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Computer Basics

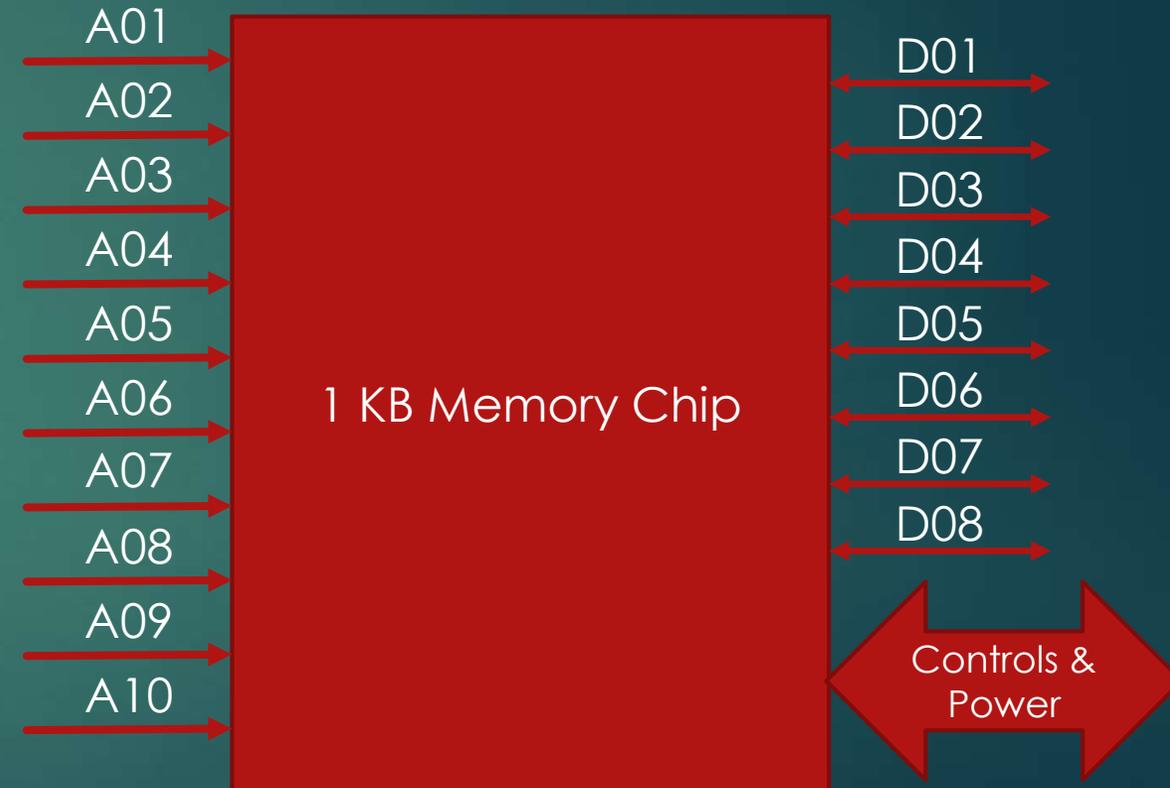
Cloud Storage Part 1

STEPHANE RICHARD

# Storage units

Unit	Shortened	Capacity
Bit	b	1 or 0 (on or off)
Byte	B	8 bits
Kilobyte	KB	1024 Bytes
Megabyte	MB	1024 Kilobytes
Gigabyte	GB	1024 megabytes
Terabyte	TB	1024 gigabytes
Petabyte	PB	1024 terabytes
Exabyte	EB	1024 petabytes
Zettabyte	ZB	1024 exabytes
Yottabyte	YB	1024 zettabytes

$2^{\text{Number of address pins}} = 2^{10} = 1,024$  addresses



# Let's say you have a few billions dollars, what would you need to store and process a Zettabyte of data?

National Security Agency (NSA) whistle-blower William Binney has put the capacity of the NSA Utah Data Centre at **5 zettabytes** of data storage



Data center buildings

Power buildings

Chiller plants

Cars

# Internal Storage Type – Hard Drive (HD) or Hard Disk Drive (HDD)



# Internal Storage Type – Solid State Drive (SSD)



# Removable Storage

Large capacity USB Drive (photo 12 TB 16.5 X 4.5 X 13.5 cm needs external power supply)



CD, DVD, Blue Ray drives and disks



Memory card reader and memory cards



USB memory stick or keys



USB Portable external hard drive



# Cloud Storage Diagram



Internal and removable storage at your location

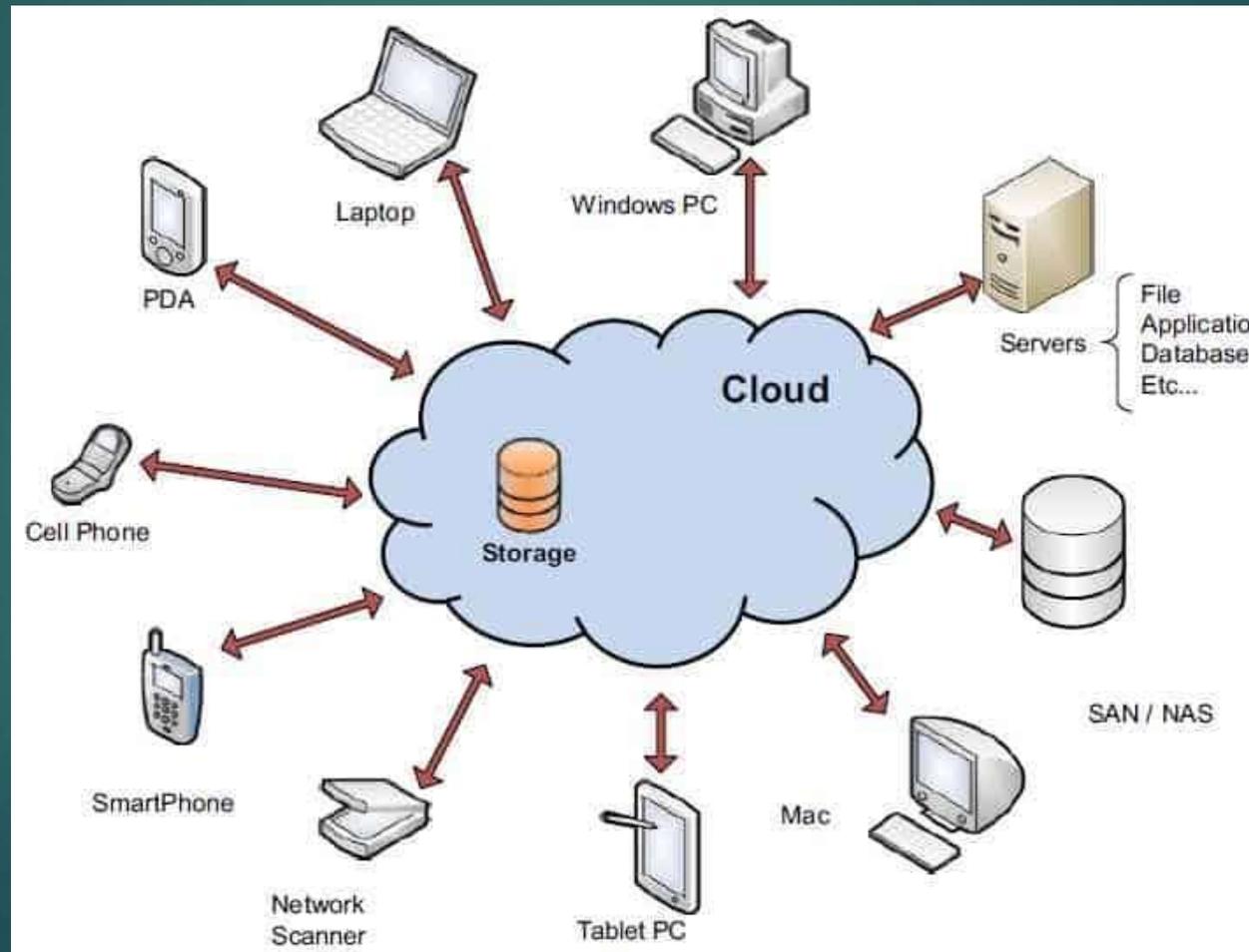


Cloud Storage

Cloud Storage Provider location



Your data is available from anywhere and on any device to you and approved users



# Advantages of Cloud Storage

- ▶ Cost:
  - ▶ Purchasing physical storage can be expensive. Without the need for hardware cloud storage is exceptionally cheaper per GB than using external drives.
- ▶ Accessibility:
  - ▶ Using the cloud for storage gives you access to your files from anywhere that has an internet connection.
- ▶ Recovery:
  - ▶ In the event of a hard drive failure or other hardware malfunction, you can access your files on the cloud. It acts as a backup solution for your local storage on physical drives. However, it is the Cloud Storage Provider doing backup...
- ▶ Syncing and Updating:
  - ▶ When you are working with cloud storage, every time you make changes to a file it will be synced and updated across all of your devices that you access the cloud from.
- ▶ Security:
  - ▶ Cloud storage providers add additional layers of security to their services. Since there are many people with files stored on the cloud, these providers go to added lengths to make sure your files don't get accessed by someone who shouldn't.
- ▶ Sharing:
  - ▶ Ability to easily share large files with others.

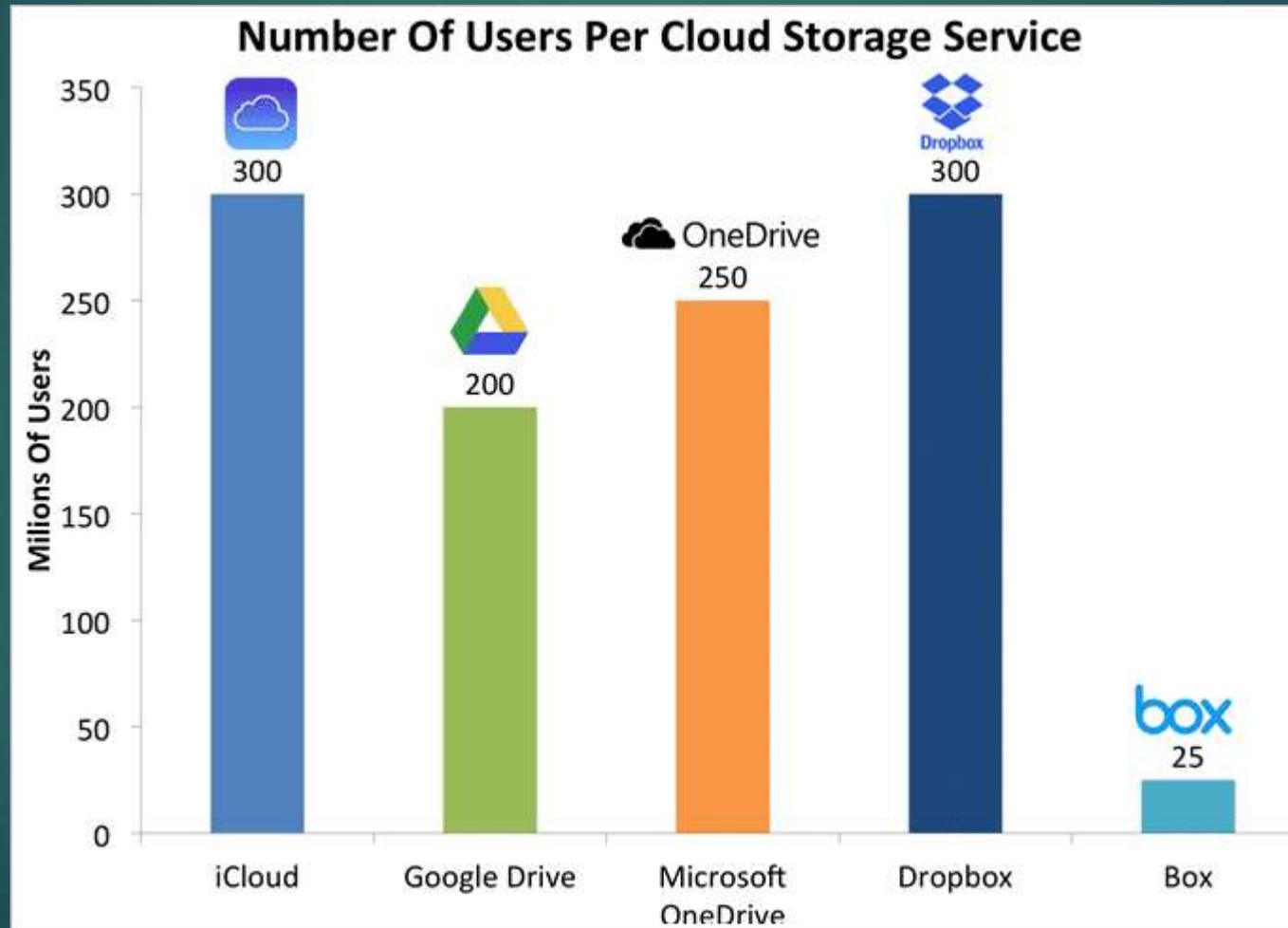
# Disadvantages of Cloud Storage

- ▶ Internet Connection:
  - ▶ Cloud based storage is dependent on having an internet connection. If you are on a slow internet connection, uploading and downloading large files may become impractical. Also, in the event you find yourself somewhere without an internet connection, you won't be able to access your files, unless you enable "off-line" access (i.e. having a local copy).
- ▶ Costs:
  - ▶ There could be additional costs for uploading and downloading files from the cloud. These can quickly add up if you are trying to access lots of files often.
- ▶ Hard Drives:
  - ▶ Cloud storage is supposed to eliminate our dependency on hard drives right? Well some business cloud storage providers require physical hard drives as well.
- ▶ Support:
  - ▶ Support for cloud storage isn't the best, especially if you are using a free version of a cloud provider. Many providers refer you to a knowledge base or FAQs.
- ▶ Privacy:
  - ▶ When you use a cloud provider, your data is no longer on your physical storage. So who is responsible for making sure that data is secure? That's a gray area that is still being figured out.

# How do free Cloud Service Provider earn money?

- ▶ A lot of companies offer try before you buy schemes. In cloud it is sometimes called “freemium”:
  - ▶ The idea is the user will be more likely to try a product if it is free.
  - ▶ Once the user is using the product they will discover many additional features and functions that can only be accessed if you move to a paid model which also provides more storage than the free version.
- ▶ Pros:
  - ▶ Free!
- ▶ Cons:
  - ▶ File size limit
  - ▶ Bandwidth restrictions

# Number of users for most popular cloud storage provider in 2021



# Common Cloud Storage Provider

Name	Platform	Free	Paid option (probably in US \$)
iCloud	Windows, iOS, and Mac OS	5 GB	50 GB for \$0.99 per month, 200 GB for \$2.99 per month, and 2 TB for \$9.99 per month
Google Drive	Windows, Mac, iOS, and Android devices	15 GB	100 GB for \$1.99 per month, 200 GB for \$2.99 per month, 2 TB for \$9.99 per month, more options available
Microsoft OneDrive	Windows, Android, iOS	5 GB	50GB for \$1.99 per month. Office 365 offers 1 TB included with subscription
Dropbox	Windows, Mac OS, Linux, Android, iOS, and Windows phone	2 GB	1 TB Plus plan for \$8.25 per month, 1 TB Professional plan for \$16.58 per month
Box	Accessible from any device	10 GB	100 GB for \$10 per month

# Part 2 will cover using Cloud Storage

- ▶ Creating a cloud storage account
- ▶ Uploading and downloading files and folders using a browser
- ▶ Sharing a file using a link
- ▶ Sharing a folder with other users for collaboration with full write access
- ▶ Installing and using sync software

