The configuration of Route Policy with MED In MSR Series

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Keywords: MSR; BGP4+;MED;Route Policy

I Requirement for the diagram

This case will show you how to manage routing info based on BGP4+ and MED. All the router running BGP4+. IGP of AS200 import direct routing to make all router can communicate each other. RTA in AS100, RTB, RTC and RTD in AS200. EBGP was running on RTA,RTB,RTC; IBGP was running on RTB, RTC and RTD. Change the route from RTD to RTA by modify MED of RTA

Device List: 4 MSR;

CMW Version: Version 5.20, Beta 1105

II Network topology

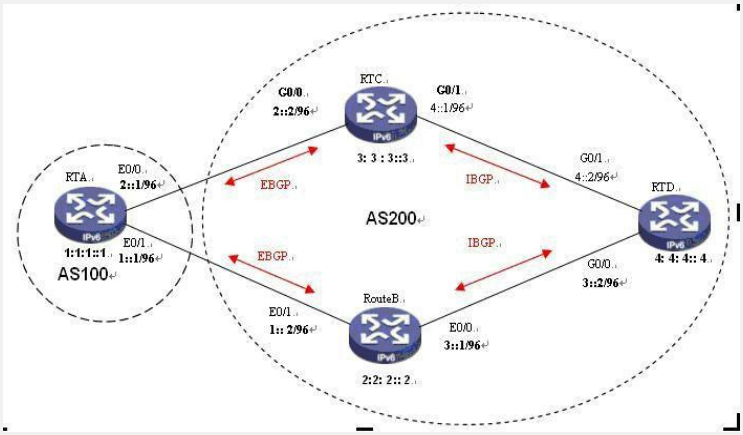

Figure 1 MED and Routing

III Steps of configuration

1．RTA configuratioin：

```
#
 ipv6
#
```

//Set the MED attribute of RTA, Add acl and permit 1:1:1::/32

```
acl ipv6 number 2000
 rule 0 permit source 1:1:1::/32
#
interface Ethernet0/0
 port link-mode route
 ipv6 address 2::1/96
#
interface Ethernet0/1
 port link-mode route
 ipv6 address 1::1/96
#
interface LoopBack0
 ipv6 address 1:1:1::1/128
//BGP part
#
bgp 100
 undo synchronization
 #
 ipv6-family
  network 1:1:1::1 128
  import-route direct
  undo synchronization
  peer 1::2 as-number 200
  peer 2::2 as-number 200
```

```
//Apply apply_med_50 to interface which connect RTC  (2::2)
Apply apply_med_100 to interface which connect RTB  (1::2)
  peer 1::2 route-policy apply_med_100 export
  peer 2::2 route-policy apply_med_50 export
//define two routing policy, apply_med_50 and apply_med_100. The apply_med
_50 is for 1:1:1::, set the MED value to 50, the apply_med_100, set MED value to
100
#
route-policy apply_med_50 permit node 10
 if-match acl 2000
 apply cost 50
route-policy apply_med_100 permit node 10
 if-match acl 2000
 apply cost 100
```

2．RTB configuration：

```
#
 ipv6
#
acl ipv6 number 2001
 rule 0 permit source 1:1:1::/96
#
interface Ethernet0/0
 port link-mode route
 ipv6 address 3::1/96
#
interface Ethernet0/1
 port link-mode route
 ipv6 address 1::2/96
 ip address 1.0.0.2 255.255.255.0
#
interface LoopBack0
 ipv6 address 2:2:2::2/128
//BGP part
#
bgp 200
 undo synchronization
 #
 ipv6-family
  network 2:2:2::2 128
  import-route direct
  undo synchronization
  peer 1::1 as-number 100
  peer 4::1 as-number 200
  peer 3::2 as-number 200
```

3．RTC configuration：

```
#
 ipv6
#
interface LoopBack0
 ipv6 address 3:3:3::3/128
#
interface GigabitEthernet0/0
 port link-mode route
 ipv6 address 2::2/96
 ip address 4.0.0.1 255.255.255.0
#
interface GigabitEthernet0/1
 port link-mode route
 ipv6 address 4::1/96
 ip address 1.0.0.3 255.255.255.0
//BGP part
```

```
#
bgp 200
 undo synchronization
 #
 ipv6-family
  network 3:3:3::3 128
  import-route direct
  undo synchronization
  peer 3::1 as-number 200
  peer 2::1 as-number 100
  peer 4::2 as-number 200

4．RTD configuration：

#
 ipv6
#
interface LoopBack0
 ipv6 address 4:4:4::4/128
#
interface GigabitEthernet0/0
 port link-mode route
 ipv6 address 3::2/96
#
interface GigabitEthernet0/1
 port link-mode route
 ipv6 address 4::2/96
#
//BGP part
bgp 200
 undo synchronization
 #
 ipv6-family
  network 4:4:4::4 128
  import-route direct
  undo synchronization
  peer 3::1 as-number 200
  peer 4::1 as-number 200
```

IV Key notes in the configuration

After apply route policy under interface of RTA, we need run command **reset bgp ip v6 all** reset the state of BGP.

V Result Check

1) From configuration above, the MED of routing to 1:1:1::1 that RTC learned is lowe r that RTB, therefore, RTD will choose from RTD.

2) Tracert 1:1:1::1 from RTD, there has info below:

```
<RTD-3020>tracert ipv6 1:1:1::1
   traceroute to 1:1:1::1 30 hops max,60 bytes packet, press CTRL_C to break
 1 3::1 2 ms 2 ms 1 ms
 2 1:1:1::1 3 ms 2 ms 2 ms
```

We can see RTD choose route from RTB.

After apply policy, we can see result below：

```
<RTD-3020>tracert ipv6 1:1:1::1
traceroute to 1:1:1::1 30 hops max,60 bytes packet, press CTRL_C to break
     1 4::1 2 ms 2 ms 2 ms
     2 1:1:1::1 3 ms 3 ms 2 ms
```

We can see RTD choose route from RTC, the reason is different MED value.Further more, we can check MED value by **display bgp ipv6 routing-table** .