The CIA triad is considered one of the foundational tenants of cybersecurity in the modern age. CIA stands for confidentiality, integrity, and availability. Confidentiality is often thought of keeping your data secret from unwanted parties. The data should only be seen from authorized parties. In order to do this, a lot of the time data is encrypted at all three stages of the data cycle: in use, in transit, and at rest. Other measures can be taken as well such as multi-factor authentication and storing very sensitive documents in air gapped segments of the network (Chai, 2022). Integrity is the idea that data should not be destroyed or altered at any time in the data's lifecycle. A lot of the time, hash checksums will be used against the original data in order to determine its accuracy and originality. As Chai mentioned, digital signatures can also be provided to prove non-repudiation, or basically proof of where the message source came from (Chai,2022) Lastly, availability is the concept that data or services can be accessed whenever it is needed by authorized parties. This includes accessing applications when needed or simply any data you might need. To ensure availability, redundancy is used in systems a lot of the time, as well as rate limiting, and DoS prevention software. It is also important to allot ample bandwidth for high traffic times to prevent a network crash (Chai, 2022).

Within the CIA triad, there are the principles of authorization and authentication. Authentication is the process of proving you are who you say you are. This can be done in several ways. It can be done by providing what you know, what you have, and biometrics. A great example is accessing your checking account at the ATM. You must have your debit card, and you must also know your pin. Authorization is what an individual can do after they have been authenticated. Basically, it is the permissions a person has. My favorite example

is military clearance levels. Although all the data is on a need-to-know basis, the higher the security clearance you have, the more sensitive data you could in theory access.

Works Cited

Chai, Wesley. “What Is the CIA Triad? Definition, Explanation, Examples.” TechTarget, WhatIs.com, 2022.