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

CONTEÚDO PROGRAMÁTICO

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