Cisco CCNP Implementing Cisco IP Routing , Part 3 of 4: Paths and Filtering

Meet the expert: Carlo has worked in the computer technologies industry since the mid-90s. He is also a certified member of Microsoft, Cisco, ISACA, PMI, CompTIA,

IIC, and EC-Council. He has designed and customized courses for private and public

sectors, including college curriculums, and has worked as a lead consultant engineer

in corporate Cyber security and Information Assurance training since 2001.

As a certified Microsoft Instructor, Ken has focused his career on various security aspects of computer and network technology since the early 1980s. He has offered a wide variety of IT training and high level consulting projects for Fortune 500 companies globally. Through the course of his extensive career, he has taught a full line of Microsoft, CompTIA, Cisco, and other high level IT Security curricula.

Prerequisites: This is part 3 of the series

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Course description: Implementing Cisco IP Routing is a qualifying exam for the Cisco Certified Network Professional CCNP®. This course describes different path control methods and how they effect traffic as well as how to configure IP service level agreements. Then it covers policy-based routes as well as implementing Border Gateway solutions both internal and external. It finishes with how to troubleshoot and configure Border Gateway Protocol as well as different methods of filtering BGP routing updates.

Course outline:

Path Control
- Introduction
- Path Control Network Performance Assessment
- Considerations for Network Redundancy
- Path Control Integrated Strategy
- Prefix Lists and ACLs
- Summary

Path Control Using Offset Lists
- Introduction
- Demo: Prefix Lists
- Path Control Using Offset Lists
- Demo: Offset Lists
- Offset-List Definition
- Offset Lists Verification
- Demo: Verify Offset List
- Summary

Path Control Using IOS IP SLAs
- Introduction
- Path Control Using IOS IP SLAs
- Demo: Path Control Using IOS IP SLAs
- IP SLA Applications
- Demo: IP SLA Applications
- Operations, Responders, and Sources
- Demo: Operations, Responders, and Sources
- IP SLA Operations
- Demo: Operations
- IP SLA Operation Definition
- Demo: Steps to Configure IP SLAs
- ICMP Echo Operation Definition
- Demo: Define an SLA IP Operation
- icmp-echo Sub-Commands
- Scheduling an IP SLA Operation
- Demo: Schedule an IP SLA Operation
- IP SLA Object Tracking Configuration
- Demo: Define Tracking Objects
- Tracking Delay Configuration
- Demo: Configure Tracking Delay
- IP SLAs and Static Routing
- Demo: Configure Static Route for IP SLA Tracking
- Demo: Static Routes Continued
- Summary

Path Control Using Policy-Based Routing
- Introduction
- Path Control Using PBR
- Demo: Intro to Path Control with PBR
- PBR Configuration
- Demo: Configure PBR
- PBR route-map Commands
- Demo: Logical PBR Operation
- Match Statements
- Demo: Match Statement
- match ip-address Command
- Demo: match ip-address
- Demo: Match with ACLs or Prefix Lists
- set Statements
- Demo: Match Packet Length
- set ip next-hop Command
- Demo: Set Statements
- set interface Command
- Demo: Set Conditions
- set ip default next-hop Command
- Demo: Set Commands Using PBR
- set default interface Command
- Demo: Next-Hop IP Address
- set ip tos Command
- Demo: Set Interface
- set ip precedence Command
- Demo: Default Next-Hop IP Addresses
- Configuring PBR on an Interface
- Demo: Default Interfaces
- Demo: Set IP Precedence Bits
- Summary

Advanced Path Control Tools
- Introduction
- Cisco IOS Optimized Edge Routing
- Virtualization
- Cisco Wide Area Application Services
- Summary

BGP Terminology and Concepts
- Introduction
- EGP vs. IGP
- Demo: EGP vs. IGP Summary
- Autonomous Systems
- Demo: AS Summary
- IANA

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- Demo: IANA Summary
- AS Numbers
- Demo: AS Numbers Summary
- BGP
- Demo: BGP Summary
- IGP vs. BGP and Connecting Enterprise Networks
- Public IP Address Space and Connection Redundancy
- BGP and Enterprise Networks
- Demo: BGP Neighbors
- BGP Path Vector Characteristics
- Demo: BGP Operational Overview
- When to Use BGP
- Demo: BGP Between AS Summary
- When Not to Use BGP
- Demo: IGP and BGP Summary
- BGP Synchronization
- Demo: Connecting Enterprise Networks to an ISP
- BGP Table
- Path Attributes
- Default Local Preference Configuration
- More Path Attributes
- Summary

Configure and Verify BGP
- Introduction
- Planning BGP Deployment
- Demo: Connection and Routing Questions Summary
- BGP Implementation
- Demo: Public IP Address Space
- BGP Verification
- Demo: Using Static Routes
- Enabling BGP Routing
- Demo: Enable BGP Routing
- To Define BGP Neighbors
- Demo: Define BGP Neighbors
- To Define a BGP Peer Groups
- Demo: Define BGP Peer Group
- To Shut Down a BGP Neighbor
- Demo: Shut Down BGP Neighbor
- IBGP Source IP Address Problem
- Demo: Establish IBGP Session
- IBGP Source IP Address Solution
- Demo: IBGP Source IP Address
- neighbor next-hop-self command
- Demo: Configure Next Hop
- BGP Synchronization
- BGP Authentication
- To Hard Reset BGP Sessions and Soft Reset Outbound
- Summary

Basic BGP Using Route Maps
- Introduction
- Configuring Route Maps and Matching Access List
- Specify BGP Weight and Preference Value
- BGP Path Manipulation
- To Configure an AS ACL and Defaul Local Preference
- Summary

Filter BGP Routing
- Introduction
- BGP Routing Updates Filtering
- Planning BGP Filtering Using Prefix Lists
- Summary