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níc vím /proc/mem ls rm

The Importance of Backups



RITLug - Week 2!
Solomon Rubin

Backups! What is it?!

- Copy and archiving data to a secondary location. (Duh)
- Two Purposes
 - Data recovery
 - File Replacement



Data Storage Models

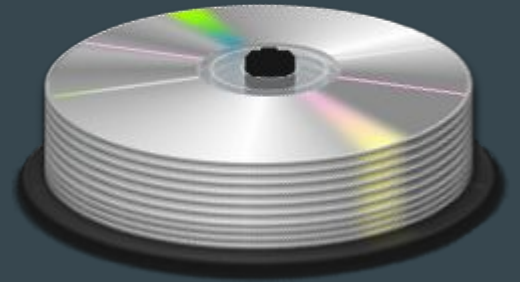
- Unstructured
- Full Image
- Incremental
- Differential
- Reverse Delta
- Continuous Data Protection



Model - Unstructured

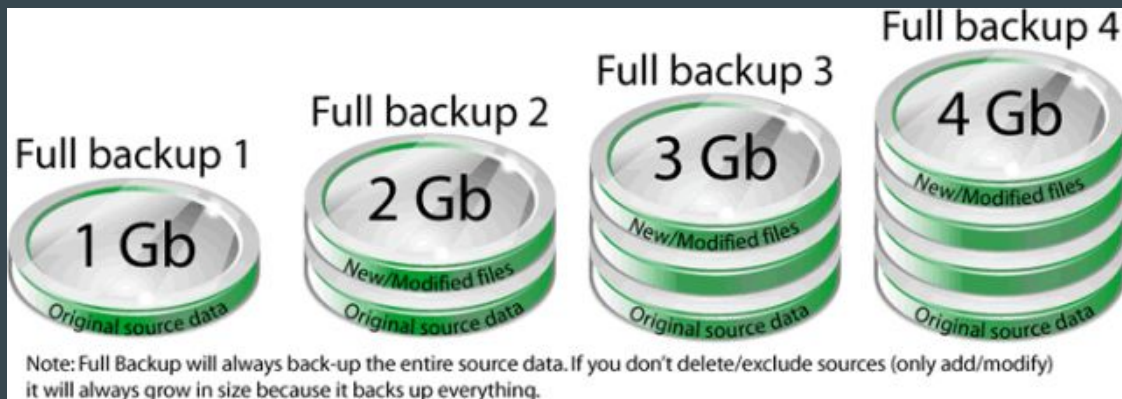
- The “Screw It” method
- Duplicating seemly random data.
- Using ambiguous naming schemes

I.e. duplicating to random CDs and putting them in a pile.



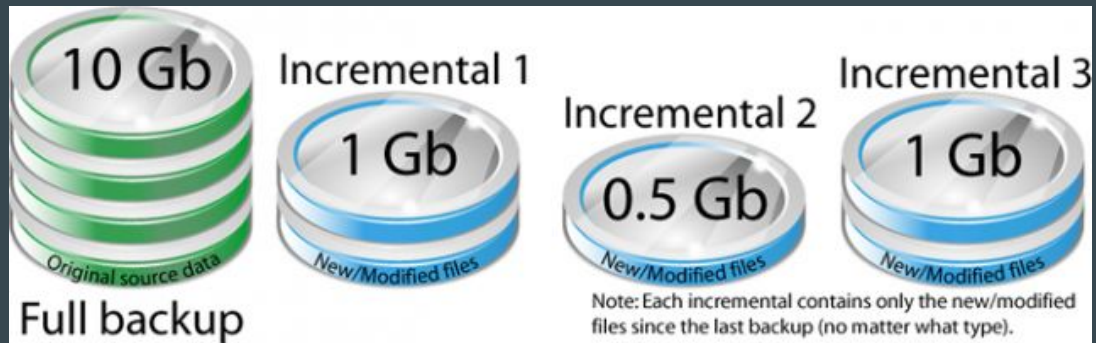
Model - Full Image

- The “All or Nothing” method
- Complete “images” or duplications of an entire system or disk
- Each backup:
 - Will be the entire size of the disk. (Disk * number of backups)
 - Will contain all data as it was when duplicated
- Most data will be unchanged compared to the previous image



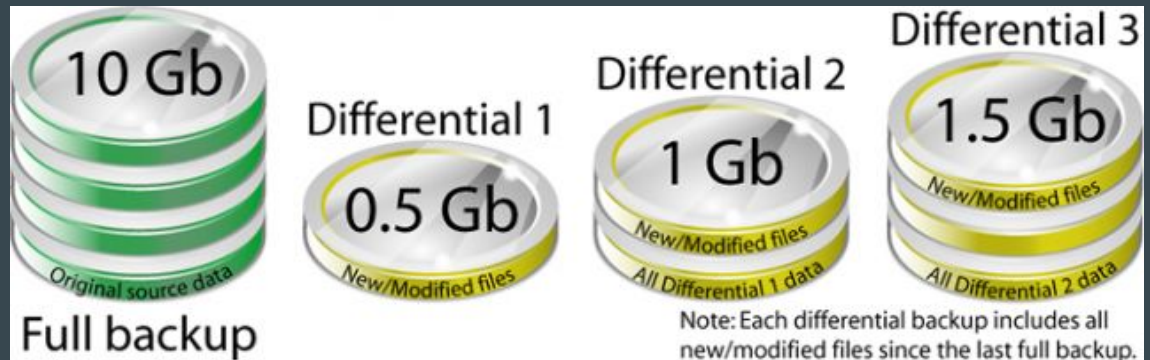
Model - Incremental

- The “Better” Method (running out of decent method names)
- Starts with a full backup (not an system image)
- Duplicates only changed files (the increment)
 - Notes any changed files since the last increment OR full backup
- Fastest **backup** time
- Potentially slow **restore** time
 - Must apply every increment to the original full backup
- ~Apple Time Machine~



Model - Differential

- The “Other Better” method
- Extremely Similar to Incremental backups
- Starts with a full backup
- Duplicates changed files from the last full backup.
- Slower **backup** time than Incremental
- Faster **restore** time than the Incremental



Rules of Thumb

- RAID is **not** a backup
- Rule of Three: Back up to three separate locations
 - At least one of these backups should be off-site.
- Consistency is key
- RAID is still **not** a backup



Why is RAID not backup?

- Protects against **one** kind of hardware failure
- It doesn't protect against:
 - File corruption
 - Human Error
 - Malware
 - Physical damage



Backup Options: Simple

- Tar + off hardware movement - Full Backups
 - `tar -cpzvf "/mnt/bak/Homes-$(DATE).tar.gz" "/home"`
- Regular rsync - Incremental
 - `rsync -av /home /mnt/bak/Homes-$(DATE)`

Backup Software

- Local
 - Fwbackups - Allows for local or remote duplication. Tar options. Rsync options
 - Bacula - Hugely powerful and configurable system
- Remote
 - Spideroak One - Fully encrypted, Cross-platform
 - CrashPlan - Encrypted, Cross-platform
 - Archival data storage (C14, AWS S3)

Questions, Comments

Upcoming events!

Weekly!

- RITLug, 4-6pm every friday!
 - GOL-2620
- FOSS Hours, 4-6pm Wednesdays
 - GOL-2500

Join our Club Mailing List!

- ==> <http://link.ritlug.com> <==

One off Events!

- BrickHack is February 11-12, 2017.
 - **Brickhack.io**
- WiCHacks February 25-26, 2017.
 - Wic-hacks.rit.edu
- Imagine RIT May 6th - More to come
- FOSSTALKS - Wednesdays 4-6pm
 - Magic Center on : 2/15, 3/22, 4/19
 - Women in FOSS!