A classic case of the issue of the effective order of bgp and ospf routing at a site

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Network Topology

125x switches import routes

Problem Description

The routes learned by ebgp on site suppressed the routes imported by ospf, resulting in traffic not bei ng implemented as expected: Preference 20 is configured on site, which will cause ebgp routing to be better than ospf routing. On site, if you configure preference first, bgp routing will take effect. If you co nfigure route import first, ospf routing will take effect.

Process Analysis

This problem does exist in laboratory reproduction:

1) Configure preference first and then import ospf:

```
[2012-S125X-AF-bgp-default-11]display ip routing-table vpn-instance 11

Destinations : 26       Routes : 26

Destination/Mask   Proto   Pre Cost       NextHop         Interface
0.0.0.0/32         Direct  0   0          127.0.0.1       InLoop0
6.1.1.0/24         O_ASE2  150 1          60.1.1.10       Vlan60
7.7.7.7/32         O_ASE2  150 1          60.1.1.10       Vlan60
12.12.12.12/32     Direct  0   0          127.0.0.1       InLoop0
20.1.1.0/24        O_ASE2  150 1          60.1.1.10       Vlan60
20.20.20.0/24      BGP     20  0          30.1.1.30       Vlan30
[2012-S125X-AF-bgp-default-11]address-family  ipv4
[2012-S125X-AF-bgp-default-ipv4-11]import-route ospf 10
[2012-S125X-AF-bgp-default-ipv4-11]qu
[2012-S125X-AF-bgp-default-11]dis th
#
#
ip vpn-instance 11
  peer 20.1.1.2 as-number 200
  peer 30.1.1.30 as-number 200
  #
  address-family ipv4 unicast
   preference 20 150 130
   import-route ospf 10
   peer 20.1.1.2 enable
   peer 30.1.1.30 enable

[2012-S125X-AF-bgp-default-11]display ip routing-table vpn-instance 11

Destinations : 26       Routes : 26

Destination/Mask   Proto   Pre Cost       NextHop         Interface
0.0.0.0/32         Direct  0   0          127.0.0.1       InLoop0
6.1.1.0/24         O_ASE2  150 1          60.1.1.10       Vlan60
7.7.7.7/32         O_ASE2  150 1          60.1.1.10       Vlan60
12.12.12.12/32     Direct  0   0          127.0.0.1       InLoop0
20.1.1.0/24        O_ASE2  150 1          60.1.1.10       Vlan60
20.20.20.0/24      BGP     20  0          30.1.1.30       Vlan30
```

2) Configure import ospf first and then configure preferences:

```
 ip vpn-instance 11
   peer 20.1.1.2 as-number 200
   peer 30.1.1.30 as-number 200
   #
   address-family ipv4 unicast
    import-route ospf 10
    peer 20.1.1.2 enable
    peer 30.1.1.30 enable
```

[2012-S125X-AF-bgp-default-11]display ip routing-table vpn-instance 11

Destinations : 26 Routes : 26

Destination/Mask Proto Pre Cost NextHop Interface
0.0.0.0/32 Direct 0 0 127.0.0.1 InLoop0
6.1.1.0/24 O_ASE2 150 1 60.1.1.10 Vlan60
7.7.7.7/32 O_ASE2 150 1 60.1.1.10 Vlan60
12.12.12.12/32 Direct 0 0 127.0.0.1 InLoop0
20.1.1.0/24 O_ASE2 150 1 60.1.1.10 Vlan60
20.20.20.0/24 O_ASE2 150 1 60.1.1.10 Vlan60

After analysis: 1) If you configure preferences first, the route learned by EBGP is 20 and the route learned by OSPF is 150. At this time, BGP routes are in effect in the routing table, and then import ospf is configured in BGP (Note: BGP can only import routes The effective route in the table), so it cannot be imported. At this time, BGP routing is effective; 2) When preference is not configured, the route learned by EBGP is 20 and the route learned by OSPF is 150. At this time, the effective route in the routing table is the ospf route type. In this case, configure import ospf in BGP first. Import the ospf route into the BGP routing table (pref-val 32768); then configure the preference. At this time, there are two in the BGP routing table, and the imported pref-val is large, so the BGP routing table is preferably OSPF

[2012-S125X-AF-bgp-default-11]address-family ipv4 unicast
[2012-S125X-AF-bgp-default-ipv4-11]preference 20 200 130

[2012-S125X-AF-bgp-default-11]dis th
#
#
ip vpn-instance 11
 peer 20.1.1.2 as-number 200
 peer 30.1.1.30 as-number 200
 #
 address-family ipv4 unicast
  preference 20 200 130
  import-route ospf 10
  peer 20.1.1.2 enable
  peer 30.1.1.30 enable
#
return

[2012-S125X-AF-bgp-default-11]display ip routing-table vpn-instance 11

Destinations : 26 Routes : 26

Destination/Mask Proto Pre Cost NextHop Interface
0.0.0.0/32 Direct 0 0 127.0.0.1 InLoop0
6.1.1.0/24 O_ASE2 150 1 60.1.1.10 Vlan60
7.7.7.7/32 O_ASE2 150 1 60.1.1.10 Vlan60
12.12.12.12/32 Direct 0 0 127.0.0.1 InLoop0
20.1.1.0/24 O_ASE2 150 1 60.1.1.10 Vlan60
20.20.20.0/24 O_ASE2 150 1 60.1.1.10 Vlan60
2012-S125X-AF-bgp-default-11]display bgp routing-table ipv4 vpn-instance 11 20.20.20.0

BGP local router ID: 2.2.2.2
Local AS number: 100

Paths: 2 available, 1 best

BGP routing table information of 20.20.20.0/24:
Imported route.
 Original nexthop: 60.1.1.10
OutLabel : NULL
Ext-Community : <OSPF Domain Id: 0.0.0.0:0>, <OSPF Router Id: 12.12.12.12:0:
0>, <OSPF AreaNum: 0.0.0.0 RouteType: 5 Option: 1>, <RT: 111
:1>

RxPathID : 0x0
TxPathID : 0x0
AS-path : (null)