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The Essentials Series: Strategies for Cloud Storage, Data Protection, and Disaster Recovery

Challenges and Special Considerations for Cloud Storage

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by Don Jones

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by Don Jones, Series Editor

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Don Jones

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Challenges and Special Considerations for Cloud Storage

You're contemplating handing over at least some of your business' data to another company. What do you need to have in mind before you do so?

Rules, Regulations, and Restrictions

Start by considering any rules that may apply to your data. These rules may be particular to your industry, imposed by legislation, or might be the result of internal policies and business drivers.

Data Security Requirements

How secure does your data need to be, and how secure can a cloud storage vendor make it? Consider not only the encryption that the vendor uses in their storage centers, but also the encryption that protects your data while it's in transit to or from the cloud.

If you are subject to auditing rules—especially common for legislative compliance scenarios—how will the vendor ensure that you can continue to meet those rules? Can the vendor produce auditing reports that meet your particular compliance scenarios and provide the evidence that auditors require to prove that your data has been safe and secure?

Data Location Requirements

Are you permitted to move your data outside of your local jurisdiction? In some countries and industries, data has to be kept in-jurisdiction; you need to ensure that you're working with a cloud storage vendor who can meet that requirement.

Offsite Requirements

Are you *required* to move some data off-site for protection? If so, cloud storage can offer a faster, more convenient, and more automated way to make that happen. Be sure you understand what "off-site" means, too: Does that mean out of your office? Out of the city? Out of the region entirely, to guard against a regional natural disaster? Be sure your cloud storage vendor understands these requirements and can help you meet them.

Recovery Objectives

It's impractical for most businesses to provide the exact same level of protection for all their data, and in most cases it isn't necessary. You'll need to carefully define key recovery objectives so that you can begin identifying potential solutions and vendors that meet those capabilities.

What Are Your Data Categories?

Not all data is created equal. Some data is absolutely essential to your business. You may well want to store copies of that data locally as well as in the cloud for maximum access and protection. Other data is important, but less so; you may simply store copies in the cloud and accept the fact that accessing those copies over your Internet connection, should the need arise, might be slower. Some data may be so essential that you don't even keep copies locally: You store it entirely in the cloud, where it is continually protected and never at risk.

How Much Downtime Can You Tolerate?

Speed costs, so you'll need to determine how much downtime you can handle for each of your data categories. One reason to keep "live" data in the cloud, as opposed to merely keeping backups there, is to ensure the continual availability of that data—meaning you can't tolerate any downtime. For other data, you may be satisfied keeping the data locally and backing it up to the cloud, knowing that restoring the data may take a few hours if the need arises.

What Systems Need Protection?

Are you a completely homogeneous IT shop, or do you have a mix of operating systems (OSs) running your server and client computers? Ideally, you'll want a solution that can handle *all* your systems so that your storage can be centrally managed in one place. The ability to support multiple platforms is one area where cloud storage vendors truly differentiate themselves.

Backups Alone Do Not Equal "Disaster Recovery Plan"

You can't simply have backup tapes—or even cloud-based backups—and call that a "disaster recovery plan." An actual plan includes details on what you'll do in the event of a disaster so that there's no guesswork or mistakes—just consistent, rapid, thought-out responses.

There are really two broad models for recovering from a complete disaster: In the first, you assume that your data center is still operational and usable, and that you need to recover one or more specific servers. In the second, either your data center is unusable or unavailable, or the server you need to recover has had a complete hardware failure and can't be used.

On-Site Recovery

In an on-site recovery, your data center and server hardware is functioning, and you simply need to recover one or more servers. Using a cloud-based data protection plan, you have three options:

- Pull the needed data from the cloud. This can be time-consuming for a large amount of data, especially if you have a lower-bandwidth connection to the Internet.
- Have data shipped to you from the cloud provider. This can often be quicker than trying to copy all that data over the wire. A good vendor will provide different forms of media they can send you, and will offer rush or courier delivery services.
- Use a local copy of the data. This is obviously the fastest route, as the data you need is right within your reach. It does, however, require you to have *planned* for this scenario because you'll need to include a local copy of your data in your storage plan.

For example, suppose that a critical server fails. Because of its importance to your company, you've pushed all of its data into your cloud-based storage. You don't have a local copy of the data, so you decide to begin restoring the server by copying the data from the cloud. Your data is still available to users from its location in the cloud, so you don't have to wait until the server is back online to continue working. Downtime: Zero, or close to it. Even if an entire server failed, you would have minimal downtime if your cloud storage provider was able to restore the server to a virtual environment for you.

The last option in the previous list is a *hybrid* storage solution, something I'll cover in more detail in the next article in this series. The idea is that you keep a local copy of your data for speedier recovery capabilities, but also replicate that same data to the cloud—in lieu of tape backups and off-site tape storage—to ensure the protection of that data in the event of a larger disaster.

Warm-Site Recovery

If a critical server fails completely, or your entire data center is offline, what will you do? With cloud-based data protection, you can immediately start accessing your data—but what about servers that were running applications? It isn't enough, in other words, to have access to your database files—you also need a database *server.* This is where a good cloud vendor and a "warm-site" recovery model can come in handy. Simply ensure that your critical servers are *completely* backed up to the cloud, and the cloud vendor can launch virtual machines and restore your servers to those virtual machines, and your data *and* applications are up and running again. By creating a Virtual Private Network (VPN) connection between your network and the cloud-based virtual machines, it's like those servers are right on your local network, and your users can get back to work—from almost anywhere in the world.

Again, this *requires advance planning.* You need to know how you'll notify the vendor, what servers will be recovered, and you'll need to know how to connect to those servers once they're running in virtual machines. Documenting this information in advance will make it easier to implement when the need arises.

This is *more than just backups*—your cloud vendor has to not only offer storage but also the virtualization, networking, and expert services to recreate a portion of your production environment, virtually, in their own data centers. *Many vendors selling cloud-based storage are not selling complete disaster recovery,* even though they'll use the term "disaster recovery." Just be aware of what you're buying. Vendors such as i365, EMC, iland, and others offer true disaster recovery in addition to cloud-based backups; even services like Amazon's E3C cloud-computing platform can be used for certain limited disaster recovery scenarios.

The Vendor Connection

There are several vendors who can make cloud storage and data protection a reality today. Some of them include:

- i365
- Iron Mountain
- Barracuda Networks
- CommVault
- EMC
- iland
- Unitrends

Different vendors approach cloud storage in different ways. Many provide a hardware appliance or software that you install in your data center, which replicates data to the vendor's cloud-based storage network. Some vendors specifically target small- to midsize businesses and provide solution tailored for them. i365's EVault is one example of a solution tailored for that business market. Other vendors target larger enterprises and provide more complex solutions designed with very large businesses in mind.

Do keep in mind, though, that as with any product or service you're evaluating, not every vendor is created equal. Ask yourself:

- How long has the vendor been in business? Who are their existing clients? Are they a stable company? Will they be around in 5 years, or 10?
- How long has the vendor offered this kind of solution, and how long have they worked in data protection? With the hype around "the cloud," a lot of brand-new companies are playing in the cloud storage space and may not have the experience or track record you need to see in order to trust them with your data.

- Does the vendor offer a range of solutions or just a one-size-fits-all offering? Different solutions—software as a service, managed services, appliances, software, and so forth—offer flexibility to more precisely match your business' particular needs.
- Is the vendor's network solid? Look for geographically-dispersed, redundant data centers. You can also look for SAS70 Type II certification, which certifies an organization's ability to audit and maintain their internal management controls—a critical capability when you plan to trust them with part of your business.

Be careful of offerings that seem "too good to be true," especially from newcomers to the space. Cloud-based storage is a competitive, growing industry, but you should still expect to pay a fair price for a quality product from an established vendor.

Here's Your New Storage Plan

In the next and final article in this series, we'll look at different models you can consider for cloud-based storage and data protection. I'll outline specific business advantages of each, and help you start thinking about a solution that will fit your needs.