



Protecting Your Data

SLU Data Science Seminar
September 6th, 2017



Protecting Your ~~Data~~ *Tenure Case*

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Protecting Your ~~Dissertation~~

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Christina Garcia, PhD (Spanish/Linguistics)

Kelly Lovejoy, PhD (Spanish/Linguistics)

Christopher Prener, PhD (Sociology)

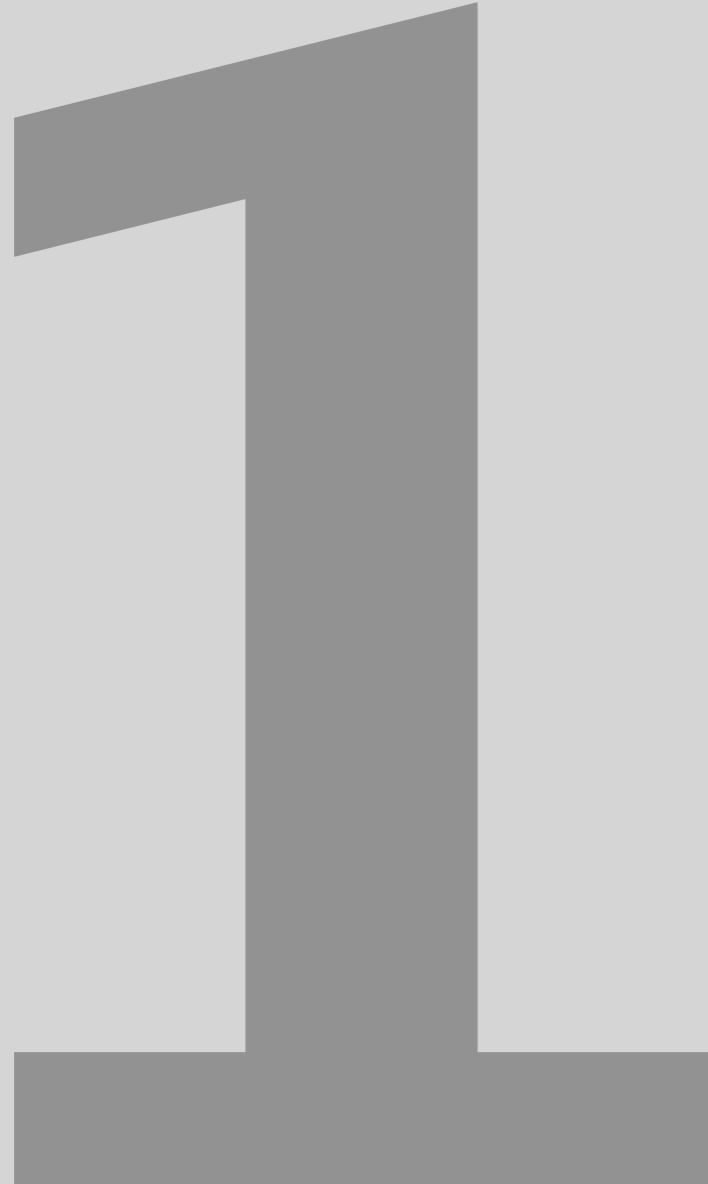
<https://slu-dss.github.io>

@SLUDSS



Agenda

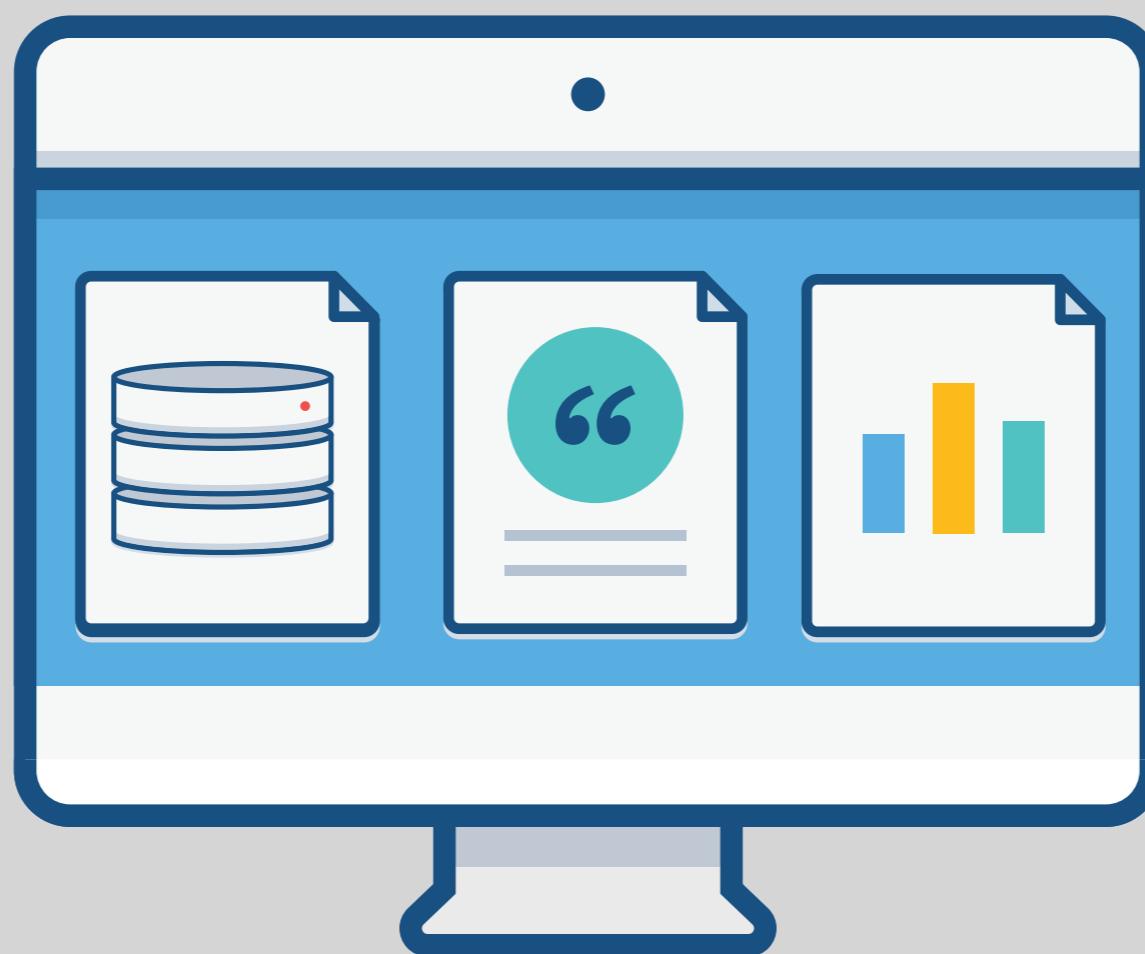
- 1 Threats to Our Data
- 2 Types of Backups
- 3 Backup Strategy



Threats to Our Data



Tom



A close-up, low-angle view of a computer keyboard focusing on the 'delete' key. The 'delete' key is black with white text that reads "delete". To its left are the keys for backspace ("←") and delete ("→"). Above the 'delete' key is a row of function keys labeled F1 through F6. The lighting is dramatic, coming from the side, which creates strong highlights on the edges of the keys and deep shadows in the corners, giving the keyboard a three-dimensional appearance.

delete

caps lock

shift





Ooops, your important files are encrypted.

If you see this text, then your files are no longer accessible
have been encrypted. Perhaps you are busy looking for a way to
files, but don't waste your time. Nobody can recover your files.
decryption service.

We guarantee that you can recover all your files safely and easily. All you need to do is submit the payment and purchase the decryption tool.

Please follow the instructions:

1. Send \$300 worth of Bitcoin to following address:

1Mz? BWX

2. Send your Bitcoin wallet ID and personal installation key wowsmith123456@posteo.net. Your personal installation key:

Njji

If you already purchased your key, please enter it below.

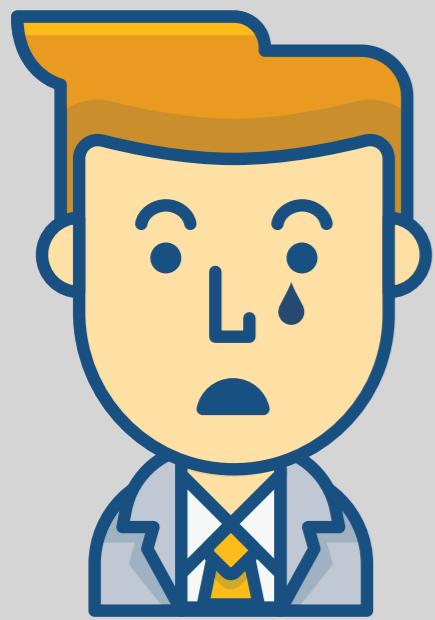
Key:













Types of Backups

Bootable Backups



i

A “clone” of your computer that you can start-up from – this is a complete image of your computer.

Bootable Backups



⚠️ Clones typically do not retain file snapshots or deleted files, so their usefulness is narrow.

Incremental Backups



i

Snapshots of key files taken every so often and typically saved on an external hard drive.

Incremental Backups



i Files are typically kept for as long as there is space on the external drive – even if they have been deleted.

Incremental Backups



i

Restore single files or, in case of hard drive failure, your entire computer's files.

Incremental Backups



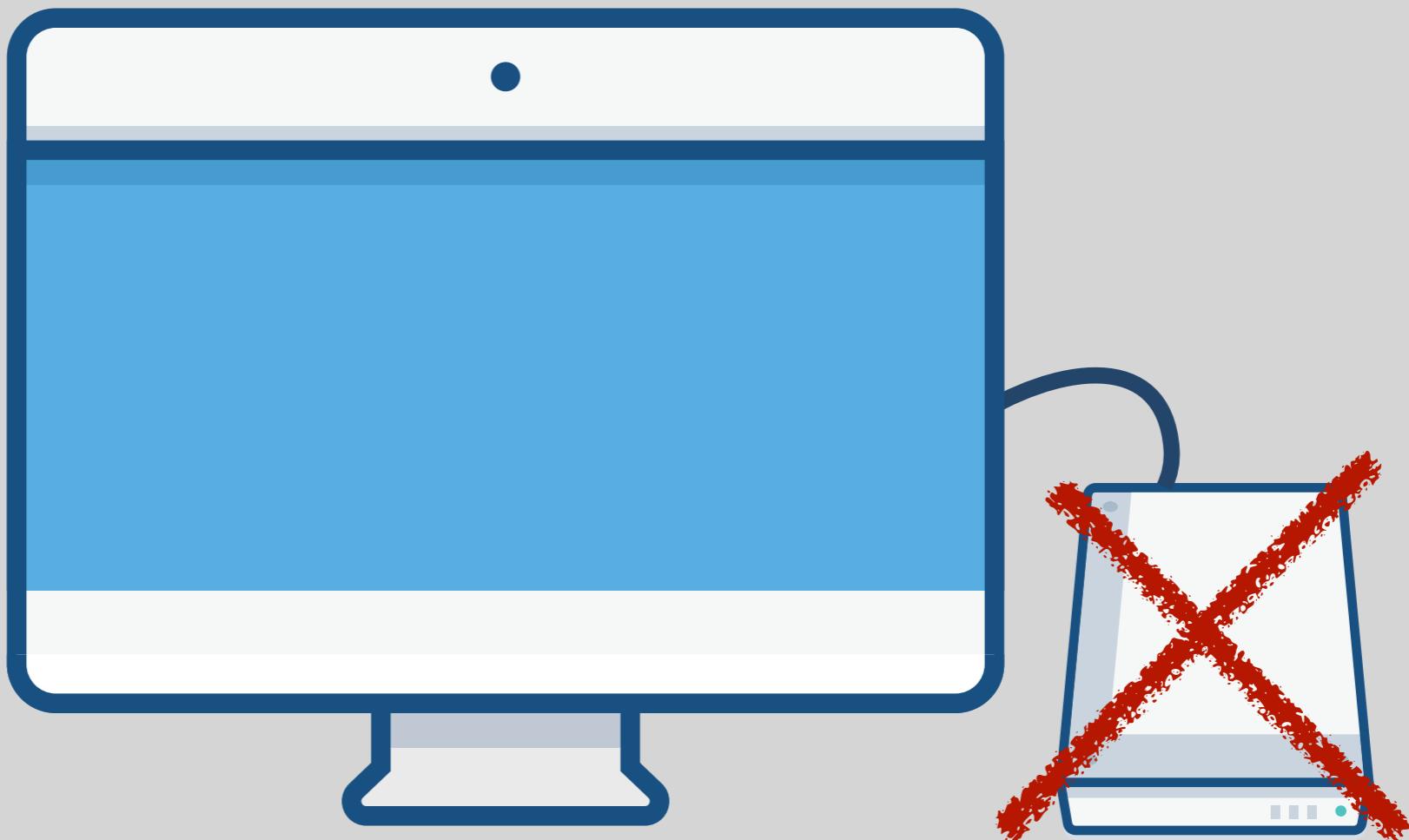
⚠ Incremental backups are not complete images of your system, and omit directories like system files and applications.

Incremental Backups



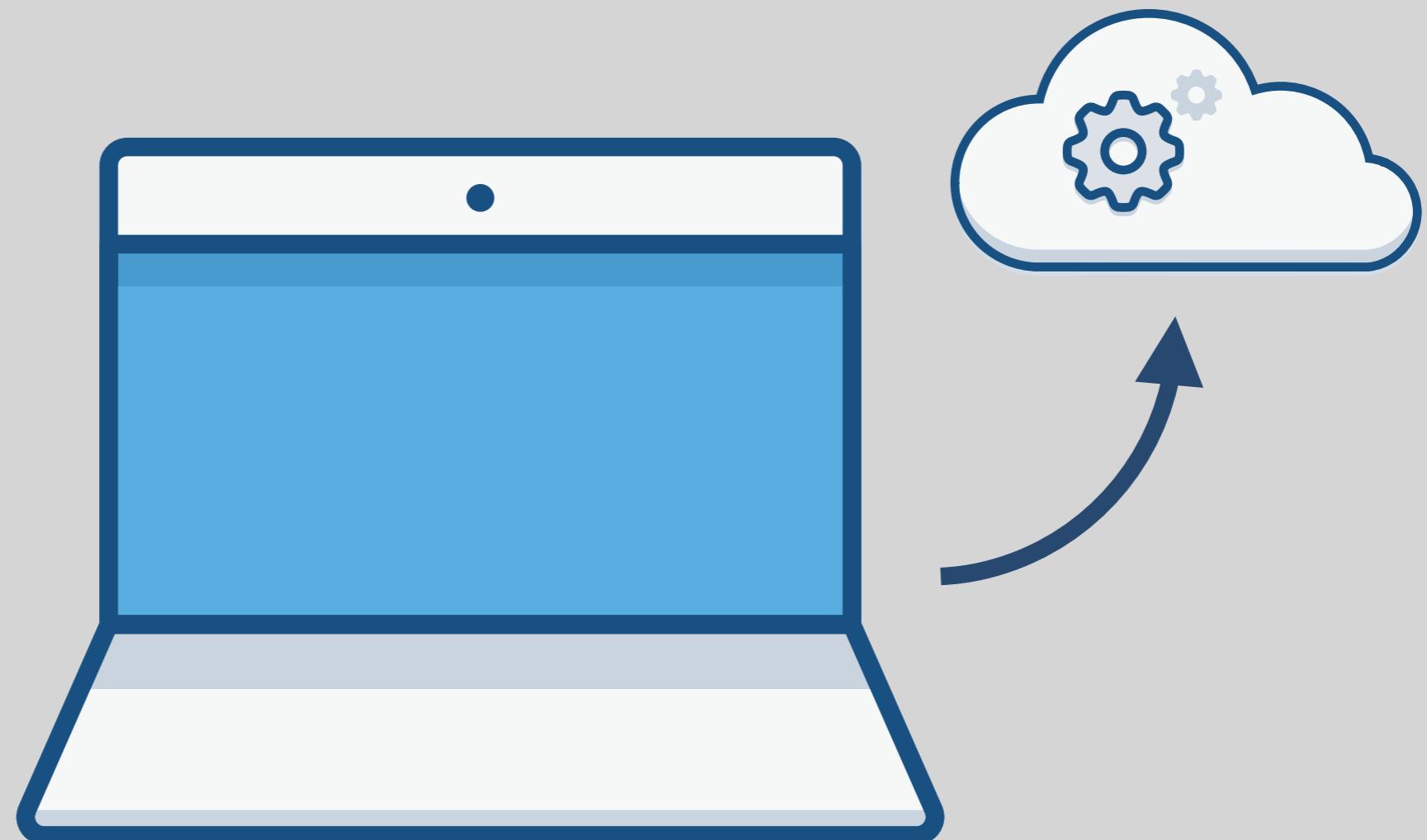
⚠ Laptop users may find these backups inconvenient – keeping up requires discipline (or a more extensive wireless setup).

On-site Backups



 External hard drives can fail just like an internal drive, and are susceptible to theft and damage.

Sync Service “Backups”



i

Cloud syncing services will also save snapshots and allow you to recover recently deleted files.

Sync Service “Backups”



⚠️ Files often have to be saved in specific locations, snapshots not retained forever, and caps all limit the amount of data you can store.

Sync Service “Backups”



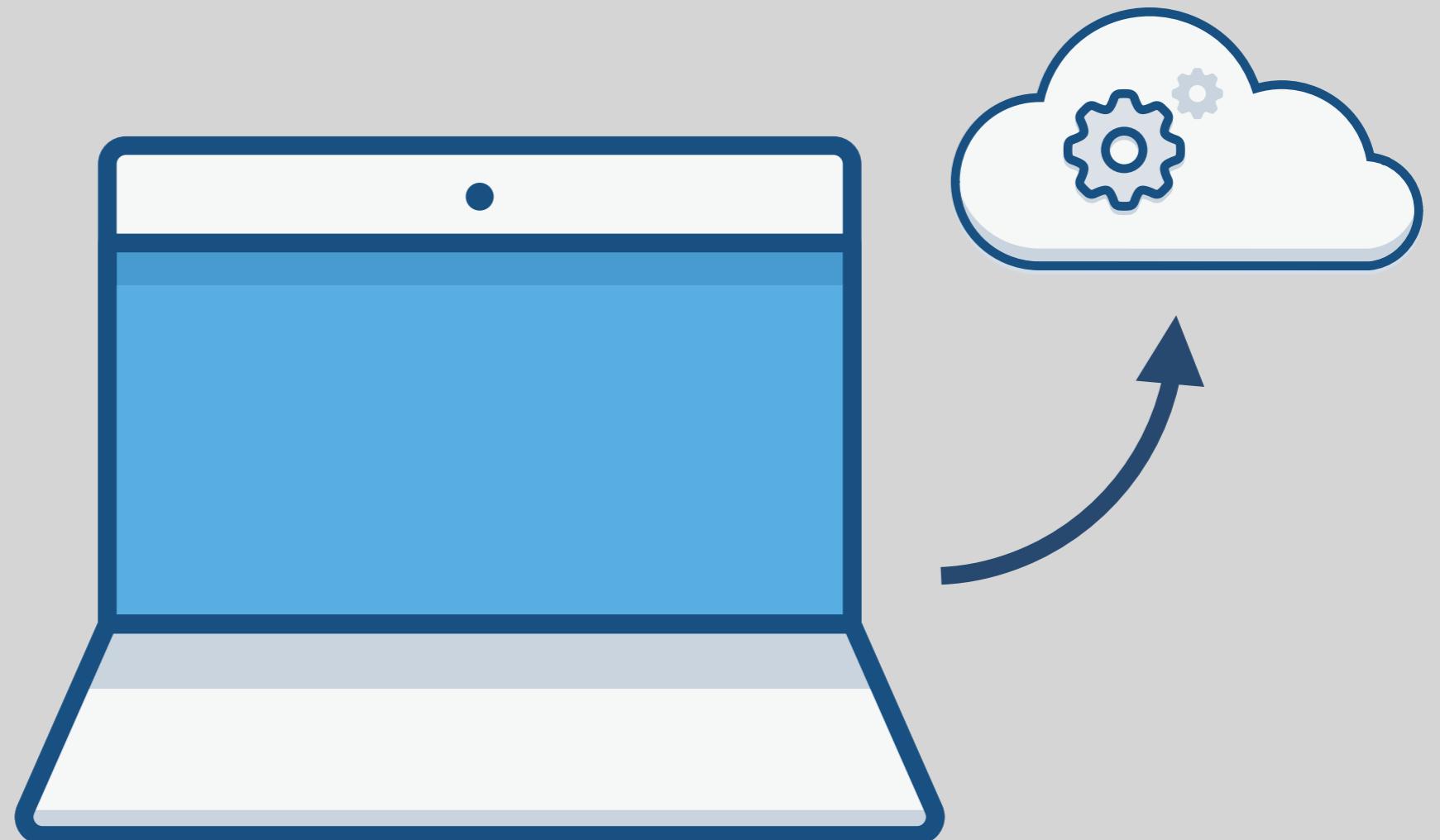
⚠ In case of hard drive failure, it may be difficult to restore large numbers of files.

Sync Service “Backups”



⚠️ Cloud services also raise security concerns, and may not be appropriate for all types of data.

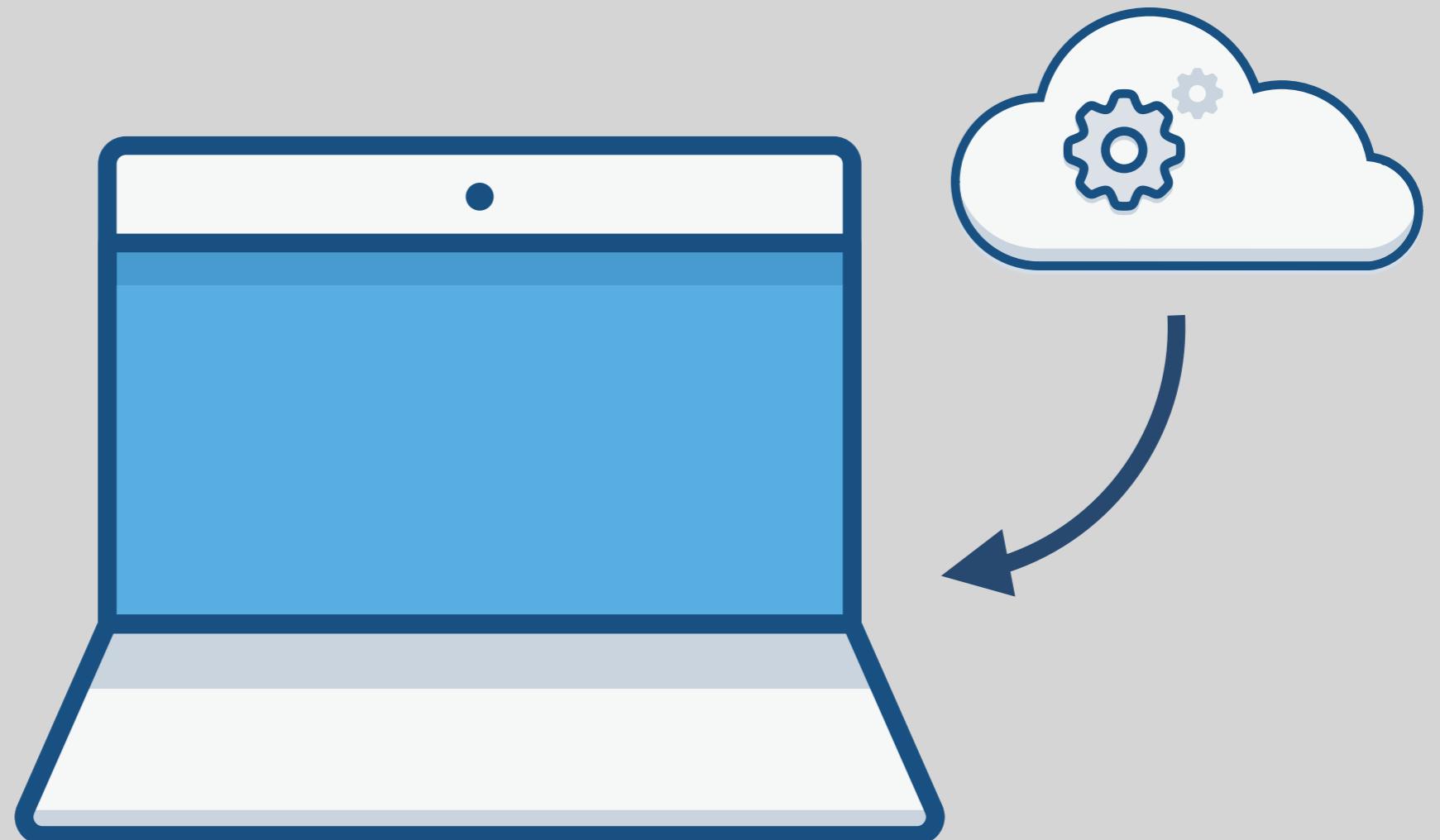
Cloud Backups



i

Several companies offer cloud backups where most files are stored remotely.

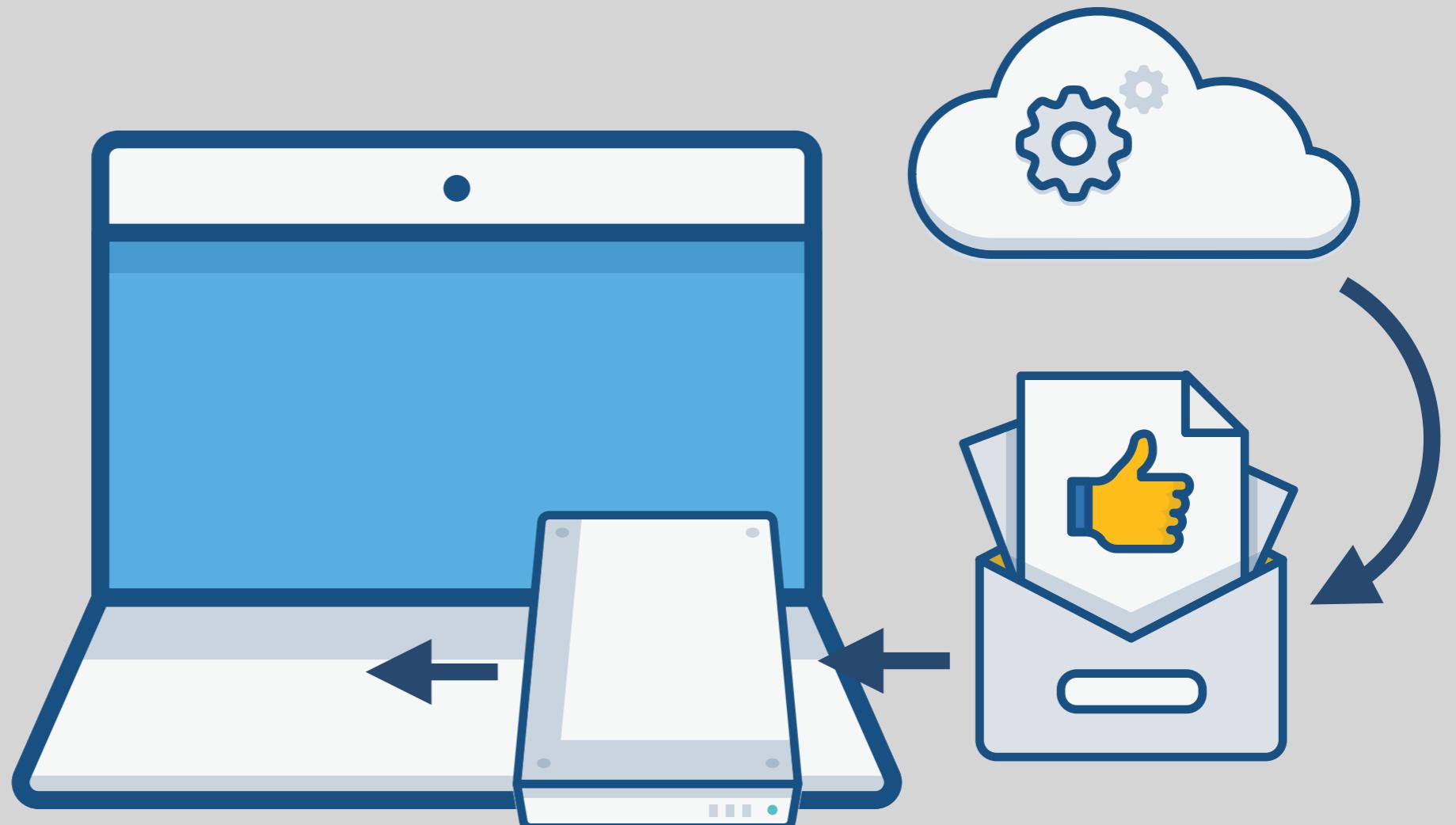
Cloud Backups



i

In case of data loss, files can be downloaded from the service's servers.

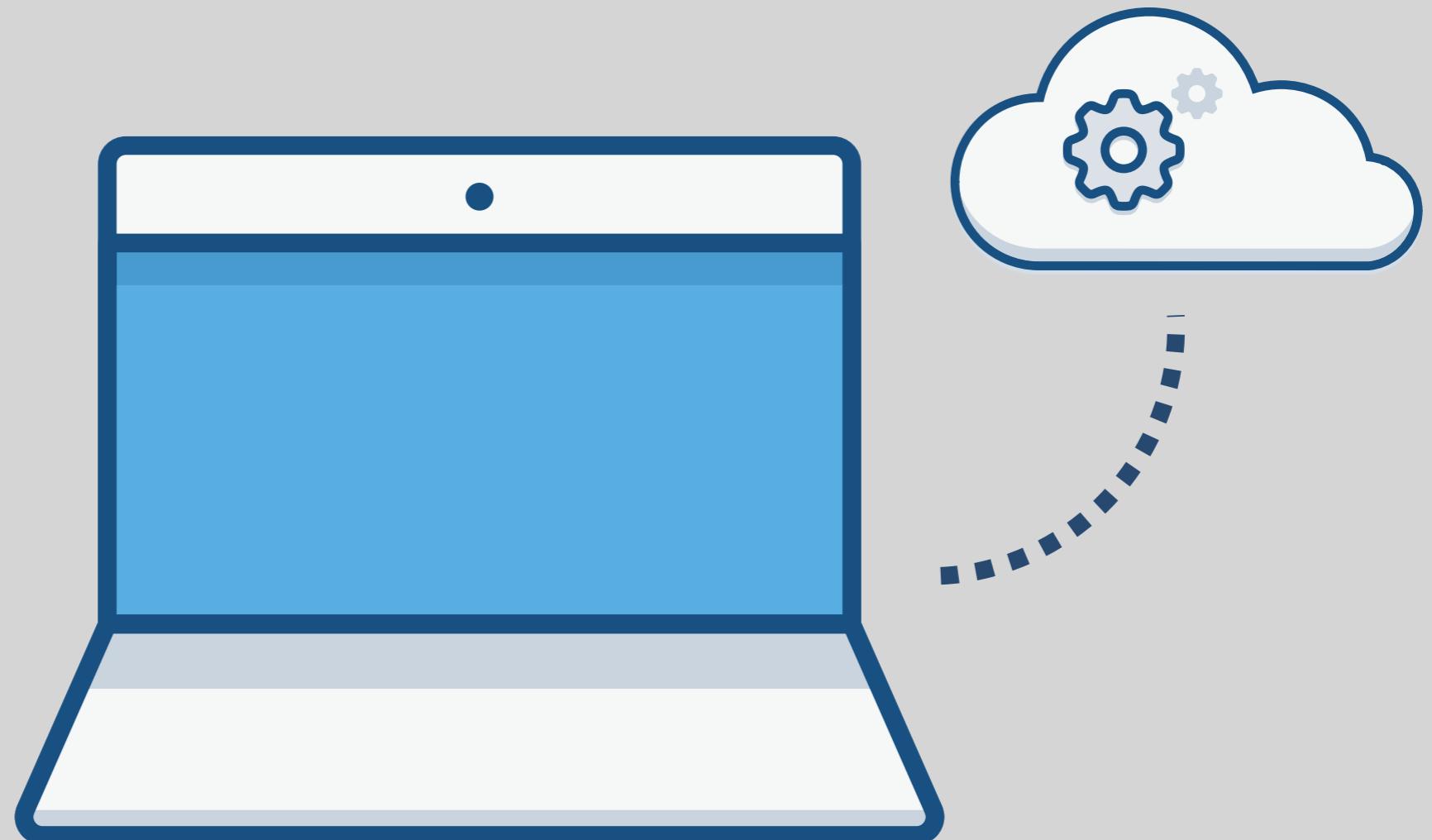
Cloud Backups



i

Some services will also ship a hard drive with your data to restore large numbers of files.

Cloud Backups



⚠ Again – cloud services do raise security concerns, and may not be appropriate for all types of data.

Cloud Backups

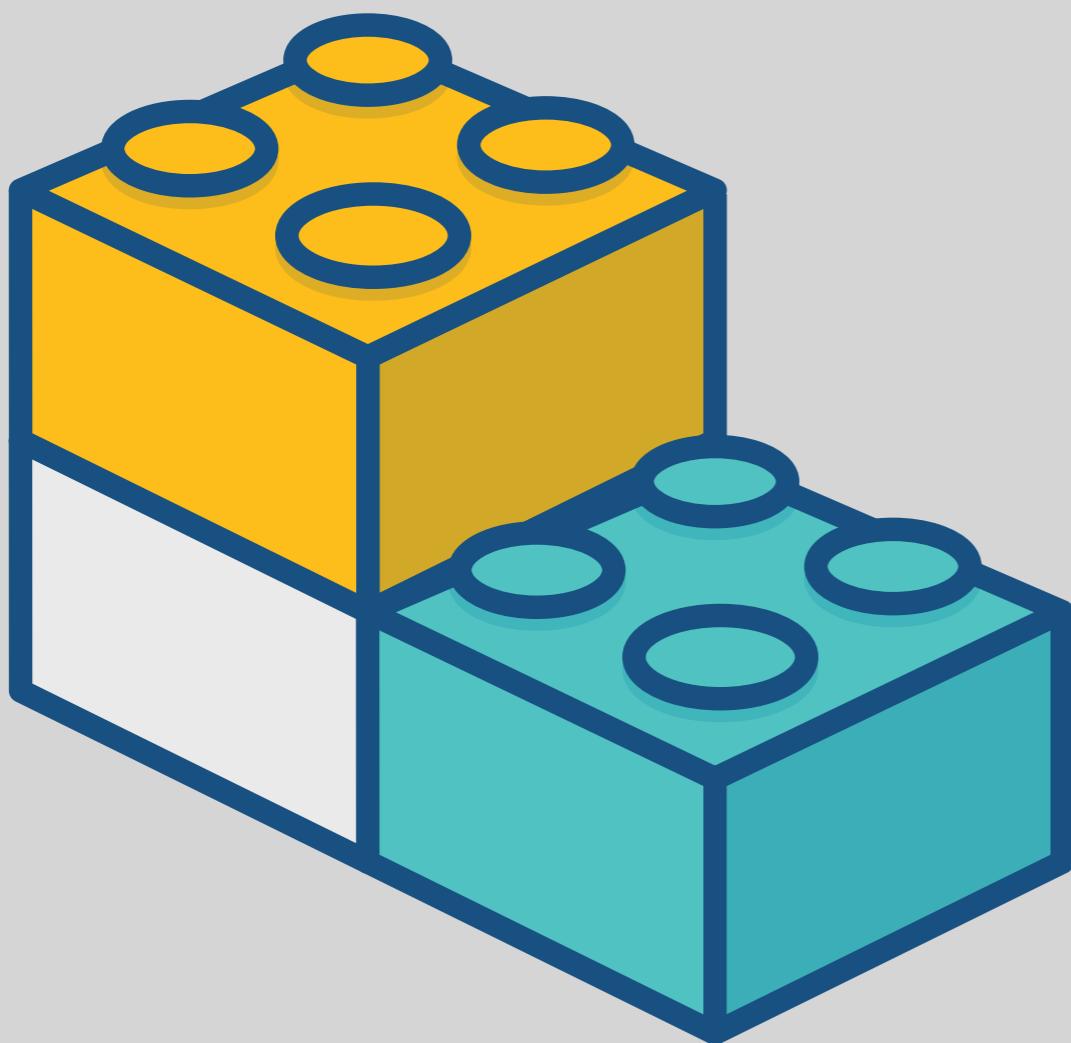


⚠️ Snapshots of files may not be retained forever, and deleted files may not be recovered after a certain amount of time has passed.



Backup Strategy

3 - 2 - 1 - B



Rule

3-2-1-B

Keep at least three
copies of your data;

3-2-1-B

Keep at least three
copies of your data;
automate this process as
much as possible.

3-2-1-B

At least two of these
copies should be locally
stored on two different
devices.

3-2-1-B

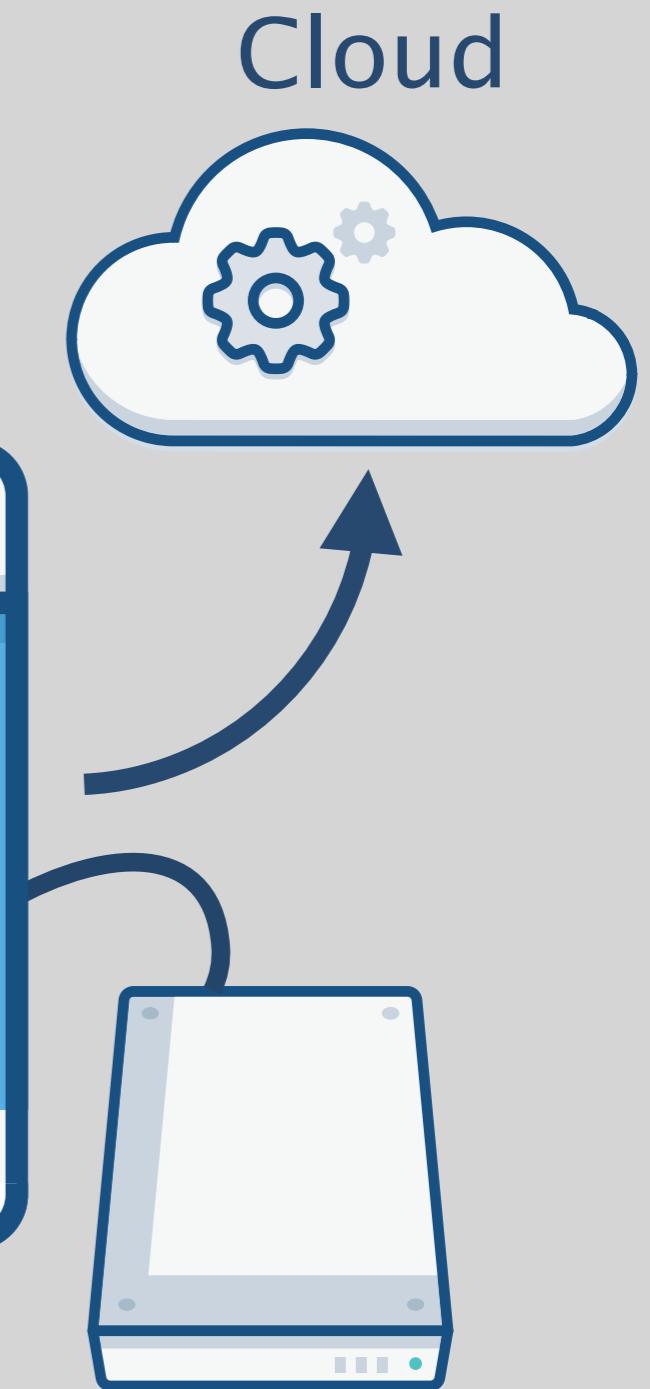
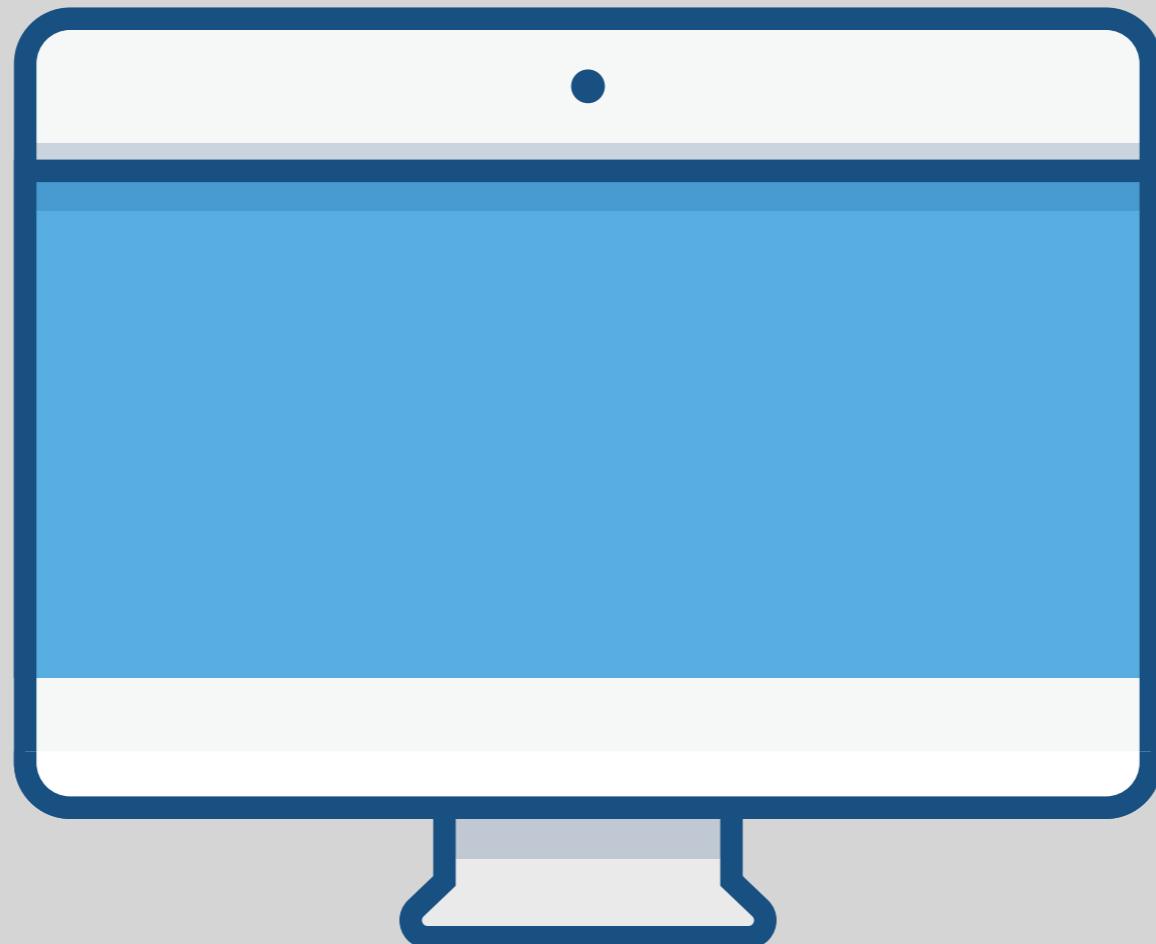
At least one of these
copies should be stored
offsite.

3-2-1-B

For users with lots of applications, a bootable backup (“clone”) can be invaluable.



Anna

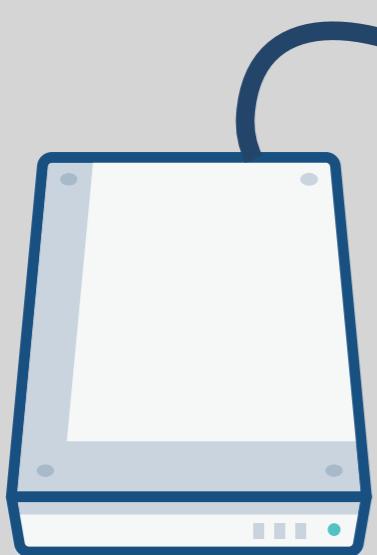


Cloud
Incremental

b



Raj



Bootable

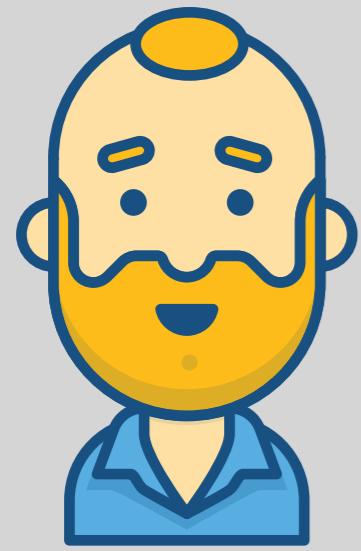


Incremental



Cloud

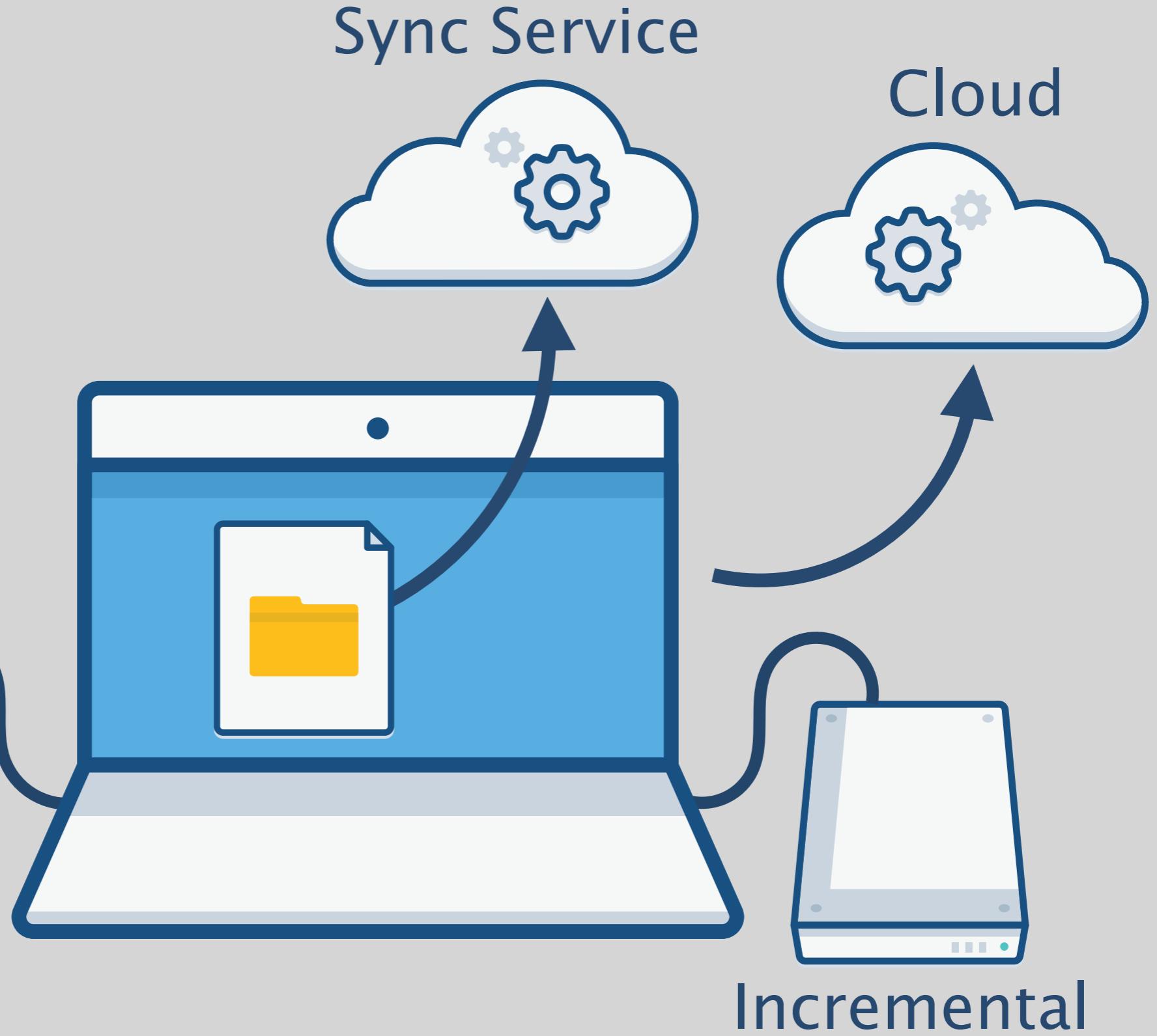
C



Ray

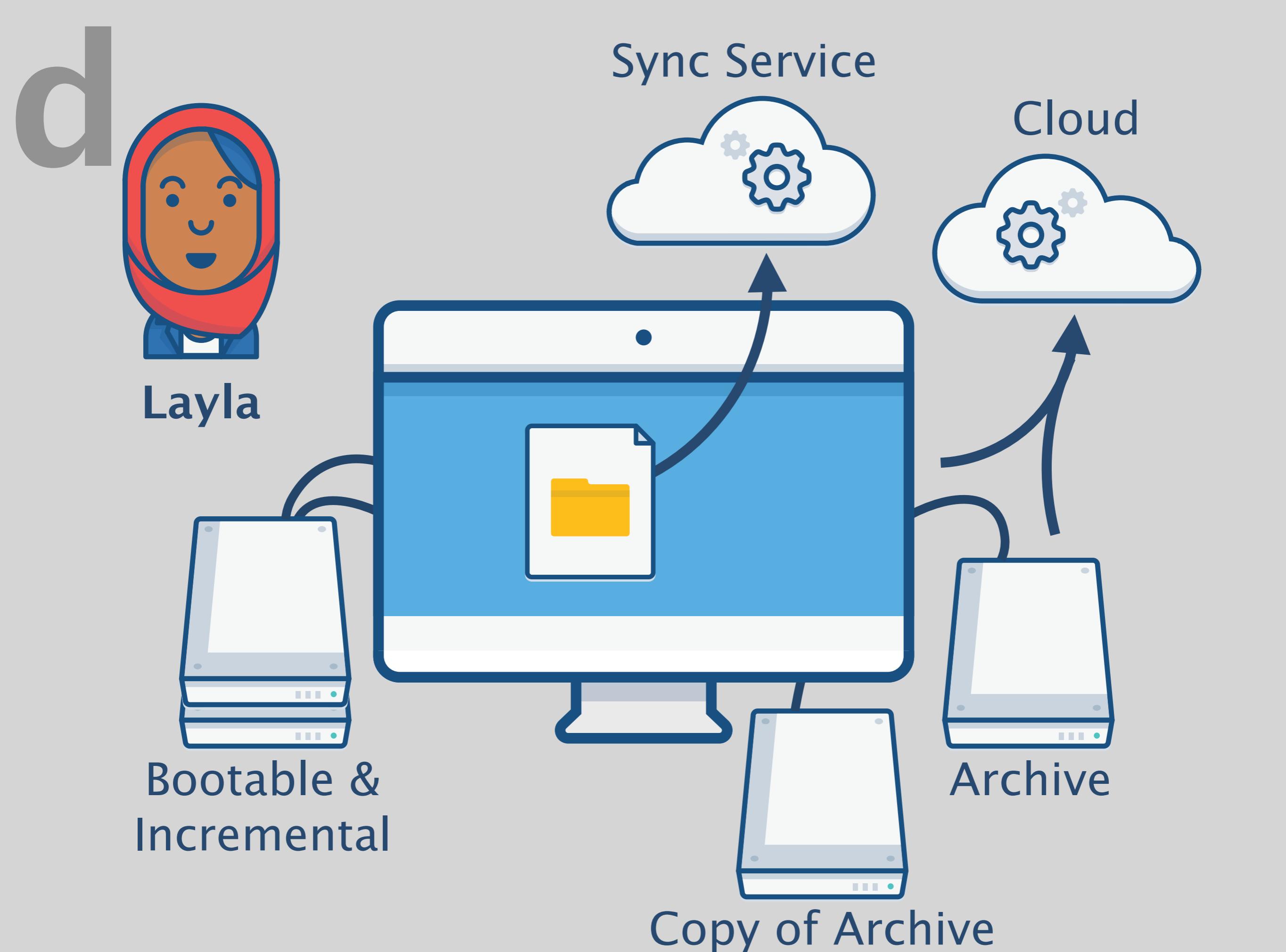


Bootable



Cloud

Incremental





Questions & Discussion

Chris Prener
Sociology

Melissa Fink
IRB