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Cisco Certified Network Associate - CCNA (200-301)

Before we begin to new CCNA official curriculum, we must have the basic understanding towards foundation of networking, hence we have included the following topic (which are not included in 200-301 syllabus) for solid understanding in Network and Security World.

Building blocks of Networking

Introduction to Network/Networking/Inter-Networking

Application of Network

Component of Network

Types of Network

OSI Model and TCP/IP Suite

Introduction to IP Address

-IPv4

-IPv6

Subnetting the networks, CIDR, VLSM

Describe the supernetting concepts

200-301 Syllabus/Exam-Topic

1. Network Fundamental

Explain the role and function of network components

-Routers

-L2 and L3 Switches

-Next generation firewalls and IPS

-Access Points

-Controllers WLC

-Endpoints

-Servers

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Describe characteristics of network topology architectures

-2 tier

-3 tier

-Spine-leaf

-WAN

-Small Office/Home Office (SOHO)

-On-premises and cloud

Compare physical interface and cabling types

-Single-mode fiber, multimode fiber and copper

-Connections (Ethernet shared medina and point-to-point)

-Concepts of PoE

Identify interface and cable issues

Compare TCP and UDP

Configure and verify IPV4 addressing and subnetting

Describe the need for private IPv4 addressing

Configure and verify IPv6 addressing and prefix

Compare IPv6 address type

-Global Unicast

-Unique Local

-Link Local

-Anycast

-Multicast

-Modified EUI 64

Verify IP parameters for Client OS (Windows, Mac OS, Linux)

Describe wireless principles

-Non overlapping Wi-Fi channels

-SSID

-RF

-Encryption

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Explain virtualization fundamentals (Virtual Machines)

Describe Switching Concepts

-MAC learning and aging

-Frame switching and flooding

-MAC address table

2. Network Access

Configure and verify VLANs spanning multiple switches

-Access ports (Data and Voice)

-Default Vlan and conncetivity

Configure and verify interswitch connectivity

-Trunk Ports

-802.1Q

-Native VLAN

Configure and verify Layer 2 Discovery Protocol (CDP and LLDP)

Configure and verify Layer2/Layer3 Etherchannel (LACP)

Describe the need and basic operation of Spanning Tree Protocol (CST, Rapid PVST+)

-Root Port/Root Bridge (Primary/Secondary), and other port names

-Port States (Forwarding/Blocking)

-PortFast benefits

Wireless Architectures

-AP

-WLC and its management components (Telnet,SSH,HTTP,HTTPS,Console and TACACS+/ RADIUS)

-WLANs, security and QoS profiles

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3. IP Connectivity

Describe the component of Routing Table

-Routing protocol code

-Prefix, Network Mask

-Next Hop

-Administrative Distance and Metric

-Gateway of last resort

Understanding the router forwarding decision

-Longest Match

-Administration Distance and Routing Protocol Metric

Configure and verify IPv4 and IPv6 static routing

-Default Route

-Network Route

-Host Route

-Floating Static

Configure and verify single area OSPFv2

-Neighbor adjacencies

-Point-to-point

-Broadcast (DR/BDR selection) -Router ID selection

Describe the purpose of first hop redundancy protocol

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4. IP Services

Configure and verify inside source NAT using static and pools

Configure and verify NTP operation in a client and server mode

Explain the role of DHCP and DNS within the network

Explain the function of SNMP in network operations

Describe the use of syslog features including facilities and levels

Configure and verify DHCP client and relay

Explain the QoS such as classification, marking, queuing, congestion, policing, shaping

Configure network deice for remote access using SSH

Describe the capabilities and function of TFTP/FTP in the network

5. Security Fundamentals

5.1 Define key security concepts (threats, vulnerabilities, exploits, and mitigation techniques)

5.2 Describe security program elements (user awareness, training, and physical access control)

5.3 Configure device access control using local passwords

5.4 Describe security password policies elements, such as management, complexity, and password alternatives (multifactor authentication, certificates, and biometrics)

5.5. Describe remote access and site-to-site VPNs

5.6 Configure and verify access control lists

5.7 Configure Layer 2 security features (DHCP snooping, dynamic ARP inspection, and port security)

5.8 Differentiate authentication, authorization, and accounting concepts

5.9 Describe wireless security protocols (WPA, WPA2, and WPA3)

5.10 Configure WLAN using WPA2 PSK using the GUI

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6. Automation and Programmability

Concept of automation and its impact on network management

Compare traditional networks with controller-based networking

Describe controller-based and software defined architecture (overlay, underlay and fabric)

-Separation of control plane and data plane

-North-bound and South-bound APIs

Comparison of device management with traditional campus device management with Cisco DNA center enable device

Describe characteristics of REST-based API

Recognize the capabilities of configuration management mechanism Puppet, Chef and Ansible

Interpret JSON encoded data