
Implementing Cisco IP Routing

Duration: 5 Days **Course Code: ROUTE**

Overview:

This 5 day course is designed to provide professionals working with medium to large networks with the skills and knowledge required to incorporate advanced routing concepts when implementing scalability for Cisco routers that are connected to LANs and WANs. Delegates will be able to dramatically increase the number of routers and sites using these techniques instead of redesigning the network when additional sites or wiring configurations are added. Labs are an important feature of this course with 2 different types of labs being used to aid learning, discovery labs are instructor guided labs through which students explore new topics in an interactive way, the challenge Labs are designed to test students understanding of the topics being taught and to provide vital hands-on practice

Target Audience:

This course is designed for: Network professionals who want to correctly implement routing based solutions within a given network design, using Cisco IOS services and features, where implementation includes planning, configuring and verification.

Objectives:

- Upon completing this course, the learner will be able to meet these overall objectives:
 - Describe routing protocols, different remote connectivity options. and their impact on routing and implement RIPng
 - Configure EIGRP in IPv4 and IPv6 environment
 - Configure OSPF in IPv4 and IPv6 environment
 - Implement route redistribution using filtering mechanisms
 - Implement path control using policy based routing and IP SLA
 - Implement enterprise Internet connectivity
 - Secure Cisco routers according to best practices and configure authentication for routing protocols
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Prerequisites:

To gain the prerequisite skills and knowledge, Cisco strongly recommends the knowledge of the following courses:

- ICND1 - Interconnecting Cisco Network Devices Part 1
 - ICND2 - Interconnecting Cisco Network Devices Part 2
- Or
- CCNABC - Cisco CCNA Certification Fast Track Programme
- Practical experience in installing, operating and maintaining Cisco routers & switches in an enterprise environment is recommended.
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Testing and Certification

Recommended preparation for:

- 300-101 ROUTE - Implementing Cisco IP Routing
- This exam is required for those delegates wishing to achieve either the Cisco Certified Network Professional for Routing and Switching or the Cisco Certified Design Professional Certifications
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Follow-on-Courses:

The following courses are recommended for further study:

- SWITCH - Implementing Cisco Switched Networks
 - TSHOOT - Troubleshooting and Maintaining Cisco IP Networks
 - ARCH - Designing Cisco Network Architectures
 - QOS - Implementing Cisco Quality of Service
 - BGP - Configuring BGP on Cisco Routers
 - MPLS - Implementing Cisco MPLS
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Content:

Basic Network and Routing Concepts

- Differentiating Routing Protocols
- Understanding Network Technologies
- Connecting Remote Locations with the Headquarters
- Implementing RIPng

EIGRP Implementation

- Establishing EIGRP Neighbor Relationships
- Building the EIGRP Topology Table
- Optimizing EIGRP Behavior
- Configuring EIGRP for IPv6
- Discovering Named EIGRP Configuration

OSPF Implementation

- Establishing OSPF Neighbor Relationship
- Building the Link State Database
- Optimizing OSPF Behavior
- Configuring OSPFv3

Configuration of Redistribution

- Implementing Basic Routing Protocol Redistribution
- Manipulating Redistribution Using Route Filtering

Path Control Implementation

- Using Cisco Express Forwarding Switching
- Implementing Path Control

Enterprise Internet Connectivity

- Planning Enterprise Internet Connectivity
- Establishing Single-Homed IPv4 Internet Connectivity
- Establishing Single-Homed IPv6 Internet Connectivity
- Improving Resilience of Internet Connectivity
- Considering Advantages of Using BGP
- Implementing Basic BGP Operations
- Using BGP Attributes and Path Selection Process
- Controlling BGP Routing Updates
- Implementing BGP for IPv6 Internet Connectivity

Routers and Routing Protocol Hardening

- Securing Cisco Routers
- Describing Routing Protocol Authentication Options
- Configuring EIGRP Authentication
- Configuring OSPF Authentication
- Configuring BGP Authentication

Further Information:

For More information, or to book your course, please call us on +254 713 027 191

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Computer Learning Centre 2nd Floor Museum Hill Centre, Muthithi Road, Westlands, Nairobi, Kenya

Implementing Cisco Switched Networks

Duration: 5 Days **Course Code: SWITCH**

Overview:

This is a five-day course designed to help students prepare to plan, configure, and verify the implementation of complex enterprise switching solutions for campus environments using the Cisco Enterprise Campus Architecture. Labs are an important feature of this course with 2 different types of labs being used to aid learning, discovery labs are instructor guided labs through which students explore new topics in an interactive way, the challenge Labs are designed to test students understanding of the topics being taught and to provide vital hands-on practice.

Target Audience:

This course is designed for: Network Professionals who need to implement and support switch based solutions within a given network design using Cisco IOS services and features.

Objectives:

- Upon completing this course, the learner will be able to meet these overall objectives:
 - Describe the hierarchical campus structure, basic switch operation, use of SDM templates, PoE, and LLDP
 - Implement VLANs, trunks, explain VTP, implement DHCP in IPv4 and IPv6 environment, and configure port aggregation
 - Implement and optimize STP mechanism that best suits your network - PVSTP+, RPVSTP+, or MST
 - Configure routing on a multilayer switch
 - Configure NTP, SNMP, IP SLA, port mirroring, and verify StackWise and VSS operation
 - Implement First Hop redundancy in IPv4 and IPv6 environments
 - Secure campus network according to recommended practices
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Prerequisites:

To gain the prerequisite skills and knowledge, Cisco strongly recommends the knowledge of the following courses:

- ICND1 - Interconnecting Cisco Network Devices Part 1
 - ICND2 - Interconnecting Cisco Network Devices Part 2
- Or
- CCNABC - Cisco CCNA Certification Fast Track Programme
Practical experience in installing, operating and maintaining Cisco routers & switches in an enterprise environment is recommended.
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Testing and Certification

Recommended preparation for:

- **300-115 SWITCH** - Implementing Cisco Switched Networks
This exam is required for those delegates wishing to achieve either the Cisco Certified Network Professional for Routing and Switching or the Cisco Certified Design Professional Certifications
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Follow-on-Courses:

The following courses are recommended for further study:

- ROUTE - Implementing Cisco IP Routing
 - TSHOOT - Troubleshooting and Maintaining Cisco IP Networks
 - ARCH - Designing Cisco Network Architectures
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Content:

Basic Concepts and Network Design

- Analyzing Campus Network Structure
- Comparing Layer 2 and Multilayer Switches
- Using Cisco SDM Templates
- Implementing LLDP
- Implementing PoE

Campus Network Architecture

- Implementing VLANs and Trunks
- Introducing VTP
- Implementing DHCP
- Implementing DHCP for IPv6
- Configuring Layer 2 Port Aggregation

Spanning Tree Implementation

- Implementing RSTP
- Implementing STP Stability Mechanisms
- Implementing Multiple Spanning Tree Protocol

Configuring Inter-VLAN Routing

- Implementing Inter-VLAN Routing Using a Router
- Configuring a Switch to Route

Implementing High Availability Networks

- Configuring Network Time Protocol
- Implementing SNMP Version 3
- Implementing IP SLA
- Implementing Port Mirroring for Monitoring Support
- Verifying Switch Virtualization

First Hop Redundancy Implementation

- Configuring Layer 3 Redundancy with HSRP
- Configuring Layer 3 Redundancy with VRRP
- Configuring Layer 3 Redundancy with GLBP
- Configuring First Hop Redundancy for IPv6

Campus Network Security

- Implementing Port Security
- Implementing Storm Control
- Implementing Access to External Authentication
- Mitigating Spoofing Attacks
- Securing VLAN Trunks
- Configuring Private VLANs

Further Information:

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Designing Cisco Network Service Architectures

Duration: 5 Days Course Code: ARCH

Overview:

The Designing Cisco Network Service Architectures (ARCH) course enables learners to perform the conceptual, intermediate, and detailed design of a network infrastructure that supports desired network solutions over intelligent network services, in order to achieve effective performance, scalability, and availability. This course enables learners, by applying solid Cisco network solution models and recommended design practices, to provide viable, stable enterprise internetworking solutions.

The course presents concepts and examples that are necessary to design converged enterprise networks. Advanced network infrastructure technologies, such as virtual private networks (VPNs) and other security solutions, are also covered.

Target Audience:

This course is designed for: Individuals seeking the Cisco CCDP certification and those working toward the Cisco CCDE certification Presales and postsales network engineers that are involved in network design, planning, and implementation Network administrators and designers that are responsible for designing and implementing the enterprise network

Objectives:

- Upon completing this course, the learner will be able to meet these overall objectives:
- Introduce the Cisco Network Architectures for the Enterprise and explain how this concept addresses enterprise network needs for performance, scalability, and availability
- Describe how the Cisco Network Architectures for the Enterprise can be used as a framework for designing enterprise networks
- Create conceptual, intermediate, and detailed enterprise campus network designs
- Create conceptual, intermediate, and detailed enterprise data center design
- Create conceptual, intermediate, and detailed enterprise edge and remote infrastructure designs
- Create conceptual, intermediate, and detailed network service designs for security considerations
- Create conceptual, intermediate, and detailed VPN designs

Prerequisites:

To gain the prerequisite skills and knowledge, Cisco strongly recommends knowledge of the following courses:

- Interconnecting Cisco Network Devices Part 1 (ICND1)
- Interconnecting Cisco Network Devices Part 2 (ICND2)
- Designing for Cisco Internetwork Solutions (DESGN)
- Implementing Cisco IP Routing (ROUTE)
- Implementing Cisco IP Switched Networks (SWITCH)

Testing and Certification

Recommended as preparation for exam(s):

- 642-874 – Designing Cisco Network Service Architectures
The ARCH course is part of the **Cisco Certified Design Professional CCDP** Certification

Content:

Cisco Network Architectures for the Enterprise

- Review of Cisco Network Architectures for the Enterprise
- Reviewing the Cisco PPDIOO Approach

Enterprise Campus Network Design

- Designing High Availability in the Enterprise Campus
- Layer 2 Design Recommendations
- Layer 3 Design Recommendations
- Designing the Layer 2-to-Layer 3 Boundary
- Describing Enterprise Network Virtualization Technologies
- Infrastructure Services Considerations

Advanced Addressing and Routing Design

- Advanced Addressing Design
- Advanced Routing Design
- Scalable EIGRP Design
- Scalable OSPF Design
- Scalable BGP Design

Advanced WAN Services Design Considerations

- Optical Technologies for WANs
- Using Metro Ethernet, VPLS, and MPLS VPN Technologies
- Advanced WAN Service Implementations

Enterprise Data Center Design

- Core and Aggregation Layer Design
- Access Layer Design
- Scaling the Data Center Architecture
- Spanning-Tree Sizing and High Availability

E-Commerce Module Design

- Common Component Designs for the E-Commerce Module
- Integrated E-Commerce Designs

SAN Design Considerations

- Identifying SAN Components and Technologies
- SAN and SAN Extension Design
- Integrated Fabric Designs Using Cisco Nexus Technology

Security Services Design

- Firewall Design Considerations
- Network Admission Control Design
- Intrusion Detection and Prevention Designs

IPsec and SSL VPN Design

- Remote Access VPN Design
- Site-to-Site VPN Design
- IPsec VPN Technologies
- VPN Management and Scaling

IP Multicast Design

- IP Multicast Overview
- PIM and RP Considerations
- IP Multicast Security

Network Management Capabilities with Cisco IOS Software

- Embedded Management Capabilities
- NetFlow Considerations
- NBAR Considerations
- IP SLA Considerations

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