Basic notes on BGP (border gateway protocol)

<u>BGP</u>

RIP, <u>OSPF</u> and <u>EIGRP</u> are all different but they have one thing in common...they want to find the shortest path to the destination. But when coming to Internet being able to manipulate traffic paths is far more important than finding the shortest path. There is only one routing

protocol we currently use on the Internet which is BGP.

Within an autonomous system we use an IGP like OSPF or EIGRP. For routing between the different autonomous systems we use an <u>EGP</u> (external gateway protocol). The only EGP we use nowadays is BGP. We can say internet as a bunch of autonomous system that are connected to each other.We need to register AS number for BGP just like public IP address.Autonomous system numbers are 16-bit which means we have AS from 1 up to 65535. There's also a private range (64512 – 65535) which we can use for non-internet usage

There are two types of BGP
<u>**External BGP**</u>**:** Used for routing between autonomous systems
Internal BGP: Used for routing within the autonomous system.

<u>Points to Remember</u>

- BGP is the routing protocol we use to route between autonomous systems:

- BGP guarantees loop-free routing information.

- BGP is completely different than IGPs.

- BGP avoids loops by using path vector routing protocol [BGP saves path when they enter inside a AS]

- BGP doesn't use metrics but a rich set of BGP attributes.

- BGP uses TCP port 179

- Administrative distance of EBGP is 20

- Administrative distance of IBGP is 200

- Authentication used in BGP is MD5

- Currently using BGP v4

- BGP saves paths to all destination in a table called forwarding table.Best path from forwarding table is saved in routing table

- Routers running BGP is termed as BGP speakers

- BGP neighbors are called Peers.Peers must be configured statically

- BGP was built for reliability and Control but not for speed.

- Once BGP peers form a neighbor relationship, they share their full routing table. Afterwards, only changes to the routing table are forwarded to peers.

<u>Cisco recommendation on BGP</u>
Use BGP
-when AS is multi-homed
-when AS is a transit AS

Do not use BGP

-In a single homed AS
-with a router that does not have sufficent resourses to handle it
-With a staff who does not have a good understanding of BGP path selection and manipulation

Neighbor States

- **Idle** · : Neighbor is not responding
- **Active** · : Attempting to connect
- **Connect** · : TCP session established
- **Open Sent** · : Open message sent
- **Open Confirm** · : Response received
- **Established** · : Adjacency established

Packet Types:

- **Open** : After a neighbour is confirmed manually,BGP sends a open message to establish peering with that neighbour

- **Update** : Used to transfer routing information between peers

- **Keep Alive :** BGP peers exchange keep-alive messages in every 60 seconds by default.It keeps the peering session alive

- **Notification :** Notification is a warning message send before closing connection with a BGP Peer