

Chapter 1 Network Fundamentals

- 1.1 Introduction to Networks.**
- 1.2 Local Area Network (LAN).**
- 1.3 Wide Area Network (WAN).**
- 1.4 Metropolitan Area Network (MAN).**
- 1.5 Campus Area Network (CAN).**
- 1.6 Storage Area Network (SAN).**
- 1.7 Personal Area Network (PAN).**
- 1.8 Network Architecture:**
 - 1.8.a Peer-to-Peer Networks.**
 - 1.8.b Client/Server Networks.**
- 1.9 Physical Network Topologies:**
 - 1.9.a Bus Topology.**
 - 1.9.b Star Topology.**
 - 1.9.c Ring Topology.**
 - 1.9.d Mesh Topology.**
 - 1.9.e Point-to-Point Topology.**
 - 1.9.f Point-to-Multipoint Topology.**
 - 1.9.g Hybrid Topology.**

Chapter 2 Open Systems Interconnection (OSI) Specifications.

Chapter 3 Networking Connectors, and Wiring Standards

- 3.1 Coaxial Cable.**
- 3.2 Twisted pair Cable.**
- 3.3 Fiber optic Cable.**

Chapter 4 Current Ethernet

- 4.1 Ethernet Basics.**
- 4.2 Collision Domain.**
- 4.3 Broadcast Domain.**
- 4.4 CSMA/CD.**
- 4.5 Half- and Full-Duplex Ethernet.**

Chapter 5 Networking Devices

- 5.1 Hubs.**
- 5.2 Repeaters.**
- 5.3 Modem.**
- 5.4 Network Interface Card (NIC).**
- 5.5 Switches.**
- 5.6 Bridges.**
- 5.7 Routers.**
- 5.8 Layer 3 Switches.**
- 5.9 wireless access point (WAP).**
- 5.10 Wireless LAN Controller.**
- 5.11 Load Balancer.**

5.12 Proxy Servers.

5.13 Voice over IP (VoIP) private branch exchange (PBX).

5.14 intrusion detection system (IDS).

5.15 intrusion prevention system (IPS).

5.16 Firewall.

5.17 Next-generation firewalls (NGFWs).

5.18 printers and Cameras.

5.19 Servers.

Chapter 6 Introduction to Internet Protocol.

Chapter 7 IP Addressing

7.1 Internet Protocol Address Version 4 (IPv4).

7.2 Internet Protocol Address Version 6 (IPv6).

Chapter 8 Introduction to IP Routing

8.1 Static Routing.

8.2 Dynamic Routing.

8.3 Default Routing.

Chapter 9 Introduction of Switching

9.1 VIRTUAL LAN (VLAN).

9.2 Spanning Tree Protocol (STP).

9.3 Power over Ethernet (PoE).

Chapter 10 Wireless Technologies

10.1 Wi-Fi Standards.

10.2 Frequencies:

10.2.a 2.4 GHz & 5 GHz.

10.3 Channel Bandwidth.

10.4 Wireless Topologies:

10.4.a Service Set Identifier (SSID).

10.4.b Extended service set (ESS).

10.5 Wireless Security:

10.5.a Wi-Fi Protected Access (WPA).

10.5.b Wi-Fi Protected Access 2 (WPA2).

Chapter 11 Wide Area Networks:

11.1 Defining WAN Terms:

11.1.a Customer premises equipment (CPE).

11.1.b Channel service unit/data service unit (CSU/DSU).

11.1.c Local loop.

11.1.d Central office (CO).

11.1.e Public Switched Telephone Network (PSTN).

11.2 WAN Connection Types:

- 11.2.a Leased lines.**
- 11.2.b Circuit switching.**
- 11.2.c Packet switching.**
- 11.3 WAN Protocols:**
 - 11.3.a Integrated Services Digital Network (ISDN).**
 - 11.3.b Frame Relay Technology.**
 - 11.3.c Multi-Protocol Label Switching (MPLS).**

Chapter 12 Network Security

Chapter 13 Network Troubleshooting