

LAB3: BGP – IPv4

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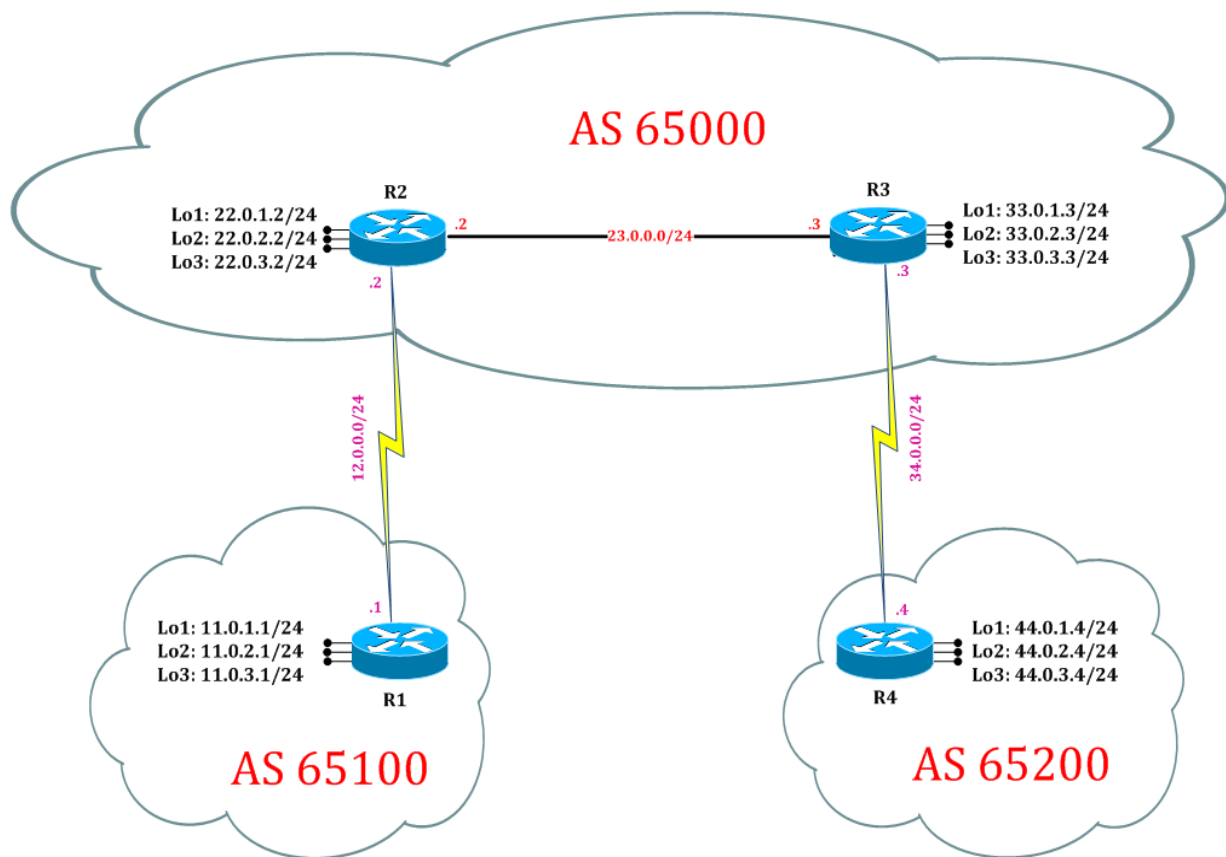
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BGP: Local Preference

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LAB 3: Diagram

Note: This Lab was developed on Cisco IOS Version 15.2(4) M1 ADVENTERPRISEK9-M.



LAB3: Configure BGP Local Preference Attributes

Task 1: Configure BGP Local Preference Attributes for Autonomous

Step 1 In the configuration mode of router configure BGP Local Preference Attributes by following command:

```
R2:
router bgp 65000
address-family ipv4
neighbor 11.0.1.1 route-map xyz in
exit
route-map xyz permit 10
set local-preference 5000
exit
```

(A policy is call on Router R2 that to reach 100 network via 11.0.1.1 through AS 65000 preference is set 5000.)

```
R1:
router bgp 65100
address-family ipv4
neighbor 22.0.1.2 route-map xyz out
exit
route-map xyz permit 10
set local-preference 10000
exit
```

(A policy is call on Router R1 that to reach 100 network via 22.0.1.2 through AS 65100 preference is set 10000.)

Step 2 Verify IPv4 BGP routes by following command:

```
R2#show ip bgp
```

```
BGP table version is 32, local router ID is 22.0.3.2
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
               r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
               x best-external, a additional-path, c RIB-compressed,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found
```

	Network	Next Hop	Metric	LocPrf	Weight	Path
*>	11.0.1.0/24	11.0.1.1	0	5000	0	65100 i
*>	11.0.2.0/24	11.0.1.1	0	5000	0	65100 i
*>	11.0.3.0/24	11.0.1.1	0	5000	0	65100 i
*>	22.0.1.0/24	0.0.0.0	0		32768	i
*>	22.0.2.0/24	0.0.0.0	0		32768	i

```

*> 22.0.3.0/24 0.0.0.0 0 32768 i
*>i 33.0.1.0/24 33.0.1.3 0 100 0 i
*>i 33.0.2.0/24 33.0.1.3 0 100 0 i
*>i 33.0.3.0/24 33.0.1.3 0 100 0 i
*>i 44.0.1.0/24 44.0.1.4 0 100 0 65200 i
*>i 44.0.2.0/24 44.0.1.4 0 100 0 65200 i
*>i 44.0.3.0/24 44.0.1.4 0 100 0 65200 i
*> 100.0.0.0/24 11.0.1.1 0 5000 0 65100 i

```

(Local Preference is by default 100 which is seen only on IBGP neighbor
Local Preference is Local to an Autonomous. It is non-transitive parameter and is stripped of when routes are moving from one AS to another AS.

R2 - Router R2 now selects 11.0.1.1 as best path because it can reach 100 network through As 65200 with Local Preference 5000, where as to reach 100 network via 44.0.1.4 through AS 65200 with Local Preference 100

Hence path is manipulated with help of Local Preference.

We as an Administrator changed the decision of Router R2 to reach 100.0.0.0 network via 44.0.1.4 to path via 11.0.1.1 as best path. Therefore it shows only one path in its BGP Table and is ironically known as Sukhiram.)

```
R3# show ip bgp
```

BGP table version is 25, local router ID is 33.0.3.3

Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
x best-external, a additional-path, c RIB-compressed,

Origin codes: i - IGP, e - EGP, ? - incomplete

RPKI validation codes: V valid, I invalid, N Not found

Network	Next Hop	Metric	LocPrf	Weigh	Path
*>i 11.0.1.0/24	11.0.1.1	0	5000	0	65100 i
*>i 11.0.2.0/24	11.0.1.1	0	5000	0	65100 i
*>i 11.0.3.0/24	11.0.1.1	0	5000	0	65100 i
*>i 22.0.1.0/24	22.0.1.2	0	100	0	i
*>i 22.0.2.0/24	22.0.1.2	0	100	0	i
*>i 22.0.3.0/24	22.0.1.2	0	100	0	i
*> 33.0.1.0/24	0.0.0.0	0		32768	i
*> 33.0.2.0/24	0.0.0.0	0		32768	i
*> 33.0.3.0/24	0.0.0.0	0		32768	i
*> 44.0.1.0/24	44.0.1.4	0		0	65200 i
*> 44.0.2.0/24	44.0.1.4	0		0	65200 i
*> 44.0.3.0/24	44.0.1.4	0		0	65200 i
*>i 100.0.0.0/24	11.0.1.1	0	5000	0	65100 i
*	44.0.1.4	0		0	65200 i

(R3-As Local Preference is Local to an Autonomous and R3 belongs to same Autonomous, therefore Router R3 will also select best path as 11.0.1.1 but will show both the path in its BGP table and is ironically known as Dukhiram)