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Exam 98-366: Networking Fundamentals

Candidates for this exam are seeking to prove fundamental networking knowledge and skills. Before taking this exam, candidates should have a solid foundational knowledge of the topics outlined in this preparation guide. It is recommended that candidates become familiar with the concepts and the technologies described here by taking relevant training courses. Candidates are expected to have some hands---on experience with Windows Server, Windows based networking, network management tools, DNS, TCP/IP, names resolution process, and network protocols and topologies.

Objective Domain

Microsoft
Technology Associate

Understanding Network Infrastructures

- **Understand the Concepts of the Internet, Intranet, and Extranet.**
  - VPN, security zones, firewalls
- **Understand Local Area Networks (LANs).**
  - perimeter networks; addressing; reserved address ranges for local use (including local loopback ip), VLANs; wired LAN and wireless LAN
- **Understand Wide Area Networks (WANs).**
  - Leased lines, dial-up, ISDN, VPN, T1, T3, E1, E3, DSL, cable modem, and more, and their characteristics (speed, availability)
- **Understand Wireless Networking.**
  - types of wireless networking standards and their characteristics (802.11A, B, G, N, AC including different Ghz ranges), types of network security (for example, WPA/WEP/802.1X), point---to---point (P2P) wireless, ad hoc networks, wireless bridging
- **Understand Network Topologies and Access Methods.**
  - star, mesh, ring, bus, logical and physical topologies

Understanding Network Hardware

- **Understand Switches.**
  - Transmission speed, number and type of ports, number of uplinks, speed of uplinks, managed or unmanaged switches, VLAN capabilities, Layer 2 and Layer 3 switches and security options, hardware redundancy, support, backplane speed, switching types and MAC table, understand capabilities of hubs versus switches, virtual switches
- **Understand Routers.**
  - transmission speed considerations, directly connected routes, static routing, dynamic routing (routing protocols), RIP vs. OSPF, default routes; routing table and how it selects best routes; routing table memory, NAT, software routing in Windows Server, installing and configuring routing; Quality of Service (QoS)
- **Understand Media Types.**
  - Cable types and their characteristics, including media segment length and speed; fiber optic; twisted pair shielded or unshielded; catxx cabling, wireless; susceptibility to external interference (machinery and power cables); susceptibility to electricity (lightning), susceptibility to interception

Understanding Protocols and Services

- **Understand the OSI Model.**
  - OSI model; TCP model; examples of devices, protocols, and applications and which OSI/TCP layer they belong to; TCP and UDP; well--- known ports for most---used purposes (not necessarily Internet); packets and frames

- **Understand IPv4.**
  - addressing, subnetting; NAT, static IP, gateway; APIPA; network classes, classful/ classless IP addressing;; reserved address ranges for local use (including local loopback ip)

- **Understand IPv6.**
  - subnetting; IPconfig; why use IPv6; addressing; ipv4toipv6 tunneling protocols to ensure backwards compatibility; dual ip stack; subnetmask; gateway; ports; packets; reserved address ranges for local use (including local loopback ip)

- **Understand Names Resolution.**
  - DNS, resource records, Windows Internet Name Service (WINS), steps in the name resolution process, HOSTS file, LMHOSTS file

- **Understand Networking Services.**
  - Dynamic Host Configuration Protocol (DHCP), Network Address Translation (NAT), firewalls, remote access, VPN

- **Understand TCP/IP.**
  - tools such as ping; tracert; pathping; Telnet; IPconfig; netstat, reserved address ranges for local use (including local loopback ip); protocols