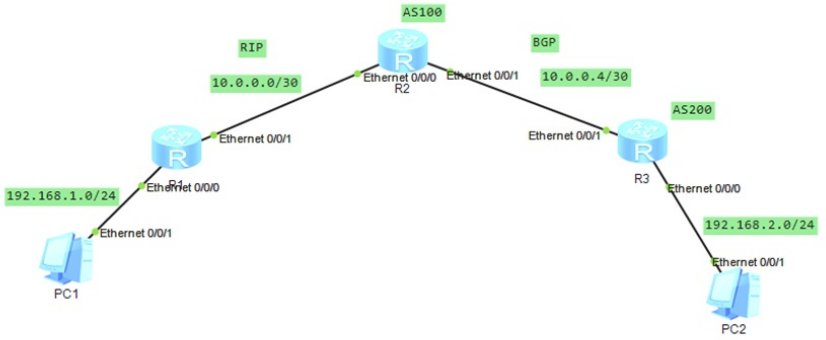
【MVS】华为路由器BGP与RIP重分布典型组网配置案例

网络相关 韦家宁 2024-07-13 发表

组网及说明



本案例采用ENSP模拟器来部署华为路由器的路由重分布的案例，在该网络中，R1与R2部署RIP，R2与R3部署BGP。为了实现PC之间的网络互通，需要在R2路由器部署BGP与RIP重分布。

配置步骤

1、按照网络拓扑图配置IP地址。
2、部署R1与R2的RIP。
3、部署R2与R3的BGP。
4、在R2配置BGP与RIP重分布。

配置关键点

R1：

```
<Huawei>u t m
Info: Current terminal monitor is off.
<Huawei>u t d
Info: Current terminal debugging is off.
<Huawei>sys
Enter system view, return user view with Ctrl+Z.
[Huawei]sysname R1
[R1]int eth 0/0/0
[R1-Ethernet0/0/0]ip address 192.168.1.1 24
[R1-Ethernet0/0/0]quit
[R1]int eth 0/0/1
[R1-Ethernet0/0/1]ip address 10.0.0.1 30
[R1-Ethernet0/0/1]quit
[R1]rip
[R1-rip-1]network 10.0.0.0
[R1-rip-1]network 192.168.1.0
[R1-rip-1]quit
```

R2：

```
<Huawei>u t m
Info: Current terminal monitor is off.
<Huawei>u t d
Info: Current terminal debugging is off.
<Huawei>system
Enter system view, return user view with Ctrl+Z.
[Huawei]sysname R2
[R2]int eth 0/0/0
[R2-Ethernet0/0/0]ip address 10.0.0.2 30
[R2-Ethernet0/0/0]quit
[R2]int eth 0/0/1
[R2-Ethernet0/0/1]ip address 10.0.0.5 30
[R2-Ethernet0/0/1]quit
```

```
[R2]rip
[R2-rip-1]network 10.0.0.0
[R2-rip-1]import-route bgp
[R2-rip-1]quit
[R2]bgp 100
[R2-bgp]peer 10.0.0.6 as-number 200
[R2-bgp]peer 10.0.0.6 connect-interface eth 0/0/1
[R2-bgp-af-ipv4]import-route rip 1
[R2-bgp-af-ipv4]peer 10.0.0.6 enable
[R2-bgp-af-ipv4]quit
[R2-bgp]quit
```

R3：

```
<Huawei>u t m
Info: Current terminal monitor is off.
<Huawei>u t d
Info: Current terminal debugging is off.
<Huawei>system
Enter system view, return user view with Ctrl+Z.
[Huawei]sysname R3
[R3]int eth 0/0/0
[R3-Ethernet0/0/0]ip address 192.168.2.1 24
[R3-Ethernet0/0/0]quit
[R3]int eth 0/0/1
[R3-Ethernet0/0/1]ip address 10.0.0.6 30
[R3-Ethernet0/0/1]quit
[R3]bgp 200
[R3-bgp]peer 10.0.0.5 as-number 100
[R3-bgp]peer 10.0.0.5 connect-interface Ethernet 0/0/1
[R3-bgp]ipv4-family unicast
[R3-bgp-af-ipv4]peer 10.0.0.5 enable
[R3-bgp-af-ipv4]network 192.168.2.0 24
[R3-bgp-af-ipv4]quit
[R3-bgp]quit
```

PC分别填写IP地址，且能相互PING通。

PC1

基础配置 | 命令行 | 组播 | UDP发包工具 | 串口

```
Welcome to use PC Simulator!

PC>ping 192.168.2.2

Ping 192.168.2.2: 32 data bytes, Press Ctrl_C to break
From 192.168.2.2: bytes=32 seq=1 ttl=125 time=219 ms
From 192.168.2.2: bytes=32 seq=2 ttl=125 time=125 ms
From 192.168.2.2: bytes=32 seq=3 ttl=125 time=109 ms
From 192.168.2.2: bytes=32 seq=4 ttl=125 time=109 ms
From 192.168.2.2: bytes=32 seq=5 ttl=125 time=156 ms

--- 192.168.2.2 ping statistics ---
  5 packet(s) transmitted
  5 packet(s) received
  0.00% packet loss
  round-trip min/avg/max = 109/143/219 ms
```

PC2

基础配置 | 命令行 | 组播 | UDP发包工具 | 串口

```
Welcome to use PC Simulator!

PC>ping 192.168.1.2

Ping 192.168.1.2: 32 data bytes, Press Ctrl_C to break
From 192.168.1.2: bytes=32 seq=1 ttl=125 time=109 ms
From 192.168.1.2: bytes=32 seq=2 ttl=125 time=125 ms
From 192.168.1.2: bytes=32 seq=3 ttl=125 time=125 ms
From 192.168.1.2: bytes=32 seq=4 ttl=125 time=94 ms
From 192.168.1.2: bytes=32 seq=5 ttl=125 time=140 ms

--- 192.168.1.2 ping statistics ---
  5 packet(s) transmitted
  5 packet(s) received
  0.00% packet loss
  round-trip min/avg/max = 94/118/140 ms

PC>
```

分别在R2与R3使用dis bgp peer可以看到R2与R3已完成BGP邻居建立。

```
[R2]dis bgp peer

 BGP local router ID : 10.0.0.2
 Local AS number : 100
 Total number of peers : 1            Peers in established state : 1

  Peer            V          AS  MsgRcvd  MsgSent  OutQ  Up/Down       State Pre
fRcv

  10.0.0.6        4         200        4        7     0 00:01:15 Established
    1
[R2]
```

```
[R3]dis bgp peer

 BGP local router ID : 192.168.2.1
 Local AS number : 200
 Total number of peers : 1            Peers in established state : 1

  Peer            V          AS  MsgRcvd  MsgSent  OutQ  Up/Down       State Pre
fRcv

  10.0.0.5        4         100        6        4     0 00:01:34 Established
    3
[R3]
```

分别在R1、R2、R3使用dis ip routing-table命令查看路由表，均已学习到了相应的路由。

```
[R1]dis ip routing-table
Route Flags: R - relay, D - download to fib
------------------------------------------------------------------------------
Routing Tables: Public
         Destinations : 8        Routes : 8

Destination/Mask    Proto   Pre  Cost      Flags NextHop         Interface

        10.0.0.0/30  Direct  0    0           D   10.0.0.1        Ethernet0/0/1
        10.0.0.1/32  Direct  0    0           D   127.0.0.1       Ethernet0/0/1
        10.0.0.4/30  RIP     100  1           D   10.0.0.2        Ethernet0/0/1
      127.0.0.0/8    Direct  0    0           D   127.0.0.1       InLoopBack0
      127.0.0.1/32   Direct  0    0           D   127.0.0.1       InLoopBack0
    192.168.1.0/24   Direct  0    0           D   192.168.1.1     Ethernet0/0/0
    192.168.1.1/32   Direct  0    0           D   127.0.0.1       Ethernet0/0/0
    192.168.2.0/24   RIP     100  1           D   10.0.0.2        Ethernet0/0/1

[R1]
```

```
[R2]dis ip routing-table
Route Flags: R - relay, D - download to fib
------------------------------------------------------------------------------
Routing Tables: Public
         Destinations : 8        Routes : 8

Destination/Mask    Proto   Pre  Cost      Flags NextHop         Interface

        10.0.0.0/30  Direct  0    0           D   10.0.0.2        Ethernet0/0/0
        10.0.0.2/32  Direct  0    0           D   127.0.0.1       Ethernet0/0/0
        10.0.0.4/30  Direct  0    0           D   10.0.0.5        Ethernet0/0/1
        10.0.0.5/32  Direct  0    0           D   127.0.0.1       Ethernet0/0/1
      127.0.0.0/8    Direct  0    0           D   127.0.0.1       InLoopBack0
      127.0.0.1/32   Direct  0    0           D   127.0.0.1       InLoopBack0
    192.168.1.0/24   RIP     100  1           D   10.0.0.1        Ethernet0/0/0
    192.168.2.0/24   EBGP    255  0          RD   10.0.0.6        Ethernet0/0/1

[R2]
```

```
<R3>dis ip routing-table
Route Flags: R - relay, D - download to fib
------------------------------------------------------------------------------
Routing Tables: Public
         Destinations : 8        Routes : 8

Destination/Mask    Proto   Pre  Cost      Flags NextHop         Interface

        10.0.0.0/30  EBGP    255  0          RD   10.0.0.5        Ethernet0/0/1
        10.0.0.4/30  Direct  0    0           D   10.0.0.6        Ethernet0/0/1
        10.0.0.6/32  Direct  0    0           D   127.0.0.1       Ethernet0/0/1
      127.0.0.0/8    Direct  0    0           D   127.0.0.1       InLoopBack0
      127.0.0.1/32   Direct  0    0           D   127.0.0.1       InLoopBack0
    192.168.1.0/24   EBGP    255  1          RD   10.0.0.5        Ethernet0/0/1
    192.168.2.0/24   Direct  0    0           D   192.168.2.1     Ethernet0/0/0
    192.168.2.1/32   Direct  0    0           D   127.0.0.1       Ethernet0/0/0

<R3>
```

至此，华为路由器BGP与RIP典型组网配置案例已完成。