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| BGP and Attributes |  |
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| 12/20/2023  Kevin Chuk | Cisco logo transparent png 24555159 PNGCisco Systems Logo Cisco Catalyst Computer network Common Vulnerabilities  and Exposures, System transparent background PNG clipart | HiClipart |

# Introduction:

# In this lab, we used Border Gateway Protocol also known as BGP to establish a network connection between areas in order to use BGP as a backbone area to transmit packets between different areas that use different protocols such as OSPF, EIGRP, or RIP. We also used 3 BGP attributes consisting of route aggregation, route-map, and BGP weight.

# Background Information:

# Border Gateway Protocol (BGP) is an Internet Engineering Task Force (IETF) standard which boasts immense scalability which is why it is the main routing protocol of the global internet used by Internet Service providers (ISPs) and other large corporations. The purpose of BGP is to communicate internet routing information between different autonomous systems in order to find destinations for packets sent across the internet. BGP uses path vector topology which makes routing decisions based on path, network policies, and rules rather than metrics like distance or cost which other protocols like EIGRP or OSFP use.

# There are two types of BGP, Interior BGP (IBGP) and Exterior BGP (EBGP). These types of BGP are different due to their application, IBGP is used within an autonomous system (AS) while EBGP, the one more commonly seen, is used to route between different autonomous systems which is used for routing across the internet.

# BGP is dependent on trust and manual configuration which leaves it vulnerable as it by default trusts all route announcements. This has resulted in a lack of protection against route hijacking. These concerns are currently being addressed with efforts to enhance the security of BGP via new features like Resource Public Key Infrastructure (RPKI) which allows for the verification of BGP route announcements to prove authenticity.

# Lab Summary:

# This BGP lab had us establish 3 areas all using different routing protocols (EIGRP, OSPF, and RIP) and using a backbone area (area 0) which uses BGP to route between each separate area. We also used 3 BGP attributes being route aggregation, route-map and weight.

# The route aggregation attribute is used to minimize the routing table size by using BGP Route Summarization. Route-mapping is used to set conditions for route redistribution and enable routing polices. BGP weight is used by assigning a value to prefixes to determine preferred paths.

# Using redistribute commands, we are able to share routing information between different areas and protocols. We redistribute into and out of the BGP area from our other areas such as RIP, OSPF, and EIGRP. This allows all areas to communicate with one another and allows routers within the sub-areas like OSPF-1 to include other networks like the RIP network into their routing table.

# Lab Commands:

# Ipv6 unicast-routing

# Ip address 192.168.x.x 255.255.255.0

# Ipv6 address 2001:db8:x::x/64

# Ipv6 ospf 1 area 0

# Router ospf 1

# Redistribute bgp 1 subnets

# Network 192.168.x.x 255.255.255.0 area 0

# Router bgp x

# Bgp router-id x.x.x.x

# No bgp default-ipv4-unicast

# Neighbor 2001:db8:x::x remote-as x

# Neighbor 192.168.x.x remote-as x

# Network 192.168.x.x

# Aggregate-address 192.168.x.x 255.255.255.0 as-confed-set summary-only

# Neighbor 192.168.x.x activate

# Redistribute connected

# Redistribute ospf 1

# Network 2001:db8:x::/64

# Neighbor 2001:db8:x::x activate

# Ipv6 router ospf 1

# Redistribute bpg x metric 5

# Ripv6 rip RIP enable

# Router rip

# Neighbor 192.168.x.x weight 40000

# Ipv6 router rip rip1

# Ipv6 rip rip1 enable

# Router eigrp 1

# Redistribute bgp x metric 100 1 255 1 1500

# Neighbor 192.168.x.x route-map cartermap out

# Route-map catermap permit 10

# Network Diagram:

# A diagram of a network Description automatically generated

# Configurations:

# OFPF-1:

# Building configuration..

# Current configuration : 2500 bytes

# Last configuration change at 17:23:58 UTC Tue Jan 9 2024

# version 15.5

# service timestamps debug datetime msec

# service timestamps log datetime msec

# no platform punt-keepalive disable-kernel-core

# hostname OSPf-R1

# boot-start-marker

# boot-end-marker

# vrf definition Mgmt-intf

# address-family ipv4

# exit-address-family

# address-family ipv6

# exit-address-family

# no aaa new-model

# no ip icmp rate-limit unreachable

# no ip domain lookup

# ipv6 unicast-routing

# subscriber templating

# multilink bundle-name authenticated

# license udi pid ISR4321/K9 sn FDO214421CF

# archive

# log config

# hidekeys

# spanning-tree extend system-id

# redundancy

# mode none

# vlan internal allocation policy ascending

# ip tcp synwait-time 5

# interface GigabitEthernet0/0/0

# ip address 192.168.1.1 255.255.255.0

# negotiation auto

# ipv6 address 2001:DB8:1::1/64

# interface GigabitEthernet0/0/1

# ip address 192.168.2.1 255.255.255.0

# negotiation auto

# ipv6 address 2001:DB8:2::1/64

# ipv6 ospf 1 area 0

# ipv6 ospf network point-to-point

# interface Serial0/1/0

# no ip address

# interface Serial0/1/1

# no ip address

# interface GigabitEthernet0

# vrf forwarding Mgmt-intf

# no ip address

# negotiation auto

# interface Vlan1

# no ip address

# router ospf 1

# redistribute bgp 1 subnets

# network 192.168.2.0 0.0.0.255 area 0

# router bgp 1

# bgp router-id 1.1.1.1

# bgp log-neighbor-changes

# no bgp default ipv4-unicast

# neighbor 2001:DB8:1::2 remote-as 2

# neighbor 2001:DB8:1::2 update-source GigabitEthernet0/0/0

# neighbor 2001:DB8:1::3 remote-as 3

# neighbor 192.168.1.2 remote-as 2

# neighbor 192.168.1.3 remote-as 3

# address-family ipv4

# network 192.168.1.0

# network 192.168.2.0

# aggregate-address 192.168.1.0 255.255.255.0 as-confed-set summary-only

# neighbor 192.168.1.2 activate

# neighbor 192.168.1.3 activate

# exit-address-family

# address-family ipv6

# redistribute connected

# redistribute ospf 1

# network 2001:DB8:1::/64

# network 2001:DB8:2::/64

# neighbor 2001:DB8:1::2 activate

# neighbor 2001:DB8:1::3 activate

# exit-address-family

# ip forward-protocol nd

# no ip http server

# no ip http secure-server

# ip tftp source-interface GigabitEthernet0

# !

# !

# ipv6 router ospf 1

# redistribute connected

# redistribute bgp 1 metric 5

# control-plane

# line con 0

# exec-timeout 0 0

# privilege level 15

# logging synchronous

# stopbits 1

# line aux 0

# exec-timeout 0 0

# privilege level 15

# logging synchronous

# stopbits 1

# line vty 0 4

# login

# end

# Gateway of last resort is not set

# 

# 192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks

# C 192.168.1.0/24 is directly connected, GigabitEthernet0/0/0

# L 192.168.1.1/32 is directly connected, GigabitEthernet0/0/0

# 192.168.2.0/24 is variably subnetted, 2 subnets, 2 masks

# C 192.168.2.0/24 is directly connected, GigabitEthernet0/0/1

# L 192.168.2.1/32 is directly connected, GigabitEthernet0/0/1

# B 192.168.3.0/24 [20/0] via 192.168.1.2, 00:02:21

# B 192.168.4.0/24 [20/0] via 192.168.1.3, 00:02:49

# interface Serial0/1/1

# C 2001:DB8:1::/64 [0/0]

# via GigabitEthernet0/0/0, directly connected

# L 2001:DB8:1::1/128 [0/0]

# via GigabitEthernet0/0/0, receive

# C 2001:DB8:2::/64 [0/0]

# via GigabitEthernet0/0/1, directly connected

# L 2001:DB8:2::1/128 [0/0]

# via GigabitEthernet0/0/1, receive

# B 2001:DB8:3::/64 [20/0]

# via FE80::B6A8:B9FF:FE01:B750, GigabitEthernet0/0/0

# B 2001:DB8:4::/64 [20/0]

# via FE80::CE7F:76FF:FE6A:B5E0, GigabitEthernet0/0/0

# L FF00::/8 [0/0]

# via Null0, receive

# OSFP-2:

# Building configuration...

# 

# Current configuration : 1654 bytes

# Last configuration change at 17:45:53 UTC Tue Jan 9 2024

# version 15.5

# service timestamps debug datetime msec

# service timestamps log datetime msec

# no platform punt-keepalive disable-kernel-core

# hostname OSPF-R2

# boot-start-marker

# boot-end-marker

# vrf definition Mgmt-intf

# address-family ipv4

# exit-address-family

# address-family ipv6

# exit-address-family

# no aaa new-model

# no ip icmp rate-limit unreachable

# no ip domain lookup

# ipv6 unicast-routing

# subscriber templating

# multilink bundle-name authenticated

# license udi pid ISR4321/K9 sn FDO211216BL

# archive

# log config

# hidekeys

# spanning-tree extend system-id

# redundancy

# mode none

# vlan internal allocation policy ascending

# ip tcp synwait-time 5

# interface GigabitEthernet0/0/0

# ip address 192.168.2.2 255.255.255.0

# negotiation auto

# ipv6 address 2001:DB8:2::2/64

# ipv6 ospf 1 area 0

# ipv6 ospf network point-to-point

# interface GigabitEthernet0/0/1

# no ip address

# negotiation auto

# interface Serial0/1/0

# no ip address

# interface Serial0/1/1

# no ip address

# interface GigabitEthernet0

# vrf forwarding Mgmt-intf

# no ip address

# negotiation auto

# interface Vlan1

# no ip address

# router ospf 1

# router-id 1.1.1.1

# network 192.168.2.0 0.0.0.255 area 0

# ip forward-protocol nd

# no ip http server

# no ip http secure-server

# ip tftp source-interface GigabitEthernet0

# ipv6 router ospf 1

# control-plane

# line con 0

# exec-timeout 0 0

# privilege level 15

# logging synchronous

# stopbits 1

# line aux 0

# exec-timeout 0 0

# privilege level 15

# logging synchronous

# stopbits 1

# line vty 0 4

# login

# end

# Gateway of last resort is not set

# 

# O E2 192.168.1.0/24 [110/1] via 192.168.2.1, 00:07:54, GigabitEthernet0/0/0

# 192.168.2.0/24 is variably subnetted, 2 subnets, 2 masks

# C 192.168.2.0/24 is directly connected, GigabitEthernet0/0/0

# L 192.168.2.2/32 is directly connected, GigabitEthernet0/0/0

# O E2 192.168.3.0/24 [110/1] via 192.168.2.1, 00:07:18, GigabitEthernet0/0/0

# O E2 192.168.4.0/24 [110/1] via 192.168.2.1, 00:07:45, GigabitEthernet0/0/0

# OE2 2001:DB8:1::/64 [110/20]

# via FE80::B6A8:B9FF:FE47:8E41, GigabitEthernet0/0/0

# C 2001:DB8:2::/64 [0/0]

# via GigabitEthernet0/0/0, directly connected

# L 2001:DB8:2::2/128 [0/0]

# via GigabitEthernet0/0/0, receive

# OE2 2001:DB8:3::/64 [110/5]

# via FE80::B6A8:B9FF:FE47:8E41, GigabitEthernet0/0/0

# OE2 2001:DB8:4::/64 [110/5]

# via FE80::B6A8:B9FF:FE47:8E41, GigabitEthernet0/0/0

# L FF00::/8 [0/0]

# via Null0, receive

# RIP-1:

# Building configuration...

# 

# 

# Current configuration : 2410 bytes

# Last configuration change at 18:00:03 UTC Tue Jan 9 2024

# version 15.5

# service timestamps debug datetime msec

# service timestamps log datetime msec

# platform punt-keepalive disable-kernel-core

# hostname RIP-R1

# boot-start-marker

# boot-end-marker

# vrf definition Mgmt-intf

# address-family ipv4

# exit-address-family

# address-family ipv6

# exit-address-family

# no aaa new-model

# no ip icmp rate-limit unreachable

# no ip domain lookup

# login on-success log

# ipv6 unicast-routing

# subscriber templating

# multilink bundle-name authenticated

# license udi pid ISR4321/K9 sn FDO214420G7

# archive

# log config

# hidekeys

# spanning-tree extend system-id

# redundancy

# mode none

# vlan internal allocation policy ascending

# ip tcp synwait-time 5

# interface GigabitEthernet0/0/0

# ip address 192.168.1.2 255.255.255.0

# negotiation auto

# ipv6 address 2001:DB8:1::2/64

# interface GigabitEthernet0/0/1

# ip address 192.168.3.1 255.255.255.0

# negotiation auto

# ipv6 address 2001:DB8:3::1/64

# ipv6 rip RIP enable

# interface Serial0/1/0

# no ip address

# shutdown

# interface Serial0/1/1

# no ip address

# shutdown

# interface GigabitEthernet0

# vrf forwarding Mgmt-intf

# no ip address

# shutdown

# negotiation auto

# interface Vlan1

# no ip address

# shutdown

# router rip

# redistribute connected

# redistribute bgp 2 metric 5

# network 192.168.3.0

# neighbor 192.168.3.2

# router bgp 2

# bgp router-id 2.2.2.2

# bgp log-neighbor-changes

# no bgp default ipv4-unicast

# neighbor 2001:DB8:1::1 remote-as 1

# neighbor 2001:DB8:1::3 remote-as 3

# neighbor 192.168.1.1 remote-as 1

# neighbor 192.168.1.3 remote-as 3

# address-family ipv4

# network 192.168.3.0

# neighbor 192.168.1.1 activate

# neighbor 192.168.1.1 weight 40000

# neighbor 192.168.1.3 activate

# exit-address-family

# address-family ipv6

# network 2001:DB8:1::/64

# network 2001:DB8:3::/64

# neighbor 2001:DB8:1::1 activate

# neighbor 2001:DB8:1::3 activate

# exit-address-family

# ip forward-protocol nd

# no ip http server

# no ip http secure-server

# ip tftp source-interface GigabitEthernet0

# ipv6 router rip RIP

# redistribute connected

# redistribute bgp 2 metric 5

# ipv6 router rip rip1

# control-plane

# line con 0

# exec-timeout 0 0

# privilege level 15

# logging synchronous

# stopbits 1

# line aux 0

# exec-timeout 0 0

# privilege level 15

# logging synchronous

# stopbits 1

# line vty 0 4

# login

# end

# Gateway of last resort is not set

# 

# 192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks

# C 192.168.1.0/24 is directly connected, GigabitEthernet0/0/0

# L 192.168.1.2/32 is directly connected, GigabitEthernet0/0/0

# B 192.168.2.0/24 [20/0] via 192.168.1.1, 00:08:53

# 192.168.3.0/24 is variably subnetted, 2 subnets, 2 masks

# C 192.168.3.0/24 is directly connected, GigabitEthernet0/0/1

# L 192.168.3.1/32 is directly connected, GigabitEthernet0/0/1

# B 192.168.4.0/24 [20/0] via 192.168.1.3, 00:08:50

# C 2001:DB8:1::/64 [0/0]

# via GigabitEthernet0/0/0, directly connected

# L 2001:DB8:1::2/128 [0/0]

# via GigabitEthernet0/0/0, receive

# B 2001:DB8:2::/64 [20/0]

# via FE80::B6A8:B9FF:FE47:8E40, GigabitEthernet0/0/0

# C 2001:DB8:3::/64 [0/0]

# via GigabitEthernet0/0/1, directly connected

# L 2001:DB8:3::1/128 [0/0]

# via GigabitEthernet0/0/1, receive

# B 2001:DB8:4::/64 [20/0]

# via FE80::CE7F:76FF:FE6A:B5E0, GigabitEthernet0/0/0

# L FF00::/8 [0/0]

# via Null0, receive

# RIP-2:

# Building configuration...

# Current configuration : 1788 bytes

# Last configuration change at 17:57:18 UTC Tue Jan 9 2024

# version 15.5

# service timestamps debug datetime msec

# service timestamps log datetime msec

# platform punt-keepalive disable-kernel-core

# hostname RIP-R2

# boot-start-marker

# boot-end-marker

# vrf definition Mgmt-intf

# address-family ipv4

# exit-address-family

# address-family ipv6

# exit-address-family

# no aaa new-model

# no ip icmp rate-limit unreachable

# no ip domain lookup

# login on-success log

# ipv6 unicast-routing

# subscriber templating

# multilink bundle-name authenticated

# license udi pid ISR4321/K9 sn FDO21442B21

# archive

# log config

# hidekeys

# spanning-tree extend system-id

# redundancy

# mode none

# vlan internal allocation policy ascending

# ip tcp synwait-time 5

# interface GigabitEthernet0/0/0

# ip address 192.168.3.2 255.255.255.0

# negotiation auto

# ipv6 address 2001:DB8:3::2/64

# ipv6 rip rip1 enable

# interface GigabitEthernet0/0/1

# no ip address

# shutdown

# negotiation auto

# interface Serial0/1/0

# no ip address

# interface Serial0/1/1

# no ip address

# interface GigabitEthernet0/2/0

# no ip address

# negotiation auto

# interface GigabitEthernet0/2/1

# no ip address

# negotiation auto

# interface GigabitEthernet0

# vrf forwarding Mgmt-intf

# no ip address

# negotiation auto

# interface Vlan1

# no ip address

# router rip

# network 192.168.3.0

# neighbor 192.168.3.1

# ip forward-protocol nd

# no ip http server

# no ip http secure-server

# ip tftp source-interface GigabitEthernet0

# ipv6 router rip rip1

# ipv6 router rip RIP

# control-plane

# line con 0

# exec-timeout 0 0

# privilege level 15

# logging synchronous

# stopbits 1

# line aux 0

# exec-timeout 0 0

# privilege level 15

# logging synchronous

# stopbits 1

# line vty 0 4

# login

# end

# Gateway of last resort is not set

# 

# R 192.168.1.0/24 [120/1] via 192.168.3.1, 00:00:03, GigabitEthernet0/0/0

# R 192.168.2.0/24 [120/5] via 192.168.3.1, 00:00:03, GigabitEthernet0/0/0

# 192.168.3.0/24 is variably subnetted, 2 subnets, 2 masks

# C 192.168.3.0/24 is directly connected, GigabitEthernet0/0/0

# L 192.168.3.2/32 is directly connected, GigabitEthernet0/0/0

# R 192.168.4.0/24 [120/5] via 192.168.3.1, 00:00:03, GigabitEthernet0/0/0

# R 2001:DB8:1::/64 [120/2]

# via FE80::B6A8:B9FF:FE01:B751, GigabitEthernet0/0/0

# R 2001:DB8:2::/64 [120/6]

# via FE80::B6A8:B9FF:FE01:B751, GigabitEthernet0/0/0

# C 2001:DB8:3::/64 [0/0]

# via GigabitEthernet0/0/0, directly connected

# L 2001:DB8:3::2/128 [0/0]

# via GigabitEthernet0/0/0, receive

# R 2001:DB8:4::/64 [120/6]

# via FE80::B6A8:B9FF:FE01:B751, GigabitEthernet0/0/0

# L FF00::/8 [0/0]

# via Null0, receive

# EIGRP-1:

# Building configuration...

# 

# Current configuration : 2291 bytes

# Last configuration change at 17:57:52 UTC Tue Jan 9 2024

# version 16.9

# service timestamps debug datetime msec

# service timestamps log datetime msec

# platform qfp utilization monitor load 80

# no platform punt-keepalive disable-kernel-core

# hostname EIGRP-R1

# boot-start-marker

# boot-end-marker

# vrf definition Mgmt-intf

# address-family ipv4

# exit-address-family

# address-family ipv6

# exit-address-family

# no aaa new-model

# no ip icmp rate-limit unreachable

# no ip domain lookup

# login on-success log

# subscriber templating

# multilink bundle-name authenticated

# license udi pid ISR4321/K9 sn FLM24060912

# no license smart enable

# diagnostic bootup level minimal

# spanning-tree extend system-id

# archive

# log config

# hidekeys

# redundancy

# mode none

# interface GigabitEthernet0/0/0

# ip address 192.168.1.3 255.255.255.0

# negotiation auto

# ipv6 address 2001:DB8:1::3/64

# interface GigabitEthernet0/0/1

# ip address 192.168.4.1 255.255.255.0

# negotiation auto

# ipv6 address 2001:DB8:4::1/64

# interface GigabitEthernet0/2/0

# no ip address

# negotiation auto

# interface GigabitEthernet0/2/1

# no ip address

# negotiation auto

# interface GigabitEthernet0

# vrf forwarding Mgmt-intf

# no ip address

# shutdown

# negotiation auto

# router eigrp 1

# network 192.168.4.0

# redistribute bgp 3 metric 100 1 255 1 1500

# auto-summary

# router bgp 3

# bgp router-id 3.3.3.3

# bgp log-neighbor-changes

# no bgp default ipv4-unicast

# neighbor 2001:DB8:1::1 remote-as 1

# neighbor 2001:DB8:1::2 remote-as 2

# neighbor 192.168.1.1 remote-as 1

# neighbor 192.168.1.1 description IX peer

# neighbor 192.168.1.2 remote-as 2

# address-family ipv4

# network 192.168.1.0

# network 192.168.4.0

# neighbor 192.168.1.1 activate

# neighbor 192.168.1.1 route-map cartermap out

# neighbor 192.168.1.2 activate

# exit-address-family

# address-family ipv6

# redistribute eigrp 1

# network 2001:DB8:1::/64

# network 2001:DB8:4::/64

# neighbor 2001:DB8:1::1 activate

# neighbor 2001:DB8:1::2 activate

# exit-address-family

# ip forward-protocol nd

# ip tcp synwait-time 5

# no ip http server

# no ip http secure-server

# ip tftp source-interface GigabitEthernet0

# ipv6 router eigrp 1

# eigrp router-id 1.1.1.1

# redistribute bgp 3 metric 100 1 255 1 100

# route-map cartermap permit 10

# set as-path prepend 3

# control-plane

# line con 0

# exec-timeout 0 0

# privilege level 15

# logging synchronous

# transport input none

# stopbits 1

# line aux 0

# exec-timeout 0 0

# privilege level 15

# logging synchronous

# stopbits 1

# line vty 0 4

# login

# end

# Gateway of last resort is not set

# 

# 192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks

# C 192.168.1.0/24 is directly connected, GigabitEthernet0/0/0

# L 192.168.1.3/32 is directly connected, GigabitEthernet0/0/0

# B 192.168.2.0/24 [20/0] via 192.168.1.1, 00:12:37

# B 192.168.3.0/24 [20/0] via 192.168.1.2, 00:12:11

# 192.168.4.0/24 is variably subnetted, 2 subnets, 2 masks

# C 192.168.4.0/24 is directly connected, GigabitEthernet0/0/1

# L 192.168.4.1/32 is directly connected, GigabitEthernet0/0/1

# C 2001:DB8:1::/64 [0/0]

# via GigabitEthernet0/0/0, directly connected

# L 2001:DB8:1::3/128 [0/0]

# via GigabitEthernet0/0/0, receive

# B 2001:DB8:2::/64 [20/0]

# via FE80::B6A8:B9FF:FE47:8E40, GigabitEthernet0/0/0

# B 2001:DB8:3::/64 [20/0]

# via FE80::B6A8:B9FF:FE01:B750, GigabitEthernet0/0/0

# C 2001:DB8:4::/64 [0/0]

# via GigabitEthernet0/0/1, directly connected

# L 2001:DB8:4::1/128 [0/0]

# via GigabitEthernet0/0/1, receive

# L FF00::/8 [0/0]

# EIGRP-2:

# Building configuration...

# 

# Current configuration : 1732 bytes

# Last configuration change at 17:46:02 UTC Tue Jan 9 2024

# version 16.9

# service timestamps debug datetime msec

# service timestamps log datetime msec

# platform qfp utilization monitor load 80

# no platform punt-keepalive disable-kernel-core

# hostname EIGRP-R2

# boot-start-marker

# boot-end-marker

# vrf definition Mgmt-intf

# address-family ipv4

# exit-address-family

# address-family ipv6

# exit-address-family

# no aaa new-model

# no ip icmp rate-limit unreachable

# no ip domain lookup

# login on-success log

# subscriber templating

# ipv6 unicast-routing

# multilink bundle-name authenticated

# license udi pid ISR4321/K9 sn FLM2408005M

# no license smart enable

# diagnostic bootup level minimal

# spanning-tree extend system-id

# archive

# log config

# hidekeys

# redundancy

# mode none

# interface GigabitEthernet0/0/0

# ip address 192.168.4.2 255.255.255.0

# negotiation auto

# ipv6 address 2001:DB8:4::2/64

# ipv6 enable

# ipv6 eigrp 1

# interface GigabitEthernet0/0/1

# no ip address

# shutdown

# negotiation auto

# interface GigabitEthernet0/2/0

# no ip address

# negotiation auto

# interface GigabitEthernet0/2/1

# no ip address

# negotiation auto

# interface GigabitEthernet0

# vrf forwarding Mgmt-intf

# no ip address

# negotiation auto

# router eigrp 1

# network 192.168.4.0

# auto-summary

# ip forward-protocol nd

# ip tcp synwait-time 5

# no ip http server

# no ip http secure-server

# ip tftp source-interface GigabitEthernet0

# ipv6 router eigrp 1

# control-plane

# line con 0

# exec-timeout 0 0

# privilege level 15

# logging synchronous

# transport input none

# stopbits 1

# line aux 0

# exec-timeout 0 0

# privilege level 15

# logging synchronous

# stopbits 1

# line vty 0 4

# login

# end

# D EX 192.168.1.0/24

# [170/25600512] via 192.168.4.1, 00:13:48, GigabitEthernet0/0/0

# D EX 192.168.2.0/24

# [170/25600512] via 192.168.4.1, 00:13:32, GigabitEthernet0/0/0

# D EX 192.168.3.0/24

# [170/25600512] via 192.168.4.1, 00:13:05, GigabitEthernet0/0/0

# 192.168.4.0/24 is variably subnetted, 2 subnets, 2 masks

# C 192.168.4.0/24 is directly connected, GigabitEthernet0/0/0

# L 192.168.4.2/32 is directly connected, GigabitEthernet0/0/0

# EX 2001:DB8:1::/64[170/640000256]

# via FE80::5C1C:B0FF:FE2D:6800, GigabitEthernet0/0/0

# EX 2001:DB8:2::/64[170/640000256]

# via FE80::5C1C:B0FF:FE2D:6800, GigabitEthernet0/0/0

# EX 2001:DB8:3::/64[170/640000256]

# via FE80::5C1C:B0FF:FE2D:6800, GigabitEthernet0/0/0

# C 2001:DB8:4::/64 [0/0]

# via GigabitEthernet0/0/0, directly connected

# L 2001:DB8:4::2/128 [0/0]

# via GigabitEthernet0/0/0, receive

# L FF00::/8 [0/0]

# via Null0, receive

# Issues:

# Since this is our first time working with BGP we didn’t possess any understanding on how to propagate BGP routing information into other networks of different protocols. We faced issues connecting our EIGRP-2 router to the rest of our network; however, this was found to be due to missing commands, specifically networking and neighbor commands under BGP address-family.

# Conclusion:

# This BGP lab provides our first insight into the use of BGP and how it works as a backbone between different ASs and networks of different protocol types. This will be useful in future applications due to the wide use of BGP as the backbone of the global internet and a previous hands-on experience of the protocol will prove useful as a foundation to understand networking in a more in-depth level.

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