



Cisco Certified Network Professional (CCNP)

CCNP Benefits

Cisco Systems is the established leader in networking and data communication technologies. Holding a Cisco certification confirms the certification holder's professional credentials by ensuring high standards of technical expertise. In particular, the CCNP certification indicates knowledge of networking for organizations whose networks have from 100 to more than 500 nodes.

In our training center, each student with a peer has access to their own Cisco router for intensive, hands-on labs. There are four examinations required to achieve the CCNP™ certification.

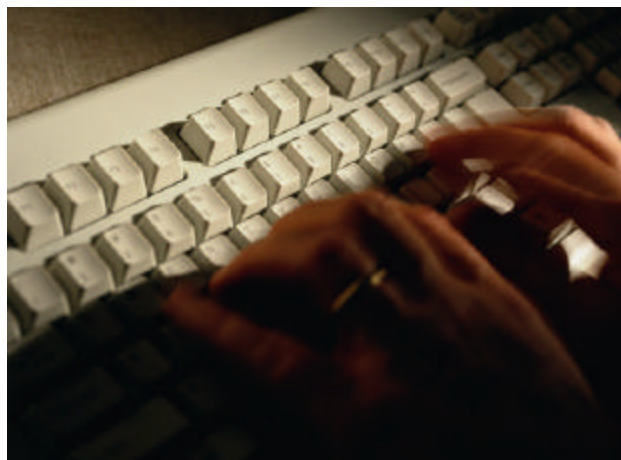
After attending CCNP training at NTG Clarity, a network professional can:

- ? Build a scalable routed network
- ? Build campus networks using multi layer switching technologies
- ? Improve traffic flow, reliability, redundancy, and performance for campus LANs, routed and switched WANs, and remote access networks
- ? Create and deploy a global intranet
- ? Troubleshoot an environment that uses Cisco routers and switches for multi protocol client hosts and services like TCP/IP, IPX, DECnet and AppleTalk

Who should Attend

The target audience for this course is:

- Network administrators and technicians who are responsible for implementing and troubleshooting complex routed network environments.
- CCNP and CCDP candidates
- CCIE Routing and Switching candidates
- CCIE Dial ISP and routing/switching candidates



Cisco Certified Network Professional (CCNP)

BCSN (Building Scalable Cisco Networks)

Prerequisites

- Commonly used networking terms, numbering schemes, and topologies
- The Open System Interconnection (OSI) reference model
- Operation and configuration of a Cisco router
- TCP/IP stack and configuration of IP addresses
- Distance vector routing protocol (Routing Information Protocol [RIP], Interior Gateway Routing Protocol [IGRP]) operation and configuration
- Static and default route usage, implementation, and configuration
- The contents and interpretation of a Cisco routing table
- Traffic filtering with standard and extended access lists
- Verifying router configuration using **show** and **debug** command output
- WAN serial interface configuration using HDLC
- WAN serial interface configuration using Frame Relay permanent virtual circuits (PVCs)

Course Objectives

After completing this course, students will be able to:

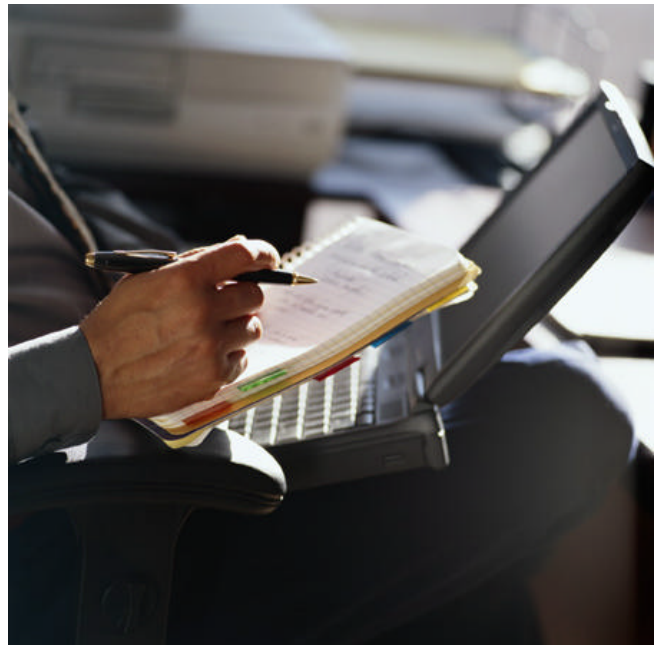
- Extend IP addresses, using VLSM and route summarization.
- Configure OSPF, EIGRP, and BGP.
- Control network activity using access list-based features.
- Redistribute routes between different routing protocols such as RIP, IGRP, EIGRP, and OSPF
- Configure Cisco routers with Ethernet LAN and serial WAN interfaces

The following is a brief outline of the BCSN 1.1 course modules that contain material to achieve this course goal:

- Scalable Internetworks
- Scalable Routing Protocols
- Controlling Scalable Internetworks

Course Content

Introduction to Routing
IP Addresses
Configuring OSPF in one Single Area
Configuring OSPF in multiple Areas
Configuring Enhanced EIGRP Protocol
Introduction to Configuring Border Gateway Protocol
Implementing and Design of BGP
Optimizing Routing Update tasks





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BCMSN (Building Cisco Multilayer Switched Networks)

Prerequisite

To fully benefit from BCMSN students must have the following prerequisite skills and knowledge:

- Basic router configuration
- Basic switch configuration
- Basic VLAN configuration
- Spanning Tree Protocol configuration
- Inter-Switch Link configuration
- Standard access list configuration

Course Content

Introduction to Switching
Basics Cisco Switches Commands
Setting up Vlans in a Single Switch
Setting up Vlans in Multiple Switches
Setting up Routing for Vlans
Basic setup for 5000 Switches and access lists
Understanding Multicast, broadcast and Unicast
Understanding Different layer Switching (Layer 2, 4 and 4)
OSI Model Basics
Configuring HSRP



Course Objectives

After completing this course, the student should be able to:

Upon completion of this course, the student will be able to meet the following overall objectives:

- Given a campus design that includes multilayer switching over Fast Ethernet, deploy the required Cisco products and services that enable connectivity and traffic transport.
- Implement the necessary services at each layer of the network to all users to obtain membership in multicast groups in a working multilayer switched network.
- Given a working multilayer switched network, control network traffic by implementing the necessary admission policy at each layer of the network topology.

When presented with an incorrectly working multilayer switched network, restore proper network operations through the use of Cisco devices and external management tools.

Course Outline

The following topics are covered in the BCMSN course:

- Overview of a Campus Network
- Building a Campus Network
- Defining Common Workgroups
- Managing Redundant Links
- InterVLAN Routing
- Managing Network Traffic
- Configuring HSRP for a Fault-Tolerant Routing
- Multicast Overview
- Configuring IP Multicast
- Controlling Access to the Campus Network



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BCRAN (Building Cisco Remote Access Networks)

Prerequisite

The BCRAN course focuses on introducing techniques and technology for enabling WAN solutions. To fully benefit from BCRAN, the student must be familiar with general networking terms and concepts and have experience completing the following tasks on Cisco routers:

- General Cisco router operation and configuration
- TCP/IP operation and configuration
- Routing Protocols (RIP, IGRP)
- Routed Protocols (IP, IPX)
- Standard and extended access lists
- PPP operation and PPP configuration over serial links
- Frame Relay operation and configuration on interfaces and subinterfaces
- Legacy DDR over ISDN-BRI operation and configuration

Course Content

Troubleshooting Remote sites
Connecting Single and Multiple Branch Offices
Connecting Home offices through Dialup
Wide Area Network Protocol Dialup and remote access

Course Objectives

Upon completion of this course, the student will be able to perform the following overall tasks:

- Identify the appropriate Cisco products for a given set of WAN technology requirements, including permanent or dialup access between a central site, branch offices, and telecommuters.
- When given a set of WAN topologies and specifications assemble and configure Cisco equipment to establish appropriate WAN connections.
- Enable protocols and technologies that allow traffic flow between multiple sites, while minimizing the amount of overhead traffic on each connection.
- Implement quality of service capabilities to ensure that mission critical applications receive the required bandwidth within a given WAN topology.
- Within a given WAN topology, implement applicable access control measures to allow desired access into the network.
- When given a WAN topology, ensure proper connectivity using Cisco product features to troubleshoot device protocols and technologies.



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BCRAN (Building Cisco Remote Access Networks) Cont'd

Course Outline

Building Remote Access Networks Introduction

Identifying Cisco Solutions to Remote Access Needs

- This module highlights various physical WAN connections for remote to central site connections.
 - Selecting Cisco Products for Remote Connections
 - Assembling and Cabling the WAN Components

Enabling On-Demand Connections to the Central Site

- This module instructs the students how to establish remote connections via asynchronous links to a centralized router using basic telephone service.
 - Configuring Asynchronous Connections with Modems
 - Accessing the Central Site in the Windows environment
 - Configuring PPP and Controlling Network Access with PAP and CHAP

Enhancing On-Demand Connectivity

- This module teaches students how to enhance remote connections using ISDN and DDR.
 - Using ISDN and DDR Technologies to Enhance Remote Connectivity
 - Optimizing Use of DDR Interfaces
 - Configuring a Cisco 700 Series Router

Enabling Permanent Connections to the Central Site

- This module provides instruction on dedicated WAN connectivity options.
 - Using X.25 for Remote Access
 - Establishing a Dedicated Frame Relay Connection and Controlling Traffic Flow
 - Enabling a Backup to the Permanent Connection
 - Managing Network Performance with Queuing and Compression

Scaling and Troubleshooting Remote Access Networks

- This module instructs students about controlling corporate network access with AAA, managing network costs with AAA, and managing IP addresses with NAT and PAT.
 - Scaling IP Addresses with NAT and PAT
 - Using AAA to Scale Access Control in an Expanding Network
 - Troubleshooting the Remote Access Network

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CIT (Cisco Internetwork Troubleshooting)

Prerequisite

CIT requires that you already know how to work with Cisco IOS and Catalyst software. These skills can be gained from self-paced or instructor-led training sessions and from work experience. The participant should have a working knowledge of:

- Scaleable networks
- Remote access networks
- Multilayer switched networks

These skills can be gained by taking the BSCN, BCRAN, and BCMSN Cisco Certified Training courses.

Course Content

Troubleshooting Cisco Routers
Frame Relay, ISDN, Serials
IOS Software tools and Diagnose tools
Installing, upgrading Routers and Switches
Troubleshooting Routing, Switches...etc



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CIT (Cisco Internetwork Troubleshooting) Cont'd

Course Objectives

The course provides these students with methodical practice using specific Cisco IOS software and Catalyst software tools to diagnose and correct problems on widely installed Cisco products.

After completing this course, students will be able to:

- Use an efficient problem-solving method when troubleshooting and documenting internetwork problems
- Identify and apply generic and Cisco-specific troubleshooting tools on Cisco routers and switches
- Analyze and troubleshoot problems in the following environments:
 - Campus TCP/IP
 - Novell IPX
 - Catalyst switches
 - VLANs on routers and switches
 - Frame Relay
 - ISDN BRI

The following is a brief outline of the CIT 4.1 course modules that contain material to achieve this course goal:

- 1. Troubleshooting Processes
- 2. Routing and Routed Protocol Troubleshooting
- 3. Campus Switch and VLAN Troubleshooting
- 4. WAN Troubleshooting

Course Outline

Support Resources for Troubleshooting
Using Troubleshooting Methods
Identifying Troubleshooting Targets
Applying Cisco Troubleshooting Tools
Diagnosing and Correcting Campus TCP/IP Problems
Diagnosing and Correcting Novell Networking Problems
Diagnosing and Correcting Catalyst Problems
Troubleshooting VLANs on Routers and Switches
Diagnosing and Correcting Frame Relay Problems
Diagnosing and Correcting ISDN BRI Problems

