on-site backup has been erased, and the off-site backup, which you thought was secure, has also been erased.

For this reason, your third and final line of defense should be a form of backup that can be removed entirely from all networks, making it completely immune to cyberattack. In most cases, the best form of storage for this is tape.


WARNING

Many cloud backup providers insist that their backup solutions eliminate the need for tape backup. They're wrong. No matter how advanced their security is, if your backup software can connect to the cloud backup, so can a hacker.

Here's an example of a backup plan that implements the 3-2-1 rule:

- The primary backup is written to a network attached storage (NAS) device with at least twice the capacity of the actual amount of data being backed up. (For more information about NAS, please refer to Chapter 13.)
- The off-site backup is written to a second, identical NAS device that is located in a separate building.
- The offline backup is written to a tape device, and the tapes are removed when the backup is complete.

How Often Should You Back Up Your Data?

Another crucial factor in a backup plan is how often you should back up your data. The best way to answer *that* question is to ask *this* question: How much work can your company afford to lose?

If your company can afford to lose an entire week's worth of work, you can get by with a simple backup plan that backs up your data just once a week. If the threshold is just one day, you'll need a more robust system that can back up your data every day.

If the loss of even one day's work is intolerable, you can create a backup plan that will copy your data every hour, or even more often if necessary.


TIP

As a simple way to calculate the cost of loss, ask yourself how much it costs for your company to not be able to work for an hour, a day, and a week. For example, suppose your company is a consulting firm with 20 employees, with an average billable rate of $100 per employee. The math is simple: If no one can work for one hour, the lost income is $2,000. For an eight-hour day, the lost income is $16,000. For an entire week, the loss is $80,000. This calculation will help guide you in determining how much money you should invest in a backup solution.