

Is Your Head in the Cloud? (Teacher Version)

Corresponding Materials:

CSTA Module 1: Digital Citizenship and Cyber Hygiene, Lesson 6 Privacy and Security

Discussion:

A crucial decision that affects the security of your information is where you decide to store your data. Deciding to put your data on a cloud storage system or an external hard drive requires being informed on the substantial tradeoffs that exist between the different systems. Like other topics in cybersecurity, we can apply the **principles of CIA** to each storage method to determine which one is right for our needs.

Fill in the chart based on the principles of CIA:

Principle	<i>External Devices (Flash Drive, Hard drive, CDs)</i>	<i>Local Storage (Keeping data on your computer or mobile device)</i>	<i>Cloud Storage (Upload data to shared storage service or NAS system)</i>
C - Confidentiality	Very low risk. Unless someone steals the device, there isn't a way for anyone to extract the data.	Lower risk than cloud storage, as data is only on a local network. There is a chance data could be taken if malware infects the computer.	Least secure option because it relies on a shared network.
I - Integrity	High Integrity. On CDs, the data cannot be manipulated at all once written on the CD. Data is secure, so there is low risk of data manipulation	Lower risk than cloud storage, as data is only on a local network. There is a chance data could be manipulated if malware infects the computer.	Vulnerable to hacking and security breaches, so data is at highest risk of being manipulated.
A - Accessibility	Least accessible. Must be attached to local device to access. If lost, there is no way to retrieve the data.	Easy to access on a single device, but if lost, there is no way to retrieve data.	Most accessible. Allows one to connect to multiple devices and store data across those devices seamlessly. Lost device doesn't affect data storage.

Activity:

Imagine you are a data storage consultant. Given the following scenarios, make a recommendation for which type of storage each client of yours should use based on their needs.

1. **Your grandmother has a lot of photographs that she just added to her computer. She doesn't want to look at them often, but wants them accessible on occasion.**

External Device- Because the data is not being accessed often, and because photos can take up a lot of storage space, external devices make the most sense.

2. **A freelance graphic designer who is constantly on the move needs a way to access their data immediately from their phone and computer.**

Cloud Storage- The graphic designer needs to be able to access data across platforms, which makes cloud storage the most reasonable option because of its seamless accessibility.

3. **A software company has remote workers that work in different cities around the country and need to share documents with one another.**

Cloud Storage- Remote workers need to access and share documents from various locations. Cloud storage, like Google Drive allow companies to share documents easily between members of the same organization.

4. **A government agent is working on a sensitive project that needs to be secure and accessible.**

Local Device- Local storage ensures safety against a cyber attack and provides the agent with the accessibility needed to use on a regular basis. External devices can be less convenient if the data needs to be used regularly.