IN723 Lesson Plan

# Details

## Course: IN723 Advanced Networking

## Lesson Title: BGP Lessons 1 - 8

# Objectives

The students will understand, evaluate and implement autonomous system WAN design using the external gateway protocol BGP.

# Resources

**BGP Case Studies**

<http://www.cisco.com/c/en/us/support/docs/ip/border-gateway-protocol-bgp/26634-bgp-toc.html>

**Cisco White Papers**

<http://www.cisco.com/c/en/us/tech/ip/ip-routing/tech-white-papers-list.html>

**BGP Configuration Guide**

<http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/iproute_bgp/configuration/15-mt/irg-15-mt-book.html>

**BGP Command Reference**

<http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/iproute_bgp/command/irg-cr-book.html>

**BGP RTBH**

<http://www.cisco.com/c/dam/en/us/products/collateral/security/ios-network-foundation-protection-nfp/prod_white_paper0900aecd80313fac.pdf>

**Routing TCP/IP Vol 2 – Jeff Doyle**

<http://proquestcombo.safaribooksonline.com/book/certification/ccie/1578700892?bookview=overview>

# Readings / Video

Read ‘Routing TCP/IP Vol2’ - Chapter 2 - Introduction to BGP4

# Lesson Content / Labs

* Presentations

\IN723 Topic3 OSPF\IN723 BGP Lesson1 Intro

AS

Internet peering

BGP vs IGP

iBGP vs eBGP

Basic config

\IN723 Topic3 OSPF\IN723 BGP Lesson2

Packet types

Neighbor states

Attributes

\IN723 Topic3 OSPF\IN723 BGP Lesson3

Update source

eBGP multihop

Next-hop self

Synchronisation

Troubleshooting

Originating a route

Route maps

Redistribution

Setting attributes

\IN723 Topic3 OSPF\IN723 BGP Lesson5

iBGP vs eBGP

Route reflector

Confederation

Peer group

Neighbor shutdown

Authentication

Configuration updates

Peer reset

ORF

Dampening

\IN723 Topic3 OSPF\IN723 BGP Lesson6

Path influence

AS Path lists

Regex

Community

Prefix lists

\IN723 Topic3 OSPF\IN723 BGP Lesson7

Aggregation

Conditional advertisement

Convergence

\IN723 Topic3 OSPF\IN723 BGP Lesson10

Remotely Triggered Black Hole Filtering

Unicast Reverse Path Forwarding

* Labs

Lesson 1 eBGP, default route, clear ip bgp, distribute list

Lesson 2 eBGP, AS-PATH, remove-private -as, AS-path list (regex)

Lesson 3 eBGP, iBGP, Next-hop self, Update source, eBGP multihop

Lesson 4 eBGP, Local Pref, MED w/Route Map, Next-hop self, default originate

Lesson 5 Route reflector, Aggregate-address, Filter w/ prefix-list

Lesson 6 In Presentation exercise – Path preference

Lesson 7 Aggregate

Lesson 8 Path Preference

Lesson 9 Integrated w/ BGP, OSPF, HSRP, STP and Etherchannel

Lesson 10 Remotely Triggered Black Hole Filtering