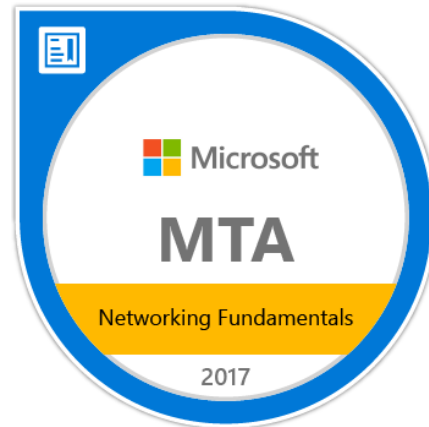


# Microsoft MTA Networking Fundamentals Training



## Course Outline:

### 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

### Understand Routers

Transmission speed considerations, directly connected routes, static routing, dynamic routing (routing protocols), default routes; routing table and how it selects best route(s); routing table memory, network address translation (NAT), software routing in Windows Server; 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; catxx cabling, wireless; susceptibility to external interference (machinery and power cables); susceptibility to electricity (lightning), susceptibility to interception

## 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, Windows Internet Name Service (WINS), steps in the name resolution process

## Understand networking services

Dynamic Host Configuration Protocol (DHCP), remote access

## Understand TCP/IP

Tools (such as ping), tracert, pathping, Telnet, IPconfig, netstat, reserved address ranges for local use (including local loopback IP), protocols