98-366: Networking Fundamentals

Audience Description

Candidates for this exam are familiar with general networking concepts and the technologies. Candidates should 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.

Skills Measured

Note: This document shows tracked changes that are effective as of January 31, 2018.

Understanding network infrastructures (30–35%)

Understand the concepts of Internet, intranet, and extranet

Virtual Private Network (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 (WPA, WEP, 802.1X, and others), 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 (20–25%)

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 route(s); routing table memory, ~~network~~ Network ~~address~~ Address ~~translation~~ Translation (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 ~~nonshielded~~unshielded; catxx cabling, wireless; susceptibility to external interference (machinery and power cables); susceptibility to electricity (lightning), susceptibility to interception

Understanding protocols and services (45-50%)

Understand the Open Systems Interconnection (OSI) model

OSI model; Transmission Control Protocol (TCP) model; examples of devices, protocols, applications, and which OSI/TCP layer they belong to; TCP and User Datagram Protocol (UDP); well-known ports for most used purposes (not necessarily Internet); packets and frames

Understand IPv4

Subnetting, IPconfig, why use Internet Protocol version 4 (IPv4), addressing, ipv4toipv6 tunneling protocols to ensure backward compatibility, dual IP stack, subnetmask, gateway, ports, packets, reserved address ranges for local use (including local loopback IP)

Understand IPv6

Subnetting, IPconfig, why use IPv6, addressing, ipv4toipv6 tunneling protocols to ensure backward 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