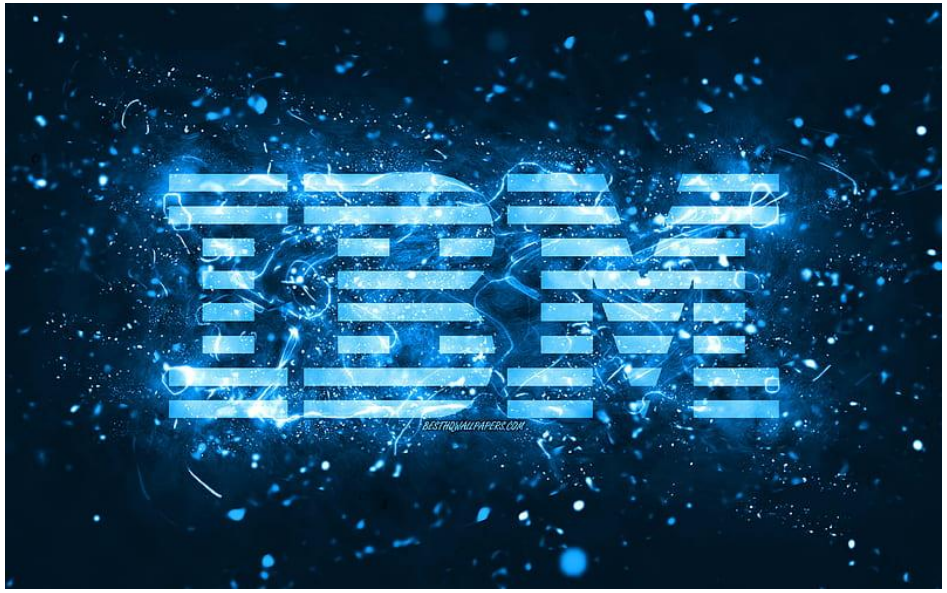
ADIT IBM COURSE 2022-24

Advanced Diploma (vocational) Course in IT, Networking & Cloud Computing

CORE MODULE 1

Distinguish between backup and cloning



WHAT IS BACKUP

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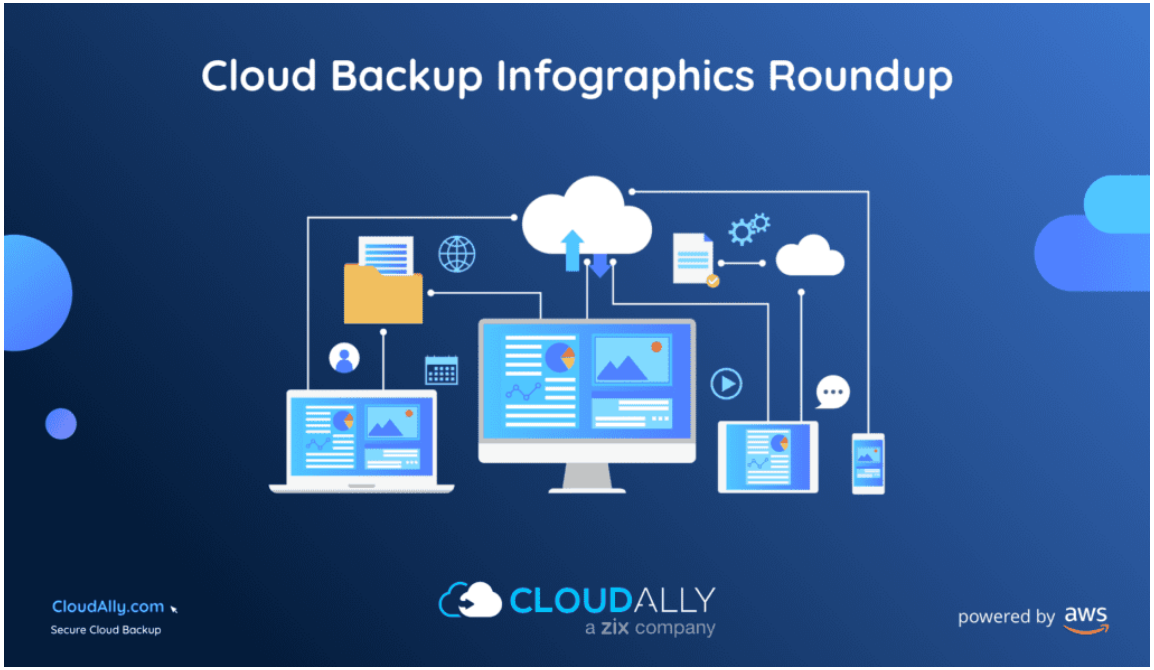
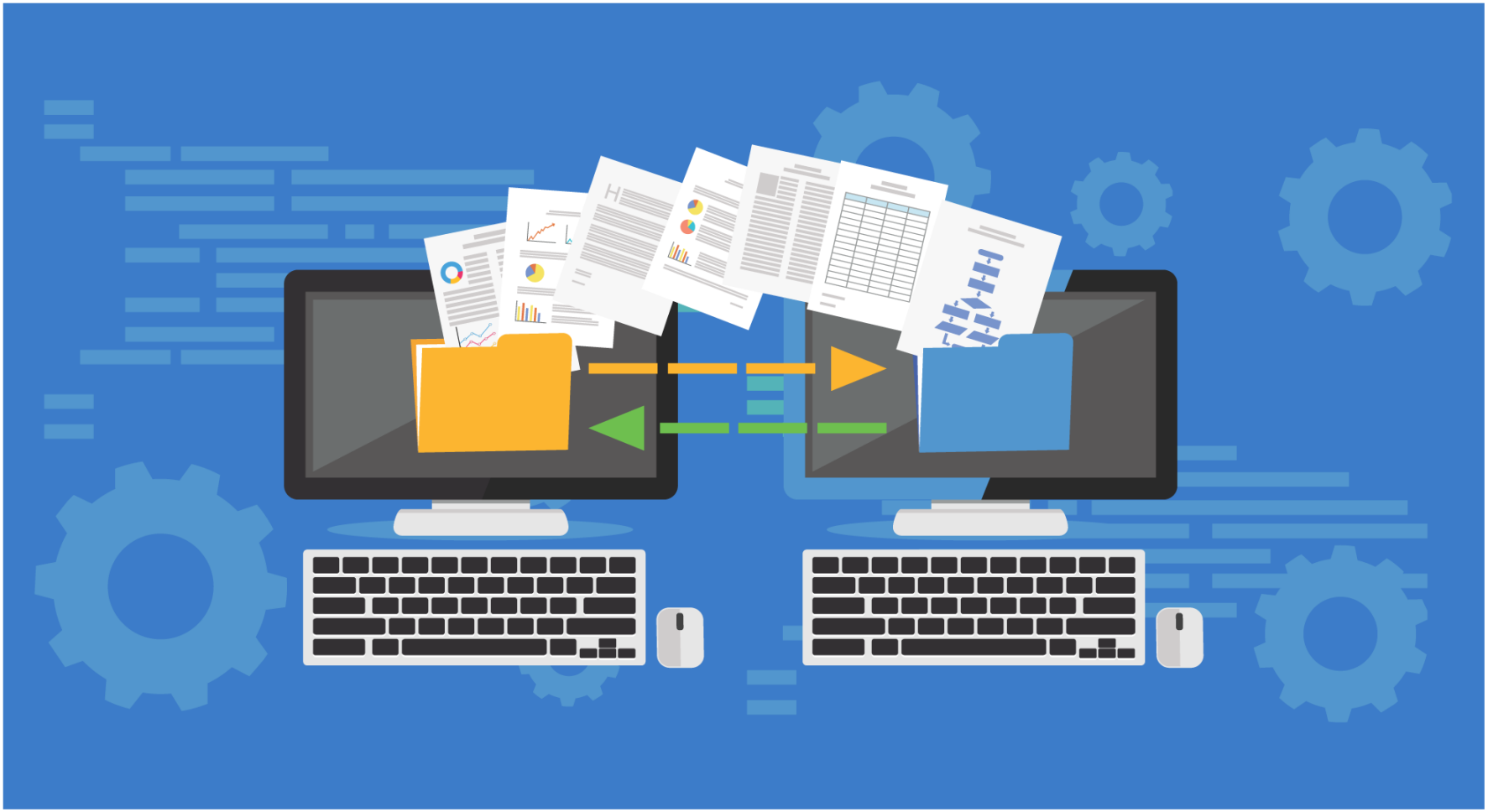
- *In information technology, a backup, or data backup is a copy of computer data taken and stored elsewhere so that it may be used to restore the original after a data loss event.*
- *Backups can be used to recover data after its loss from data deletion or corruption, or to recover data from an earlier time*



https://www.cloudally.com/wp-content/uploads/2015/03/Cloud-Backup-infographics-1024x593.png

Backups provide a simple form of disaster recovery; however not all backup systems are able to reconstitute a computer system or other complex configuration such as a computer cluster, active directory server, or database server



Why should I back up my data?

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Have you ever lost a lot of really important data? Or, short of that, have you ever felt a moment of panic where you thought you did?

Types of Backups

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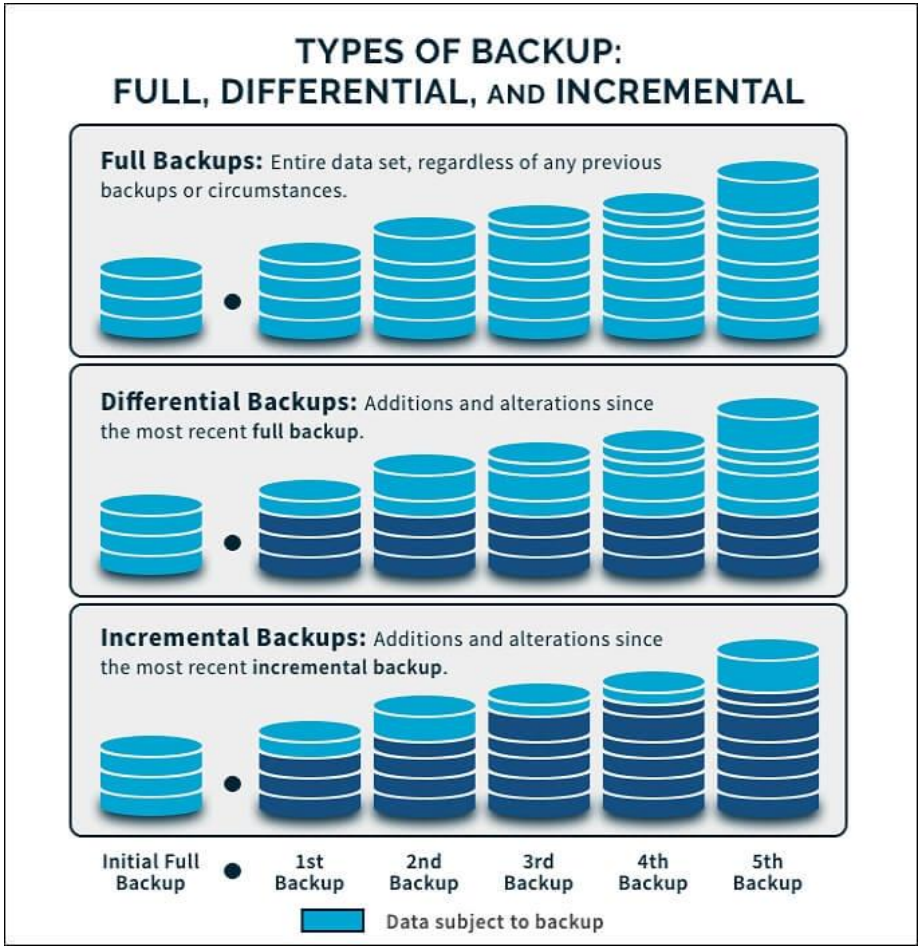
There are mainly three types of backup are there:

- Full backup.
- differential backup.
- incremental backup



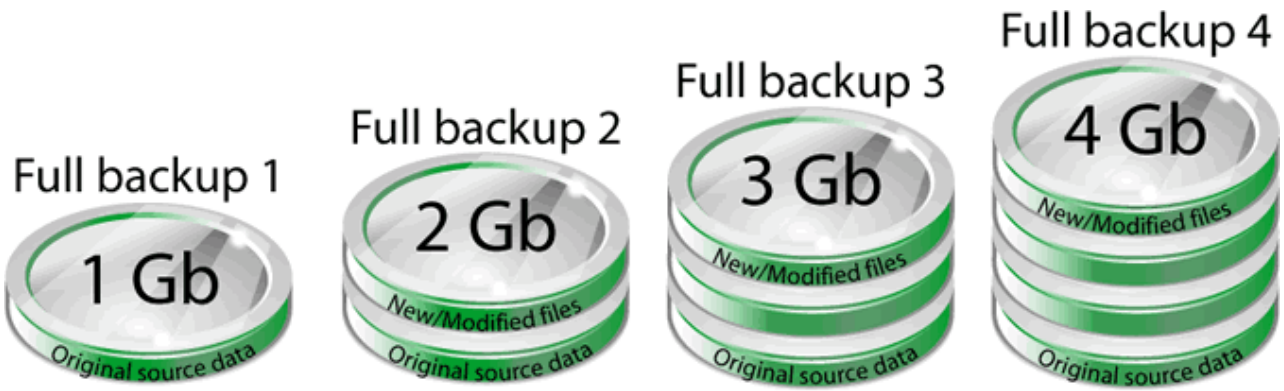
https://www.easeus.com/images/en/screenshot/todo-backup/types-of-backup-1.jpg

Full backup

A full backup is a complete copy of a business or organization's data assets in their entirety.

A full backup is the process of making at least one additional copy of all data files that an organization wishes to protect in a single backup operation.

- ***• On Day 1 – you'll backup 4GB and it'll take you 40 mins***
- ***On Day 2, let's say File B changes to B1, and a new File called E is added. A-C & D remain the same.***
- ***• hence you run the backup on Day 2, it'll backup all 5 files and it'll take you 50mins***
- ***• One Day 3, let's say File B changes again and becomes B2. File C also changes to C1, and File D gets deleted.***
- ***• When you run the backup on Day 3, it'll backup 4 files again (D is removed – remember?) and it'll take you 40 mins.***



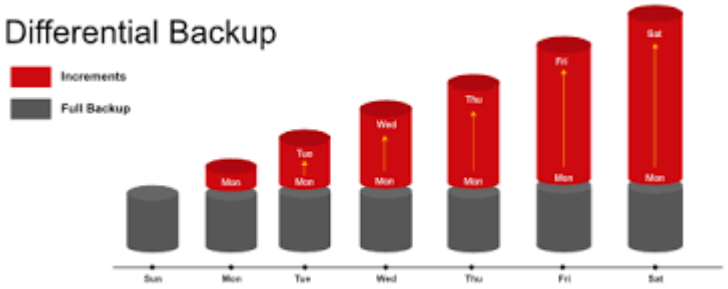
Note: Full Backup will always back-up the entire source data. If you don't delete/exclude sources (only add/modify) it will always grow in size because it backs up everything.

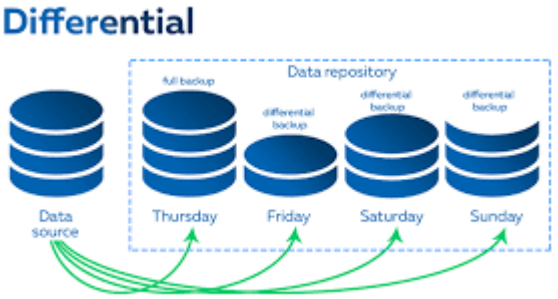
https://cdn.backup4all.com/images/kb/full-backup.original.png

Differential backup

Differential backup makes a copy of files that have changed since the full backup.

- ***On Day 1 – you'll backup 4GB and it'll take you 40 mins***
- ***On Day 2, let's say File B changes to B1, and a new File called E is***
- ***added. Files A, C & D stay the same.***
- ***When you run the backup on Day 2, it'll backup just the 2 changed***
- ***files and the backup will take you 20mins***
- ***•On Day 1 – you'll backup 4GB and it'll take you 40 mins • On Day 2, let's say File B changes to B1, and a new File called E is added. Files A, C & D stay the same.***





Incremental backup

incremental backup. Incremental backup only backup what was changed since the last backup. Sounds efficient right?

- *On Day 1 – you'll backup 4GB and it'll take you 40 mins*
- *On Day 2, let's say File B changes to B1, and a new File called E is added.*
- *When you run the backup on Day 2, it'll backup just the 2 changed files – and it'll take you 20 mins*
- *One Day 3, let's say File B changes again to B2. File C also changes to C1 and File D gets deleted.*
- *When you run the backup on Day 3, it'll backup just the 2 files again (B2 and C1) (D is removed – remember?) and it'll take you 20 mins*

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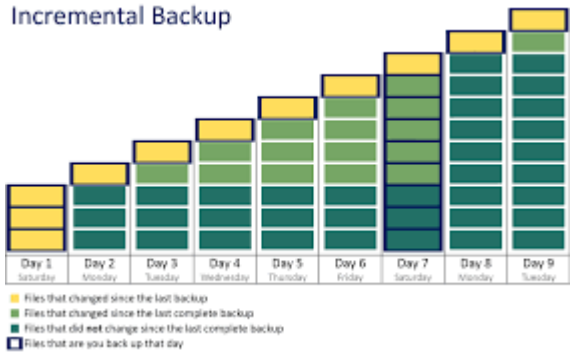

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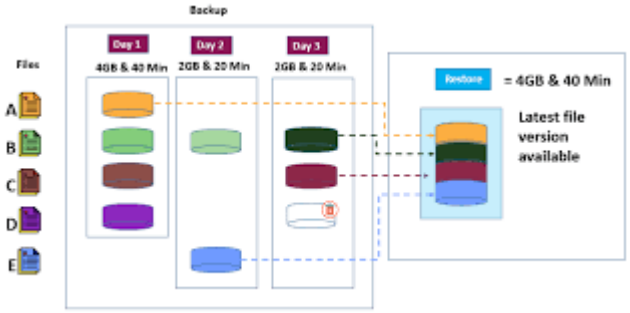
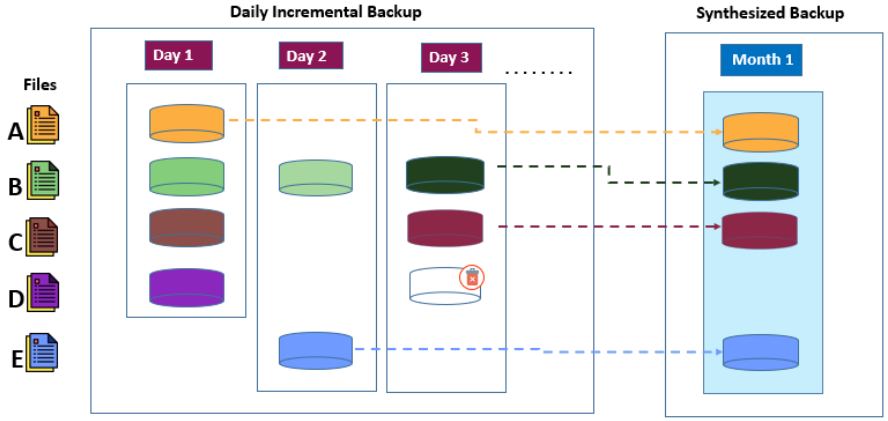
The Magic of Cataloging

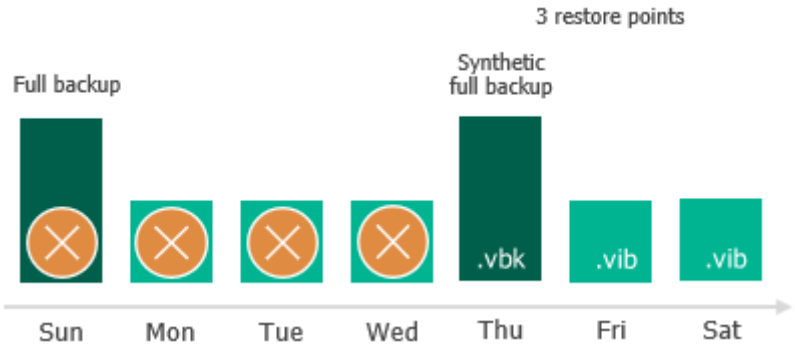
- On Day 1 – you'll backup 4GB and it'll take you 40 mins
- On Day 2, let's say File B changes to B1 and a new File called E is added.
- When you run the backup on Day 2, it'll backup just the 2 changed files – and it'll take you 20 mins 123
- One Day 3, let's say File B changes again to B2. File C also changes to C1, and File D gets deleted.
- When you run the backup on Day 3, it'll backup just the 2 files again (B2 and C1) (D is removed – remember?) and it'll take you 20 mins





Synthetic Full backup

A number of backup solutions now also offer a synthesized full backup. This is usually meant to satisfy archaic backup policies (that are still extant) which dictate that one should have a full backup available each week/month/year etc.



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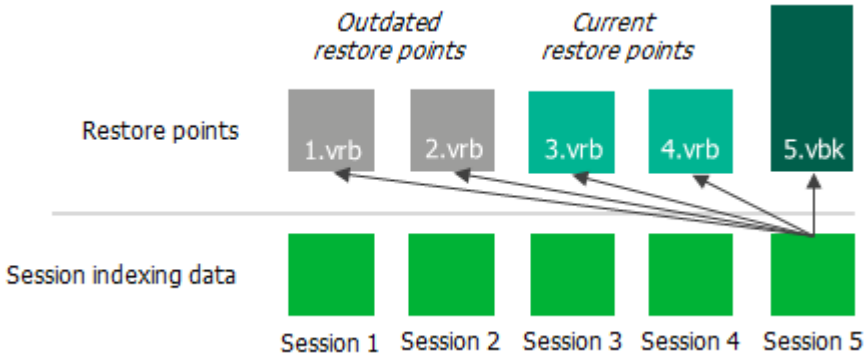

Advantages and disadvantages of backup

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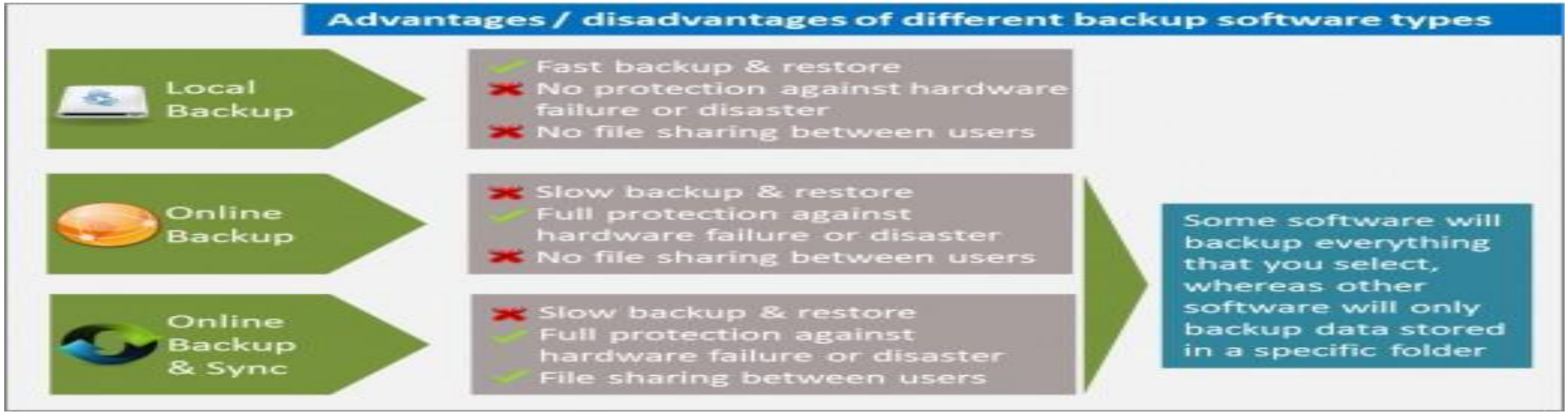
Advantages

- Data Security
- Data Recovery and Replication
- Easy Data Management
- Cost Control
- Unhindered Performance
- Increased Competitive Advantage
- Maintaining Standards of Compliance

Disadvantage

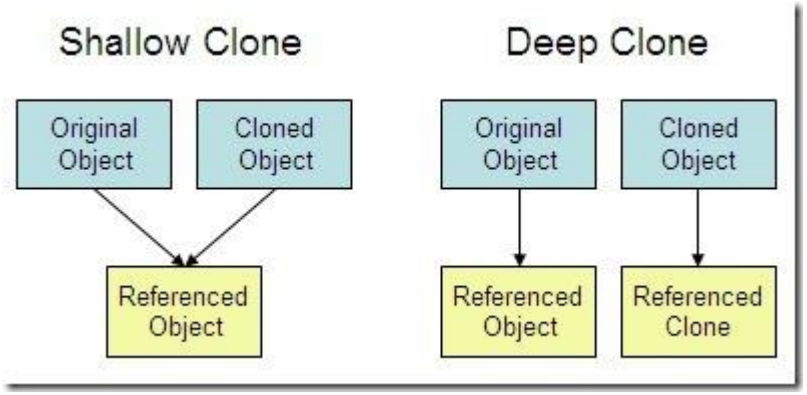
- This requires more mediaFull backups take longer to perform
- This requires more media.
- Full backups can be time consuming.
- All of the files created or modified since the last incremental backup are included; thus creating redundant backups.
- differential backups when selected for other platform



Cloning

What is Cloning?

- Cloning is also used to describe the act of making the exact copy of a directory file or disk inclusive of any subdirectories or files within the disk or directory.
- Cloning in programming, in all cases copies the values from the concerned object to the other object.



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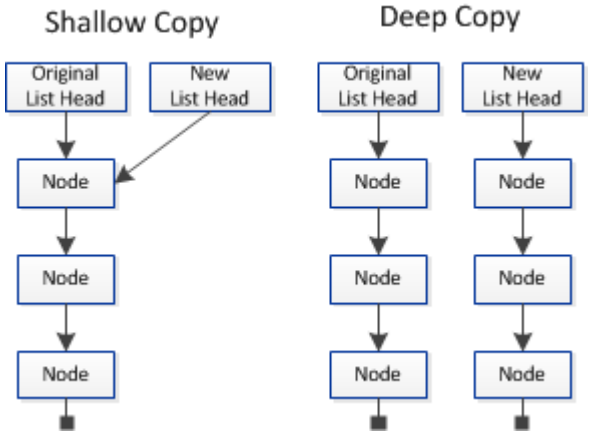

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Why you should clone your hard drive?

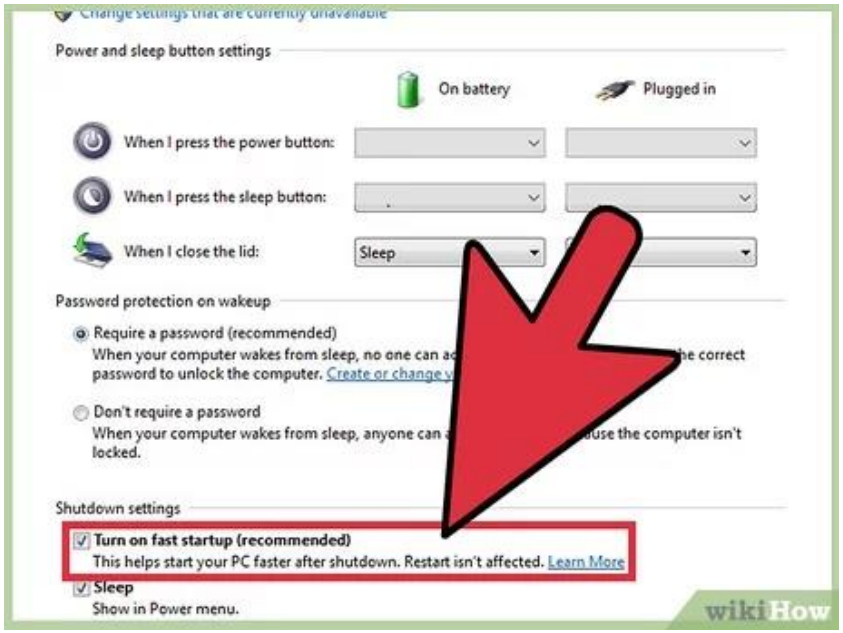
- There are several reasons why you may want to clone your hard drive. You may want to upgrade your hard drive to one with more storage, such as upgrading from 500GB to 2TB.
- One of the biggest reasons to upgrade your hard drive is a lack of space.
- If you're looking for a new hard drive, be sure to check out our buying guide to choosing the best hard drive.

https://academy.avast.com/hubfs/New_Avast_Academy/How%20to%20clone%20hard%20drive/How_to_Clone_a_Hard_Drive-Hero.jpg

https://www.cultofmac.com/wp-content/uploads/2010/07/clone-hard-drive2.jpg

Increase PC performance

PC performance is important to every user, but it's especially vital for those who push their machines to the max, like gamers, video editors, engineers, and other creative pros.
In either case, cloning your initial hard drive over to the new one is a great way to keep all your data.
If you're a gamer, this means you can avoid lag in the middle of a heated online match.



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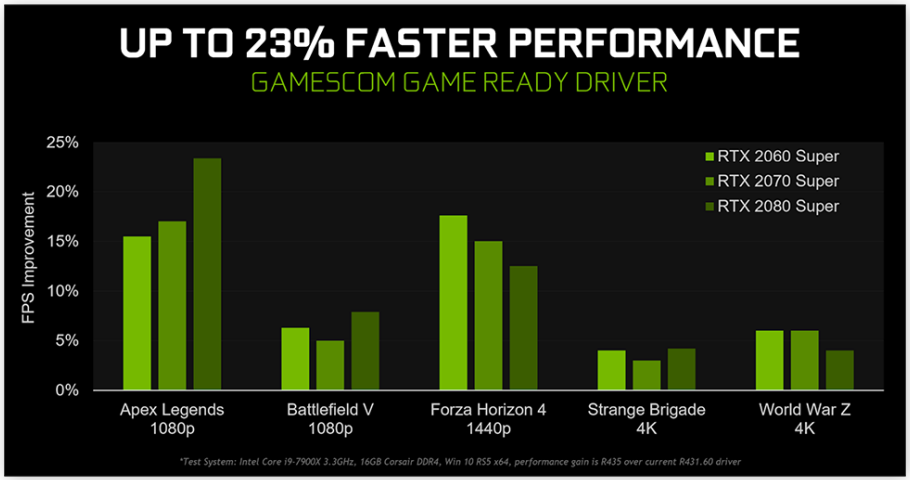

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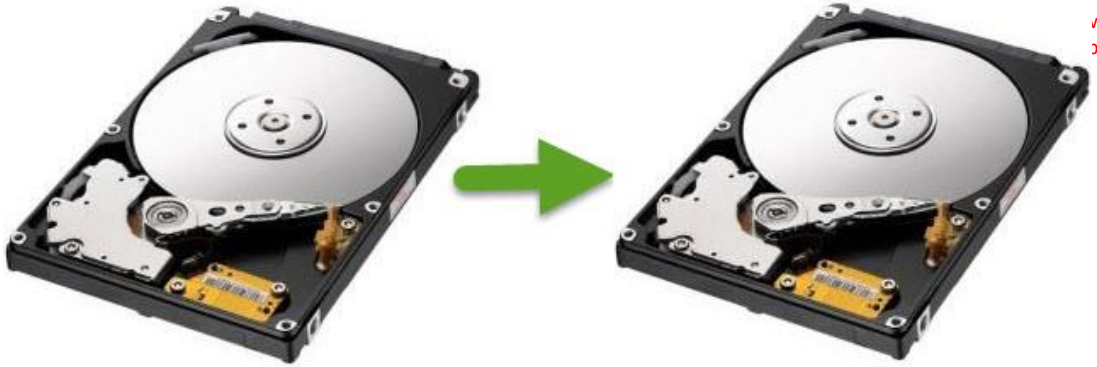
What to do before cloning your hard drive?

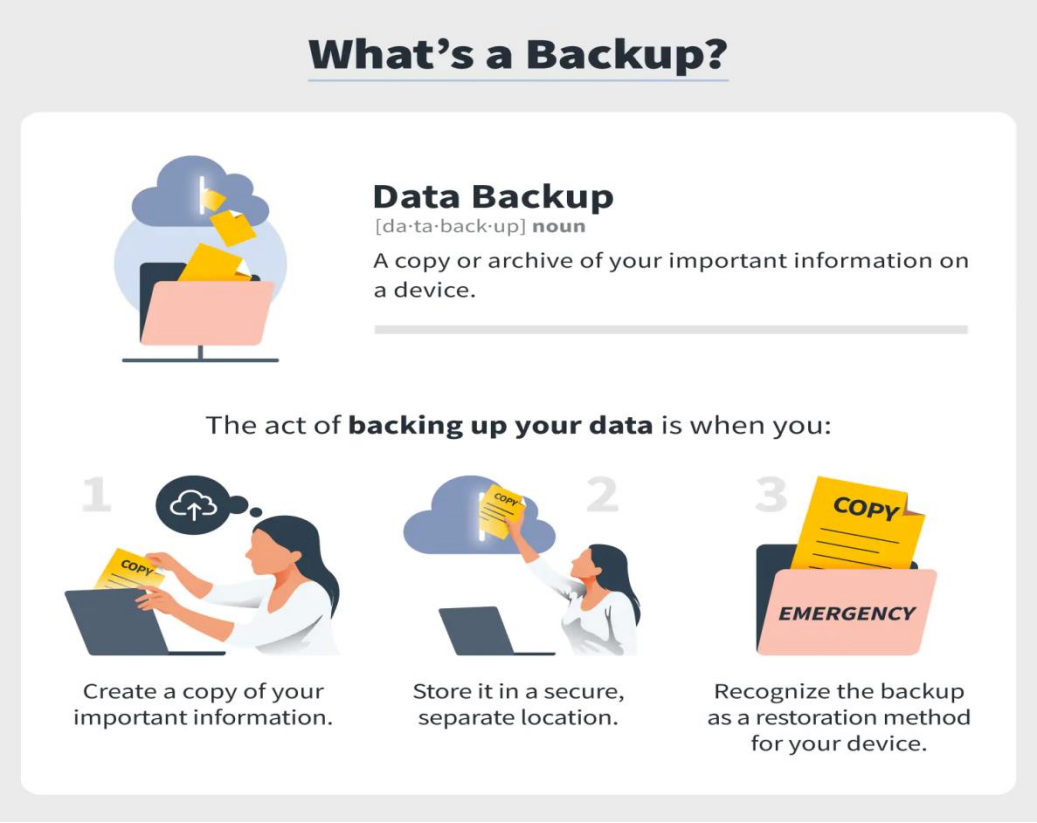
There are several important steps to take before you create your clone drive



ww.techadvisor.com/wp-content/uploads/2022/06/best-drive-cloning-og?quality=50&strip=all

Back up any important data to an external drive

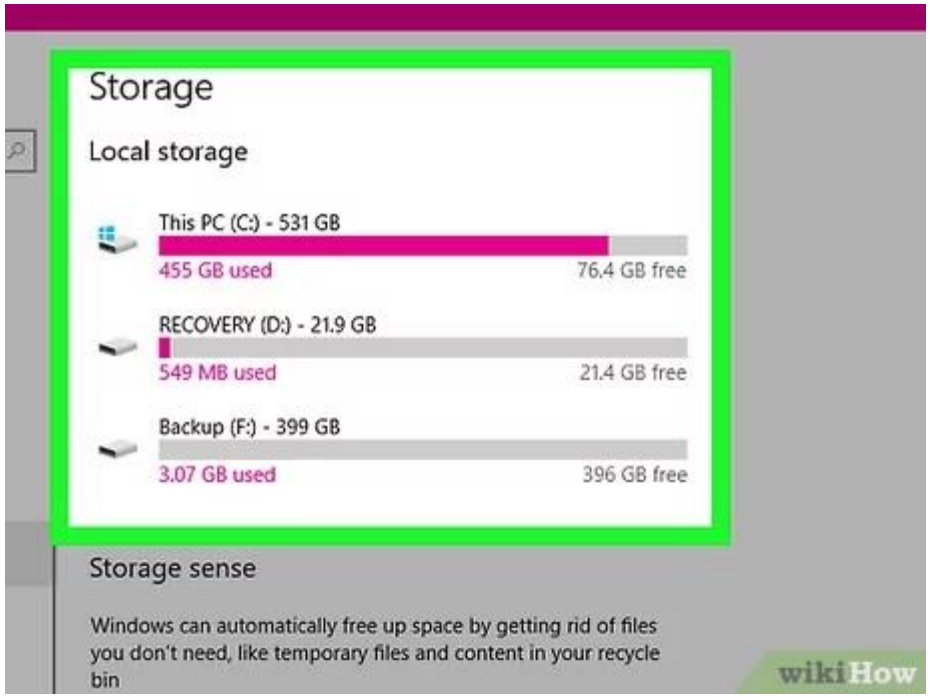
This is crucial because you will overwrite all of the data on your initial hard drive during the cloning process. You don't want to lose any of it in the case something goes wrong



https://sell.g2.com/hubfs/benefits-of-backup-software.png

Check the hard drive's storage

If the original is an HDD 128 with 1TB of space, make sure your new SSD can handle that amount. If you try to clone too much data, the hard drive cloning process will fail and it will overwrite all of your data.



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Be prepared to open your device

Keep a screwdriver nearby so you can open up your desktop to swap out the hard drive once thecloning completes.

Have the right cable handy for your laptop

And if you own a laptop with only one hard drive slot available, make sure you own a SATA to USB cable to connect your new hard drive to your device during the cloning process

How to clone a hard drive?

- *It may sound intimidatingly technical, but cloning a hard drive is actually a straightforward process.*
- *However, it does have several steps to follow to make sure you do it properly, otherwise you could*
- *lose your data.*

1. Boot up third-party software or the System Image tool

System Image only works if you are cloning your hard drive to a larger hard drive, so you can't use it to clone hard drive partitions.

2. Start the cloning process

- Using either AOMEI Backupper Standard or Macrium Reflect, you can now start the cloning process.
- For laptop owners, make sure your device is plugged into an electrical outlet and receiving power.

3. Finish the cloning process

Once the process completes, click “Finish” to wrap things up. Before it ends, however, you will have the option to resize the partitions on the new hard drive.

4. Connect new hard drive

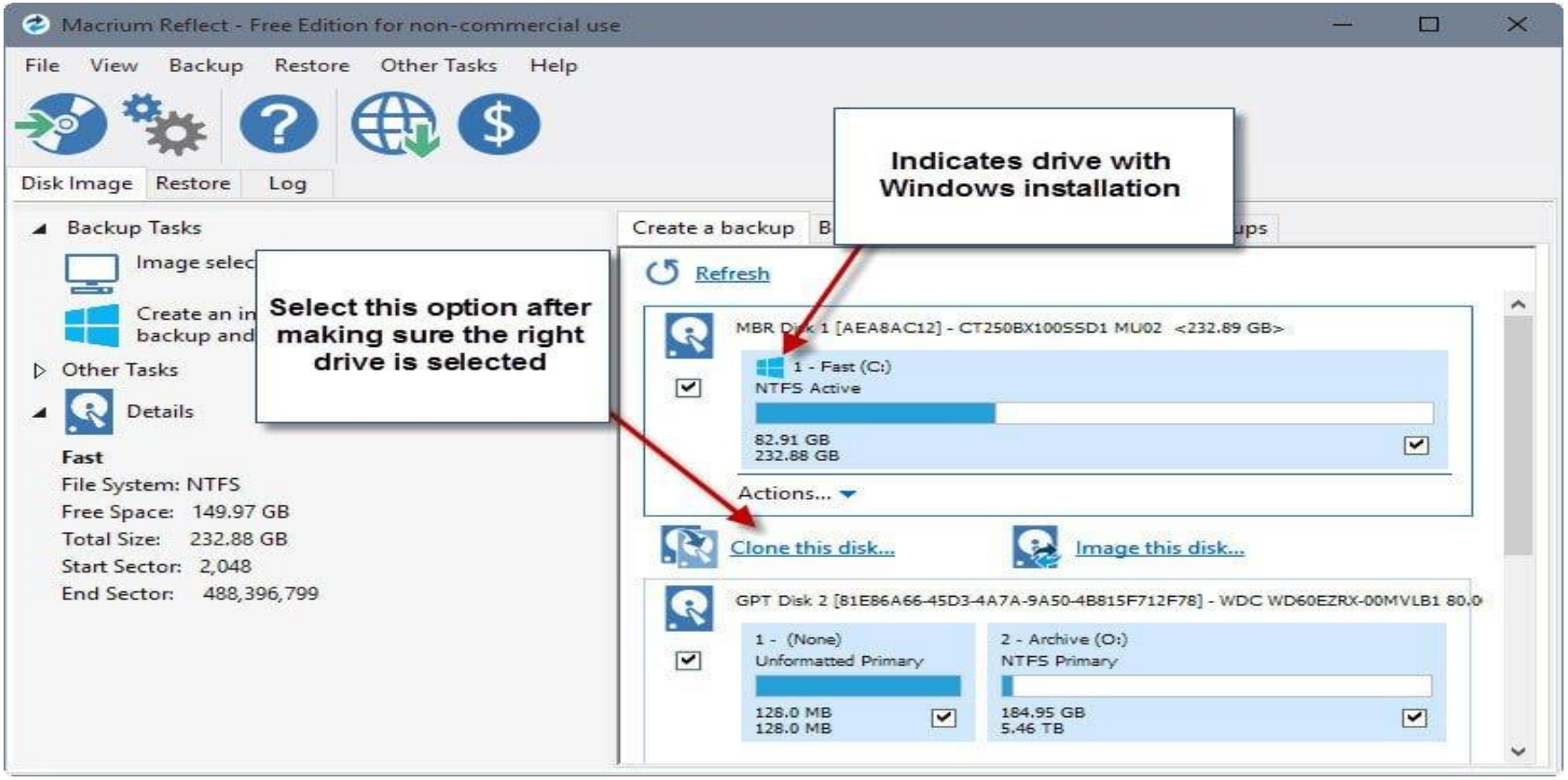
After you clone your data to your new hard drive, you need to manually replace your new hard drive. You can do this by opening up your laptop or desktop and then placing the new drive into the hard drive slot in the device.

5. Make your new hard drive bootable

- Restart your PC
- Press the F2 key upon startup to enter BIOS
- Once the BIOS loads, navigate to the boot option and select the new hard drive as the first boot device
- Press the F10 key to save changes

Simple steps with cloning software

- Install all desired programs and files to a master computer
- Use software create an image of the master computer's hard disk. 130
- Clone the image to the other computers.



https://www.ghacks.net/wp-content/uploads/2015/08/macrium-reflect.jpg

Advantages and disadvantages of Cloning

Advantages of Clone

- A faulty computer can be wiped clean of data and restored from the untouched master image
- Don't have to waste the installing individual applications to new computers.
- A comprehensive backup of operating systems and installed softwares

Disadvantages of Clone

- Need to have a high number of the same hardware for the same image. Must have dedicated IT staff when dealing with more than just a few computers.
- Care must be given to ensure the master image i reliable and uncorrupted.
- Isn’t appropriate for daily backups.

Backup Vs Clone

What is a hard drive backup?

If your computer crashes or gets corrupted, you may lose some or all of your data. You can use this file to restore your device exactly back to how it was before.

https://www.multcloud.com/screenshot/en/others/backup-an-external-hard-drive-to-onedrive.png

What is cloning a hard drive?

This process might be what you traditionally think of when we talk about backing up your data. Cloning your hard drive will essentially copy the data from one hard drive to another.

https://i.ytimg.com/vi/HbTwNINShLg/maxresdefault.jpg

Backup VS. Clone

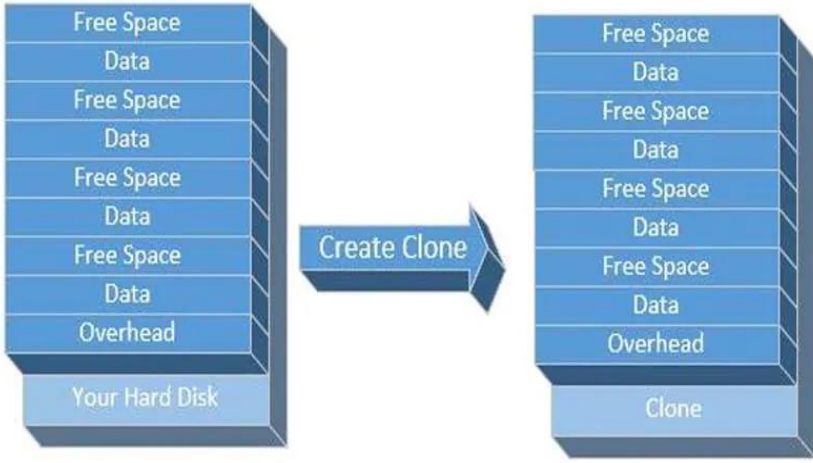
After reading our explanations, you should understand what a backup and disk clone is. Now it's time to compare the two to see which one you should use.

They have different uses

This process is useful if you want to change the type or size of the hard drive you use. It will also allow you to access your files right away if your system crashes

You can update a backup

Cloning is a one-time operation. It only allows you to store one lot of data at a time. Whereas, a backup will have automatic updates for your files



https://images.wondershare.com/recoverit/article/2020/12/backup-vs-clone-1.jpg.jpg

They take up different amounts of space

Pick cloning if you need a handy copy of your files to access quickly when your computer crashes. Use a backup to restore any lost data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ThankYou!