

MSR路由器
BGP4+静态等价路由实现负载分担功能的配置

关键字: MSR;IPv6;BGP4+;负载分担

一、组网需求

RTA与RTB、RTC建立EBGP连接，与RouterD建立IBGP连接。分别在RTB、RTC中引入到达空地址9::/32的静态路由。要求RTB和RTC实现负载分担。

设备清单: RTA (MSR20-21) , RTB (MSR20-20) ,RTC (MSR30-20)

适用版本: Version 5.20, Beta 1105

二、组网图

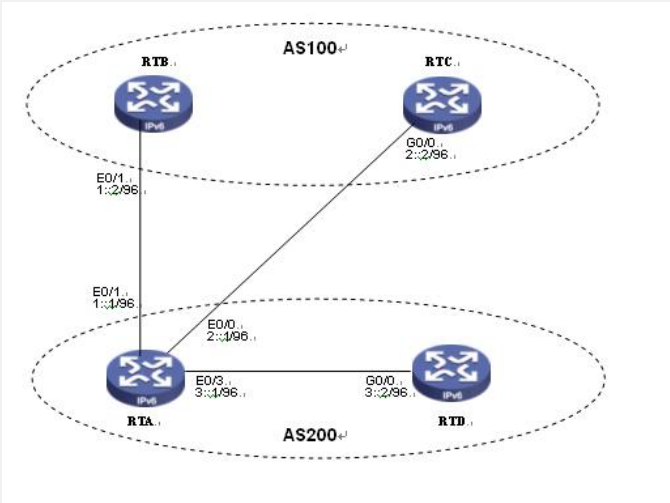


图1 – BGP4 + 静态等价路由实现负载分担组网示意图

三、配置步骤

RTA配置
<pre># ipv6 # interface Ethernet0/0 port link-mode route ipv6 address 2::1/96 # interface Ethernet0/1 port link-mode route ipv6 address 1::1/96 # //将MSR20 - 21的0/3交换口模式改为route interface Ethernet0/3 port link-mode route ipv6 address 3::1/96 # interface LoopBack0 ipv6 address 1:1:1::1/128 //建立EBGP与IBGP # bgp 200 undo synchronization # ipv6-family network 1:1:1::1 128 import-route direct undo synchronization //配置负载平衡最大路由数为2 balance 2 peer 1::2 as-number 100 peer 2::2 as-number 100 peer 3::2 as-number 200</pre>
RTB配置

<pre># ipv6 # interface Ethernet0/1 port link-mode route ipv6 address 1::2/96 # interface LoopBack0 ipv6 address 2:2:2::2/128 //配置EBGP # bgp 100 undo synchronization # ipv6-family network 2:2:2::2 128 import-route static undo synchronization peer 1::1 as-number 200 //配置到空地址的路由 # ipv6 route-static 9:: 32 NULL0</pre>
RTC配置
<pre># ipv6 # interface LoopBack0 ipv6 address 3:3:3::3/128 # interface GigabitEthernet0/0 port link-mode route ipv6 address 2::2/96 # bgp 100 undo synchronization # ipv6-family network 3:3:3::3 128 import-route static undo synchronization peer 2::1 as-number 200 # ipv6 route-static 9:: 32 NULL0 # return</pre>
RTD配置
<pre># ipv6 # interface LoopBack0 ipv6 address 4:4:4::4/128 # interface GigabitEthernet0/0 port link-mode route ipv6 address 3::2/96 # bgp 200 undo synchronization # ipv6-family network 4:4:4::4 128 import-route direct undo synchronization peer 3::1 as-number 200</pre>

四、配置关键点

在BGP4+的基本配置完成以后，分别在RTB和RTC的系统视图下建立到达空地址9::32的静态路由,即命令：
ipv6 route-static 9:: 32 NULL0
然后分别在BGP中引入该静态路由。

五、试验分析

配置完成后在RTB和RTC上有等价路由均到达9::32网段，这时在其它条件相同的情况下，系统默认会选择地址小的做为默认路由，此时路由表如下：

[RTA-2021-bgp-af-ipv6]dis ipv6 rou
Routing Table :
Destinations : 14 Routes : 14

Destination: ::1/128	Protocol : Direct
NextHop : ::1	Preference: 0
Interface : InLoop0	Cost : 0
Destination: 1::96	Protocol : Direct
NextHop : 1::1	Preference: 0
Interface : Eth0/1	Cost : 0
Destination: 1::1/128	Protocol : Direct
NextHop : ::1	Preference: 0
Interface : InLoop0	Cost : 0
Destination: 1:1:1::1/128	Protocol : Direct
NextHop : ::1	Preference: 0
Interface : InLoop0	Cost : 0
Destination: 2::96	Protocol : Direct
NextHop : 2::1	Preference: 0
Interface : Eth0/0	Cost : 0
Destination: 2::1/128	Protocol : Direct
NextHop : ::1	Preference: 0
Interface : InLoop0	Cost : 0
Destination: 2:2:2::2/128	Protocol : BGP4+
NextHop : 1::2	Preference: 255
Interface : Eth0/1	Cost : 0
Destination: 3::96	Protocol : Direct
NextHop : 3::1	Preference: 0
Interface : Eth0/3	Cost : 0
Destination: 3::1/128	Protocol : Direct
NextHop : ::1	Preference: 0
Interface : InLoop0	Cost : 0
Destination: 3:3:3::3/128	Protocol : BGP4+
NextHop : 2::2	Preference: 255
Interface : Eth0/0	Cost : 0
Destination: 4:4:4::4/128	Protocol : BGP4+
NextHop : 3::2	Preference: 255
Interface : Eth0/3	Cost : 0
Destination: 9::/32	Protocol : BGP4+
NextHop : 1::2	Preference: 255
Interface : Eth0/1	Cost : 0
Destination: FE80::/10	Protocol : Direct
NextHop : ::	Preference: 0
Interface : NULL0	Cost : 0

当在RTA上配置了负载均衡路由的最大数为2后，系统默认将两条路由均加入路由表：

```
[RTA-2021]dis bgp ipv routing-table
```

Total Number of Routes: 11

BGP Local router ID is 1.0.0.1

Status codes: * - valid, > - best, d - damped,

h - history, i - internal, s - suppressed, S - Stale

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

在balance 值为2的条件下：

```

*> Network : 1::                PrefixLen : 96
    NextHop : 1::1              LocPrf  :
    PrefVal : 0                  Label   : NULL
    MED     : 0
    Path/Ogn: ?

*> Network : 1:1:1::1           PrefixLen : 128
    NextHop : ::1               LocPrf  :
    PrefVal : 0                  Label   : NULL
    MED     : 0
    Path/Ogn: i

*> Network : 2::                PrefixLen : 96
    NextHop : 2::1              LocPrf  :
    PrefVal : 0                  Label   : NULL
    MED     : 0
    Path/Ogn: ?

*> Network : 2:2:2::2           PrefixLen : 128
    NextHop : 1::2              LocPrf  :
    PrefVal : 0                  Label   : NULL
    MED     : 0
    Path/Ogn: 100 i

*> Network : 3::                PrefixLen : 96
    NextHop : 3::1              LocPrf  :
    PrefVal : 0                  Label   : NULL
    MED     : 0
    Path/Ogn: ?

* i Network : 3::                PrefixLen : 96
    NextHop : 3::2              LocPrf  : 100
    PrefVal : 0                  Label   : NULL
    MED     : 0
    Path/Ogn: ?

*> Network : 3:3:3::3           PrefixLen : 128
    NextHop : 2::2              LocPrf  :
    PrefVal : 0                  Label   : NULL
    MED     : 0
    Path/Ogn: 100 i

*> i Network : 4:4:4::4         PrefixLen : 128
    NextHop : 3::2              LocPrf  : 100
    PrefVal : 0                  Label   : NULL
    MED     : 0
    Path/Ogn: i

*> Network : 9::                PrefixLen : 32
    NextHop : 1::2              LocPrf  :
    PrefVal : 0                  Label   : NULL
    MED     : 0
    Path/Ogn: 100 ?

*> Network : 9::                PrefixLen : 32
    NextHop : 2::2              LocPrf  :
    PrefVal : 0                  Label   : NULL
    MED     : 0
    Path/Ogn: 100 ?

```