Backup!
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This Presentation Covers

How to guard your data with a copy
The difference between Copy and Full Backup
What is a Full Backup?
What are the Basic Types of Full Backup?
What Tools are needed for Full Backup and/or Copy?

Why would you Backup or Copy?

1. You want to be able to completely restore your computer in case of a hardware failure
2. You started writing a book
3. Family pictures and Genealogy records
4. Financial or Legal records – like Tax Returns & Wills
5. Powers of Attorney
6. A list of user names and passwords
7. Resumes or Career records
8. List of collections of any type (like a coin collection)
9. Whatever digital data that is important

Basic Strategy **3-2-1-1**

3 Copies of data on 2 different media plus 1 copy offsite (Possibly Cloud)

So what's the 1??

One of the copies should be Write-Once Read Many (WORM) format

This may seem excessive for some residents

Your choice!

What is the difference between Copy and Backup?

Copy makes a duplicate of any data - documents, pictures, videos, etc. – *WITHOUT* the software that was used to create it.

For example, if you create a copy of a Word Document, you will need the software (Like Libre Office or Microsoft Office) available in order to open the Copy

What is the difference between a COPY and a FULL BACKUP

Copy is for data only

FULL BACKUP encrypts and compresses the Operating System & files and saves all other data and software applications associated with the files being backed up. A FULL BACKUP requires a **Restore** to put everything back to a computer the way it was.

A Copy does not!

What is a Full Backup

A Full Backup includes the Operating System, Software Applications, and Data so Full Restore is possible

Your Computer

External Directly Connected Backup Drive, a flash drive, or The Cloud

What is a Full Backup?

Full Backup is the process of duplicating the Operating System, software, and data – documents, pictures, etc. – in another location in case the original is lost, deleted, or corrupted.

The ability (software) to do a "backup" – which really is a copy of data only - is built into the Microsoft Operating System of PCs but is not a Full Backup
Choose backup from the Type Here to search field in the lower left-hand corner of your Desktop

Some Types of Full Backups

There are the Three Basic Types of Backup

Full Backup

Incremental Backup

Differential Backup

Other Types of Backups

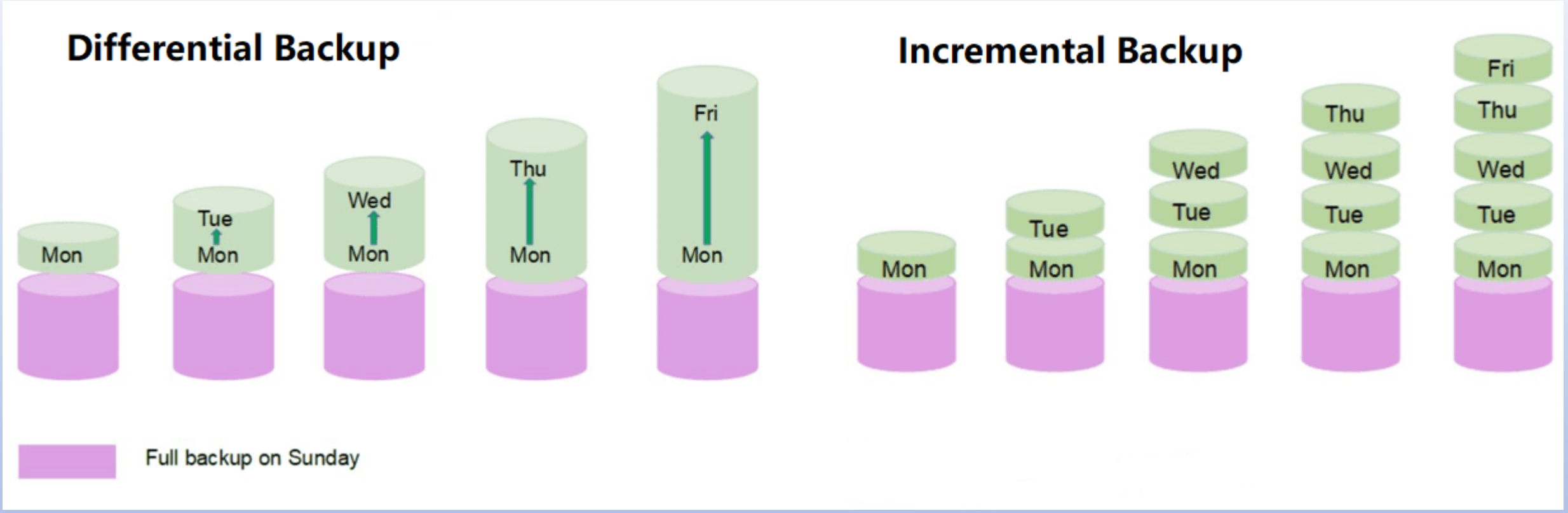
Incremental Backup: Back up only the data that has changed from the last Full Backup or the last Incremental Backup.
Restore requires the Full Backup and all subsequent Incremental backups.

- TAKES SHORTER TIME TO BACKUP

Other Types of Backups

Differential Backup: Back up only the data that has changed since the last Full Backup. Restore requires the Full Backup, and the last Differential Backup

- TAKES A LONGER TIME TO BACKUP


Differential Backup
Mon
Tue
Mon
Wed
Mon
Thu
Mon
Fri
Mon
Incremental Backup
Mon
Tue
Mon
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Tue
Mon
Thu
Wed
Tue
Mon
Fri
Thu
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Mon
Full backup on Sunday

So Which Do You Want???

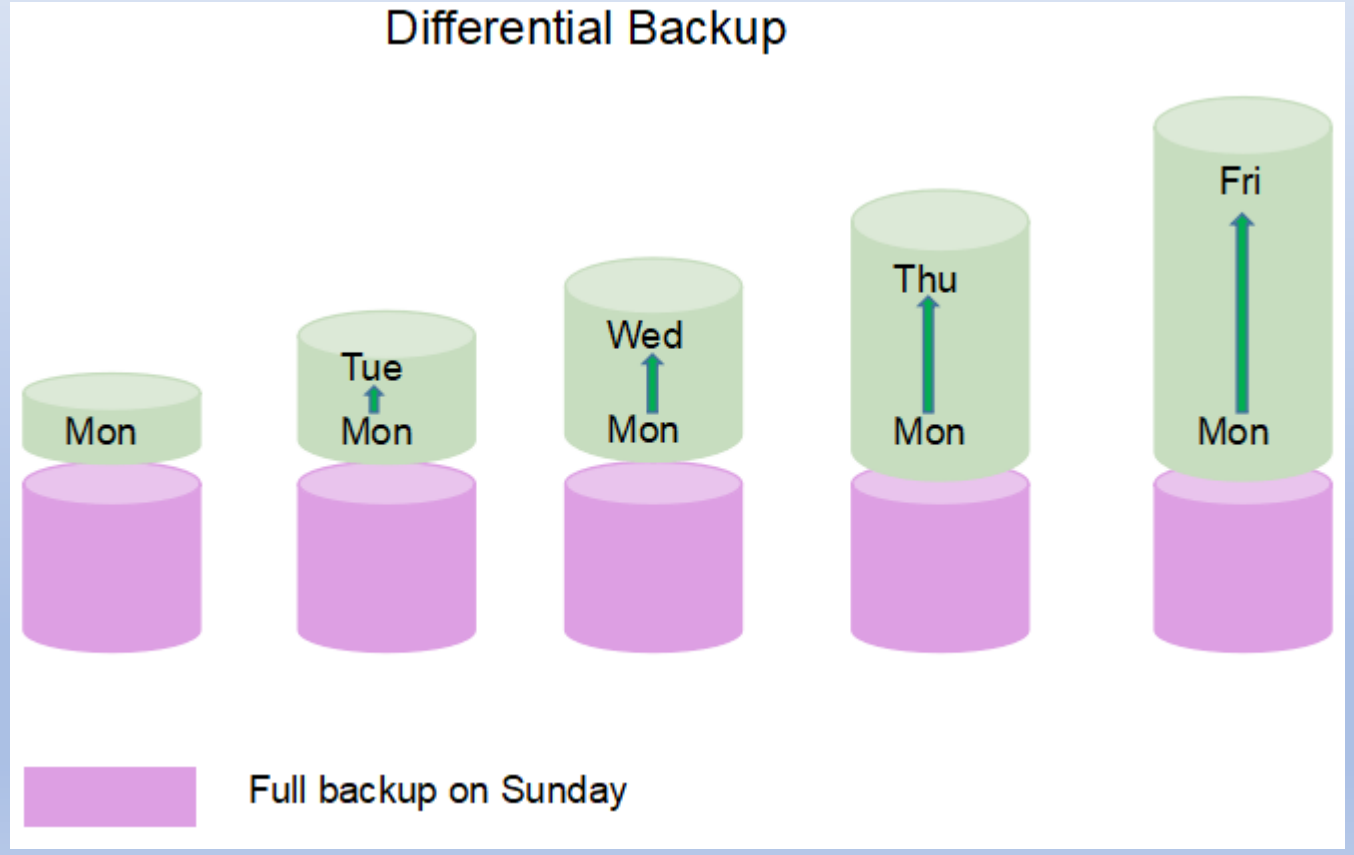
For most of us the answer is

Differential!

WHY??

Why Differential?

You only have to restore two Files



Why Not Incremental?

You have to restore more files

So Why would you possibly use Incremental Backup?

An incremental backup approach is used when the amount of data that has to be protected is too voluminous to do a full backup of that data every day.

By only backing up changed data, incremental backups save restore time and disk space. Incremental is a common method for cloud backup as it tends to use fewer resources.

For most residents, Differential Backup or Full Backup is the Choice
Unless one is backing up to the Cloud

When and What to Backup?

This is a personal choice. You may decide that all you need is a copy of your data – no Full Backup needed

You may decide to do a Full Backup of your computer every week, every month, or whatever.

Full Backups take the longest time and you must create a Full Backup to start an ongoing Backup program

You may decide to do ONLY Full Backups on a periodic basis and not be concerned with any interim files created by Incremental and Differential Backups

When to Backup

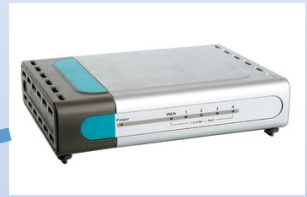
Personal Choice

Full Backup – Used if you want a backup that totally restores everything including the operating system and software. Let's pretend this is true for the next few slides showing one example

Caveat - about Email – You don't have to back it up

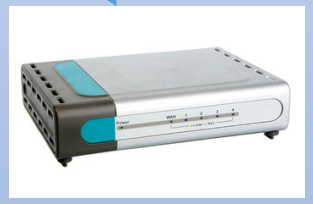
For most residents, Email is NOT on your computer
Microsoft's Outlook is an exception

You



Incoming Mail Server – POP, POP3, IMAP

Mail coming into you from other people



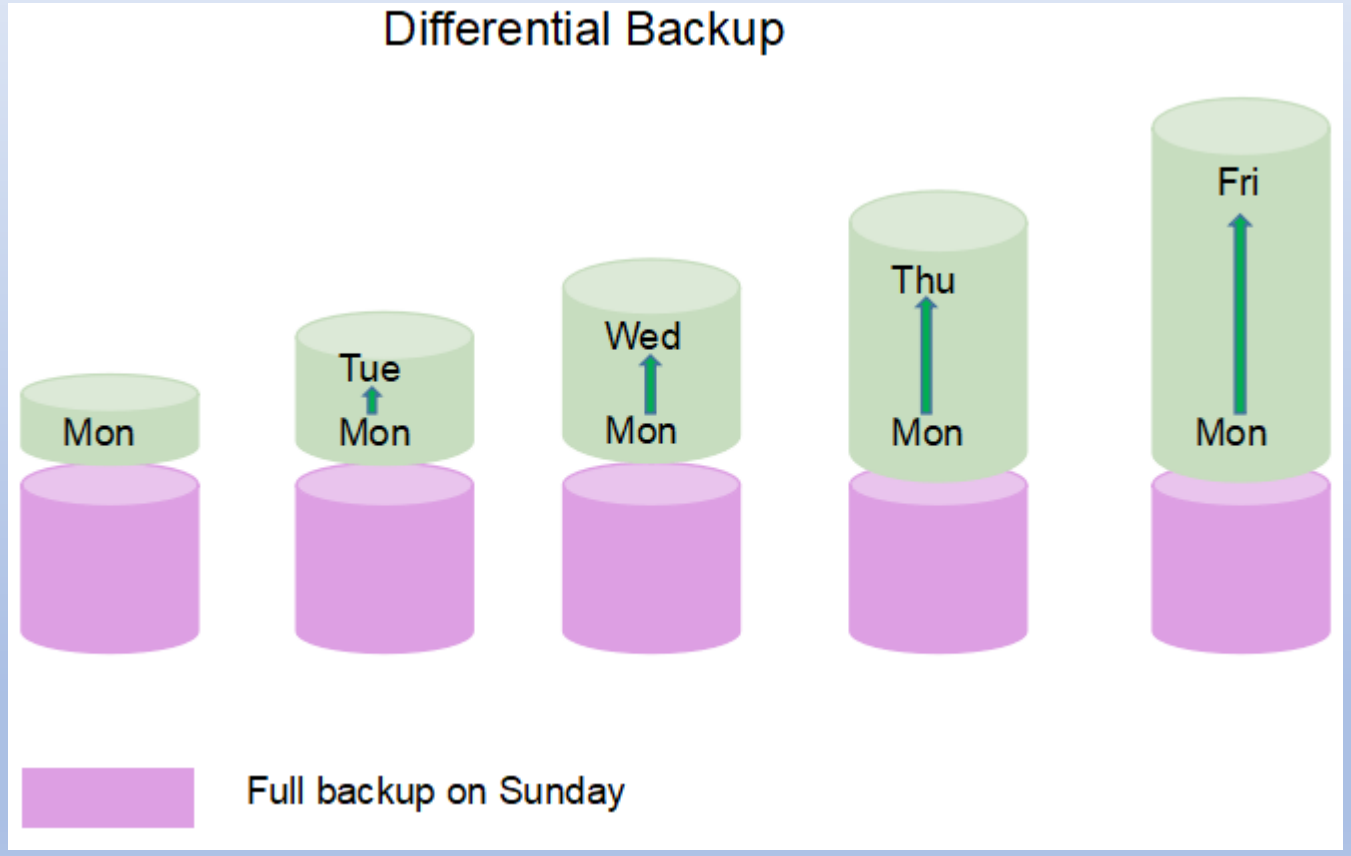
Outgoing Mail Server - SMTP

Mail going out from you to other people

When to Backup?

Full Backup plus using Differential Backup

You decide to do a full backup once a week. The Full Backup is done every Sunday, and the new one will take the place of the old Full Backup each Sunday. You may need to have space for two Full Backups on your Backup hardware or Cloud Service.

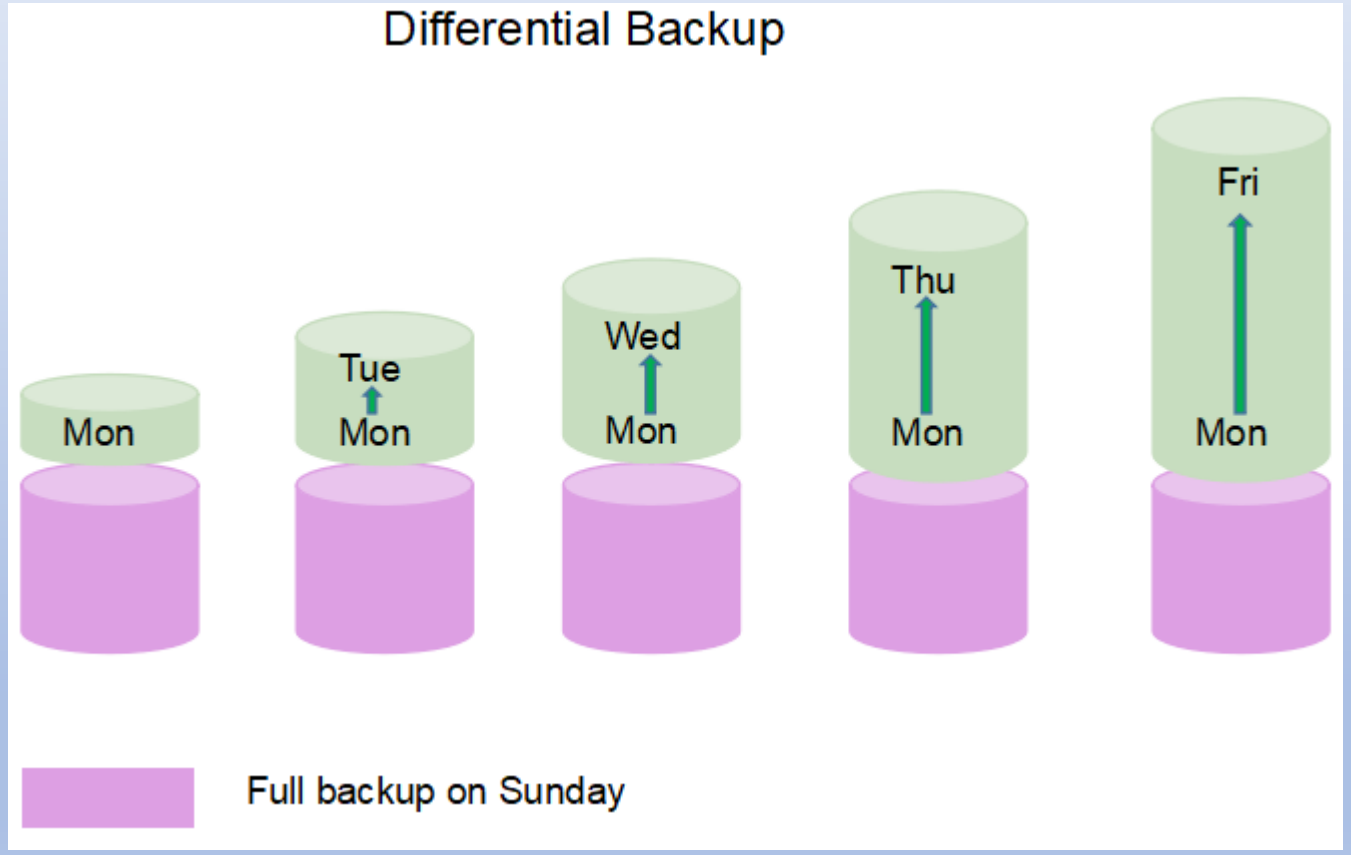


When to Backup?

Full Backup plus using Differential Backup

The pink canisters indicate the Full Backup. The green canisters indicate the Differential Backups done the rest of the week.

Let's say that your computer totally crashes on Friday, and you have to get a new one. You have to restore only the Full Backup + the Differential Backup from Thursday to a new computer. You will probably have to install the same software you used to back up your old computer.



Full Backup

Once you make two Full Backups, you can delete the old one.

Caveat: USE YOUR BACKUP SOFTWARE PACKAGE TO DO THIS. SIMPLE DELETION MAY CORRUPT THE ENTIRE BACKUP PROCESS

Many Backup Software packages allow you to automatically delete the last Full Backup

Hardware and Software Needed for Backup or Copy

You need hardware or The Cloud to do Backups or Copies – Any of the types of hardware or the Cloud can be used for either

You need to Educate Yourself on the free Full Backup software vs. Licensed (paid for) software and on the Hardware or The Cloud choices.

Hardware and Software Needed for Backup or Copy

Several manufacturers make External Backup Drives

https://www.pcmag.com/lists/best-external-hard-drives?

Some of the most popular are Samsung, Western Digital, SanDisk and Seagate.
Check the Internet and Technology Magazines – like PC Magazine - for recommendations

External Backup Drive Seagate

Hardware and Software Needed for Backup

How big an External Backup drive should I get?

Personal Recommendation is that you purchase the External Backup Drive or Cloud Service with as much room as possible that you can afford –
1-3 Terabytes or more

SSD vs HDD

if one is not using a Cloud service

Solid State Drive vs. Hard Disk Drive

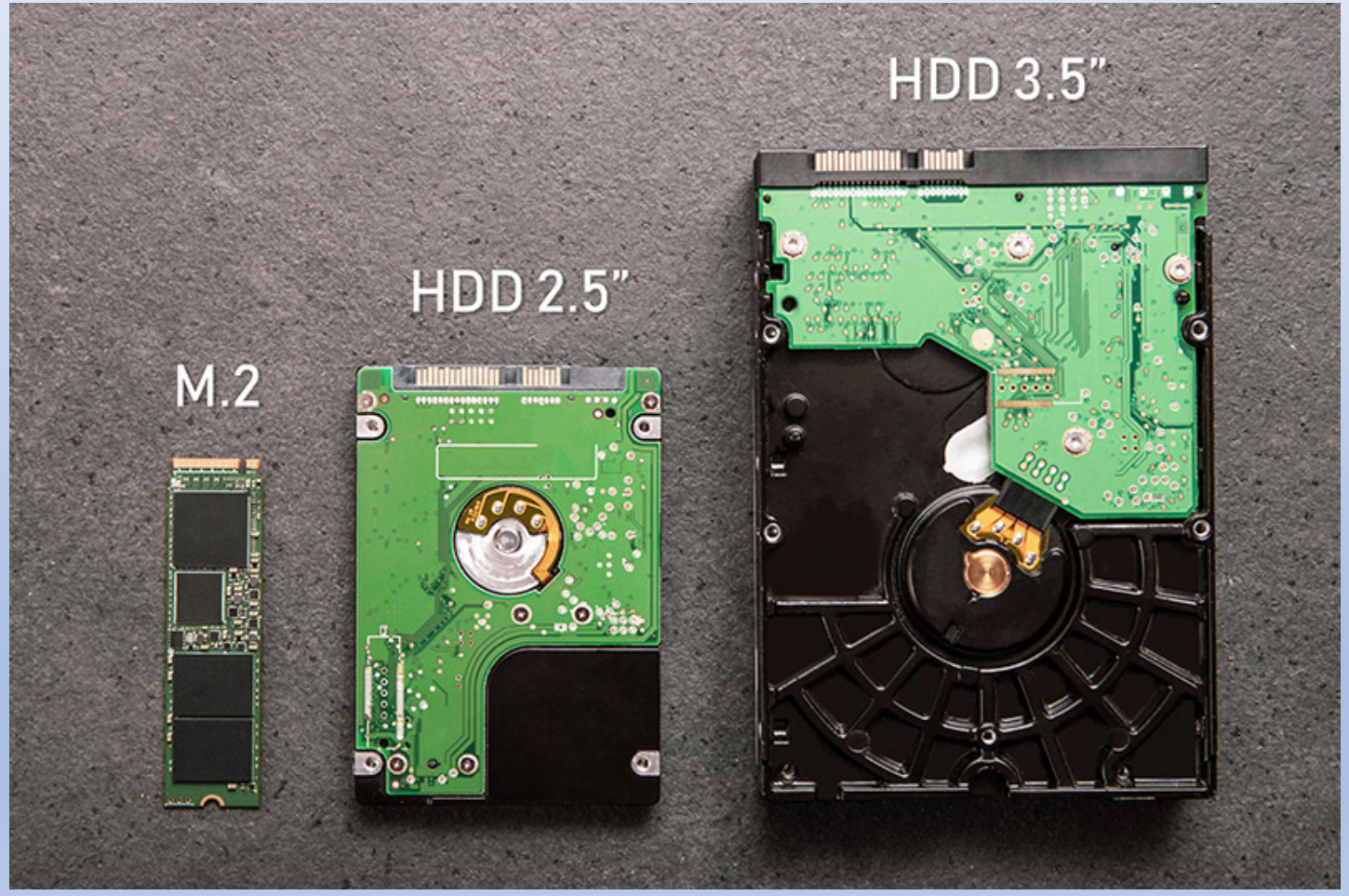
Always find out which type of drive is in the equipment

Solid State Drives are smaller, faster, but more expensive (getting cheaper)

But Hard Disk Drives are still fine for Backups or copies

Be Aware – if an SSD fails (unusual), it cannot be recovered.
If an HDD fails, some data may possibly be recovered.
For more information on SSD vs. HDD see https://www.backblaze.com/blog/how-reliable-are-ssds/

Solid State Drive vs. Hard Disk Drive



Easy to see the differences in SSD and HDD – the M.2 is an SSD

What about Flash Drives? Can they be used for Full Backup and Recovery?

The answer is Yes, depending on the size you need

There are flash drives larger than 1 Terabyte available, but be careful! The USB port in your device must be able to support the larger flash drive.

Do not purchase one of these flash drives unless it is a major manufacturer like Samsung, Western Digital, Seagate + others.

Do Your Homework!!

You should Educate Yourself on the free Backup software vs. Licensed (paid for) software and on the Hardware or The Cloud choices.

Some possible Full Backup Software Companies

These are just some of the choices.
The Computer Club does NOT RECOMMEND any particular one

arcserve ShadowProtect

$99.95/year

$49.99/year

Macriumsoftware
It's our business to protect your data

$135/year

IDrive

$99.50/year

Backblaze

Cloud Storage Only
$99/year

However, the Computer Club Technology Center (CCTC) uses Macrium – Free version – no longer available

Cost is $135 /year

What about The Cloud?

Popular External Hard Drive and Cloud based software for data and Full Backup

https://techjury.net/best/windows-backup-software/#gref

https://www.pcmag.com/

Use PCmagazine's Search box at the top right.
Ask for Best Backup Software and Services

Rated by PC Magazine as the Best Backup Software – IDrive, Backblaze, Carbonite, Acronis, plus others.

The Cloud

What about Apple?

Apple's Time Machine – For Macs

When: Mon, July 29, 11am – 12pm
Apple: Time Machine (Mac)
Spring Run Conference Room

Learn how to use **Time Machine** to automatically back up your files on your Mac computer, including apps, music, photos, email, and documents, to an external storage device. Find out how to set up, make, and restore backups, and troubleshoot common issues.

Instructor: Susan Culbertson

Email Susan to: susan.culbertson@iCloud.com

Last Points

Microsoft's Win10 and Win 11 have a "backup" feature which copies data, settings, and configurations

Type backup in the Type here to search field on the Task Bar

Microsoft has a Cloud based "backup" storage called OneDrive – also built into Win 10 and Win 11

Before using it Do Take a Tutorial!

Go to Microsoft.com. Search for OneDrive tutorials for a list.

Backup!
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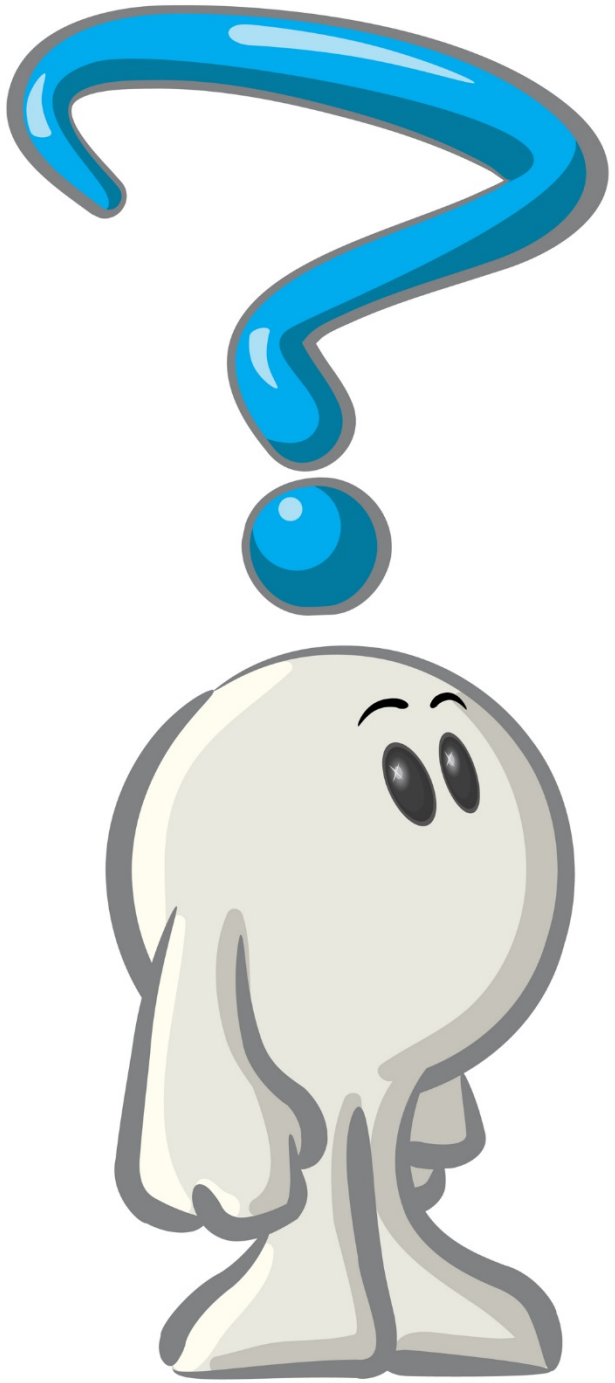
Backup!
AND
COPY!

Review

1. What is a copy and how does it differ from a Full Backup
2. What is a Full Backup and how often should you Backup
3. What are the types of Backups and their advantages
4. What Software is needed for Backup
5. What Hardware or the Cloud is needed for Backup



Questions?

- **Incremental Backup**: Back up only the data that has changed from the last backup. Restore requires the full backup and all subsequent incremental backups. – TAKES SHORTER TIME
- **Differential Backup**: Back up only the data that has changed since the last Full Backup. Restore requires the Full Backup, and the last differential backup – TAKES A LONGER TIME