

BGP

Configuring BGP on Cisco Routers

40 horas

Service Provider

Cisco

Cisco Continuing Education Credits

40 CE Credits

INTRODUÇÃO

This course provides students with in-depth knowledge of BGP, the routing protocol that is one of the underlying foundations of the Internet and new-world technologies such as Multiprotocol Label Switching (MPLS). This curriculum covers the theory of BGP, configuration of BGP on Cisco IOS routers, detailed troubleshooting information and hands-on exercises that provide students with the skills needed to configure and troubleshoot BGP networks in customer environments. Different service solutions in the curriculum cover BGP network design issues and usage rules for various BGP features preparing students to design and implement efficient, optimal and trouble free BGP networks.

OBJETIVO DO CURSO

Upon completion of the course, students should be able to:

Configure, monitor, and troubleshoot basic BGP to enable inter-domain routing in a network scenario with multiple domains

Use BGP policy controls to influence the route selection process with minimal impact on BGP route processing in a network scenario where you must support connections to multiple ISPs

Use BGP attributes to influence the route selection process in a network scenario where you must support multiple connections

Implement the correct BGP configuration to successfully connect the customer network to the Internet in a network scenario where you must support multiple connections

Enable the provider network to behave as a transit autonomous system in a typical service provider network with multiple BGP connections to other autonomous systems

Identify common BGP scaling issues and enable route reflection and confederations as possible solutions to these issues in a typical service provider network with multiple BGP connections to other autonomous systems

PÚBLICO-ALVO

Channel Partners

Customers

Employees

PRÉ-REQUISITOS

Completion of Interconnecting Cisco Networking Devices (ICND1) or Cisco Certified Networking Associate (CCNA) Completion of Building Scalable Cisco Internetworks (BSCI) or equivalent

Module 1: BGP Overview

- Lesson 1-1: Introducing BGP
- Lesson 1-2: Understanding BGP Path Attributes
- Lesson 1-3: Establishing BGP Sessions
- Lesson 1-4: Processing BGP Routes
- Lesson 1-5: Configuring Basic BGP
- Lesson 1-6: Monitoring and Troubleshooting BGP
- Lesson 1-7: Module Summary
- Lesson 1-8: Module Self-Check

Module 2: BGP Transit Autonomous Systems

- Lesson 2-1: Working with Transit AS
- Lesson 2-2: Interacting with IBGP and EBGP in Transit AS
- Lesson 2-3: Forwarding Packets in Transit AS
- Lesson 2-4: Monitoring and Troubleshooting IBGP in Transit AS
- Lesson 2-5: Module Summary
- Lesson 2-6: Module Self-Check

Module 3: Route Selection Using Policy Controls

- Lesson 3-1: Using Multihomed BGP Networks
- Lesson 3-2: Employing AS Path Filters
- Lesson 3-3: Filtering with Prefix Lists
- Lesson 3-4: Using Outbound Route Filtering
- Lesson 3-5: Applying Route Maps as BGP Filters
- Lesson 3-6: Implementing Changes in BGP Policy
- Lesson 3-7: Module Summary
- Lesson 3-8: Module Self-Check

Module 4: Route Selection Using Attributes

- Lesson 4-1: Influencing BGP Route Selection with Weights
- Lesson 4-2: Setting BGP Local Preference
- Lesson 4-3: Using AS Path Prepending
- Lesson 4-4: Understanding BGP Multi-Exit Discriminators
- Lesson 4-5: Addressing BGP Communities
- Lesson 4-6: Module Summary
- Lesson 4-7: Module Self-Check

Module 5: Customer-to-Provider Connectivity with BGP

- Lesson 5-1: Understanding Customer-to-Provider Connectivity Requirements
- Lesson 5-2: Implementing Customer Connectivity Using Static Routing
- Lesson 5-3: Connecting a Customer to a Single Service Provider
- Lesson 5-4: Connecting a Multihomed Customer to Multiple Service Providers
- Lesson 5-5: Module Summary
- Lesson 5-6: Module Self-Check

Module 6: Scaling Service Provider Networks

- Lesson 6-1: Scaling IGP and BGP in Service Provider Networks
- Lesson 6-2: Introducing and Designing Route Reflectors
- Lesson 6-3: Configuring and Monitoring Route Reflectors

Lesson 6-4: Module Summary

Lesson 6-5: Module Self-Check

Module 7: Optimizing BGP Scalability

Lesson 7-1: Improving BGP Convergence

Lesson 7-2: Limiting the Number of Prefixes Received from a BGP Neighbor

Lesson 7-3: Implementing BGP Peer Groups

Lesson 7-4: Using BGP Route Dampening

Lesson 7-5: Module Summary

Lesson 7-6: Module Self-Check

Lab Details

Discovery 1: Configure Basic BGP

Discovery 2: Announcing Networks in BGP

Discovery 3: Implement BGP TTL Security Check

Discovery 4: BGP Route Propagation

Discovery 5: IBGP Full Mesh

Discovery 6: BGP Administrative Distance

Discovery 7: Configure Non-Transit Autonomous System

Discovery 8: Filtering Customer Prefixes

Discovery 9: Prefix-Based Outbound Route Filtering

Discovery 10: Configure Route Maps as BGP Filters

Discovery 11: Configure Per-Neighbor Weights

Discovery 12: Configure and Monitor Local Preference

Discovery 13: Configure Local Preference Using Route Maps

Discovery 14: Configure AS Path Prepending

Discovery 15: Configure MED

Discovery 16: Configure Local Preference Using the Communities

Discovery 17: Configure Route Reflector

Discovery 18: Configure BGP Route Limiting

Discovery 19: Configure BGP Peer Groups

Discovery 20: Configure BGP Route Dampening

Challenge 1: Configure a Basic BGP Network

Challenge 2: Configure a BGP Transit AS

Challenge 3: Configure BGP Using BGP Filtering

Challenge 4: Configure BGP Route Selection Using BGP Attributes

Challenge 5: Configure BGP Route Reflectors