ENCOR (IMPLEMENTING AND OPERATING CISCO ENTERPRISE NETWORK CORE TECHNOLOGIES) 1.0

Objetivo

After taking this course, you should be able to: Illustrate the hierarchical network design model and architecture using the access, distribution, and core layers Compare and contrast the various hardware and software switching mechanisms and operation, while defining the Ternary Content Addressable Memory (TCAM)and Content Addressable Memory (CAM), along with process switching, fast switching, and Cisco Express Forwarding concepts Troubleshoot Layer 2 connectivity using VLANs and trunking Implementation of redundant switched networks using Spanning Tree Protocol Troubleshooting link aggregation using Etherchannel Describe the features, metrics, and path selection concepts of Enhanced Interior Gateway Routing Protocol (EIGRP) Implementation and optimization of Open Shortest Path First (OSPF)v2 and OSPFv3, including adjacencies, packet types, and areas, summarization, and route fltering for IPv4 and IPv6 Implementing External Border Gateway Protocol (EBGP) interdomain routing, path selection, and single and dual-homed networking Implementing network redundancy using protocols including Hot Standby Routing Protocol (HSRP) and Virtual Router Redundancy Protocol (VRRP) Implementing internet connectivity within Enterprise using static and dynamic Network Address Translation (NAT) Describe the virtualization technology of servers, switches, and the various network devices and components Implementing overlay technologies such as Virtual Routing and Forwarding (VRF), Generic Routing Encapsulation (GRE), VPN, and Location Identifier Separation Protocol (LISP) Describe the components and concepts of wireless networking including Radio Frequency (RF) and antenna characteristics, and define the specific wireless standards Describe the various wireless deployment models available, include autonomous Access Point (AP) deployments and cloud-based designs within the centralized Cisco Wireless LAN Controller (WLC) architecture Describe wireless roaming and location services Describe how APs communicate with WLCs to obtain software, configurations, and centralized management Configure and verify Extensible Authentication Protocol (EAP), WebAuth, and Pre-shared Key (PSK) wireless client authentication on a WLC Troubleshoot wireless client connectivity issues using various available tools Troubleshooting Enterprise networks using services such as Network Time Protocol (NTP), Simple Network Management Protocol (SNMP), Cisco Internetwork Operating System (Cisco IOSÂ®) IP Service Level Agreements (SLAs), NetFlow, and Cisco IOS Embedded Event Manager Explain the use of available network analysis and troubleshooting tools, which include show and debug commands, as well as best practices in troubleshooting Configure secure administrative access for Cisco IOS devices using the Command-Line Interface (CLI) access, Role-Based Access Control (RBAC), Access Control List (ACL), and Secure Shell (SSH), and explore device hardening concepts to secure devices from less secure applications, such as Telnet and HTTP Implement scalable administration using Authentication, Authorization, and Accounting (AAA) and the local database, while exploring the features and benefits Describe the enterprise network security architecture, including the purpose and function of VPNs, content security, logging, endpoint security, personal Firewalls,and other security features Explain the purpose, function, features, and workflow of Cisco DNA Centerâ¢ Assurance for Intent-Based Networking, for network visibility, proactive monitoring,and application experience Describe the components and features of the Cisco SD-Access solution, including the nodes, fabric control plane, and data plane, while illustrating the purpose and function of the Virtual Extensible LAN (VXLAN) gateways Define the components and features of Cisco SD-WAN solutions, including the orchestration plane, management plane, control plane, and data plane Describe the concepts, purpose, and features of multicast protocols, including Internet Group Management Protocol (IGMP) v2/v3, Protocol-Independent Multicast(PIM) dense mode/sparse mode, and rendezvous points Describe the concepts and features of Quality of Service (QoS), and describe the need within the enterprise network Explain basic Python components and conditionals with script writing and analysis Describe network

programmability protocols such as Network Configuration Protocol (NETCONF) and RESTCONF Describe APIs in Cisco DNA Center and vManage

PÃºblico Alvo

Mid-level network engineers Network administrators Network support technicians Help desk technicians

PrÃ©-Requisitos

Knowledge and skills you should have before attending this course: Implementation of Enterprise LAN networks Basic understanding of Enterprise routing and wireless connectivity Basic understanding of Python scripting

Carga HorÃiria

40 horas (5 dias).

ConteÃºdo ProgramÃitico

Examining Cisco Enterprise Network Architecture

Understanding Cisco Switching Paths

Implementing Campus LAN Connectivity

Building Redundant Switched Topology

Implementing Layer 2 Port Aggregation

Understanding EIGRP

Implementing OSPF

Optimizing OSPF

Exploring EBGP

Implementing Network Redundancy

Implementing NAT

Introducing Virtualization Protocols and Techniques

Understanding Virtual Private Networks and Interfaces

Understanding Wireless Principles

Examining Wireless Deployment Options

Understanding Wireless Roaming and Location Services

Examining Wireless AP Operation

Understanding Wireless Client Authentication

Troubleshooting Wireless Client Connectivity

Introducing Multicast Protocols *(Self Study)*

Introducing QoS *(Self Study)*

Implementing Network Services

Using Network Analysis Tools

Implementing Infrastructure Security

Implementing Secure Access Control

Understanding Enterprise Network Security Architecture *(Self Study)*

Exploring Automation and Assurance Using Cisco DNA Center *(Self Study)*

Examining the Cisco SD-Access Solution *(Self Study)*

Understanding the Working Principles of the Cisco SD-WAN Solution *(Self Study)*

Understanding the Basics of Python Programming *(Self Study)*

Introducing Network Programmability Protocols *(Self Study)*

Introducing APIs in Cisco DNA Center and vManage *(Self Study)*

Lab Outline
Investigate the CAM
Analyze Cisco Express Forwarding
Troubleshoot VLAN and Trunk Issues
Tuning Spanning Tree Protocol (STP) and Configuring Rapid Spanning Tree Protocol (RSTP)
Configure Multiple Spanning Tree Protocol
Troubleshoot EtherChannel
Implement Multi-area OSPF
Implement OSPF Tuning
Apply OSPF Optimization
Implement OSPFv3
Configure and Verify Single-Homed EBGP

Implementing Hot Standby Routing Protocol (HSRP)
Configure Virtual Router Redundancy Protocol (VRRP)
Implement NAT
Configure and Verify Virtual Routing and Forwarding (VRF)
Configure and Verify a Generic Routing Encapsulation (GRE) Tunnel
Configure Static Virtual Tunnel Interface (VTI) Point-to-Point Tunnels
Configure Wireless Client Authentication in a Centralized Deployment
Troubleshoot Wireless Client Connectivity Issues
Configure Syslog
Configure and Verify Flexible NetFlow
Configuring Cisco IOS Embedded Event Manager (EEM)
Troubleshoot Connectivity and Analyze Traffic with Ping, Traceroute, and Debug
Configure and Verify Cisco IP SLAs
Configure Standard and Extended ACLs
Configure Control Plane Policing
Implement Local and Server-Based AAA
Writing and Troubleshooting Python Scripts
Explore JavaScript Object Notation (JSON) Objects and Scripts in Python
Use NETCONF Via SSH
Use RESTCONF with Cisco IOS XE Software