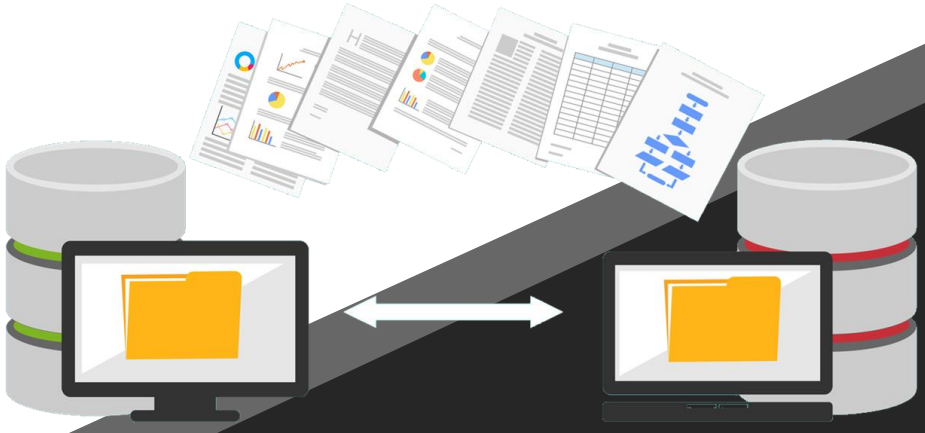
CSG Technologies

DATA BACKUP

All You Need To Know



Data Backup – What is it?

Backup is the process of creating a copy of the data on an external drive or the cloud which can used to recover or restore the original data if it is lost or corrupted. You can also use backup to recover copies of older files if you have deleted them from your system.

40%

of businesses do not reopen following a disaster (FEMA)

ANOTHER

25%

fail within one year (FEMA)

OVER

90%

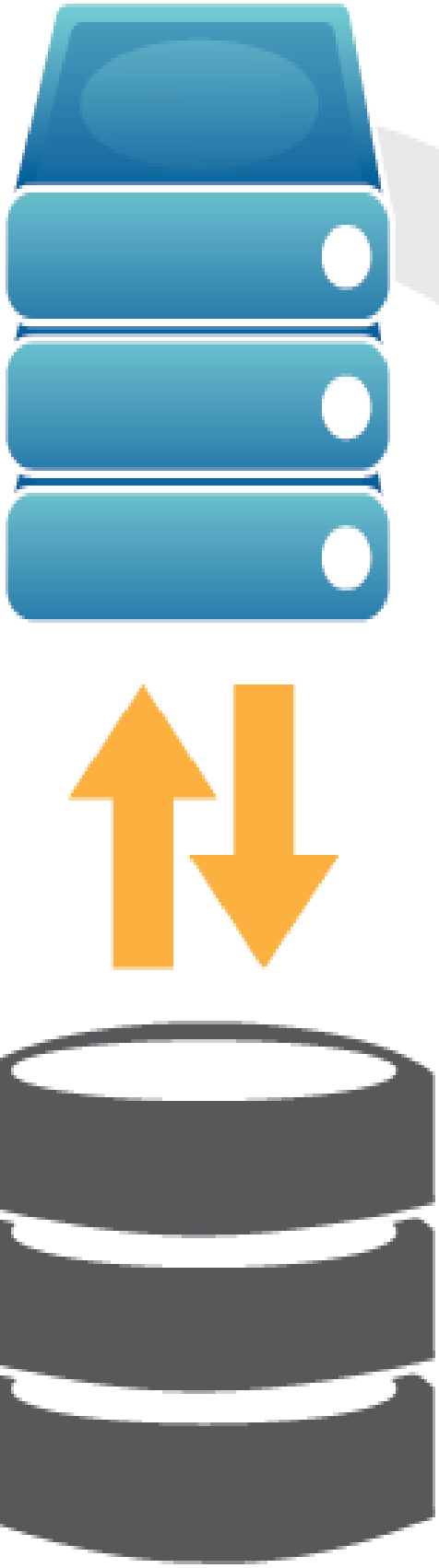
of companies fail within two years of being struck by a disaster (U.S. Small Business Administration)

Data Backup – Why is it important?

Companies and people are exceedingly becoming dependent on data. Just as a person cannot survive without air, water, and food, businesses cannot survive without data. 40% of companies that do not have an effective backup or disaster recovery plan in place do not survive a disaster.

It is imperative for every company to have a designated Backup Administrator to spearhead the backup strategy, including backup solutions and tools, scope, schedule, and infrastructure, network and storage, recovery time objectives (RTOs), and recovery point objectives (RPOs).

Data Backup – What to Back Up?

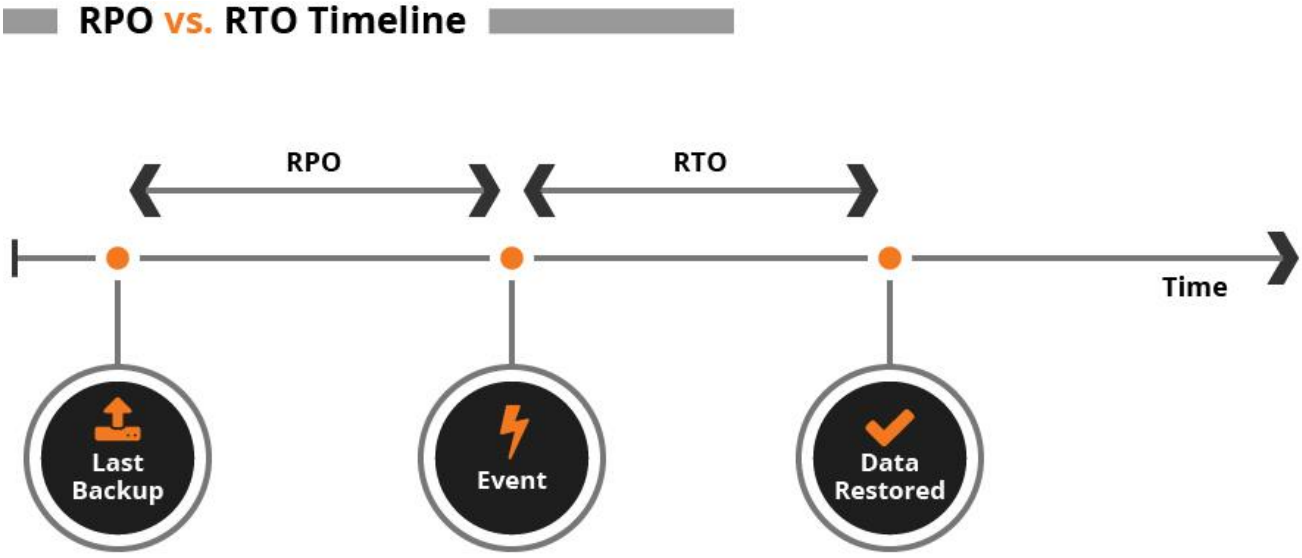


One of the initial tasks of a Backup Administrator would be to understand, define, and manage wh data needs to be backed up and protected. To reduce the risk of data loss, you want to back up files and databases, but you also want to back up your operating systems, applications, configuration — everything you need to keep you business operational in the event of a disaster. If you use virtualization, you will need to back up your hosts and management console, not just you virtual machines (VMs). If you use a cloud infrastructure-as-a-service (IaaS), you will have to include that in your scope. And don't forget mobile devices — your CEO's tablet could hold critical company data that can be more important than the data stored on some of your server.

Revisit your backup scope every time you change the infrastructure. New devices, solutions, services all use data. Your mantra should be "back up everything, back up often."

When you choose a backup solution, ensure that i can protect all your data. Otherwise, some data may go unprotected or you may need multiple backup solutions. For example, if you have a physical server in your data centre, a solution that only backs up your VMs is not enough. Instead, you need to implement multiple, disparate solutions — or better still — use a solution that backs up every device and system in your backup scope.

Data Backup – RPO and RTO

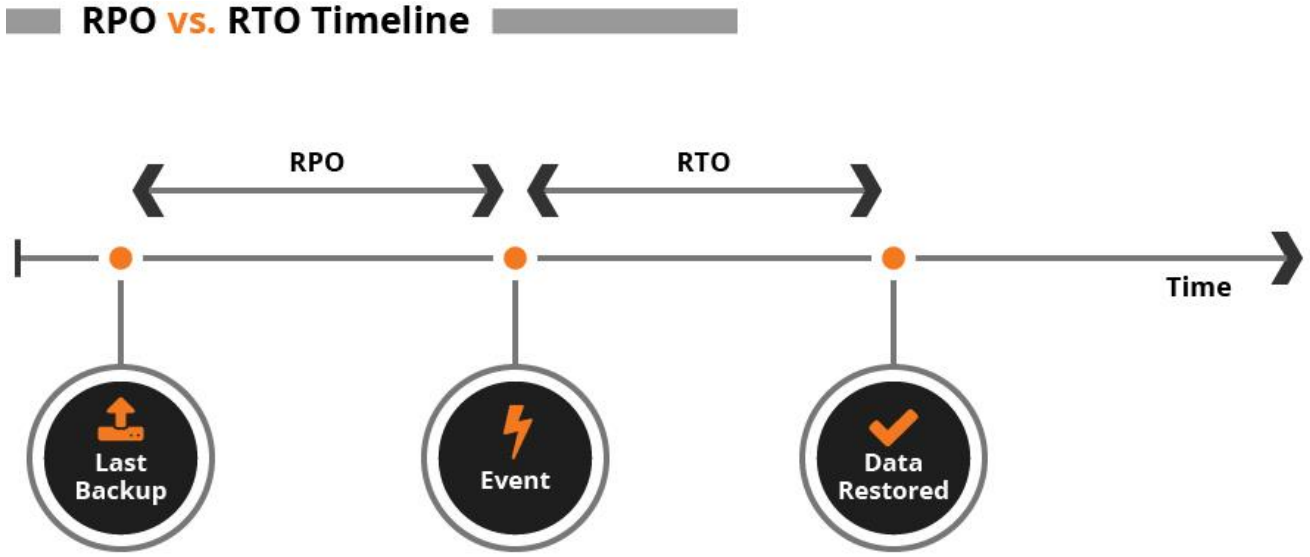


Once you decide on the scope of your backups, the next important decision is how often you need to back up and define a backup schedule. Your colleagues are constantly changing data, and in the event of a disaster, all the data created from the latest backup to the moment of failure will be lost. This period is called the Recovery Point Objective (RPO) — the maximum period that you are willing to lose data on your systems because of an event.

A shorter RPO means losing less data, but it requires more backups, more storage capacity, and more computing and network resources for backup to run. A longer RPO is more affordable, but it means losing more data.

Many small and medium-sized companies usually define an RPO of 24 hours, which means you need to back up daily. With modern backup solutions, you can implement RPOs as short as a few minutes. You can also have tiered RPOs — shorter RPOs for critical systems, and longer RPOs for secondary systems.

Data Backup – RPO and RTO



Another important variable is recovery time objective (RTO) — how fast you can recover from the moment of a disaster to the moment you return to normal operations.

When systems are down, your company loses money and you need to recover fast to minimize losses. However, as with RPO, a shorter RTO requires faster storage, networks, and technologies – so it is more expensive. For many companies, an RTO of few hours is the norm.

Involve your business stakeholders in discussions on system RPOs and RTOs. Once these are defined, you can decide on your solutions and storage.

Hardware Solutions

These Solutions often include storage, which comes as a 19” rack-mounted device that you install and connect to your network. The appliances are easy to install and configure. In most cases, you do not need to provision a separate server, operating system, or install any software. The agents installed on your systems perform the backups, and you access the solution via a graphical interface provided with the device.

However, remember that if you have a hardware storage device and it fails, you lose your entire data backup solution. Even if you backed up to a secondary location, you need to re-provision the backup solution before you can recover, which increases your recovery times.

Software Solutions

Software solutions are installed on your own systems and handle the backup process. Many solutions allow you to use existing systems, but some require dedicated servers provisioned just for backup. For these, you need to install and configure the operating system and the backup software. In many cases, you can install the software on a virtual machine (VM).

Compared to hardware appliances, software solutions offer greater flexibility, especially if your infrastructure changes often. Also, software solutions can be less expensive than purchasing a hardware appliance bundle and they also allow you to choose and provision your own storage.

Cloud Services

CSG Technologies offer backup-as-a-service (BaaS) – a cloud-based offering that allows you to provision and run your backups from our cloud infrastructure by installing lightweight agents on your machines. The BaaS is even simpler than software because there are no systems to provision and no operating systems to configure.

Of course, if your organization deals with sensitive data or is subject to regulatory requirements, you will need to check if cloud backup with a BaaS solution is acceptable.

Hybrid Data Backup Solutions

The latest innovation in the backup world is all-in-one hybrid backup solution, which gives you the freedom to install the software or use it as a cloud service at will. These solutions combine the best of both worlds, making them the best choice for many organizations.

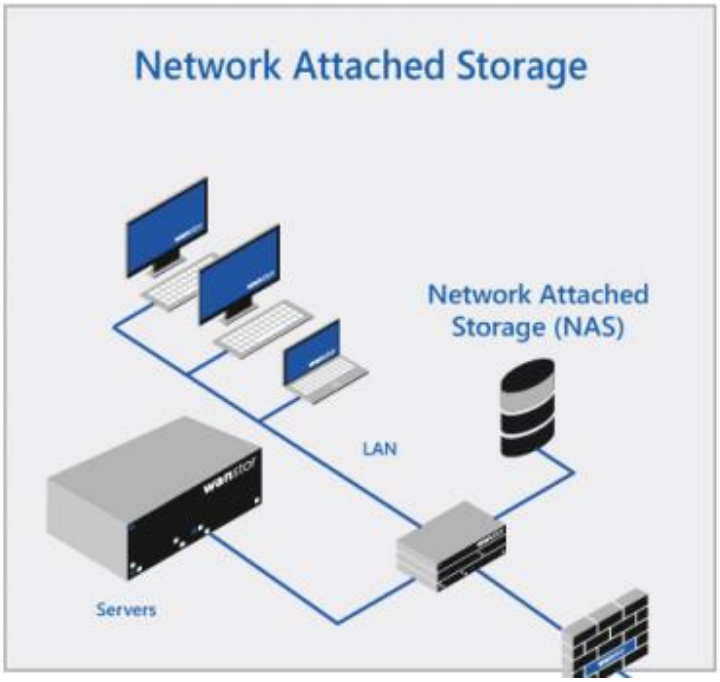
Backup Storage

Data Backup to Local or USB Disks

If you have enough capacity on your local disks, you can back up to them or to external USB drives. These backups are fast and convenient, and you don't need a network. The downside of local backups is that if the system is destroyed by fire of flood, your backups can be destroyed as well if they are stored in the same location. Also in many cases, you need to manage these backups on a computer-by-computer basis, which makes it cumbersome for larger environments.

Local and USB disk backups are best for quick backups of a small number of systems and are designed for the recovery of individual files or systems in the event of software failure.

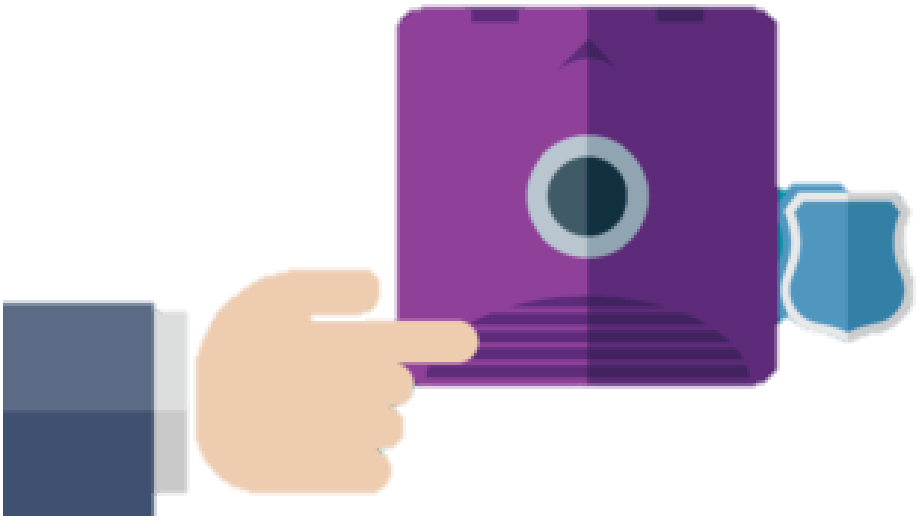
Backup Storage



Data Backup to Network Shares and NAS

This is one of the most common storage options. With a centralized NAS (Network Attached Storage), SAN (Storage Area Network), or simple network share, you can store many or all company backups in one place and restore a file, system, or the entire data center in the event of a virus attack or data corruption. Yet as with local disks, NAS and SAN will not help you recover data in the event of a major area disaster, such as a hurricane or typhoon that destroys your entire facility.

Backup Storage



Data Backup to Tapes

To recover from a major disaster, you must store a copy of your data in an off-site location, preferably at least 100 miles from your primary data center.

One of traditional ways to do that is to store copies of your data on tape devices and physically ship the tapes to a remote location. Modern tape technologies, such as LTO-7, allow you to store up to 2.5TB of compressed data on a single tape, making them quite efficient if you need to protect large amounts of data.

The downside of a tape backup is lengthy RTOs as you need to physically ship the tape back when you need to recover data. Also, some backup solutions have limited recovery options. For example, you can recover an entire system from tape but not a single file or folder. In addition, you need a tape drive, autoloader, or tape library to create backups and perform recoveries and these devices could be relatively expensive.

Backup Storage

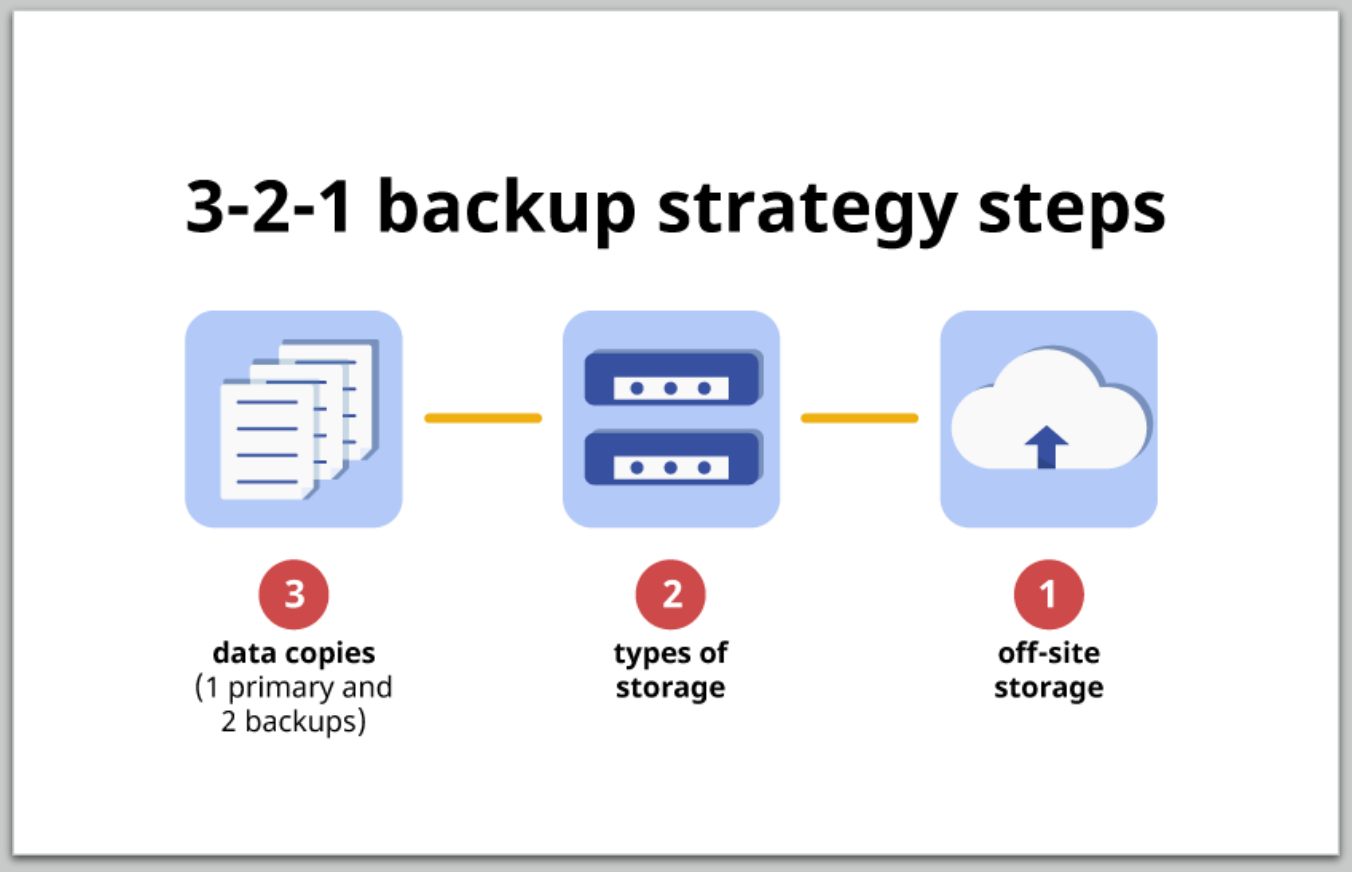
Data Backup to Cloud Storage

The modern alternative to tape backup is cloud storage. With this type of solution, you subscribe to a certain storage capacity in the cloud vendor's or service provider's data center. You do not need any hardware as you do with tape drives, but you do need an internet connection to send backups to the cloud. Your vendor may have ways to eliminate the problems with uploading large amounts of data by offering physical data shipping or initial seeding program.

Data Backup Storage - Which One is the Best?

Every storage solution has drawbacks. We, at CSG Technologies help you develop a storage strategy based on your unique business requirements, RPOs, and RTOs.

We offer a data backup solution that follows the industry-accepted 3-2-1 backup approach — store your data in three places, on two types of storage, with one copy stored off-site. Great examples of the 3-2-1 strategy are disk-to-disk-to-tape (D2D2T) and disk-to-disk-to-cloud (D2D2C) solutions. With these solutions, you back up your data to your central network storage and then copy that same backup to tape or off-site cloud storage.



Your company’s survival depends on the survival of your critical data.

To implement a reliable data backup strategy,

1. Define your business objectives — the backup scope, RPOs, and RTOs;
2. Implement proper solutions; provision the storage or combination of multiple storages; and
3. Execute and monitor the backups

Only then can you be sure that your company can continue to safely operate, even when unforeseen events occur.