



Course No: (TWI-JUNOS-BGP)
Length: 4 days

About this Course

This in-depth and up-to-date course provides students with the skills necessary to configure and deploy BGP with confidence in the Service Provider/Carrier environment. Students will initially learn the JUNOS Routing Policy Language (RPL) and then learn how to configure real-life deployment policies on the JUNOS platform.

Prerequisites

A student following the JUNOS Advanced BGP course should be familiar with operational and configuration modes in the Juniper Networks JUNOS operating system, and have basic protocol knowledge,

Course Contents

Day One

BGP Fundamentals

- BGP Operation
- BGP neighbor states
- External BGP (EBGP) and Internal BGP (IBGP)
- BGP Path selection algorithm
- Multi-vendor considerations
- Basic BGP Configuration
- Service Provider versus Enterprise BGP requirements overview
- Monitoring and Troubleshooting BGP sessions
- Hands on Lab

JUNOS Routing Policy Language

- Routing Policy applications
- The JUNOS Routing Policy framework
- Routing Policy match conditions
- Routing Policy actions
- Matching on prefixes using route filters
- Hands on Lab

BGP Configuration Options

- Multipath
- Multihop
- MBGP
- AS_Path configuration options
- Path MTU considerations and tuning neighbor parameters
- Troubleshooting policies
- Hands on Lab

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Day Two

BGP attributes for traffic engineering

- Outbound/Inbound traffic and symmetry
- BGP Path selection algorithm revisited

Multi-Exit Discriminator

- Multi Exit Discriminator (MED) application
- Modifying MED with protocol configuration
- Modifying MED in routing policies
- Hands on Lab

Origin Attribute

- Origin unveiled
- Modifying Origin with routing policies
- Hands on Lab

AS_PATH Attribute

- BGP loop detection
- AS_Path regular expressions
- Multi-vendor considerations
- Modifying the AS_PATH with routing policies options
- Hands on Lab

Local Preference Attribute

- Controlling how traffic exist the local AS
- Modifying Local Preference with protocol configuration
- Modifying the Local Preference with routing policies
- Hands on Lab



Day Three

Other BGP configuration options and attributes

- Aggregation
- BGP Communities
- Standard and Extended communities
- Tools for routing policy verification
- Hands on Lab

Scaling BGP for Service Providers

- Route Reflection
- Confederations
- BGP convergence
- Advanced Routing Policy mechanisms
- Large scale policy deployment guidelines
- Hands on Lab

BGP Security considerations

- BGP vulnerabilities
- Authentication options
- DDOS attacks
- Blackhole/Sinkhole techniques
- Flow Routes
- Hands on Lab

Day Four

- Combining all the concepts
- Hands on Labs

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