

CISC-14 - ENARSI - IMPLEMENTING CISCO ENTERPRISE ADVANCED ROUTING AND SERVICES V1.1

Categoria: **Cisco**

INFORMAZIONI SUL CORSO



Durata:
5 Giorni



Categoria:
Cisco



Qualifica Istruttore:
**Cisco Certified
Instructor**



Dedicato a:
Professionista IT



Produttore:
Cisco

OBIETTIVI

After completing this course you should be able to:

- Configure, optimize, and troubleshoot enhanced interior gateway routing protocol (EIGRP)
- Configure, optimize, and troubleshoot open shortest path first (OSPF)v2 and OSPFv3
- Implement and troubleshoot route redistribution using filtering mechanisms
- Implement path control using policy-based routing (PBR) and IP service level agreement (SLA)
- Configure, optimize, and troubleshoot border gateway protocol (BGP)
- Implement multiprotocol BGP (MP-BGP)
- Describe the features of multiprotocol label switching (MPLS)
- Describe the major architectural components of an MPLS virtual private network (VPN)
- Identify the routing and packet forwarding functionalities for MPLS VPNs
- Explain how packets are forwarded in an MPLS VPN environment
- Implement Cisco internetwork operating system (IOS®) dynamic multipoint VPNs (DMVPNs)
- Implement and troubleshoot dynamic host configuration protocol (DHCP)
- Describe the tools available to secure the IPV6 first hop
- Troubleshoot Cisco router security features
- Troubleshoot infrastructure security and services
- Troubleshoot network issues with Cisco DNA Center Assurance

PREREQUISITI

Attendees should meet the following prerequisites:

- General understanding of network fundamentals
- Basic knowledge of how to implement LANs
- General understanding of how to manage network devices
- General understanding of how to secure network devices
- Basic knowledge of network automation

Recommended prerequisites:

- CCNA - Implementing and Administering Cisco Solutions
- ENCOR - Implementing and Operating Cisco Enterprise Network Core Technologies

Implementing EIGRP

- EIGRP Features
- EIGRP Reliable Transport
- Explore EIGRP Operation
- Compare EIGRP Classic and Named Mode
- Exchange of Routing Knowledge in EIGRP
- EIGRP Metrics
- EIGRP Classic Mode Metric Calculation
- Example of EIGRP Classic Mode Metric Calculation
- EIGRP Feasibility Condition
- Example of EIGRP Path Calculation

Optimizing EIGRP

- EIGRP Queries
- EIGRP Stub Routers
- EIGRP Stuck in Active
- EIGRP Summary Routes
- EIGRP Load Balancing
- EIGRP Authentication

Troubleshooting EIGRP (Self-Study)

- Troubleshoot EIGRP
- Troubleshoot EIGRP Neighbor Issues
- Troubleshoot EIGRP Routing Table Issues
- Troubleshoot EIGRP Stub
- Troubleshoot EIGRP Summarization
- Troubleshoot EIGRP for IPv6
- Troubleshoot EIGRP Authentication

Implementing OSPF

- OSPF Features
- OSPF Operations
- Hierarchical Structure of OSPF
- Design Limitations of OSPF
- OSPF Message Types
- Compare OSPFv2 and OSPFv3
- OSPFv2 and OSPFv3 LSA Types
- Periodic OSPF Database Changes
- Exchange and Synchronize LSDBs
- Synchronize LSDB on Multi-Access Networks
- Execution of the SPF Algorithm

Optimizing OSPF

- OSPF Route Summarization
- Default Routing in OSPF
- OSPF Special Areas

- Default Route Cost in OSPF Special Areas
- OSPF Authentication
- OSPF Virtual Link

Troubleshooting OSPF (Self-Study)

- Components of Troubleshooting OSPF
- Troubleshoot OSPF Adjacency
- Troubleshoot OSPF Routing Issues
- Troubleshoot OSPF Path Selection
- Troubleshoot OSPF Special Areas
- Troubleshoot OSPF Summarization

Configuring Redistribution

- Route Redistribution
- Redistribution of Route Information
- Determine Default Metrics for Redistributed Routes
- Calculation of Costs for OSPF E1 and E2 Routes
- Types of Redistribution
- Mutual Redistribution
- Need for Redistribution
- Need for Redistribution Manipulation
- Filtering Tools: Distribute Lists
- Filtering Tools: Prefix Lists
- Filtering Tools: Route Maps
- Identity Caveats of Redistribution

Troubleshooting Redistribution (Self-Study)

- Troubleshooting Redistribution
- Troubleshoot Issues with Redistribution Route Feedback

Implementing Path Control

- Need for Path Control
- PBR Features and Benefits
- Explain How to Configure PBR
- Bidirectional Forwarding Detection
- BFD Operational Modes

Implementing IBGP

- BGP Fundamentals
- BGP Neighbor Relationships
- BGP Path Attributes
- BGP Path Selection
- BGP Transit AS Functionality
- IBGRP Path Processing
- IBGRP Split Horizon
- IBGRP Full Mesh

Optimizing BGP

- Configure the Weight Attribute

- Configure the MED Attribute
- Configure BGP Route Filtering
- Implement BGP Peer Groups
- IBGP Scalability Issues in a Transit AS
- Route Reflector Split-Horizon Rules
- Redundant Route Reflectors
- BGP Authentication

Implementing MP-BGP

- MP-BGP Support for IPv6
- IPv6 BGP Filtering Mechanisms

Troubleshooting BGP (Self-Study)

- Monitor BGP
- Troubleshoot BGP Neighbor Relationships
- Understand BGP Monitoring
- Troubleshooting IBGP
- Troubleshoot MP-BGP

Exploring MPLS (Self-Study)

- Describe Traditional IP Routing
- Describe MPLS Features and Benefits
- Explain MPLS Terminology
- Describe MPLS Architecture Components
- Describe the Architecture of Ingress Edge LSRs
- Describe the Architecture of Intermediate LSRs
- Describe the Architecture of Egress Edge LSRs

Introducing MPLS L3 VPN Architecture (Self-Study)

- Describe MPLS L3 VPN Architecture
- Describe PE Router Architecture
- Describe VRF
- Describe Methods of Propagating Routing Information Across the P-Network
- Describe Route Distinguishers
- Describe RD Operation in MPLS VPN
- Describe Route Targets
- Describe RT and RD Process Flow

Introducing MPLS L3 VPN Routing (Self-Study)

- Describe MPLS L3 VPN Routing Requirements
- Describe Support for Internet Routing
- Describe Routing Tables on PE Routers
- Describe the End-to-End Flow of Routing Updates
- Describe End-to-End VPN Packet Forwarding Mechanisms
- Describe VPN Penultimate Hop Popping
- Describe the Propagation of VPN Labels Between PE Routers

Configuring VRF-Lite

- PE Router Routing Contexts

- VPN-Aware Routing Protocols
- VRF Table
- VRF-Lite Functionality
- Implement VRF-Lite
- Migration from Old to New Style VRF CLI
- Routing with VRF-Lite

Implementing DMVPN

- Overview of Cisco IOS DMVPN
- DMVPN Solution Components
- Understanding GRE
- NHRP
- DMVPN Operations
- DMVPN Authentication
- DMVPN Hub Configuration
- DMVPN Spoke configuration
- DMVPN Routing Configuration
- Verify DMVPN

Implementing DHCP

- DHCP Overview
- DHCP Relay
- DHCP Manual Address Binding
- Describe DHCP Options
- IPv6 Stateless Address Autoconfiguration Overview
- DHCPv6 Overview
- DHCPv6 Operation
- Stateless DHCPv6 Overview
- DHCPv6 Relay Agent
- Troubleshoot DHCP
- Troubleshoot IPv6 Address Assignment on Clients

Introducing IPv6 First Hop Security (Self-Study)

- Describe IPv6 Snooping
- Describe IPv6 ND Inspection
- Describe IPv6 RA Guard
- Describe DHCPv6 Guard
- Describe IPv6 Source Guard
- Describe IPv6 Destination Guard

Securing Cisco Routers

- Interpret an IPv4 ACL
- Implement an IPv4 ACL for Filtering
- Implement a Time-Based IPv4 ACL
- Interpret an IPv6 ACL
- Implement an IPv6 ACL for Filtering
- Troubleshoot Access Links
- Describe Control Plane Security

- Describe Control Plane Policing
- CoPP Implementation Steps
- Describe uRPF
- uRPF Configuration Example

Troubleshooting Infrastructure Security and Services (Self-Study)

- AAA Overview
- AAA Configuration Using Local Database
- AAA Configuration Using a AAA Server
- Troubleshoot AAA
- SNMP
- Troubleshoot SNMP
- Syslog
- Network Management Protocols
- NetFlow
- Cisco Flexible NetFlow

Troubleshooting with DNA Center Assurance (Self-Study)

- Need for DNA Assurance
- Cisco AI Network Analytics
- DNA Assurance Health Scores
- Using Path Trace for Troubleshooting
- Troubleshooting using DNA Assurance- Use Cases

Labs

- Discovery Lab 1: Configure EIGRP Using Classic Mode and Named Mode for IPv4 and IPv6
- Discovery Lab 2: Verify the EIGRP Topology Table
- Discovery Lab 3: Configure EIGRP Stub Routing, Summarization, and Default Routing
- Discovery Lab 4: Configure EIGRP Load Balancing and Authentication
- Discovery Lab 5: Troubleshoot EIGRP Issues
- Discovery Lab 6 : Configure OSPFv3 for IPv4 and IPv6
- Discovery Lab 7: Verify the Link-State Database
- Discovery Lab 8: Configure OSPF Stub Areas and Summarization
- Discovery Lab 9: Configure OSPF Authentication
- Discovery Lab 10: Troubleshoot OSPF Issues
- Discovery Lab 11: Implement Routing Protocol Redistribution
- Discovery Lab 12: Manipulate Redistribution
- Discovery Lab 13: Manipulate Redistribution Using Route Maps
- Discovery Lab 14: Troubleshoot Redistribution Issues
- Discovery Lab 15: Implement PBR
- Discovery Lab 16: Configure IBGP and EBGP
- Discovery Lab 17: Implement BGP Path Selection
- Discovery Lab 18: Configure BGP Advanced Features
- Discovery Lab 19: Configure BGP Route Reflectors
- Discovery Lab 20: Configure MP-BGP for IPv4 and IPv6
- Discovery Lab 21: Troubleshoot BGP Issues
- Discovery Lab 22: Configure Routing with VRF-Lite
- Discovery Lab 23: Implement Cisco IOS DMVPN

- Discovery Lab 24: Obtain IPv6 Addresses Dynamically
- Discovery Lab 25: Troubleshoot DHCPv4 and DHCPv6 Issues
- Discovery Lab 26: Troubleshoot IPv4 and IPv6 ACL Issues
- Discovery Lab 27: Configure and Verify uRPF
- Discovery Lab 28: Troubleshoot Network Management Protocol Issues: Lab 1
- Discovery Lab 29: Troubleshoot Network Management Protocol Issues: Lab 2

INFO

Esame: 300-410 - Implementing Cisco Enterprise Advanced Routing and Services

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)