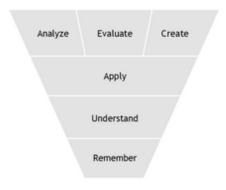# 98-366
Networking Fundamentals

Exam Design

The Basics

This exam is designed to assess candidates' knowledge of fundamental networking concepts. MTA is a new certification under the Microsoft Certification Program that validates the foundational knowledge needed to begin building a career in Microsoft technologies. It can also serve as a stepping stone to the Microsoft Certified Technology Specialist exams. Successful candidates for this exam will earn an MTA certification as well as access to benefits of the Microsoft Certification Program.

We are specifying an item pool of 75 unique multiple-choice items, which will be used on 1 form. For more information about cognitive levels, refer to the Cognitive Domain in Bloom's Taxonomy.

Categories in the cognitive domain of Bloom's Taxonomy (Anderson & Krathwohl, 2001)

The following anatomy is required of each knowledge-level item in this exam:
- Question Statement (ex: What should you do?)
- Answer Choices (Preferably Multiple Choice, choose 1, with 3 distracters)
    - Ex: Which of the following is a valid ASP.NET variable name? A. _foo; B. &foo; C. foo#; D. foo 1

The following anatomy is required of each application-level item in this exam:
- Concise scenario, including any constraints/requirements necessary to make distracter answers 100% incorrect
- Goal Statement (You need to …)
- Question Statement (ex: What should you do?)
- Answer Choices (Preferably Multiple Choice, choose 1, with 3 distracters)

Target Audience

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.

About This Exam

Objective Domain

1. **Understanding Network Infrastructures**

    1.1. Understand the concepts of the Internet, intranet, and extranet.
    This objective may include but is not limited to: VPN, security zones, firewalls

    1.2. Understand local area networks (LANs).
    This objective may include but is not limited to: perimeter networks; addressing; reserved address ranges for local use (including local loopback ip), VLANs; wired LAN and wireless LAN

    1.3. Understand wide area networks (WANs).
    This objective may include but is not limited to: leased lines, dial-up, ISDN, VPN, T1, T3, E1, E3, DSL, and cable and their characteristics (speed, availability)

    1.4. Understand wireless networking.
    This objective may include but is not limited to: types of wireless networking standards and their characteristics (802.11A, B, G, N including different Ghz ranges), types of network security (for example, WPA/WEP/802.1X), point-to-point (P2P) wireless, wireless bridging

    1.5. Understand network topologies and access methods.
    This objective may include but is not limited to: star, mesh, ring

2. **Understanding Network Hardware**

    2.1. Understand switches.
    This objective may include but is not limited to: 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, security options; hardware redundancy; support; backplane speed; switching types, MAC table; understanding capabilities of hubs vs. switches

    2.2. Understand routers.
    This objective may include but is not limited to: transmission speed considerations, directly connected routes, static routing, dynamic routing (routing protocols), default routes; routing

table and how it selects best routes; routing table memory, NAT, software routing in Windows Server

2.3. Understand media types.

This objective may include but is not limited to: cable types and their characteristics, including media segment length and speed; fibre optic; twisted pair shielded or non-shielded; cabling, wireless; susceptibility to external interference (for example, machinery, power cables); susceptibility to electricity (for example, lightning), susceptibility to interception

3. **Understanding Protocols and Services**

3.1. Understand the OSI model.

This objective may include but is not limited to: 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

3.2. Understand IPv4.

This objective may include but is not limited to: addressing, subnetting; NAT, static IP, gateway; APIPA; network classes, classful/classless IP addressing;; reserved address ranges for local use (including local loopback ip)

3.3. Understand IPv6.

This objective may include but is not limited to: 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)

3.4. Understand names resolution.

This objective may include but is not limited to: DNS, WINS, steps in the name resolution process

3.5. Understand networking services.

This objective may include but is not limited to: DHCP, IPsec, remote access

3.6. Understand TCP/IP.

This objective may include but is not limited to: tools such as ping; tracert; pathping; Telnet; IPconfig; netstat, reserved address ranges for local use (including local loopback ip); protocols