BGP Routing Process

Border Gateway Protocol (BGP) is the backbone routing protocol for most of the Internet and allows for peering and carrier networks to connect. BGP is an excellent example of a path vector protocol that dynamically updates the path information that it maintains. With BGP the policy or attributes for making the actual route selections among the interconnected autonomous systems is based on Weight, Local preference, Multi-exit discriminator, Origin, AS path, Next hop, & Community. BGP information is propagated through the network by exchanges of BGP messages (4 types: Open, Update, Notification, & Keep Alive) between peers. Another key feature to BGP is that it supports Classless Inter Domain Routing (CIDR). With the support of CIDR BGP can reduce the size of the Internet routing tables. BGP neighbors exchange full routing information when the TCP (port 179) connection between neighbors is first established. When changes to the routing table accrue, the BGP routers send to their neighbors only those routes that have changed. BGP routers do not send periodic routing updates and advertise only the optimal paths to a destination.

Configuration

The BGP routing process periodically scans the main IP routing table to detect the presence or absence of local networks, updating the BGP routing table as appropriate.

The **network** command is used to inject IGP routes into the BGP table. The *network-mask* portion of the command allows supernetting and subnetting. The resources of the router, such as configured NVRAM or RAM, determine the upper limit of the number of **network** commands you can use. Alternatively, you could use the **redistribute** router configuration command to achieve the same result.

For exterior protocols, a reference to an IP network from the **network** router configuration command controls only which networks are advertised. This behavior is in contrast to IGP, such as OSPF, which also use the **network** command to determine where to send updates.

Routing Process

```
NetStepByStep-R1(config)# router bgp <Autonomous system number>
```

- Use to enable the BGP routing protocol and to specify the local AS—the AS to which this BGP speaker belongs.
- "Autonomous system number" is a number between 1-65535
- Specify only one BGP AS per router.

Verification

```
show ip bgp
```

- To display entries in the Border Gateway Protocol (BGP) routing table.
- Use the show ip bgp command in user EXEC or privileged EXEC mode.
- BGP prefixes that are monitored and controlled by Optimized Edge Routing (OER) are displayed by entering the show ip bgp command with the oer-paths keyword.

Troubleshoot

```
debug ip bgp events
```

- Use to display information related to events of the Border Gateway Protocol (BGP).
- Use this command in privileged EXEC mode.
- To disable debugging output, use the no form of this command.

Video Cheat Sheet

R1

```
conf t
router bgp 2
```