Data Backup And Restore

Agenda

- What is a Backup?
- What is a Restore?
- 4 Greatest Causes of Data Loss
- Backup Utilities and Supporting Tools
- How to backup?
- Backup Scheduling

Question: What is a Backup?

- Copy of Computer Data taken and stored elsewhere
- The purpose of backup is protect data from loss.

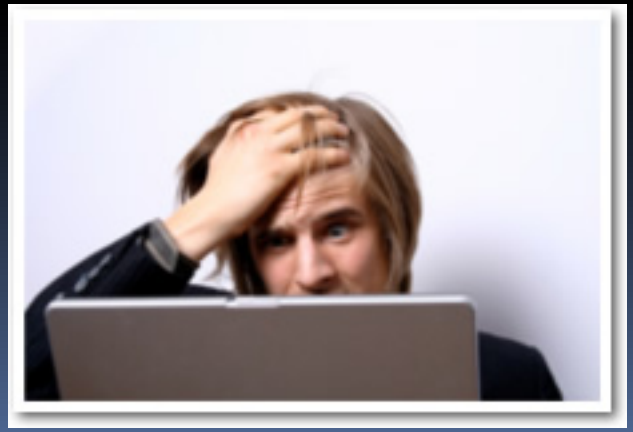
Question: What is a Restore?

- The purpose of restore is recovering data that is temporarily unavailable due to some unexpected event.

4 Greatest Causes of Data Loss

Deleting files accidentally

- Updating files or deleting them are very common activities and we do them almost every day. No wonder if we accidentally delete wrong files.



Viruses and damaging malware

- There are numerous new viruses which attack computers every day. Being connected to worldwide network has many advantages; however, it opens computers to many serious risks.

Mechanical damages of hard drive

- Hard drives of computers are the most sensitive parts of computers. So, they break down easily.
- There are a few ways to recover data from faulty hard drives but this service might cost you more than $1,000.

Power failures

- This is a Simple Example but imagine you are writing a long article and you have not saved it yet, then in case of power going out you lose your data.

Theft of computer

- It is a real tragedy to lose both computer and data at the same time. But Losing computer may be less painful, if you use proper data backup strategy and keep data in safe storage.

Backup Utilities and Supporting Tools

- CDs, DVDs
- Usb Drives, Memory Sticks, Removable Media
- External Hard Drives
- Backup Tapes
- Backup Software (Microsoft Azure, Veeam,…)

How to backup?

Manual Backup

- What kind of Data
- When to Backup
- Which Device
- Very slow and annoying

Semi-automated Backup

- Use Backup Tools and Software
- Require Somebody to launch
- Disadvantages:

Human Error

Automated Backup

- Use Backup Software
- Set and Forget
- Generally Run at Night

Backup Scheduling

Full Backup

A complete copy of a partition

Pros

- Provides a complete copy of data
- Easy to manage:
  - Done less frequently than other types of backups due to cost and resource requirements:

    Monthly, semi-annually, annually.

Full Backup

Cons

- Usually requires more media space than either differential or incremental.
- Takes a long time to recover the full backup to a new disk

Differential Backup

An archive of only the files that have changed since the last full backup.

Pros

- restore faster than incremental Backup
- Usually takes up less time and space than a full backup.
- If the differential backup grows to the size of the last full backup, then schedule a new full backup.

Differential Backup

Cons

- Redundancy – potentially many unneeded copies of the same data.
- Subsequent differentials take longer and use more media space.

Incremental Backup

An archive of only the file that have changed since the last backup (not necessarily full backup

Pros

- Fastest backup type
- Uses the least amount of media to complete a single backup

Incremental Backup

Cons

- Much more difficult to manage:

Frequency of incremental backups depends on the client needs.

  - Weekly, daily, hourly, continuously

Schedule Example

- Full backup twice per year
- Differential each first Saturday morning of each month that is not scheduled for a full backup
- Incremental each Saturday morning that is not scheduled for a Full or Differential

Questions