Topic 2 Discussion 1

What equipment and protocols are required for establishing network enterprise architectures/security architectures? Provide 2-3 examples and discuss how they provide layered security.

Hello Class,

Network enterprise architectures and security architectures require a combination of equipment and protocols to establish a robust and secure network. Equipment such as routers, firewalls, switches, servers, load balancers, intrusion detection systems, domain name systems, and storage area networks are essential components(Ghaznavi-Zadeh, 2017). These devices work together to control network traffic, filter malicious activity, and provide secure access to resources.

Protocols like IPsec, SSL/TLS, and HTTPS are crucial for encrypting data and authenticating users. IPsec provides secure communication between networks, while SSL/TLS secures communication between web servers and browsers(Ren & Li, n.d.). HTTPS ensures secure web browsing by encrypting data transmitted between the user's browser and the website.

Layered security is achieved by implementing multiple security measures at different levels of the network. For example, a firewall at the network perimeter acts as the first line of defense, blocking unauthorized access(CISA, 2023). Intrusion detection systems monitor network traffic for suspicious activity and alert administrators. Antivirus software on individual devices protects against malware. This layered approach ensures that even if one layer is compromised, other layers can still provide protection.

References:

Cato Networks. (2024). *6 Network Security Protocols You Should Know*. Cato Networks. https://www.catonetworks.com/network-security/network-security-protocols/

CISA. (2023). *Securing Network Infrastructure Devices | CISA*. Cybersecurity and Infrastructure Security Agency CISA. https://www.cisa.gov/news-events/news/securing-network-infrastructure-devices

Ghaznavi-Zadeh, R. (2017, July 28). *Enterprise Security Architecture—A Top-down Approach*. Isaca.org. https://www.isaca.org/resources/isaca-journal/issues/2017/volume-4/enterprise-security-architecturea-top-down-approach

Ren, J., & Li, T. (n.d.). *Enterprise Security Architecture*. https://www.egr.msu.edu/~renjian/pubs/ESA-Final.pdf