12.8.4 Backup Types and Storage Facts

Backing up all data on a network is absolutely necessary. However, each company has different needs to access backups and the speed that backups can be deployed.

This lesson covers the topic of backup storage options.

Backup Storage Options

Backup storage options vary depending on a company's mission and compliance requirements. Regardless of the option selected, a backup strategy should always take into account the 3-2-1 rule. The rule specifies there should be three copies of every backup. Two copies are kept on premise on separate storage devices and one copy is stored offsite.

Storage options	Description
Network Attached Storage (NAS)	Network Attached Storage is an appliance used to store data in file structures, such as NTFS. NAS also uses file share protocols like SMB. The appliance allows multiple users to access data simultaneously. This storage option is relatively inexpensive and is easy to use for backup copies.
Storage Area Network (SAN)	Storage Area Network is another appliance storage option. This option is normally found in larger companies because of cost. A SAN uses Fibre Channel protocols that make accessing the backup data much faster. It stores data at the block level. The appliance connects to the network via fibre cable. It also can manage several SAN appliances at one time, making it like a mini-network.
Cloud	Cloud backup as a storage option is relatively new. Cloud backup uses the physical resources of another company as a storage device for the backup. The backups are transferred over the internet and stored on remote servers. When the backup data is needed, it is downloaded from the cloud provider. This option can be easy to use but is expensive since cloud providers charge by the amount of data uploaded and downloaded.
Online vs Offline	Let's talk about online vs offline storage. Online refers to storage that is accessible through your private, internal network. This means that if you need to access your backups quickly it can be done from any location that has access to the network. Offline is the opposite; the backups are inaccessible through the network. This means that an IT admin must attach the backup to the network before it can be accessed. This is done for security and redundancy issues. If your network is compromised, offline backup storage will not be affected. This means your data is safe from integrity compromise. Both techniques should be used for redundancy and security.
Offsite storage	Offsite backup storage is an integral part of business continuity plans and disaster recovery plans. This concept means that a copy of your backups are stored away from your office. The backups could be in a safe, safe deposit box at a bank, or even in the cloud. You must determine your risk tolerance, also referred to as risk appetite. How much data can you lose and still recover? A weeks' worth of data? Two weeks? A day? The answer determines how often you should rotate your offsite backups. These backups can be stored on removable media (tapes, external hard drives, CDs, etc.) whatever is appropriate for the size of your company.