
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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Troubleshooting and Maintaining Cisco IP Networks

Duration: 5 Days **Course Code: TSHOOT**

Overview:

This five day course is designed to provide professionals who work in complex network environments with the skills that they need to maintain their networks and to diagnose and resolve network problems quickly and effectively. The course will provide information about troubleshooting and maintaining particular technologies, as well as procedural and organizational aspects of the troubleshooting and maintenance process. A large part of the training will consist of practicing these skills and reinforcing the concepts by putting them to use in a controlled environment. At the end of the course, delegates will have increased their skill level and developed a set of best practices based on their own experiences and those of other delegates that they can then take back into their own organizations.

Target Audience:

This course is designed for: Network professionals who want to increase their skills at maintaining and troubleshooting complex Cisco IP networks. This course is required for those looking to achieve the Cisco CCNP® Certification

Objectives:

- Upon completing this course, the learner will be able to meet these overall objectives:
 - Describe the troubleshooting tools and methodologies that are used to identify and resolve issues in complex enterprise networks
 - Practice maintenance procedures and fault resolution in switching-based environments
 - Practice maintenance procedures and fault resolution in routing-based environments
 - Practice maintenance procedures and fault resolution in a secure infrastructure
 - Troubleshoot and maintain integrated, complex enterprise networks
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Prerequisites:

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

- Valid CCNA (ICND1, ICND2 Or CCNABC)
 - ROUTE - Implementing Cisco IP Routing
 - SWITCH - Implementing Cisco Switched Networks
- Practical experience in installing, operating and maintaining Cisco routers & switches in an enterprise environment is recommended.

Testing and Certification

Recommended preparation for:

- 300-135 TSHOOT - Troubleshooting and Maintaining Cisco IP Networks
- This exam is required for those delegates wishing to achieve the Cisco Certified Network Professional for Routing and Switching Certification
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Content:

Tools and Methodologies of Troubleshooting

- Describing Troubleshooting Methodologies
- Using Troubleshooting Procedures
- Following Recommended Practices During Routine Network Maintenance
- Using Basic IOS Troubleshooting Tools
- Using Specialized Troubleshooting Tools

Troubleshooting at SECHNIK Networking Ltd.

- Challenge Lab 1: First Troubleshooting at SECHNIK Networking Ltd
- Debrief of the First Troubleshooting at SECHNIK Networking Ltd
- Challenge Lab 2: Second Troubleshooting at SECHNIK Networking Ltd
- Debrief of the Second Troubleshooting at SECHNIK Networking Ltd
- Challenge Lab 3: Third Troubleshooting at SECHNIK Networking Ltd
- Debrief of the Third Troubleshooting at SECHNIK Networking Ltd

Troubleshooting at TINC Garbage Disposal Ltd

- Challenge Lab 4: First Troubleshooting at TINC Garbage Disposal Ltd
- Debrief of the First Troubleshooting at TINC Garbage Disposal Ltd
- Challenge Lab 5: Second Troubleshooting TINC Garbage Disposal Ltd
- Debrief of the Second Troubleshooting at TINC Garbage Disposal Ltd
- Challenge Lab 6: Third Troubleshooting at TINC Garbage Disposal Ltd
- Debrief of the Third Troubleshooting at TINC Garbage Disposal Ltd
- Challenge Lab 7: Fourth Troubleshooting at TINC Garbage Disposal Ltd
- Debrief of the Fourth Troubleshooting at TINC Garbage Disposal Ltd

Troubleshooting at PILE Forensic Accounting Ltd

- Challenge Lab 8: First Troubleshooting at PILE Forensic Accounting Ltd
- Debrief of the First Troubleshooting at PILE Forensic Accounting Ltd
- Challenge Lab 9: Second Troubleshooting at PILE Forensic Accounting Ltd
- Debrief of the Second Troubleshooting at PILE Forensic Accounting Ltd
- Challenge Lab 10: Third Troubleshooting at PILE Forensic Accounting Ltd
- Debrief of the Third Troubleshooting at PILE Forensic Accounting Ltd
- Challenge Lab 11: Fourth Troubleshooting at PILE Forensic Accounting Ltd
- Debrief of the Fourth Troubleshooting at PILE Forensic Accounting Ltd
- Challenge Lab 12: Fifth Troubleshooting at PILE Forensic Accounting Ltd
- Debrief of the Fifth Troubleshooting at PILE Forensic Accounting Ltd

Troubleshooting at Bank of POLONA Ltd

- Challenge Lab 13: First Troubleshooting at Bank of POLONA Ltd
- Debrief of the First Troubleshooting at Bank of POLONA Ltd
- Challenge Lab 14: Second Troubleshooting at Bank of POLONA Ltd
- Debrief of the Second Troubleshooting at Bank of POLONA Ltd
- Challenge Lab 15: Third Troubleshooting at Bank of POLONA Ltd
- Debrief of the Third Troubleshooting at Bank of POLONA Ltd
- Challenge Lab 16: Fourth Troubleshooting Bank of POLONA Ltd
- Debrief of the Fourth Troubleshooting at Bank of POLONA Ltd

Troubleshooting at RADULKO Transport Ltd

- Challenge Lab 17: First Troubleshooting at RADULKO Transport Ltd
- Debrief of the First Troubleshooting at RADULKO Transport Ltd
- Challenge Lab 18: Second Troubleshooting at RADULKO Transport Ltd
- Debrief of the Second Troubleshooting at RADULKO Transport Ltd
- Challenge Lab 19: Third Troubleshooting at RADULKO Transport Ltd
- Debrief of the Third Troubleshooting at RADULKO Transport Ltd
- Challenge Lab 20: Fourth Troubleshooting RADULKO Transport Ltd
- Debrief of the Fourth Troubleshooting at RADULKO Transport Ltd

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