Basic Networking Fundamentals

- Types of Networks
- Connections
- Protocols
- IP Addressing

Wired Network Media

- Twisted Pair
- Coaxial
- Fiber Optic
- Plenum-Grade Cables
- Connectors
- Wire Standards
- Ethernet
- Standard Ethernet
- Fast Ethernet
- Gigabit Ethernet

Network Topologies

- Physical Network Topologies
- Bus Topology
- Star Topology
- Ring Topology
- Mesh Topology
- Hybrid Topology
- WAN Technologies
- VPNs
- VLANs

OSI Model

- Communication Standards

TCP/IP Communication

- TCP/IP Protocol Suite
- TCP/IP (DARPA) Model
- Transport Layer Protocols - TCP
- Three-Way Handshake
- Internet Layer Protocols
- Communication Types
- Access Methods
- CSMA/CD

IP Addressing

- IP Addressing Scheme Planning
- IP Addressing Rules
- Classful IP Addressing
- Private IP Addressing
- Public IP Addressing
- NAT (Network Address Translation)
- Binary IP Addresses
- Inter-Networking
- Default Gateway
- Subnetting
- Classless Interdomain Routing (CIDR)

TCP/IP Command Line Tools (Windows)

- IPCONFIG / ARP / ROUTE
- PING / TRACERT / PATHPING
- NETSTAT / NBSTAT / NSLOOKUP
- TELNET / FTP / NETSH

Name Resolution

- Host Names
- NetBIOS Names
- Name to IP Address Resolution
- Name Resolution Process

DHCP

- DORA (Discover, Offer, Request, Acknowledge)
- DHCP in a Routed Network

Routing

- Routing Tables
- Static Routing
- Dynamic Routing
- Routing Protocols
- Convergence

Remote Desktop Services (RDS)

- RDS Role Services

Wireless Networking

- Benefits of Wireless Networking
- Wireless Access Point
- Components of Wireless Access Point
- Access Point Placement
- Wireless Networking Standards
- Wireless Network Securing

Network Security

- Firewalls
- Security Devices
- Network Access Security
- User Authentication
- Device Security
- Common Security Threats

IPv6 Fundamentals

- Disadvantage of IPv4
- IPv6 Solutions
- Types of IPv6 Addresses (Unicast, Multicast, Anycast)
- IPv4/IPv6 Compatibility

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