Tutorial 5

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Wireless Local Area Network (WLAN):

It is a type of computer network that uses wireless data connections between devices within a limited geographic area, such as a home, office, or campus. WLANs provide the same functionality as traditional wired LANs (Local Area Networks) but without the need for physical cables to connect devices. Here are some key features of WLANs:

- Wireless Connectivity: WLANs use wireless technology, typically Wi-Fi, to connect devices. This eliminates the need for Ethernet cables, allowing for greater mobility and flexibility in device placement.
- Local Area Coverage: WLANs are designed for local area coverage, typically within a range of a few hundred feet to a few hundred meters. They are ideal for providing network connectivity within a specific physical area.
- Mobility: WLANs enable mobile devices such as laptops, smartphones, tablets, and wearable devices to connect to the network without being tethered to a specific location. Users can move around within the coverage area while maintaining their network connection.
- Scalability: WLANs can be easily expanded to accommodate additional devices or to cover larger areas by adding more access points (APs) or routers. This makes them suitable for both small and large deployments.
- Ease of Installation: Setting up a WLAN is generally simpler and less time-consuming than installing a wired network since there are no physical cables to run. This can lead to cost savings and reduced installation time.

- Security: WLANs can be secured using encryption protocols like WPA (Wi-Fi Protected Access) and WPA2/WPA3 to protect data from unauthorized access. Additional security measures such as MAC address filtering and virtual LANs (VLANs) can also be implemented.
- Roaming: WLANs support seamless roaming, allowing devices to switch between different access points as they move within the coverage area without losing their network connection. This is important for maintaining a stable connection in environments with multiple access points.
- Interoperability: WLAN devices from different manufacturers are typically designed to work together, ensuring compatibility and interoperability. This promotes a competitive market and provides users with a wide range of options.
- Centralized Management: Many WLAN deployments offer centralized management solutions that allow administrators to monitor and configure multiple access points from a single management interface, making it easier to manage and maintain the network.

Implementation: