best if the term, cloud storage, is defined, for the purposes of non-enterprises. Technically, cloud storage is storage that is off-site and accessible from almost anywhere. From a business perspective it is storage that is provided as a service. In other words, the business pays for the storage as it is consumed, usually on a monthly or quarterly basis, instead of paying for that storage as hardware up-front.

The providers of this storage do not necessarily need to be the large name brand companies that are often associated with the cloud. Competitive and reliable alternatives are appearing on a more regional basis. This development alone may make a cloud storage option more appealing to the non-enterprises a more local presence brings a higher level of trust. After all, seeing is believing, at least in terms of the cloud.

Cloud Storage Isn't Cheaper

Similar to buying a house vs. renting an apartment, non-enterprises should be cognizant that the cost of “renting” a cloud storage offering over time could be far more expensive than the upfront and maintenance costs of purchasing a storage system outright. Hard cost economics should not be the sole reason for an organization to leverage the cloud. For cloud storage to make economic sense for the non-enterprise, savings need to be realized in the expense of existing facilities and/or personnel. Softer costs are what make developing a cloud storage strategy even more important for these businesses.

Cloud storage provides facilities, features and services that these organizations, in particular, don't have in abundance, if at all. The cost and effort to build out dedicated off-site facilities, with all the required capabilities, feature functionality and the experienced personnel to implement and manage them, can be more expensive than the long term costs of the cloud. All of the potential opportunities for avoiding soft and hard costs by adopting a cloud solution should be carefully considered when comparing it with the costs of just doing the off-site / DR services yourself.

Cloud Storage Use Cases

For the non-enterprise, the two key use cases that should be at the core of any cloud storage strategy are off-site backup and replication. Another key consideration is to leverage the cloud for full-scale disaster recovery. Lastly, the non-enterprise can derive benefits by utilizing the cloud for user collaboration (file sharing and software development) via universal access. Essentially offering a business specific version of the popular public offerings like DropBox and Box.net.

The Backup and Replication Use Case

Backup and replication are similar in that they are both data protection schemes for moving data off-site. Backup implies a scheduled routine that happens once per night and provides a point in time copy of the company's data. Replication implies more frequent data protection, potentially every few minutes, but its copy is always updated to represent the latest copy of data.

Both types of copies are needed, and complement protected on-premises storage. For example, if a database corruption occurs, the most recent version of that database will be needed to perform a recovery, in most cases this first copy is also in the form of a replicated but on-site copy of the database. In this case, speed matters. The business is "down" because it can't access its data. On the other hand, if there is a need to recover a file from three months

or even three years ago, then that data typically will be retrieved from a backup copy. In these cases speed is not typically the issue and so there is less pressure for an instant recovery.

In these use cases, the role of cloud storage is to function as the secondary site for data to be copied to. It provides an automatic off-site capability that many SMB organizations lack. For the non-enterprise, without a second site or for those that have multiple locations with no IT staff, cloud storage becomes a viable disaster recovery option. In most instances, the cost of renting storage will typically be much less expensive than equipping and staffing a company owned secondary site. Given the cost of cloud storage, organizations of all sizes tend to have automatic off-site protection only for their most critical data, rather than pay rent for their less critical data.

Backup and replication also represent ideal use cases because they have evolved to work well in the bandwidth constrained realities of cloud storage. Most backup solutions that take advantage of cloud storage can compress and deduplicate data to the point that only a fraction of data is transferred during each backup cycle. Replication typically only transmits changed blocks of data and because the process happens throughout the day, there is rarely a large batch of data to send. Rather, data "trickles" over the internet pipe.

Cloud storage providers can also add value on top of the existing products. For example, many cloud storage providers have the ability to conduct their own snapshots of data electronically replicated to their facility by a client. This provides point in time capability of replicated data that was previously lacking. Also, many cloud providers will offer the option to replicate the data to a tertiary facility for further redundancy - perhaps providing protection from a regional disaster. This allows a non-enterprise to replicate data to the most local facility for performance and then leverage the provider's bandwidth for the longer haul third replication copy.

An increasing number of cloud storage providers can help non-enterprises with the second step in a cloud strategy - leveraging the cloud for complete disaster recovery. This may also include cloud based application startup. Most of time this service requires the customer to virtualize their critical applications and servers. Then the virtualized instance is replicated to the provider on a regular basis. During a failure the virtual instance stored on the provider's equipment is started and presented to users quickly, albeit with slower response time.

Developing A Cloud Access Strategy

A downside of cloud storage is that its access is typically over a bandwidth constrained internet connection. As discussed above, the movement of data to the cloud has been largely solved thanks to technologies like deduplication, compression or block level data copies. The problem with using cloud storage for backup and replication is recovery. This is a problem even if cloud DR is used because at some point the organization will want to return services to their primary location. At that point when data has to come back, it ALL has to come back. Deduplication and compression or block level copies have little benefit.

Planning for a disaster and taking appropriate steps to protect the organization from its impact of are clearly important. As shown above, cloud storage can play a vital role. But thankfully the reality is that most organizations will never experience a situation that actually causes a loss of all the servers at the same time. The day-to-day recovery is more important to plan for and should be a part of a cloud storage strategy.

A Hybrid Plan – The Value of Both

Most cloud backup as well as cloud replication products can leverage local storage for the rapid recovery of data in these more day-to-day situations. Conversely many local replication and backup solutions can now leverage the cloud for longer term storage. The choice is the SMB IT

administrators but in both cases quality, well protected and cost effective local storage, like the systems available from [DROBO](#), is critical.

For example, if a database corrupts or a set of files are over-written, restoring that data from a local device will be more practical and faster than restoring it from the cloud. To provide quicker data restoration service, most cloud backup and replication software applications will check to see if there is a local device available to recover from first. The only time delay in recovery is the time it takes to move the recovered data across the internal network.

Conversely most local backup solutions leverage cloud for the creation of an off-site copy and longer term retention of data. In this use case local storage is used to hold as many iterations of the data as possible. The cloud is used to hold the most recent copy for DR as well as potentially the storing the very long term retained copies of that data. In other words the cloud is used to hold the most recent copy of data in case of a rare site disaster as well as the oldest copy. But the expense of holding the large data set in-between is circumvented by local storage.

Since this local storage plays a key role in either cloud storage usage strategy, SMBs should avoid the temptation to simply use any cheap disk system as the hybrid storage area. Most of the restores for the organization would be serviced by this device AND in the case of a virtual server restart, this disk system would be THE primary storage for a period of time. This means that this secondary disk system should be reliable, scalable and offer solid performance.

An excellent example of this type of storage is the Drobo Business family of products, specifically the B800i and B1200i. Both of these systems provide iSCSI support which most cloud backup and cloud replication applications need. There is also the cost savings of buying the storage once as opposed to buying over and over again on a month to month basis.

These systems can also scale on demand by adding drives or replacing smaller capacity drives with larger ones.

Finally, in the case of the B1200i they have the capability of adding a few solid state disks for situations where performance becomes important, like virtual server restart.

For larger organizations the Drobo Business family serves as the ideal compliment to the more expensive storage systems already in use. For the medium sized organization they can serve as compliments to each other; B1200i for primary storage and B800i for the backup device.

For the smaller organization a single unit can serve as both primary storage and backup. Normally this is a major "no-no", but with Drobo's famous BeyondRAID technology, this could be an acceptable and cost effective strategy for the small business especially if a backup copy is maintained in the cloud. In most cases, the Drobo B800i is so cost effective for the large protected capacity it offers that user will keep backups and replicas on-site on a 2nd device, and when coupled with cloud storage achieve an ideal architecture of primary, on-site backup, and off-site backup.

Conclusion

With a solid hybrid storage platform in the primary location, the cloud now serves two very practical purposes no matter the size of your company. First, it protects the organization from human error or a failure of equipment on-site and furthermore, it protects from a loss of the primary site all together. While both scenarios are rare, the ramifications of their occurrence are why disaster recovery planning is so critical. Both are good examples of how cloud storage can play a key role in that strategy.

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