

WAN (Wide Area Network)



Key Terms

Wide Area Network (WAN): A telecommunications network that extends over a large geographical area, connecting multiple smaller networks, such as local area networks (LANs) and metro area networks

Router: A device that connects different networks and directs data traffic between them.

Switch: A device that connects multiple devices within the same network.

Firewall: A security device that monitors and controls incoming and outgoing network traffic.

Leased Lines: Dedicated communication lines that provide a constant, guaranteed connection between two points.

MPLS (Multi-Protocol Label Switching): A protocol that efficiently directs data from one network node to the next based on short path labels.

Broadband: A high-speed internet connection that is always on and faster than traditional dial-up access.

Wireless (including 4G/5G and Satellite): A type of network connection that uses radio waves to transmit data over the air, enabling mobile connectivity.

VPN (Virtual Private Network): A secure, encrypted connection that allows remote users to access a

SD-WAN (Software-Defined Wide Area Network): A virtual WAN architecture that uses software to manage and optimize network performance across multiple locations.

VoIP (Voice over Internet Protocol): A technology that enables voice communication over the internet.

Wireless Local Area Networks (WLANs) Essentials

Definition and Purpose:

- WAN is a telecommunications network that extends over a large geographical area, connecting multiple smaller networks (LANs and MANs).
- The primary purpose of a WAN is to enable communication and data transfer between geographically dispersed locations within an organization.

Key Components:

- **Routers:** Devices that connect different networks and direct data traffic between them.
- **Switches:** Devices that connect multiple devices within the same network.
- **Firewalls:** Security devices that monitor and control incoming and outgoing network traffic.

WAN Connection Types:

- **Leased Lines:** Dedicated communication lines providing constant, guaranteed connections.
- **MPLS:** A protocol that efficiently directs data based on short path labels.
- **Broadband:** High-speed internet connections that are always on.
- **Wireless:** Connections using radio waves to transmit data, enabling mobile connectivity.

WAN Technologies:

- **VPN:** Secure, encrypted connections allowing remote access to private networks over the internet.
- **SD-WAN:** A virtual WAN architecture that uses software to manage and optimize network performance.
- **VoIP:** A technology enabling voice communication over the internet.

Advantages of WAN:

- **Enhanced Connectivity:** Connects geographically dispersed offices, enabling seamless communication.
- **Centralized Data Management:** Simplifies IT operations and reduces costs through centralized data management.
- **Resource Sharing:** Allows for the sharing of resources, such as servers, storage, and software licenses, across the network.
- **Collaboration and Communication:** Facilitates better collaboration and communication within an organization.

SD-WAN Benefits:

- Centralized control and management
- Improved performance and reduced latency
- Enhanced security with encrypted traffic
- Scalable network infrastructure
- Optimized cloud application performance

