

CIA Triad: The foundation of infosec

The CIA triad is an acronym for the three basic essential concepts of cybersecurity. Confidentiality integrity and availability are all essential to any company that stores data, especially consumer data, remaining in business. By taking these three principles into account when establishing the information technology portion of a business, companies can avoid incidents such as major data leaks that can give corporations a bad name.

Confidentiality

Confidentiality is defined as measures designed to prevent sensitive information from unauthorized access attempts. Keeping important data from falling into the wrong hands is the central focal point of cybersecurity, as such it makes sense for data confidentiality to be the first principle in the Triad. Companies often require employees to use multiple forms of authentication to lessen the chances of an unauthorized user from gaining access to sensitive information. The more important the data, the more forms of authentication may be required. Failure to keep data confidential can quickly lead to the company as a whole failing.

Integrity

Integrity is defined as maintaining the consistency, accuracy and trustworthiness of data over its entire lifecycle. When people think of integrity, they often think of something honest and dependable, data that doesn't meet those qualities is unreliable and can be bad for businesses. For example, think of Wikipedia, for a long time the integrity of the information was very low, and as such, even to this day Wikipedia isn't considered a credible source by many. Wikipedia is an obvious example as to why companies value data integrity.

Availability

Availability explains itself; information must be always accessible by those that are allowed to access it. Companies often take multiple steps to avoid data loss, including separate hard disks with backup data, off-site data storage locations, and multiple data-loss prevention plans being in place. The best way to keep data available is to keep all hardware updated and repaired. Failure to do so can cause companies such as hospitals to lose valuable data that are important to the safety and wellbeing of others.

Authentication vs. Authorization

Two important factors in keeping the principles of the CIA triad in information security are authentication and authorization.

Authentication is the process of confirming that someone is who they claim to be. Companies may require employees to go through multiple stages of proving that they are who they claim to be before they can access important information or areas. For example, employees may first be required to go through a fingerprint biometric lock and then answer a security question before they are granted access. Most companies will require at least two factor authorization for even simple tasks, however more steps may be taken for higher level security.

Authorization is to give a certain amount of access to different users on a service. For example, those who pay for a premium subscription on a streaming service may be granted authorization for ad-free video playback, or can download content, whereas those who use the service for free may not have access to such luxuries. Access control is also often used by companies to control who can read, edit, or send out documents. This is to ensure that employees who may not have earned the level of trust or know enough about the company are able to edit important documents or information.

Conclusion

The principles of the CIA triad are the basic foundations of all information security. Ensuring data confidentiality, integrity, and availability are all basic needs that any company needs in order to ensure long term success. Although some may take for granted these basic principles, taking steps to prevent these basic concepts can play a huge role in a company's reputation over time.

References

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