

```
R1
router bgp 100
  bgp router-id 1.1.1.1
  bgp log-neighbor-changes
  network 172.16.0.0 mask 255.255.255.0
  network 172.20.0.0 mask 255.255.255.0
  network 172.24.0.0 mask 255.255.255.0
  neighbor 10.12.1.2 remote-as 200
  neighbor 10.13.1.3 remote-as 300
exit
```

```
R2:
router bgp 200
  bgp router-id 2.2.2.2
  bgp log-neighbor-changes
  neighbor 10.12.1.1 remote-as 100
  neighbor 10.24.1.4 remote-as 400
exit
```

```
R3:
router bgp 300
  bgp router-id 3.3.3.3
  bgp log-neighbor-changes
  neighbor 10.13.1.1 remote-as 100
  neighbor 10.36.1.6 remote-as 400
exit
```

```
R4:
router bgp 400
  bgp router-id 4.4.4.4
  bgp log-neighbor-changes
  network 4.4.4.0 mask 255.255.255.0
  neighbor 10.24.1.2 remote-as 200
  neighbor 10.45.1.5 remote-as 400
  neighbor 10.45.1.5 next-hop-self
exit
```

```
router bgp 400
  bgp router-id 6.6.6.6
  bgp log-neighbor-changes
  network 6.6.6.0 mask 255.255.255.0
  neighbor 10.36.1.3 remote-as 300
  neighbor 10.56.1.5 remote-as 400
  neig 10.56.1.5 next-hop-self
exit
```

```
=====
Weight:
-----
```

```
R4
router bgp 400
  neig 10.56.1.6 weight 4000
  neig 10.56.1.6 soft-reconfiguration inbound
exit
```

Access-list 1 permit 172.16.0.0 0.0.0.255

Route-map RM-Weight permit 10  
match ip add 1  
set weight 5000  
Route-map RM-Weight permit 20  
exit

Router bgp 400  
neig 10.45.1.4 route-map RM-Weight in  
exit

R4  
\* i 172.16.0.0/24 10.56.1.6 0 100 4000 300 100 i  
\*>i 10.45.1.4 0 100 5000 200 100 i

Local Preference

Global

R4

router bgp 400  
bgp default local-preference 200  
exit

R6:  
Specific 172.20.0.0/24

ip prefix-list NW-172-20 seq 5 permit 172.20.0.0/24

!  
route-map RM-LP permit 10  
match ip address prefix-list NW-172-20  
set local-preference 300  
!  
route-map RM-LP permit 20

Router bgp 400  
neighbor 10.36.1.3 route-map RM-LP in  
exit

=====

ASpath prepend:

-----

R1  
\* 5.5.5.0/24 10.13.1.3 0 300 400 i  
\*> 10.12.1.2 0 200 400 i

R1  
\* 5.5.5.0/24 10.13.1.3 0 300 400 i  
\*> 10.12.1.2 0 200 400 400 i

```
* 50.50.50.0/24 10.13.1.3          0 300 400 400 400 400 i
*>                10.12.1.2      0 200 400 400 400 i
```

R4:  
Global

```
route-map RM-ASPATH-PREPEND permit 10
set as-path prepend 400 400
exit
```

```
Router bgp 400
neighbor 10.24.1.2 route-map RM-ASPATH-PREPEND out
exit
```

R6: Specific

```
R5:
int lo50
ip add 50.50.50.50 255.255.255.0
```

```
router bgp 400
net 50.50.50.0 mask 255.255.255.0
exit
```

R6:

```
access-list 50 permit 50.50.50.0 0.0.0.255
```

```
route-map RM-ASPATH-prepend-50 permit 10
match ip address 50
set as-path prepend 400 400 400
```

```
!
route-map RM-ASPATH-prepend-50 permit 20
exit
```

```
Router bgp 400
neighbor 10.36.1.3 route-map RM-ASPATH-prepend-50 out
exit
```

=====  
Origin

```
R5
access-list 1 permit 172.16.0.0 0.0.0.255
```

```
* i 172.16.0.0/24 10.56.1.6          0 100 0 300 100 i
*>i                10.45.1.4      0 100 0 200 100 i
```

```
Route-map RM-ORIGIN permit 10
match ip add 1
set origin incomplete
Route-map RM-ORIGIN permit 20
exit
```

```
Router bgp 400
neig 10.45.1.4 route-map RM-ORIGIN in
exit
```

```
*>i 172.16.0.0/24 10.56.1.6 0 100 0 300 100 i
* i 10.45.1.4 0 100 0 200 100 ?
```

=====

MED :-Multi Exit Discriminator

Same AS

```
R1
router bgp 100
no neighbor 10.13.1.3 remote-as 300
neighbor 10.13.1.3 remote-as 200
exit
```

```
router bgp 200
bgp router-id 3.3.3.3
bgp log-neighbor-changes
neighbor 10.13.1.1 remote-as 100
neighbor 10.36.1.6 remote-as 400
exit
```

```
R6:
router bgp 400
no neig 10.36.1.3 remote-as 300
neig 10.36.1.3 remote-as 200
exit
```

```
R2:
R2 R3
172.16.0.0 40 80
172.20.0.0 50 0
172.24.0.0 90 10
```

```
Access-list 1 permit 172.16.0.0 0.0.0.255
Access-list 2 permit 172.20.0.0 0.0.0.255
Access-list 3 permit 172.24.0.0 0.0.0.255
```

```
Route-map RM-MED permit 10
match ip add 1
set metric 40
Route-map RM-MED permit 20
match ip add 2
set metric 50
Route-map RM-MED permit 30
match ip add 3
set metric 90
Route-map RM-MED permit 40
```

exit

```
Router bgp 200
neig 10.24.1.4 route-map RM-MED out
exit
```

R3:

```
ip prefix-list 172-16-nw permit 172.16.0.0/24
ip prefix-list 172-24-nw permit 172.24.0.0/24
```

```
Route-map RM-MED permit 10
match ip add prefix-list 172-16-nw
set metric 80
Route-map RM-MED permit 20
match ip add prefix-list 172-24-nw
set metric 10
Route-map RM-MED permit 40
exit
```

```
Router bgp 200
neig 10.36.1.6 route-map RM-MED out
exit
```

R6:

```
Router bgp 400
bgp bestpath med missing-as-worst
exit
```

```
*>i 172.20.0.0/24 10.45.1.4 50 100 0 200 100 i
* 10.36.1.3 4294967295 0 200 100 i
```

=====

MED from Different AS

R1:

```
router bgp 100
bgp log-neighbor-changes
network 172.16.0.0 mask 255.255.255.0
neighbor 10.12.1.2 remote-as 200
neighbor 10.13.1.3 remote-as 200
neighbor 10.14.1.4 remote-as 300
exit
```

R4:

```
router bgp 300
bgp log-neighbor-changes
neighbor 10.14.1.1 remote-as 100
neighbor 10.45.1.5 remote-as 400
neighbor 10.45.1.5 route-map RM-MED out
exit
```

```
route-map RM-MED permit 10
  set metric 200
exit
```

```
R5:
router bgp 400
  bgp log-neighbor-changes
  network 5.5.5.0 mask 255.255.255.0
  neighbor 10.25.1.2 remote-as 200
  neighbor 10.35.1.3 remote-as 200
  neighbor 10.45.1.4 remote-as 300
exit
```

```
R3:
router bgp 200
  bgp log-neighbor-changes
  neighbor 10.13.1.1 remote-as 100
  neighbor 10.35.1.5 remote-as 400
  neighbor 10.35.1.5 route-map RM-MED out
exit
```

```
route-map RM-MED permit 10
  set metric 100
exit
```

```
R2:
router bgp 200
  bgp log-neighbor-changes
  neighbor 10.12.1.1 remote-as 100
  neighbor 10.25.1.5 remote-as 400
  neighbor 10.25.1.5 route-map RM-MED out
exit
```

```
route-map RM-MED permit 10
  set metric 150
exit
```

```
R5:
router bgp 400
  bgp deterministic-med
  bgp always-compare-med
exit
```