Save Your Stuff

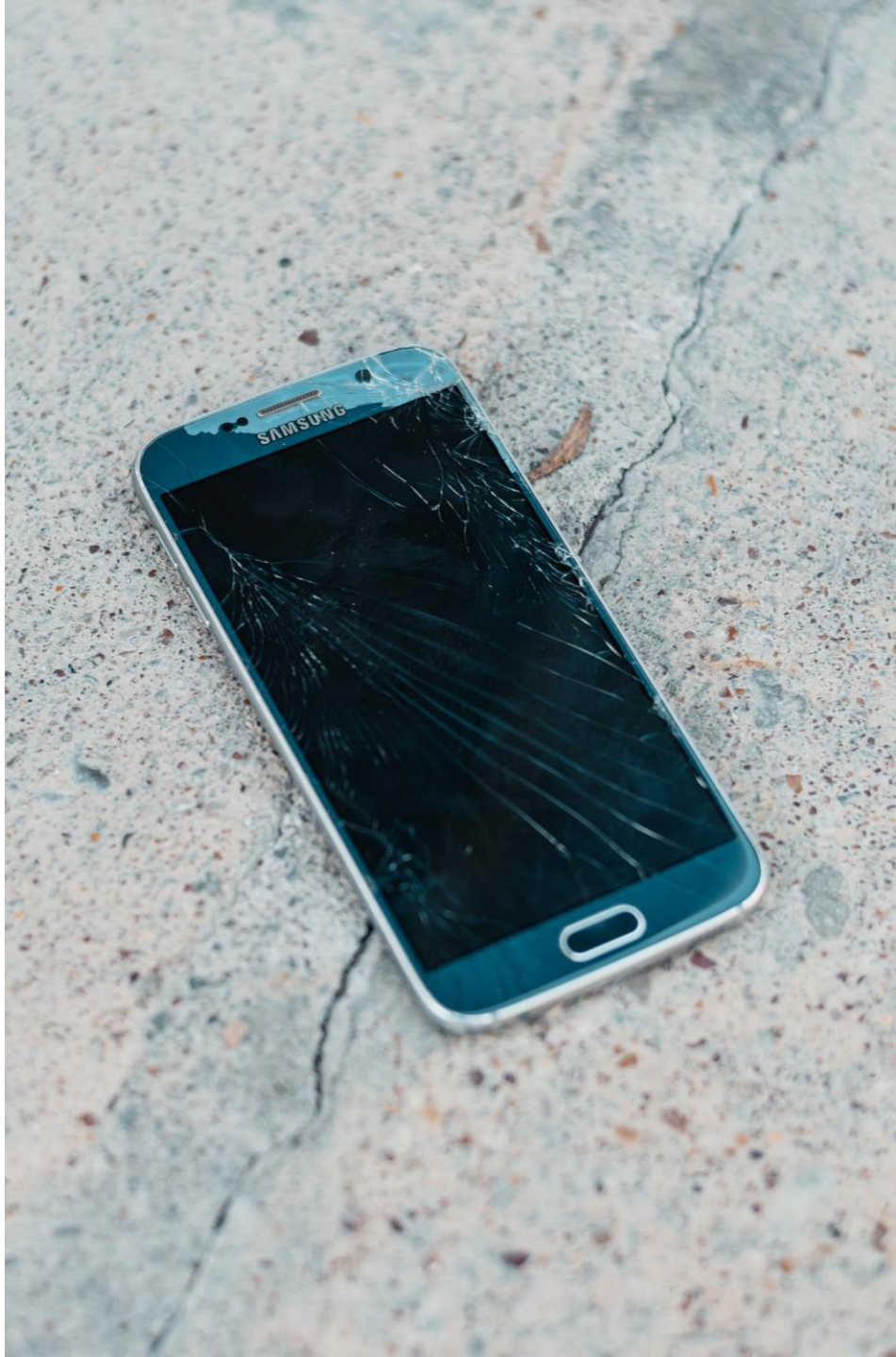
Agenda

- Why save your stuff?
- Local Storage
- Removable/peripheral storage
- Cloud storage/backup

Modern computers store a lot of important files such as family photos, work presentations, resumes, tax documents and much, much more.

That's why it's more important now more than ever to have a plan to keep save your stuff!

Having a plan to back up your devices ensures that your files (pictures, documents, music, etc.) are stored in multiple locations and are safe no matter what happens.



Why do I need to back up data?

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Your device gets lost.
Your device gets stolen.

Why do I need to back up data?

Your device gets lost.
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Your device breaks.
Your device malfunctions.

Why do I need to back up data?

Your device gets lost.
Your device gets stolen.

Your device breaks.
Your device malfunctions.

Your device is infected with malware, spyware and viruses.

Understanding Storage

Storage is "a process through which digital data is saved within a data storage device by means of computing technology". This is how your files are saved and stored long term.

There are many different types of storage. It's best to use all of them to ensure your files are safe.

Types of storage:

1. **Local Storage:**
2. **Removable/Peripheral Storage:**
3. **Remote storage:**

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1. **Local Storage:** built-in storage on your computer.
   Examples: hard drive disk (HDD), solid state drive (SSD- SATA and M.2), embedded multimedia card (eMMC)

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   Examples: USB drives, SD cards, external storage drives, etc.

3. **Remote storage:** Storage that is located somewhere else- also known as cloud storage.

   Examples: iCloud, Google Photos, Dropbox, etc.

There are many different types of storage. We recommend creating a plan utilizing all of them!

But before you invest in any devices or subscribe to any cloud services, remember that storage is "finite".

Common Data Storage Measurements

UNIT	VALUE
bit	1 bit
byte	8 bits
kilobyte	1,024 bytes
megabyte	1,024 kilobytes
gigabyte	1,024 megabytes
terabyte	1,024 gigabytes
petabyte	1,024 terabytes

***GB and TB are the most common storage units in recent times.**

Compare specifications

Acer Aspire 5 (NX.HG8AA.001)	Apple MacBook Z0Y700033
Processor (CPU)	
AMD Ryzen 3 3200U	Intel Core i7 Series
Memory (RAM)	
4gb	32gb
Graphics card (GPU)	
Radeon Vega 3 Mobile	-
Screen size	
15.6"	13"
Screen resolution	
Full HD (1920 x 1080 pixels)	-
Weight	
3.97 lbs (1.8 kg)	-
Operating system (OS)	
Windows 10	macOS
Hard drives	
120gb SSD	1000gb SSD
Amazon.com List Price	
$364.99	$2,549.97

Compare Apple iPhone SE 2 vs Samsung Galaxy S21 Ultra

Comparison Criteria

Show differences only

Apple iPhone SE 2

Buy @ Amazon

Buy @ Amazon

Samsung Galaxy S21 Ultra

Buy @ Amazon

Buy @ Vijaysales

Add

SUMMARY

Variants	N/A	Samsung Galaxy S21 Ultra
User Rating	3.7 /5 | Read User Reviews	5 /5 | Read User Reviews
Performance	Apple A13 Bionic	Qualcomm Snapdragon 875
Storage	64 GB	256 GB
Camera	12 MP	108 MP + 48 MP + 12 MP + 00.3 MP, TOF
Battery	1960 mAh	5000 mAh
Display	4.7" (11.94 cm)	6.9 inches (17.52 cm)
Ram	3 GB	12 GB, 12 GB

KEY SPECS

Roll over image to zoom in

SanDisk 128GB Cruzer USB 2.0 Flash Drive - SDCZ36-128G-B35, Black/Red

Visit the SanDisk Store

4.5 out of 5 stars 21,567 ratings | 306 answered questions

Amazon's Choice for "usb drive"

Price: $18.99 Get **Fast, Free Shipping** with Amazon Prime & FREE Returns

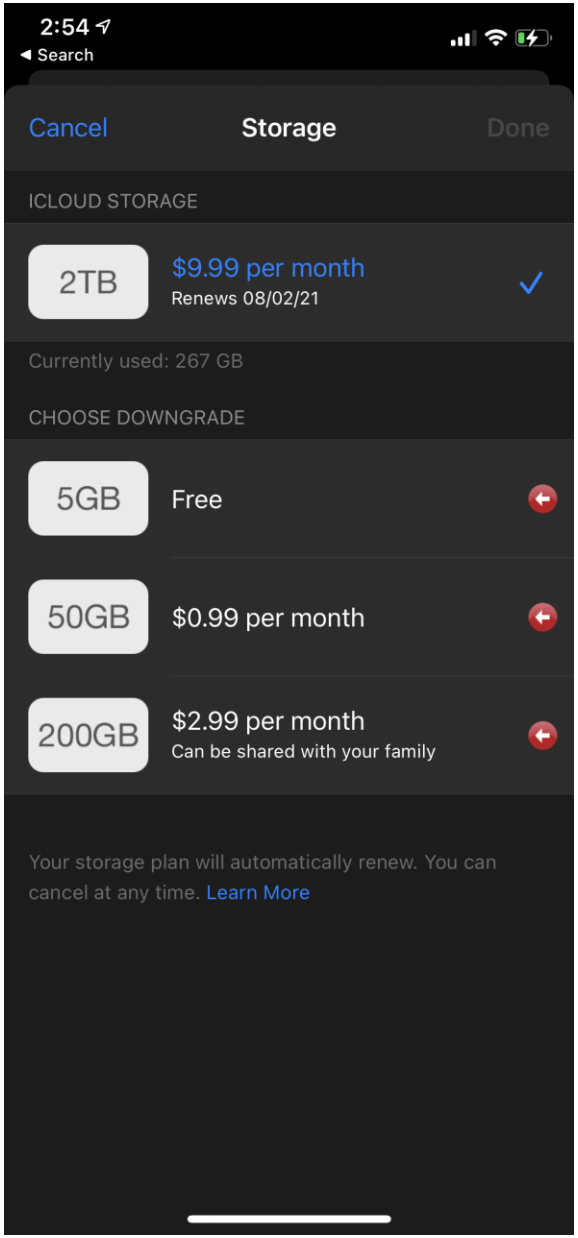
Get $50 off instantly: Pay $0.00 ~~$18.99~~ upon approval for the Amazon Rewards Visa Card. No annual fee.

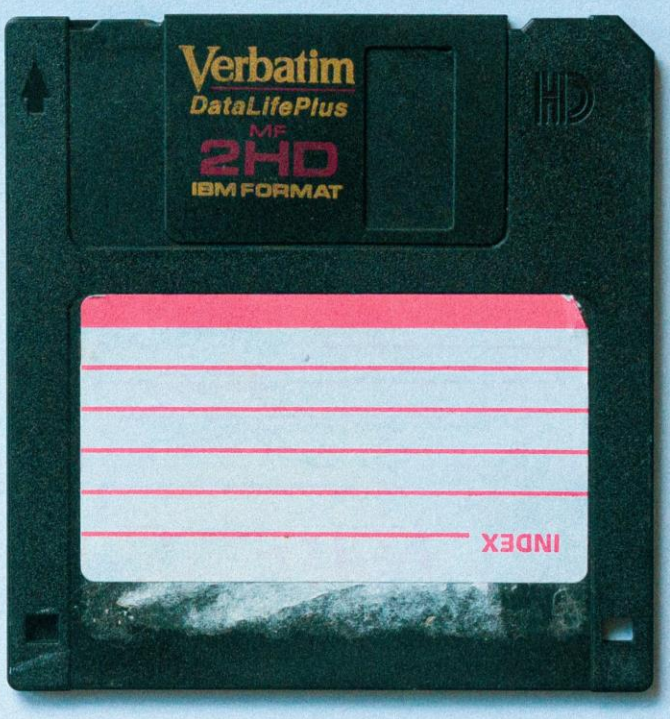
Available at a lower price from other sellers that may not offer free Prime shipping.

Memory Storage Capacity	128 GB
Brand	SanDisk
Hardware Interface	USB 2.0

About this item

- Take it all with you on reliable USB flash drives
- Transfer with confidence when moving images and other files from PC to PC or other consumer electronic devices
- Ideal for video - the easy way to store, share and play your favorite video files
- Available in capacities up to 256GB [1GB = 1 billion bytes - Some capacity not available for data storage]





Removable Storage

Removeable storage: devices that increase your computer's storage or allow you to save to another physical location for back up.

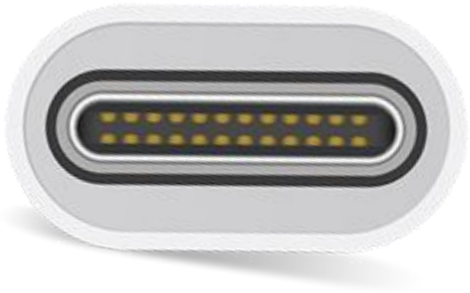
Examples: USB drives, SD cards, external storage drives, etc.

There are many types of storage accessories you can use to store data, so it can be difficult to figure out which device to use in each situation.

USB Drive (Flash Drive, Thumb Drive)*: A small storage device that plugs into the USB port of a computer.*

USB stands for Universal Serial Bus, and refers to the name of the USB port in the computer, which was created to standardize peripherals.

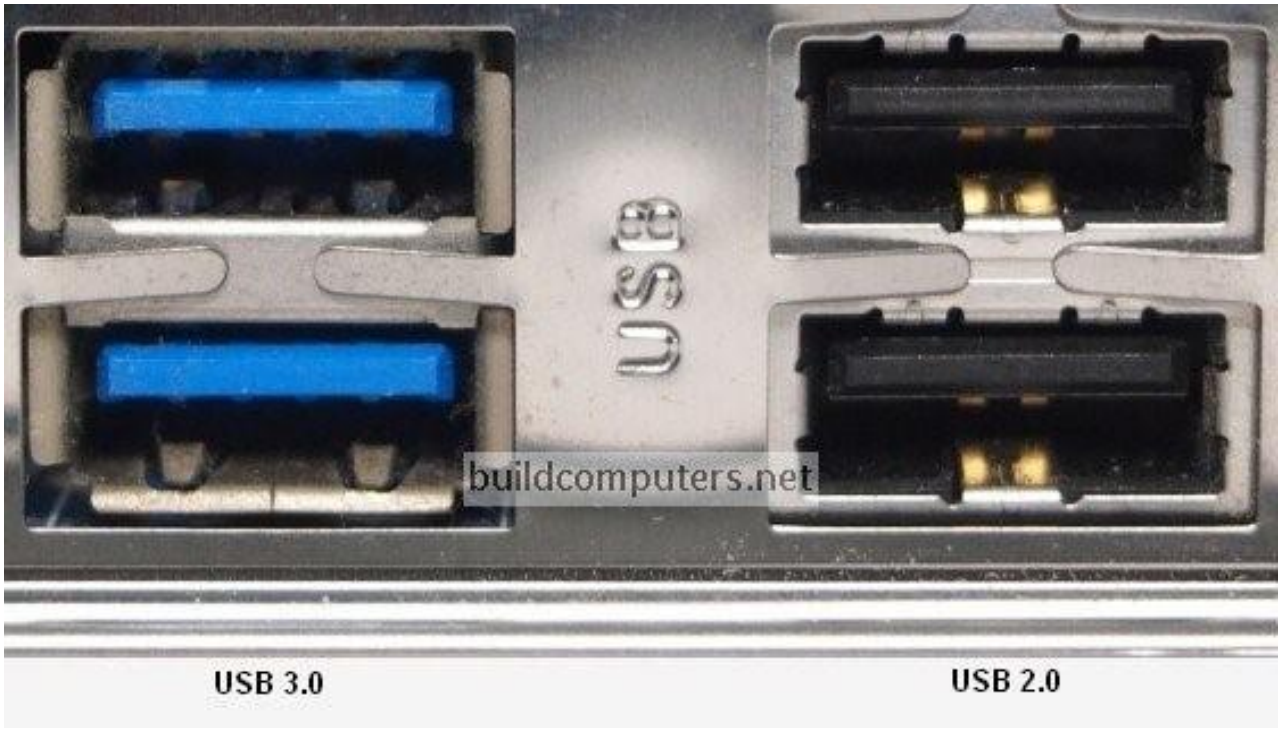
USB-A



USB-C

Micro USB

USB-A is the most common but many devices also use USB-C and Micro USB.



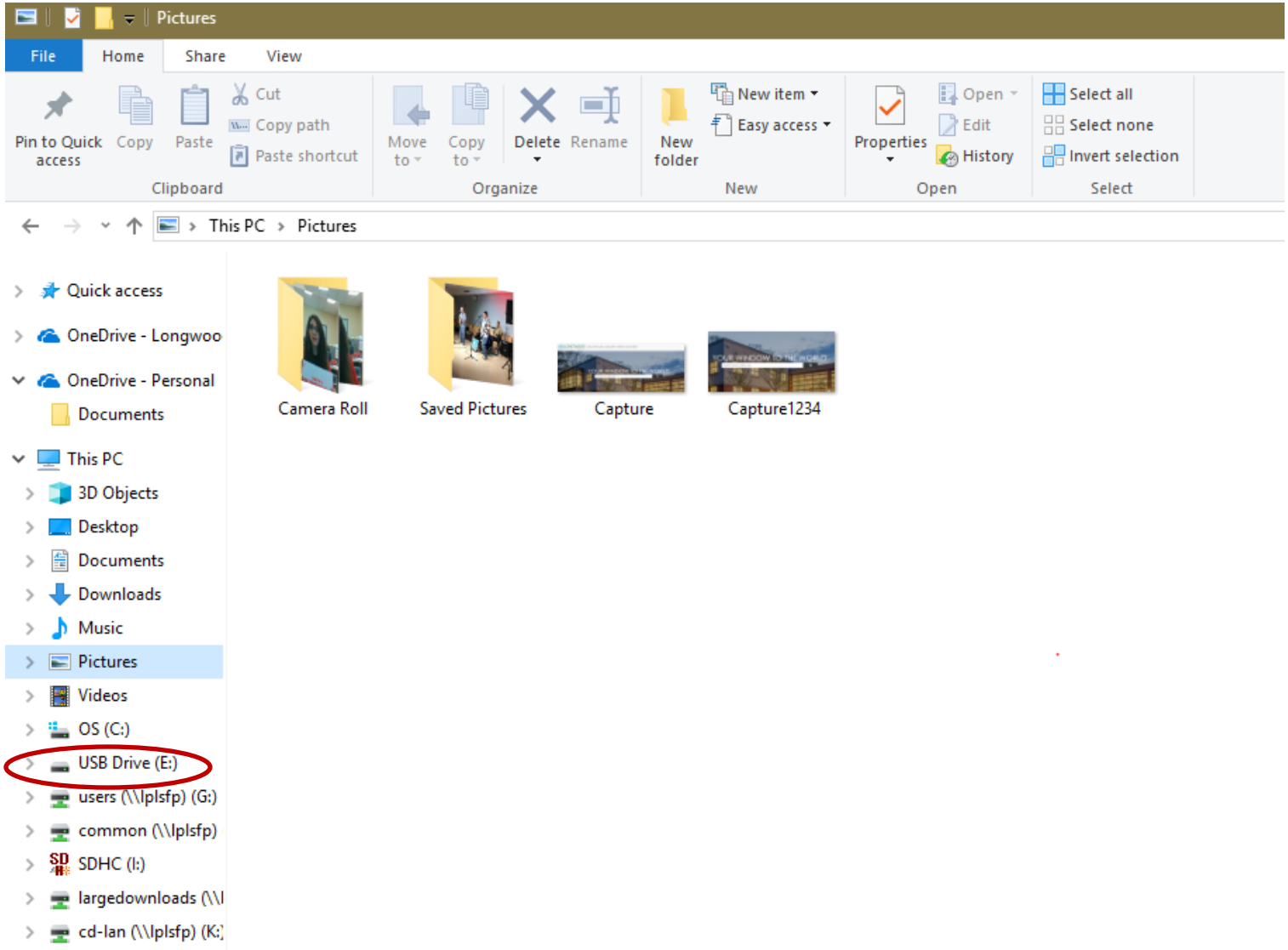
You may also see USB 2.0 and USB 3.0 devices. USB 3.0 is faster but more expensive and needs a USB 3.0 port to take advantage of it's increased speeds. These ports are usually blue and are labelled USB 3.0.

USB Drives are small and portable, but have more storage than ever! These devices make it easy to transfer files between computers or store some important documents. They can easily fit in pockets, purses and some even can be attached to a lanyard/keychain.

$5.99 → $39.99

SanDisk Cruzer USB 2.0 Flash Drive, 16GB	SanDisk Cruzer USB 2.0 Flash Drive, 32GB	SanDisk Cruzer USB 2.0 Flash Drive, 64GB	SanDisk Cruzer USB 2.0 Flash Drive, 128GB	SanDisk Cruzer USB 2.0 Flash Drive, 256GB
16GB	32GB	64GB	128GB	256GB

The price of a USB drive is usually determined by the size (storage capacity) of the device. (And as stated earlier, USB 3.0 is more expensive than USB 2.0).



Transferring data is easy- it usually involves dragging and dropping files with your file manager.

What about smartphones and tablets?

There are USB devices you can buy for them too! These devices are small drives that have a full-sized USB-A connector on one end and a USB C/MicroUSB/Lighting connector on the other end. Then you download an app from the manufacturer to transfer the files.

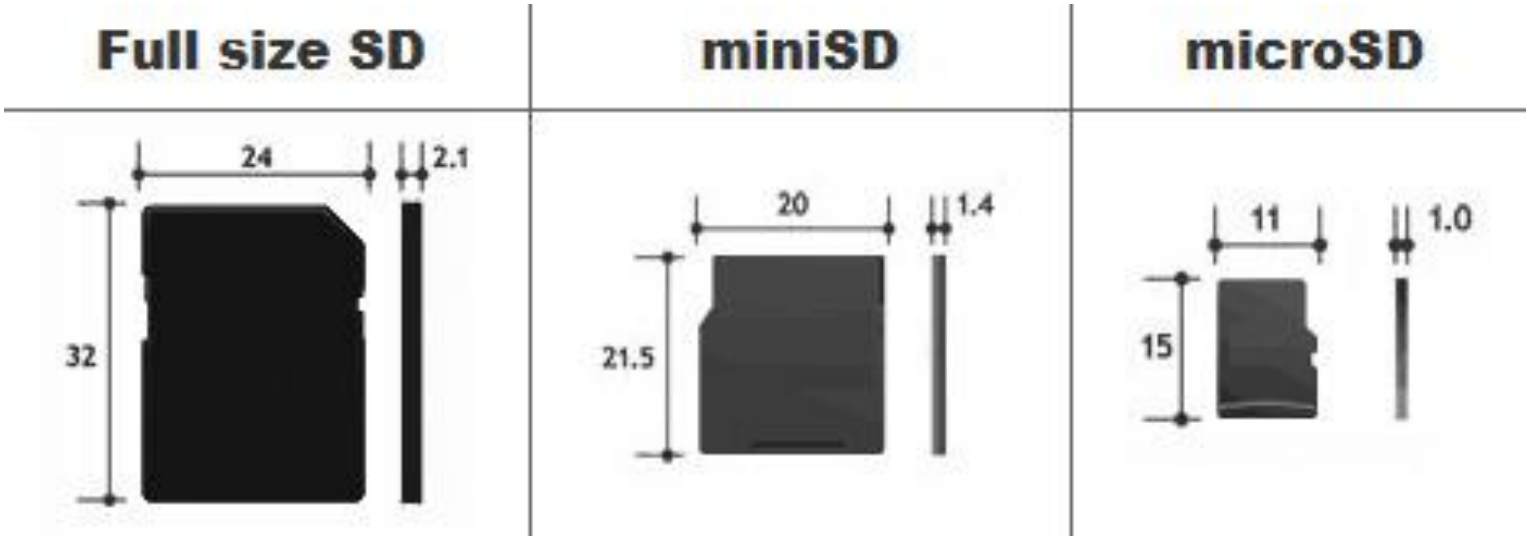
Popular companies that make USB Drives:

- Sandisk
- Kingston
- PNY
- Verbatim
- Samsung
- Patriot

Should I use a USB Drive?

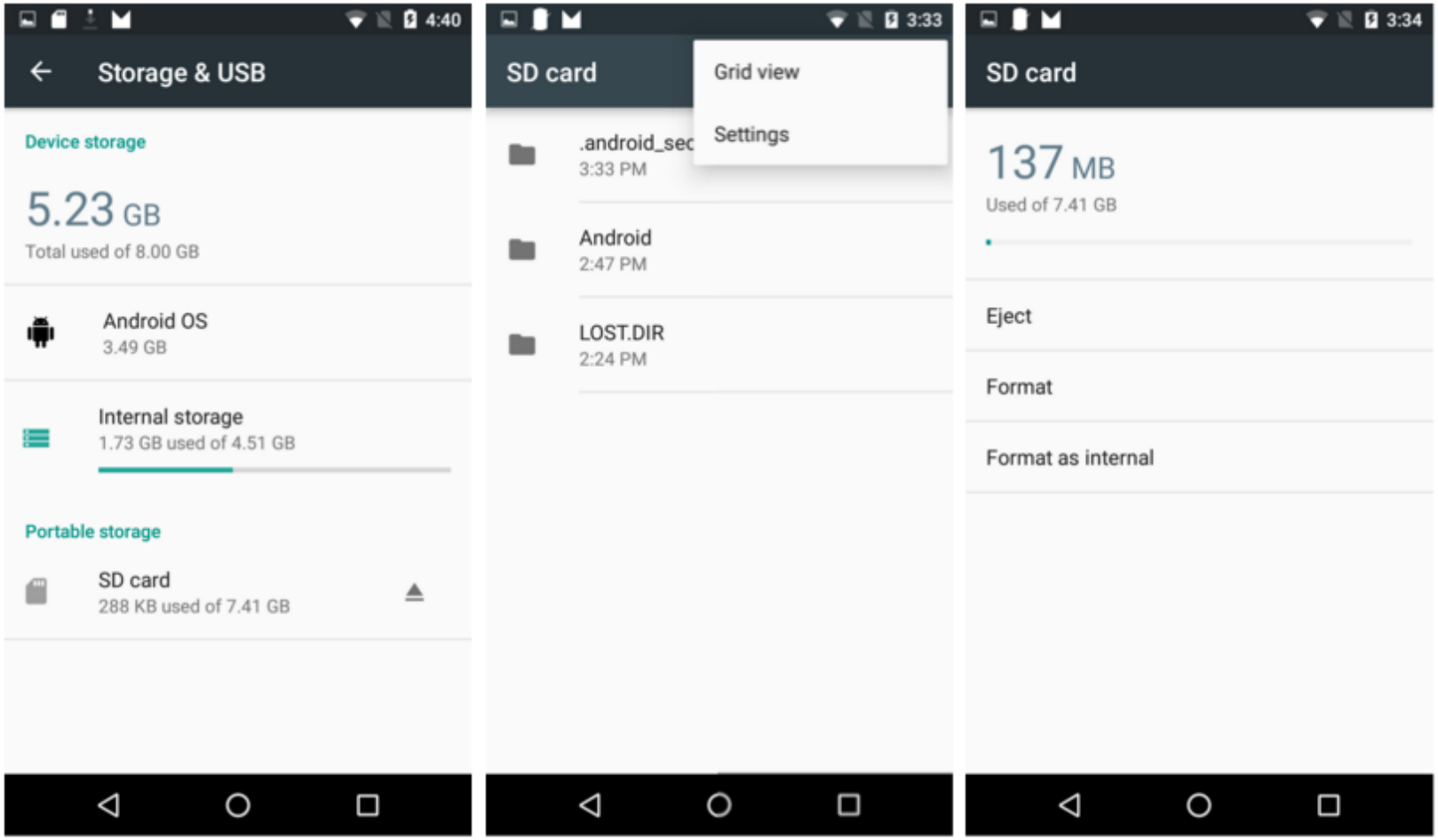
Pros: Fast, convenient and portable! No special software necessary.

Cons: Easily lost/destroyed, can host viruses/malware, limited life span (about 10 years).



SD Card: A small chip that can be inserted into an SD card slot. Available in three sizes: Full, Mini and Micro. (To put a Mini/Micro SD card in a full-sized slot, you will need an adapter).

SD Cards (Secure Digital Cards) are most commonly used in portable devices such as cameras, audio players and smartphones/tablets. Some Android phones have Micro-SD card slots to expand the phone's internal storage (iPhones, however, do **not** have Micro-SD card slots).



Compatible Android phones will allow you to store pictures, videos and maybe even apps on your SD card. (Side note: removing the SD card will usually cause issues with ported apps, so be careful!)

Much like USB drive, the price of an SD card is dependent on the storage capacity of the card. Cards with more storage are usually more expensive.

Popular companies that make SD Cards:

- PNY
- Sandisk
- Samsung
- Lexar
- Transcend
- Polaroid

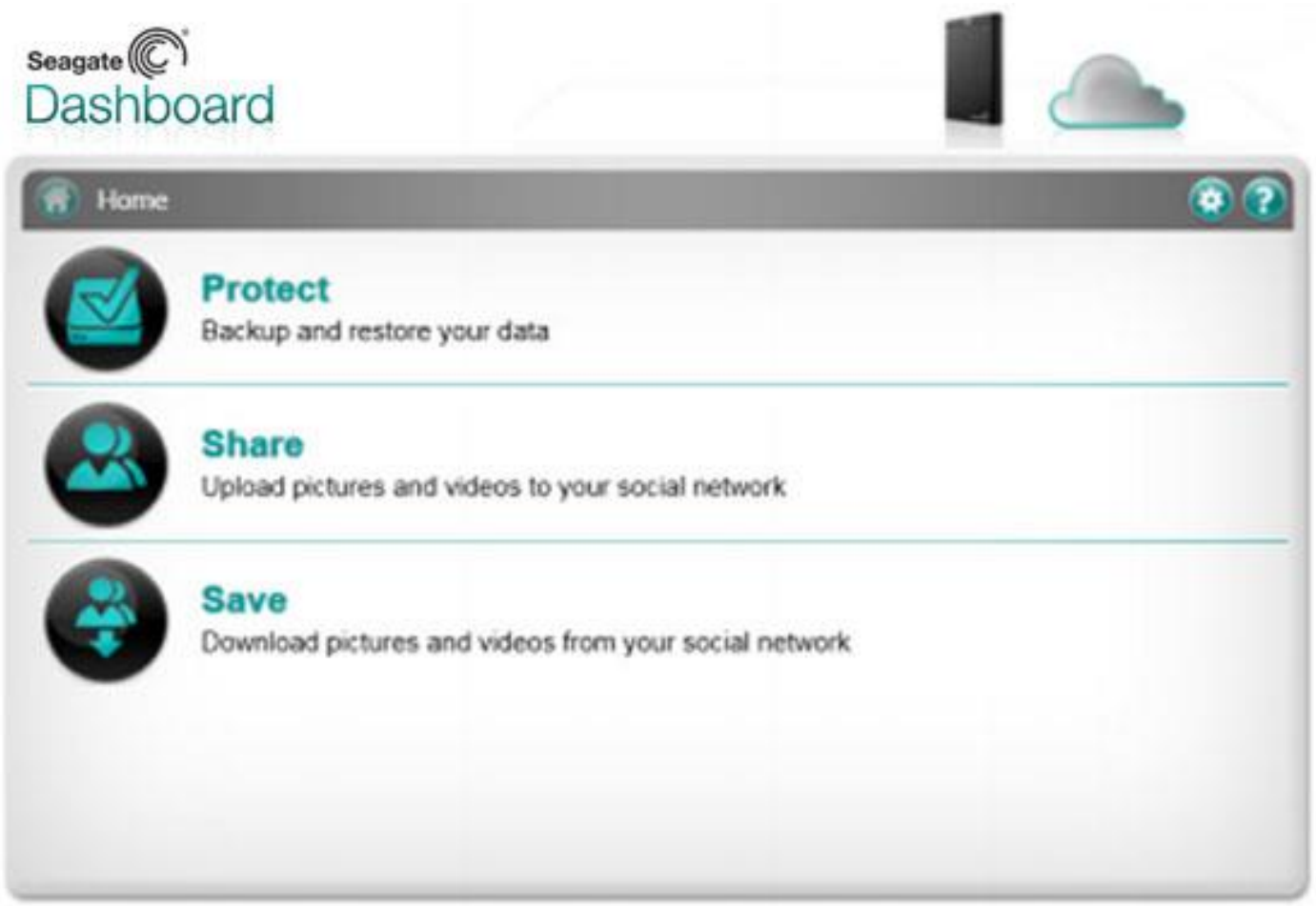
Should I use a SD Card?

Pros: Tiny, lightweight and portable! Also mounted in phone.

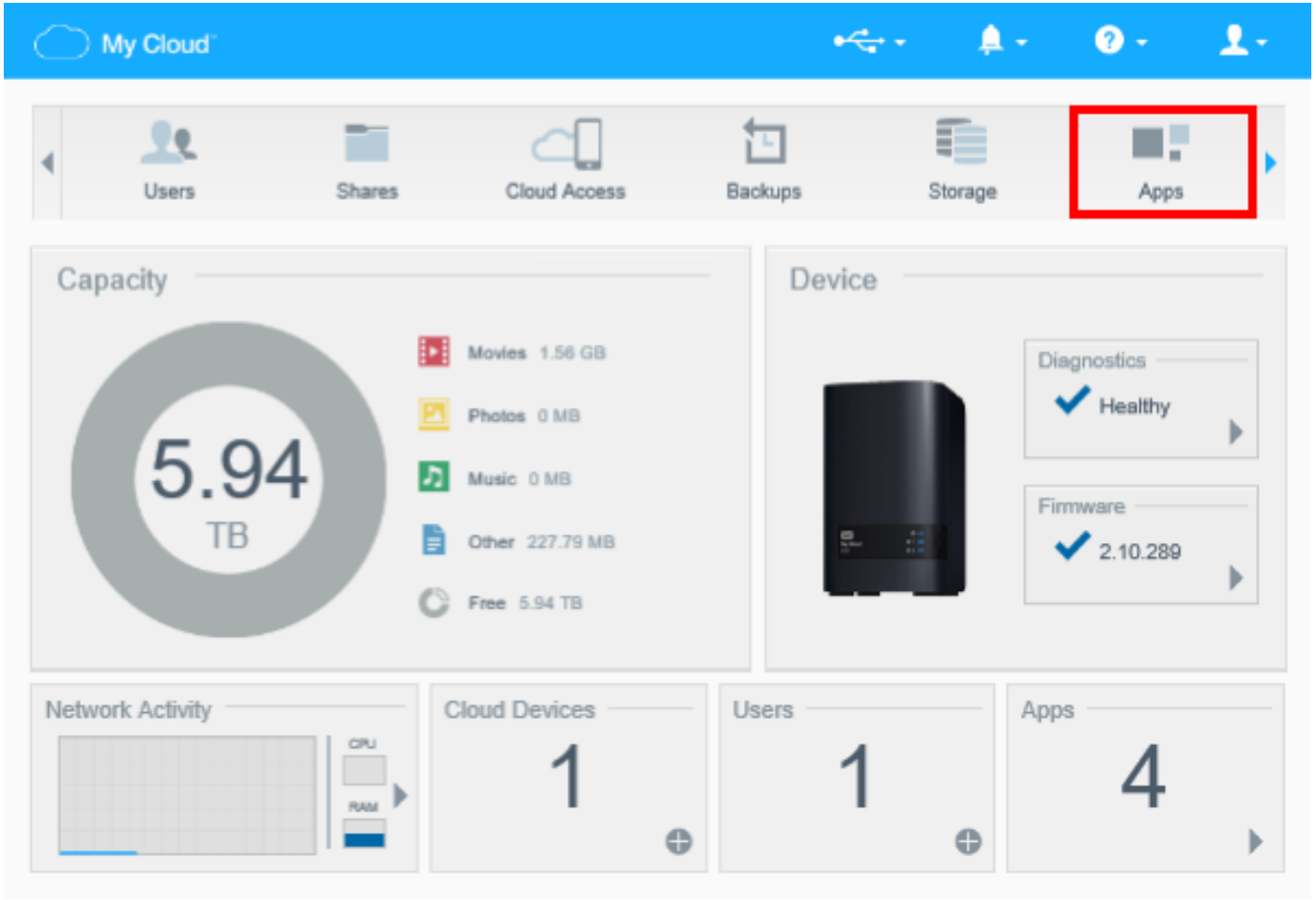
Cons: Even easier to lose than a USB drive, thin and easily breakable, limited lifespan (about 10 years), not all devices have an SD card slot so you might need an accessory.

External Hard Drive/Solid State Drive: This device is a complete storage drive that you can plug into your computer's USB port.

Unlike most USB and SD cards, external hard drives can hold a large amount of data. It's not unusual to see hard drives that are ITB, 2 TB or more. External SSD (Solid State Drives) also exist and are faster but more expensive.



In addition to including a large amount of space, external storage drives often come bundled with software to help you manage your backups and schedule them regularly.



Some external hard drives can also connect to Wi-Fi, allowing you to back up your data from mobile devices too.

Popular companies that make external hdd/ssd:

- Seagate
- WD (Western Digital)
- Samsung
- Buffalo
- ADATA
- LaCie

Should I use an external hdd/ssd?

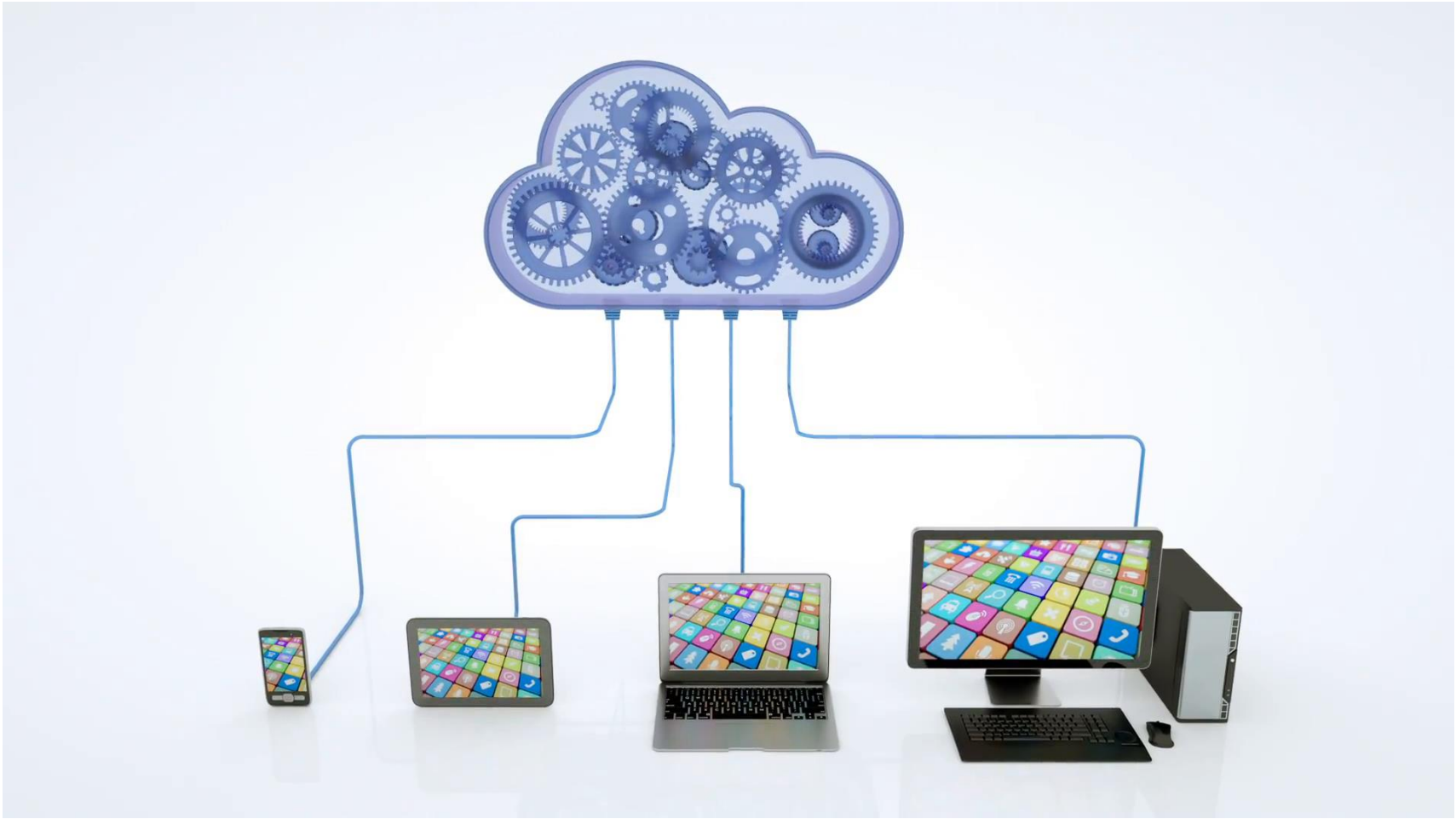
Pros: Large amount of space, can back up multiple devices.

Cons: Expensive, lifespan is estimated at 3-5 years.

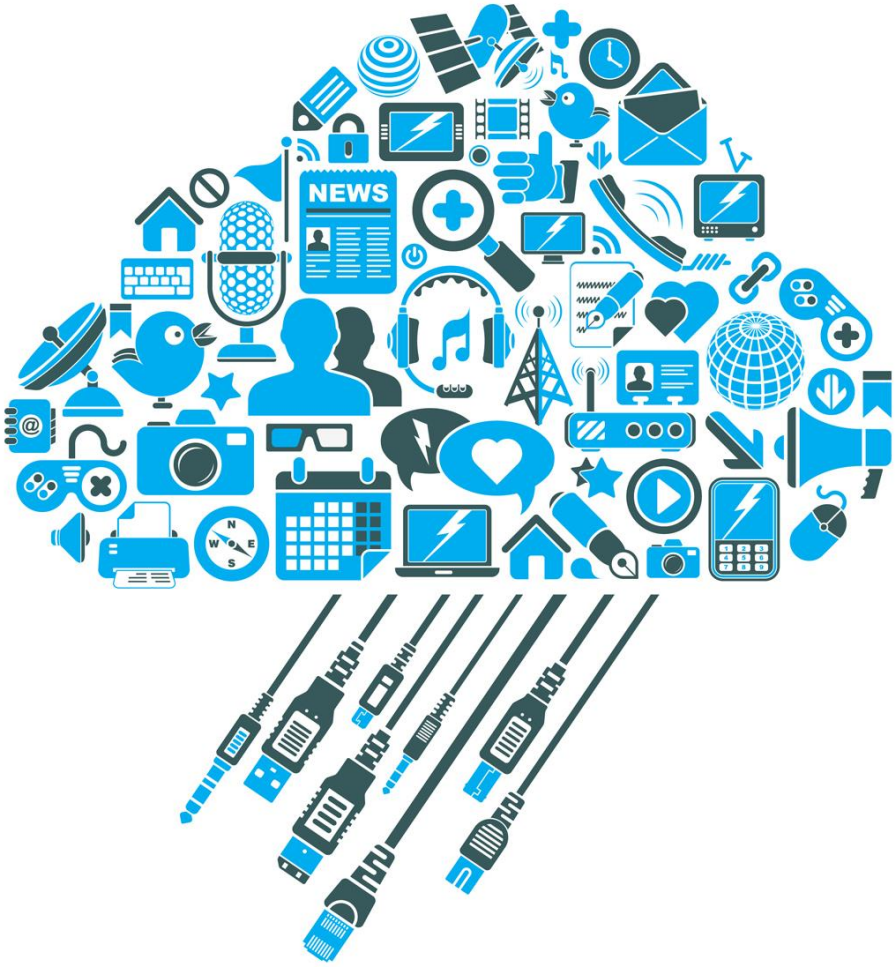
Remote Storage

Personal Cloud Storage: This type of cloud storage refers to storing an individual's data in the cloud and providing the individual with access to the data from anywhere via an internet connection.

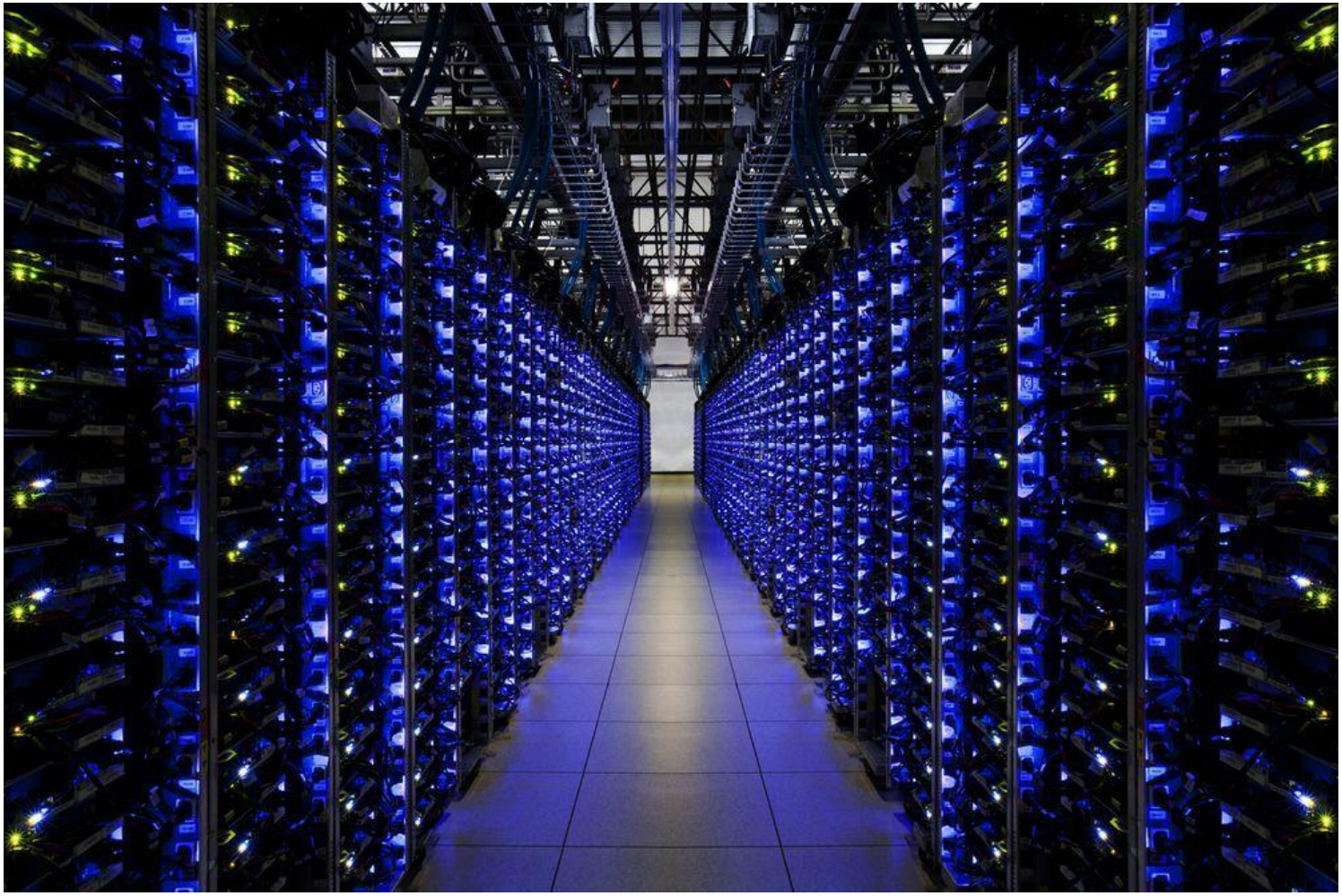
Many companies offer personal cloud storage services, such as Apple’s iCloud, Google’s Google Photos, Microsoft’s OneDrive, etc.



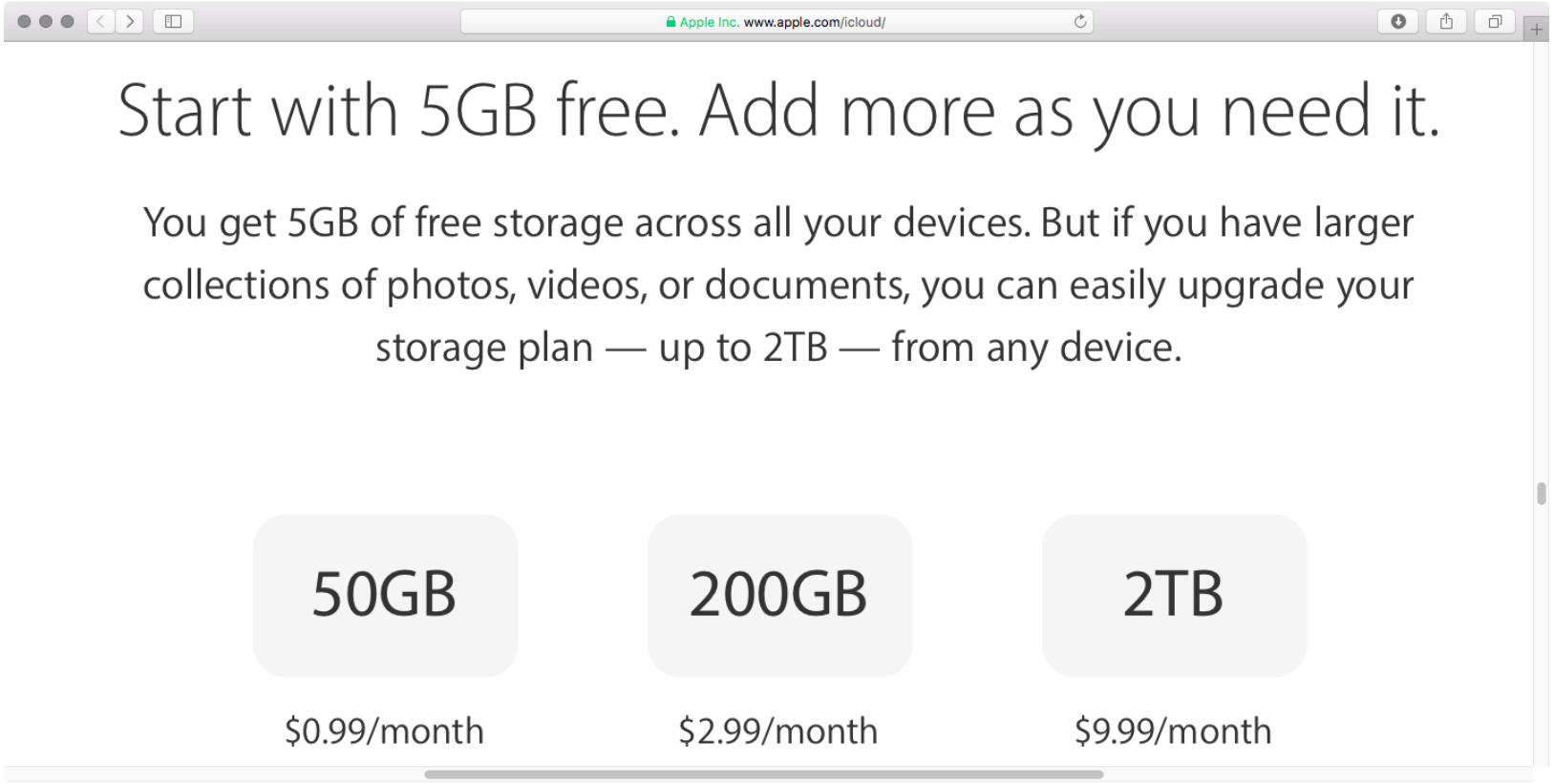
Because cloud servers are accessed through the internet, they can be accessed from anywhere or on any device!



But where is your data exactly? Your data is not in “cyberspace”; it is being stored by Google, Amazon, etc. on physical servers grouped in warehouses called “data centers”.



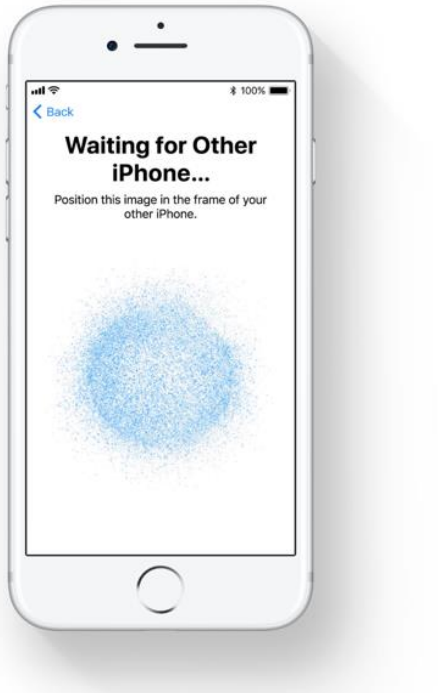
These data centers are huge storage servers. Due to having so many servers, data redundancy is used to keep your data safe long term.



In a sense, you are "renting" space on these servers to store your files- similar to a storage unit. Although you might get some free storage, you usually will need to pay a monthly/yearly fee. Every service has it's own pricing plan, so be sure to do your research!

Automatic Setup.
Get off to a quick start.

Just hold your new iPhone or iPad near an iOS device and many of your personal settings, preferences, and iCloud Keychain passwords are quickly and securely imported. Or in technical terms, easy peasy.



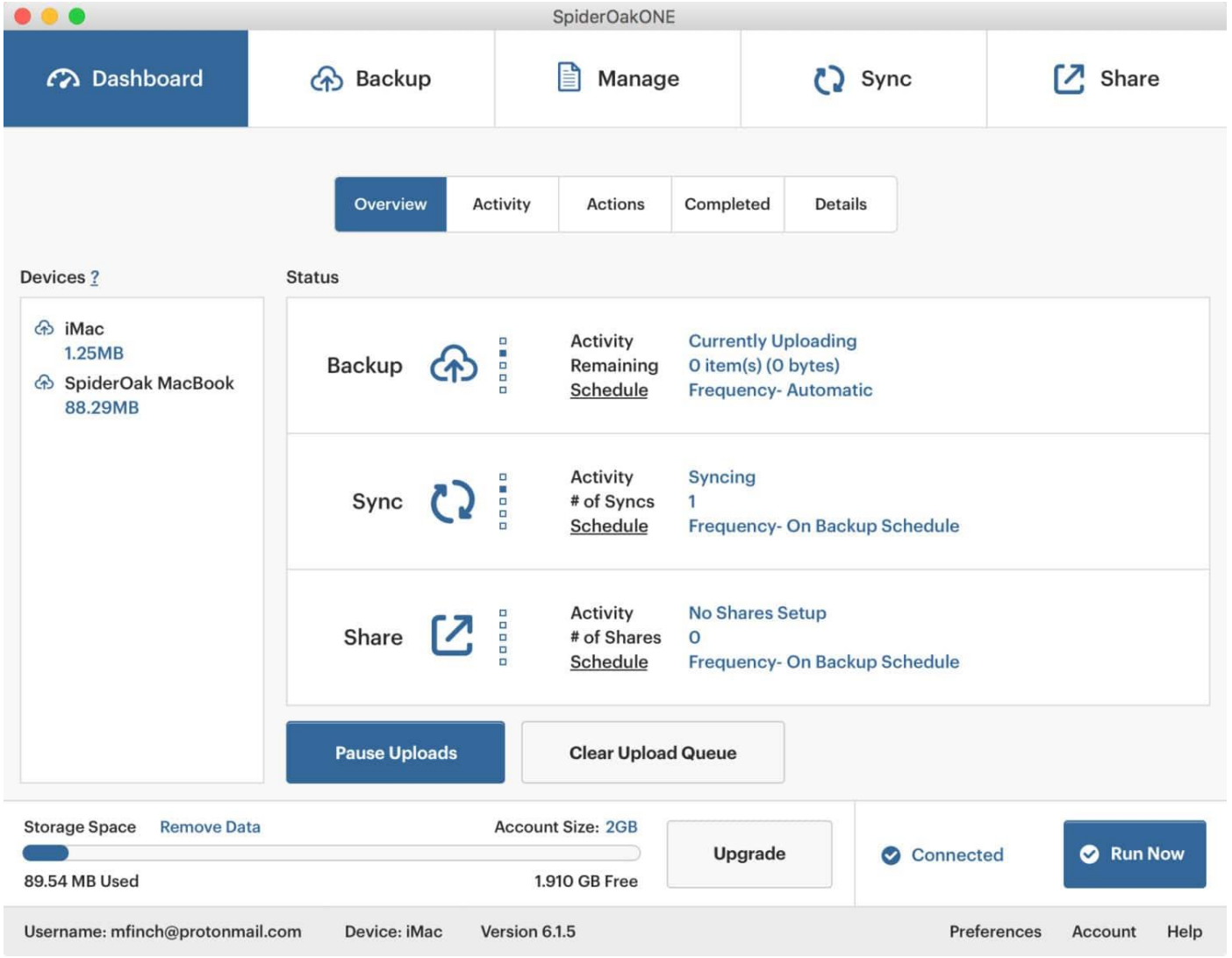
However, for many people, the convenience is worth it. Cloud services make importing files from old devices very quick and easy, and the automatic backup features make doing backups painless.

Popular companies that have cloud storage services:

- Apple (iCloud)
- Google (Google Photos, Google Drive)
- Microsoft (OneDrive)
- Samsung (Samsung Cloud)
- Dropbox
- Box
- pCloud

But what about **cloud backup** services?

Cloud backup services are different from cloud storage services (like Dropbox, Google Drive, etc.) Cloud storage services are primarily focused on allowing you to sync and access your files across multiple devices. **Cloud backup services** are more on backing up files and security.



You can use these services to do automatic backups on whatever schedule you decide. Popular examples include IDrive, Acronis, Spideroak and Carbonite.

Should I use a cloud storage service?

Pros: Access your information instantly from multiple devices, easy set-up, most services have free plans.

Cons: Monthly fee for larger storage, still trusting a company with your data, requires internet connection.

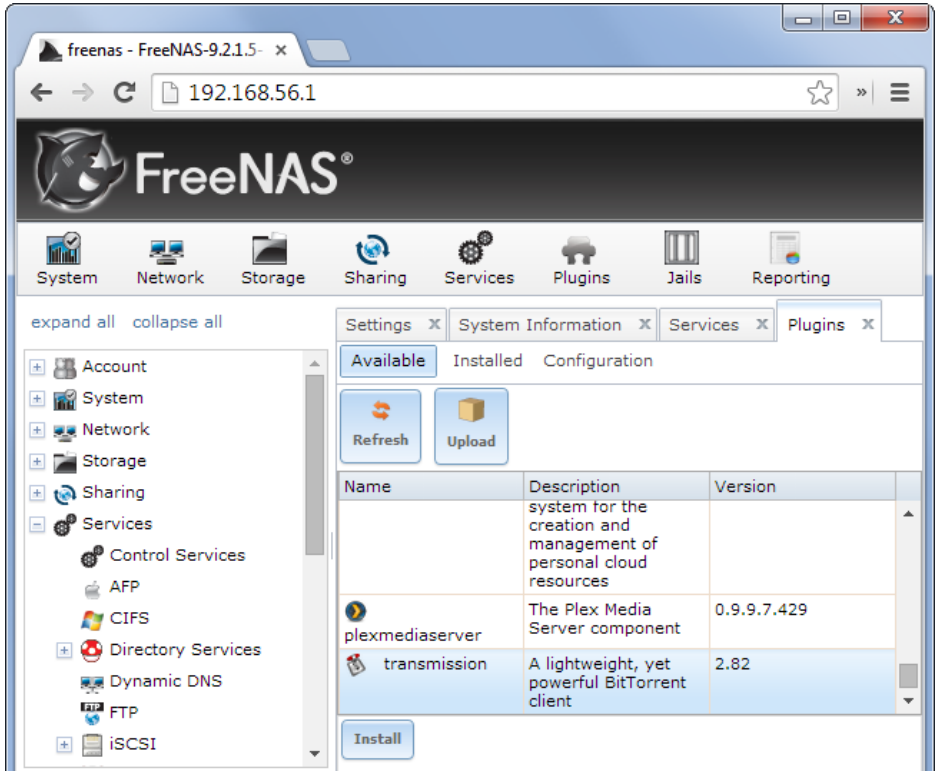
Network-attached storage (NAS): A network-attached storage (NAS) device is a server that is dedicated to nothing more than file sharing. It connects to your network rather than your PC via Wi-Fi or a network cable.

NAS servers are cases that hold multiple external hard drives. NAS servers will often include bays for multiple drives. “Diskless” drives don’t include the hard drives with the device, so the user will have to purchase them separately.

NAS servers with multiple drives offer the option for “data redundancy”, ensuring that the data is repeated across multiple drives. So if one fails, it’s okay! But beware, this cuts down on your total storage.

Popular companies that make NAS servers:

- Synology
- Western Digital (WD)
- Seagate
- QNAP
- Buffalo
- Drobo



And while you can buy a NAS, tech savvy users can also create their own from an old PC or a Raspberry Pi. Free NAS is an open-source software you can use to manage it.

Should I use an NAS?

Pros: Large storage space, data redundancy for long term.

Cons: Expensive, needs a little bit of tech savvy to set up.

Come up with the **storage plan** that works for you!

Just remember to include **local**, **removeable** and **remote** storage options.