€TRAINING

Configuring BGP on Cisco Routers (BGP)

1 - 5 September 2024
Istanbul (Turkey)

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Introduction

This course provides participants 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 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.

Course Objectives

At the end of this course, the participants will 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

Targeted Audience

- Network administrators
- Network engineers
- Network managers
- Systems engineers who would like to implement BGP

Course Outline

Unit 1: BGP Overview

- Introducing BGP
- Understanding BGP Path Attributes
- Establishing BGP Sessions
- Processing BGP Routes
- Configuring Basic BGP
- Monitoring and Troubleshooting BGP

Unit 2: BGP Transit Autonomous Systems

- Working with Transit AS
- Interacting with IBGP and EBGP in Transit AS
- Forwarding Packets in Transit AS
- Monitoring and Troubleshooting IBGP in Transit AS

Unit 3: Route Selection Using Policy Controls

- Using Multihomed BGP Networks
- Employing AS Path Filters
- Filtering with Prefix Lists
- Using Outbound Route Filtering
- Applying Route Maps as BGP Filters
- Implementing Changes in BGP Policy

Unit 4: Route Selection Using Attributes

- Influencing BGP Route Selection with Weights
- Setting BGP Local Preference
- Using AS Path Prepending
- Understanding BGP Multi-Exit Discriminators
- Addressing BGP Communities

Unit 5: Customer-to-Provider Connectivity with BGP

- Understanding Customer-to-Provider Connectivity Requirements
- Implementing Customer Connectivity Using Static Routing
- Connecting a Customer to a Single Service Provider
- Connecting a Multihomed Customer to Multiple Service Providers

Unit 6: Scaling Service Provider Networks

- Scaling IGP and BGP in Service Provider Networks
- Introducing and Designing Route ReflectorsConfiguring and Monitoring Route Reflectors

Unit 7: Optimizing BGP Scalability

- Improving BGP Convergence
- Limiting the Number of Prefixes Received from a BGP Neighbor
- Implementing BGP Peer Groups
- Using BGP Route Dampening