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Equipment delegate's use within the CCNP programme

CCNP v6 Routing and Switching Courses

ROUTE – Implementing Cisco IP Routing in which network professionals learn to plan, configure, and verify the implementation of complex enterprise LAN and WAN routing solutions, using a range of routing protocols. ROUTE also covers configuration of secure routing solutions to support branch offices and mobile workers.

SWITCH – Implementing Cisco IP Switched Networks in which network professionals will learn to plan, configure and verify the implementation of complex enterprise switching solutions, using Cisco Enterprise Campus Architecture. SWITCH also covers secure integration of VLANs, WLANs, voice, and video into campus networks.

TSHOOT – Troubleshooting and Maintaining Cisco IP Networks in which network professionals learn to plan and perform regular maintenance on complex enterprise routed and switched networks and also to use technology-based practices and a systematic ITIL-compliant approach to perform network troubleshooting. Extensive labs provide hands-on learning and reinforce troubleshooting skills.

Implementing Cisco IP Switched Networks (SWITCH)



Experts in Networking

0370 350 4000
 www.ncat.co.uk
 info@ncat.co.uk

This course is a component of the Cisco CCNP Routing and Switching curriculum designed to help delegates to configure, and verify the implementation of complex enterprise switching solutions for campus environments using the Cisco Enterprise Campus Architecture.

This course is for network professionals who will need to correctly implement switch-based solutions given a network design using Cisco IOS services and features. Course content provides a firm understanding of how to manage switches in an enterprise campus environment. Training reinforces instruction by providing delegates with hands-on labs using live equipment.

Pre-requisites
<ul style="list-style-type: none"> • ICND1 • ICND2

Course	Course Objectives
<p>Implementing Cisco IP Switched Networks (SWITCH)</p> <p>This course forms part of the following Cisco certifications:</p> <p>CCNP (<i>Cisco Certified Network Professional</i>)</p> <p>CCDP (<i>Cisco Certified Design Professional</i>)</p> <p><u>Certification</u> Required topics are covered for the Cisco exam: 642-813 SWITCH</p> <p><u>Duration</u> 4 days</p>	<p>Upon completion of this course, the delegate will be able to:</p> <ul style="list-style-type: none"> • Analyze campus network designs • Implement VLANs in a network campus • Implement spanning tree • Implement inter-VLAN routing in a campus network • Implement a highly available network • Implement high-availability technologies and techniques using multilayer switches in a campus environment • Implement security features in a switched network • Integrate WLANs into a campus network • Accommodate voice and video in campus networks

Course Content

Analyzing Campus Network Designs

- Enterprise Campus Architecture
- Cisco Lifecycle Services and Network Implementation

Implementing VLANs in Campus Networks

- Applying Best Practices for VLAN Topologies
- Configuring Private VLANs (PVLANS)
- Configuring Link Aggregation with EtherChannel

Implementing Spanning Tree

- Spanning Tree Protocol (STP) Enhancements
- STP Stability Mechanisms

Implementing Inter-VLAN Routing

- Routing Between VLANs
- Deploying Multilayer Switching with Cisco Express Forwarding

Implementing a Highly Available Network

- High Availability
- Implementing High Availability
- Implementing Network Monitoring

Implementing Layer 3 High Availability

- Configuring Layer 3 Redundancy with HSRP
- Configuring Layer 3 Redundancy with VRRP and GLBP

Minimizing Service Loss and Data Theft in a Campus Network

- Switch Security Issues
- Protecting Against VLAN Attacks
- Protecting Against Spoofing Attacks
- Securing Network Services

Accommodating Voice and Video in Campus Networks

- Planning for Support of Voice in a Campus Network
- Integrating and Verifying VoIP in a Campus Infrastructure
- Working with Specialists to Accommodate Voice and Video on Campus Switches

Integrating Wireless LANs into a Campus Network

- Comparing WLANs with Campus Networks
- Assessing the Impact of WLANs on Campus Networks
- Preparing the Campus Infrastructure for WLANs

Implementing Cisco IP Routing (ROUTE)



Experts in Networking

0370 350 4000
www.ncat.co.uk
info@ncat.co.uk

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

This course is a component of the Cisco CCNP Routing and Switching curriculum designed to help delegates with information on the use of advanced routing in implementing scalability for Cisco routers that are connected to LANs and WANs.

Pre-requisites

- ICND1
- ICND2

Course	Course Objectives
<p>Implementing Cisco IP Routing (ROUTE)</p> <p>This course forms part of the following Cisco certifications:</p> <p>CCNP (<i>Cisco Certified Network Professional</i>)</p> <p>CCDP (<i>Cisco Certified Design Professional</i>)</p> <p>CCIP (<i>Cisco Certified Internetworking Professional</i>)</p> <p><u>Certification</u> Required topics are covered for the Cisco exam:</p> <p>642-902 ROUTE</p> <p><u>Duration</u> 4 days</p>	<p>Upon completion of this course, the delegate will be able to:</p> <ul style="list-style-type: none"> • Plan and document the configuration and verification of routing protocols and its optimization in enterprise networks • Identify the technologies, components, and metrics of EIGRP to implement and verify EIGRP routing in diverse, large-scale internetworks based on requirements • Identify, analyze, and match OSPF multiarea routing functions and benefits for routing efficiencies in network operations in order to implement and verify OSPF routing in a complex enterprise network • Implement and verify a redistribution solution in a multi-protocol network that uses IOS features to control path selection and loop free topology according to a given network design and requirements • Evaluate common network performance issues and identify the tools needed to provide a layer 3 path control that uses IOS features to control the path • Implement and verify a layer 3 solution using BGP to connect an enterprise network to a service provider

Course Content

Planning Routing Services to Requirements

- Assessing Complex Enterprise Network Requirements
- Common Maintenance Processes and Procedures

Implementing an EIGRP-Based Solution

- Planning Routing Implementations with EIGRP
- Implementing and Verifying Basic EIGRP for the Enterprise LAN Architecture
- Configuring and Verifying EIGRP for the Enterprise WAN Architecture
- Implementing and Verifying EIGRP Authentication
- Advanced EIGRP Features in an Enterprise Network

Implementing a Scalable Multiarea Network OSPF-Based Solution

- Planning Routing Implementations with OSPF as Scalable Routing Protocol
- How OSPF Packet Processes Work
- Improving Routing Performance in a Complex Enterprise Network
- Configuring and Verifying OSPF Routing
- Configuring and Verifying OSPF Route Summarization
- Configuring and Verifying OSPF Special Area Types
- OSPF area types
- Configuring and Verifying OSPF Authentication

Implement an IPv4-Based Redistribution Solution

- Assessing Network Routing Performance and Security Issues
- Operating a Network Using Multiple IP Routing Protocols
- Configuring and Verifying Route Redistribution

Implementing Path Control

- Assessing Path Control Network Performance Issues
- Lab 5-1 Debrief
- References to additional Path Control in E-Learning

Connection of an Enterprise Network to an ISP Network

- Planning the Enterprise-to-ISP Connection
- Considering the Advantages of Using BGP
- Comparing the Functions and Uses of EBGP and IBGP
- Configuring and Verifying Basic BGP Operations
- Using the BGP Attributes and Path Selection Process

Troubleshooting and Maintaining Cisco IP Networks (TSHOOT)



Experts in Networking

0370 350 4000
 www.ncat.co.uk
 info@ncat.co.uk

The TSHOOT course is designed to teach professionals that work in complex network environments the necessary skills to maintain their networks and to diagnose and resolve network problems quickly and effectively.

This course is designed to hone the skills and knowledge of network professionals in maintaining their network and to diagnose and resolve network problems quickly and effectively

In addition to the formal pre-requisites it is recommended that delegates also have practical experience in installing, operating and maintaining Cisco routers and switches in an enterprise environment.

Pre-requisites
<ul style="list-style-type: none"> • ICND1 • ICND2 • SWITCH • ROUTE

Course	Course Objectives
<p>Troubleshooting and Maintaining Cisco IP Networks (TSHOOT)</p> <p>This course forms part of the following Cisco certifications</p> <p>CCNP (<i>Cisco Certified Network Professional</i>)</p> <p><u>Certification</u> Required topics are covered for the Cisco exam:</p> <p>642-832 TSHOOT</p> <p><u>Duration</u> 4 days</p>	<p>Upon completion of this course, the delegate will be able to:</p> <ul style="list-style-type: none"> • Plan and document the most commonly performed maintenance functions in complex enterprise networks • Develop a troubleshooting process to identify and resolve problems in complex enterprise networks • Select tools that best support specific troubleshooting and maintenance processes in large, 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 • Practice maintenance procedures and fault resolution problems in a complex environment

Course Content

Planning Maintenance for Complex Networks

- Applying Maintenance Methodologies
- Common Maintenance Processes and Procedures
- Network Maintenance Tools, Applications, and Resources

Planning Troubleshooting Processes for Complex Enterprise Networks

- Applying Troubleshooting Methodologies
- Planning and Implementing Troubleshooting Procedures
- Integrating Troubleshooting into the Network Maintenance Process

Maintenance and Troubleshooting Tools and Applications

- Assembling a Basic Diagnostic Toolkit Using Cisco IOS Software
- Using Specialized Maintenance and Troubleshooting Tools

Maintaining and Troubleshooting Campus Switching-Based Solutions

- Troubleshooting VLANs
- Troubleshooting Spanning Tree
- Troubleshooting Switched Virtual Interfaces and Inter VLAN Routing
- Troubleshooting FHRPs
- Troubleshooting Performance Problems on Switches

Maintaining and Troubleshooting Routing-Based Solutions

- Troubleshooting Network Layer Connectivity
- Troubleshooting EIGRP
- Troubleshooting OSPF
- Troubleshooting Route Redistribution
- Troubleshooting BGP
- Troubleshooting Performance Problems on Routers

Maintaining and Troubleshooting Network Security Solutions

- Troubleshooting Security Features
- Impact of security features on network troubleshooting
- Security Features Review
- Diagnose and resolve transport layer problems in a structured manner
- Verify the operation of Cisco IOS Firewall stateful packet inspection
- Diagnose and resolve problems related to using AAA on routers and switches
- References to Additional Security Troubleshooting in E-Learning
- Troubleshooting Network Applications Services e-learning module
- Troubleshooting Branch Office and Remote Worker Problems e-learning module

Maintaining and Troubleshooting Integrated, Complex Enterprise Networks

- Troubleshooting Complex Environments