CISC-15 - ENSLD - DESIGNING CISCO ENTERPRISE NETWORKS V2.0

Categoria: **Cisco**

INFORMAZIONI SUL CORSO

Durata:	Categoria:	Qualifica Istruttore:	Dedicato a:	Produttore:
5 Giorni	Cisco	Cisco Certified Instructor	Professionista IT	Cisco

OBIETTIVI

After completing this course, you should be able to:

- -Design EIGRP internal routing for the enterprise network
- -Design OSPF internal routing for the enterprise network
- -Design IS-IS internal routing for the enterprise network
- -Design a network based on customer requirements
- -Design BGP routing for the enterprise network
- -Describe the different types and uses of MP-BGP address families
- -Describe BGP load sharing
- -Design a BGP network based on customer requirements
- -Decide where L2/L3 boundary will be in your Campus network and make design decisions
- -Describe layer 2 design considerations for Enterprise Campus networks
- -Design a LAN network based on customer requirements
- -Describe layer 3 design considerations in an Enterprise Campus network
- -Examine Cisco SD-Access fundamental concepts
- -Describe Cisco SD-Access Fabric Design
- -Design an SD-Access Campus Fabric based on customer requirements
- -Design service provider-managed VPNs
- -Design enterprise-managed VPNs
- -Design a resilient WAN
- -Design a resilient WAN network based on customer requirements
- -Examine the Cisco SD-WAN architecture
- -Describe Cisco SD-WAN deployment options
- -Examine Cisco SD-WAN—NAT and hybrid design considerations
- -Design Cisco SD-WAN redundancy
- -Explain the basic principles of QoS
- -Design QoS for the WAN
- -Design QoS for enterprise network based on customer requirements
- -Explain the basic principles of multicast
- -Exploring Multicast with PIM-SM
- -Designing rendezvous point distribution solutions
- -Describe high-level considerations when doing IP addressing design
- -Create an IPv6 addressing plan

-Plan an IPv6 deployment in an existing enterprise IPv4 network
-Describe the challenges that you might encounter when transitioning to IPv6
-Design an IPv6 addressing plan based on customer requirements
-Describe Network APIs and protocols
-Describe YANG, NETCONF and RESTCONF

PREREQUISITI

Attendees should meet the following prerequisites:
-Understand network fundamentals
-Implement LANs
-Implement Internet connectivity
Recommended prerequisites:
-CCNA - Implementing and Administering Cisco Solutions
-ENCOR - Implementing and Operating Cisco Enterprise Network Core Technologies

CONTENUTI

Designing EIGRP Routing
-Describe Scalabale EIGRP Designs and Fast Convergence
-Examine EIGRP Autonomous Systems and Layered Designs
-Describe Scalable EIGRP Hub-and-Spoke and Stub Designs
-Describe EIGRP Convergence Features

Designing OSPF Routing
-OSPF Neigbour Adjacencies and LSAs
-OSPF Scalability Issues
-Define Area and Domain Summarization
-OSPF Full and Partial Mesh
-OSPF Convergence
-Design Case Study Activity: Designing an Enterprise Connectivity

Designing IS-IS Routing
-Describe IS-IS Routing Protocol
-Examine IS-IS Adjacencies and Authentication
-Describe IS-IS and OSPF Similarities
-Explore IS-IS Routing Logic
-Describe IS-IS Operations
-Examine Integrated IS-IS for IPv6

Designing BGP Routing and Redundancy
-Identify IBGP Scalability Issues
-BGP Route Reflector Terminology
-Describe BGP-Split-Horizon
-Route Reflector Loop Prevention Mechanisms
-BGP Confederation Loop Prevention Mechanisms
-Compare BGP Load Sharing Designs

-Examine Dual and Mulithomed BGP Designs

Explorig BGP Address Families and Attributes

-BGP Address Families and Attributes
-BGP Route Selection Preferences
-Describe BGP Communities
-Examine a Case Study - Designing a Dual-Stack MP-BGP Environment
-Design Case Study Activity: Designing an Enterprise Network with BGP Internet Connectivity

Designing an Enterprise Campus LAN

-Compare End-to-End and Local VLANs
-Describe the Layer 3 Access Layer
-Examine a Case Study
-Describe Cloud Deployment Models

Designing Layer 2 Campus

-Describe VLANs, Trunks and VTP
-Understanding the Spanning Tree Protocol
-Understanding Layer 2 Security Techniques
-Understand MST, POE, and EnergyWise
-Describe Port Aggregation Considerations
-First-Hop Redundancy
-Describe Network Requirements of Applications
-Design Case Study Activity: Designing an Enterprise Campus LAN

Designing a Layer 3 Campus

-The Benefits of Building Triangles
-Routing Convergence
-Describe Routing Protocols and Summarization
-Describe Default Routes, Redistribution and Filtering
-Examine Passive Interface, Routing Convergence and Routing IPv4 and IPv6
-Describe Network Management Best Practices

Discovering the Cisco SD-Access Architecture

-Cisco Software Defined Access Overview
-Cisco Software-Defined Access Architecture
-Cisco SD-Access Node Roles
-Cisco Software-Defined Access Definition and Benefits
-Examine the Fabric Enabled Wireless LAN
-Role of Cisco SD-Access in Cisco DNA

Exploring Cisco SD-Access Fabric Design

-Describe SD-Access Fabric Constructs
-Describe Design Requirements of Underlay Network
-Describe DHCP and Security Solutions for the Fabric Domain
-Describe Cisco SD-Access Wireless Fabric Constructs

Exploring Cisco SD-Access Site Design Strategy and Considerations

-Cisco SD-Access Site Reference Models

-Cisco SD-Access Distributed Campus Considerations
-Migration to Cisco SD-Access
-Design Case Study Activity: Designing Cisco SD-Access in the Enterprise

Discovering Service Provider-Managed VPNs

-WAN Connection Decision Points
-Describe Layer 3 MPLS VPN
-Use Routing Protocols at the PE-CE

Designing Enterprise-Managed VPNs

-Enterprise-Managed VPNs Overview
-Describe GRE, mGRE and IPsec
-Describe Dynamic VTI, GET VPN, SSL VPN and Flex VPN
-Describe DMVPN
-Describe EIGRP DMVPN and DMVPN Scaling

Designing WAN Resiliency

-WAN Design Overview
-Describe Common MPLS WNA Design Models
-Describe Common Layer 2 WNA Design Models
-Describe Cmmon VPN WAN Design Models
-Describe Cellular VPN Design Models
-Remote Site Local Internet Connectivity
-Remote-Site LAN Design
-WAN Connectivity Case Study
-Describe Basic Traffic Engineering Techniques
-Describe Cloud Connectivity Options
-Design Case Study Activity: Designing Resilient Enterprise WAN

Examining Cisco SD-WAN Architectures

-Describe SDN for the WAN
-Describe Cisco SD-WAN Components and Functions
-Describe the Orchestration Plane
-Describe the Management Plane
-Describe the Control Plane
-Describe the Data Plane
-Describe SD-WAN Analytics
-Describe the Overlay Management Protocol
-Define OMP Network Terminology
-Describe Transport Locators
-Describe Fabric Operation

Examining Cisco SD-WAN Deployment Design Considerations

-Describe Controller Deployment Options
-Describe Controller Deployment Models
-Describe Cisco SD-WAN Cloud Deployment
-Describe Cisco SD-WAN Managed Service Provider Deployment
-Describe Cisco SD-WAN On-Premises Deployment
-Use Enterprise CA

-Describe Controller Placement and Challenges
-Describe Cloud Controller Connections
-Describe On-Premise Controller Connections
-Describe MPLS and Internet Interconnection
-Describe Deployment Considerations
-Describe On-Premises Deployment Considerations
-Describe vBond On-Premises Deployment

Examining Cisco SD-WAN-NAT and Hybrid Design Considerations

-Describe Working with NAT
-Describe NAT Traversal Combinations
-Describe Zero-Touch Provisioning
-Describe Considerations for Hybrid Scenarios
-Describe Deployment Options: Pure Vs Hybrid

Designing Cisco SD-WAN Routing and High Availability

-Describe Horizontal Solution Scale
-Describe SD-WAN Redundancy
-Describe Site Design
-Describe Path Redundancy
-Compare an Underlay Vs Overlay Network
-Describe SD-WAN Branch Connectivity
-Describe SD-WAN Privacy and Integrity
-Describe SD-WAN Secure Segmentation
-Describe SD-WNA Security Features
-Cisco SD-WAN Security Use Cases
-Design Case Study Activity: Designing Resilient Enterprise Cisco SD-WAN

Exploring QoS

-IntServ vs DiffServ
-Explain Classification and Marking Tools
-Policers and Shapers
-Describe Queuing Tools
-Explain RFC 4594 QoS Recommendations

Designing LAN and WAN QoS

-Need for Campus QoS
-Describe the Classification, Marking and Policing QoS Model
-Need for QoS in WAN and Branch
-Need for QoS in IPsec VPN
-Describe DMVPN QoS Considerations
-Describe SD-WAN Forwarding
-Describe SD-WAN QoS Operation
-Descrive vEdge Queuing
-Design Case Study Activity: Designing QoS in an Enterprise Network

Introducing Multicast

-Explain How IP Multicast Works
-Explain Multicast Groups

- -Describe SD-WNA Multicast Application Support
- -Describe the Functions of a Multicast Network
- -Describe Multicast Protocols
- -Describe Multicast Forwarding and RPF Check
- -Explain Multicast Protocol Basics

Exploring Multicast with PIM-SM

- -Describe Multicast Distribution Trees Identification
- -Describe Reciver Joins and Registering the Source
- -Describe PIM-SM SPT Switchover
- -Describe Multicast Routing Table
- -Describe Basic SSM Concepts
- -Describe Bidirectional PIM
- -Describe DF Election and Messages
- -Case Study: DF Election

Designing Rendezvous Point Distribution Solutions

- -Rendezvous Point Discovery
- -Case Study: Auto-RP Operation
- -Auto-RP and BSR Flooding
- -MSDP Protocol Overview

Designing an IPv4 Address Plan

- -IPv4 Adress Planning Considerations
- -Plan the IP Addressing Hierarchy
- -Create an Addressing Plan
- -Case Study: Design an IPv4 Address Space
- -Case Study: Resolve Overlapping Address Ranges
- -Allocating More IP Addresses

Exploring IPv6 (Self-Study)

- -IPv6 Address Planning Considerations
- -IPv6 for an Enterprise
- -Describe IPv6 Address Allocation: Linked IPv4 Into IPv6
- -Describe IPv6 Address Allocation: Per Location/Type
- -Describe IPv6 Address Allocation: Per VLAN

Deploying IPv6 (Self-Study)

- -Describe the IPv6 Phased Approach
- -Identify IPv6 Services to Deploy
- -IPv4 and IPv6 Coexistence
- -Transition Mechanisms
- -Describe NAT64 and DNS64
- -Describe Manual Tunnels
- -Describe Tunnel Brokers
- -Describe 6rd
- -Describe DS-Lite
- -Describe LISP
- -IPv6 Application Support

-IPv6 Related Security
-Design Case Study Activity: Designing an Enterprise IPv6 Network

Introducing Network APIs and Protocols (Self-Study)

-Describing Network APIs and Protocols
-Describing the Evolution of Device Management and Programmability
-Describing Data Encoding Formats
-Describing JSON
-Decrisbing XML
-Describing Data Models
-Describing the Model-Driven Programmability Stack
-Describing REST
-Describing NETCONF
-Describing RESTCONF
-Describing gRPC

Exploring YANG, NETCONF, RESTCONF, and Model-Driven Telemetry (Self-Study)

-Define YANG, NETCONF and RESTCONF
-Describe YANG Concepts
-Describe NETCONF Concepts
-Describe RESTCONF Concepts
-Compare NETCONF and RESTCONF
-Describe gRPC and gNMi
-Define Model-Driven Telemetry
-Describe Stream Telemetry Data
-Explain Subscription
-Describe Dial-In and Dial-Out Model-Driven Telemetry

INFO

Esame: 300-420 - Designing Cisco Enterprise Networks
Materiale didattico: Materiale didattico ufficiale Cisco in formato digitale
Costo materiale didattico: incluso nel prezzo del corso a Calendario
Natura del corso: Operativo (previsti lab su PC)