Unit 5: Network Tools and Components

Objectives:
- Review the functions of the wide variety of network components such as switches, routers, firewalls, and gateways.
- Describe the role of networking equipment in virtualized environments such as the cloud.
- Discuss advanced network diagnostic tools such as scanners and packet sniffers.

Outcomes:
- Describe the different network tools and components available.
- Explain when and where to use selected tools and components.
- Evaluate the security implications of using selected components.

Reflection:

A computer networking tool is any software that makes it simpler to set up, maintain, or spread a wireless network. Examples of such software include wireless network configuration and management utilities. The design, administration, advertising, and maintenance of a website and its safety and adaptability may all Benefit from the use of computer networking technology. They are accountable for maintaining local area networks, especially when several computers are connected to the same network simultaneously (Sahay, Meng, and Jensen, 2019), (tech-faq (2019).
There are mainly two types of the network, which are described given below:

- **LAN** is a set of computers and other devices linked to a central server utilizing a cable or wireless network connection. A substantial corporate headquarters could have tens of thousands of individuals related to its local area network. Still, a tiny home office might only have two or three people connected.
- **WAN** is a large collection of interconnected computers that isn't restricted to a single place. A WAN provider may make it much simpler for devices located worldwide to interact with one another, exchange information, and do many other tasks.

Depending on the kind of network we need to establish, we may require fewer network components overall. To provide just one example, a wireless network does not need the use of a cable.

- A **network switch** use packet switching to connect devices on a computer network. It does this by receiving data and then sending it on to the device intended for.
- **Router:** A packet-switched network may be divided into several networks using a router. It helps manage network traffic by directing data packets to the IP

addresses associated with those networks. It also enables several devices to share a single Internet connection. These are its two primary functions.

- **Firewalls** are security devices that monitor and filter network traffic according to the security rules of an organization Plakoyiannis and Stavraki (2018). At its most basic level, a firewall is a barrier that isolates a private internal network from the internet.
- **Gateway:** A network node is what's known as the connection point between two networks that use distinct transmission protocols and is made possible by a gateway. Gateways are an essential component of the architecture of the network since they need that all data either pass through them or connect with them before the data can be routed via the network.
- **Cloud networking:** Network capabilities and resources of an organization may be hosted on a cloud platform, managed in-house or by a third party service provider, and can be made accessible on demand in a cloud networking architecture.

- A **network diagnostics** tool is a piece of software that gives you the ability to search for issues inside your network and pinpoint the location of the source that is most likely to be causing those issues. It is helpful in a wide range of network duties, such as monitoring the network's performance, monitoring the server, monitoring the switch, and so on.

References

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