

知

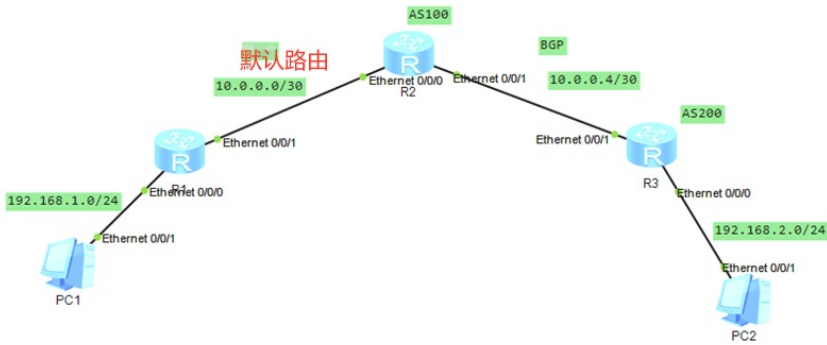
【MVS】华为路由器BGP与默认路由重分布典型组网配置案例

网络相关

韦家宁

2024-07-13 发表

组网及说明



本案例采用ENSF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部署默认路由，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与默认路由重分布。

配置步骤

- 1、按照网络拓扑图配置IP地址。
- 2、部署R1与R2的默认路由。
- 3、部署R2与R3的BGP。
- 4、在R2配置BGP与默认路由重分布。

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]ip route-static 0.0.0.0 0.0.0.0 10.0.0.2
```

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]ip route-static 0.0.0.0 0.0.0.0 10.0.0.1
[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]default-route imported
[R2-bgp-af-ipv4]import-route static
```

```
[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。



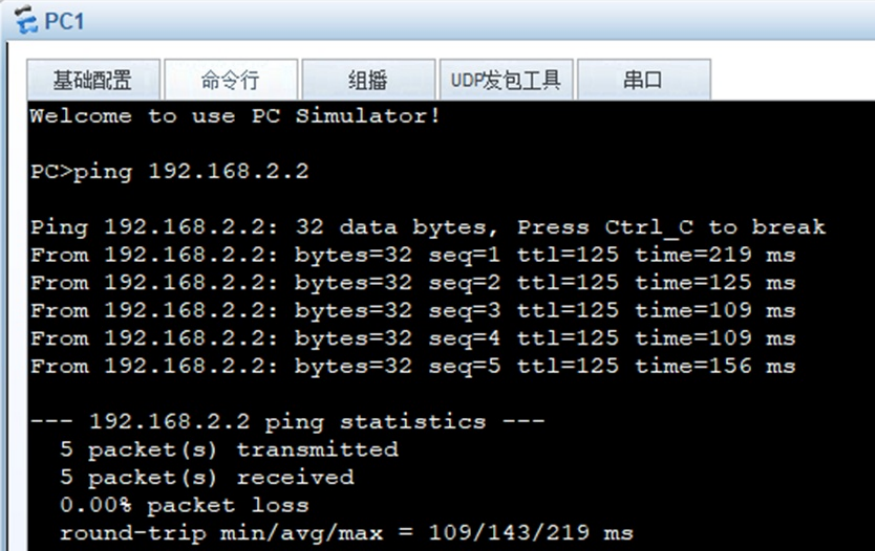
PC1 configuration window showing the following settings:

- 主机名: (empty)
- MAC 地址: 54-89-98-DE-1A-1D
- IPv4 配置:
 - ☒ 静态 ☐ DHCP ☐ 自动获取 DNS 服务器地址
 - IP 地址: 192 . 168 . 1 . 2
 - 子网掩码: 255 . 255 . 255 . 0
 - 网关: 192 . 168 . 1 . 1
 - DNS 1: 0 . 0 . 0 . 0
 - DNS 2: 0 . 0 . 0 . 0



PC2 configuration window showing the following settings:

- 主机名: (empty)
- MAC 地址: 54-89-98-57-3F-62
- IPv4 配置:
 - ☒ 静态 ☐ DHCP ☐ 自动获取 DNS 服务器地址
 - IP 地址: 192 . 168 . 2 . 2
 - 子网掩码: 255 . 255 . 255 . 0
 - 网关: 192 . 168 . 2 . 1
 - DNS 1: 0 . 0 . 0 . 0
 - DNS 2: 0 . 0 . 0 . 0



PC1

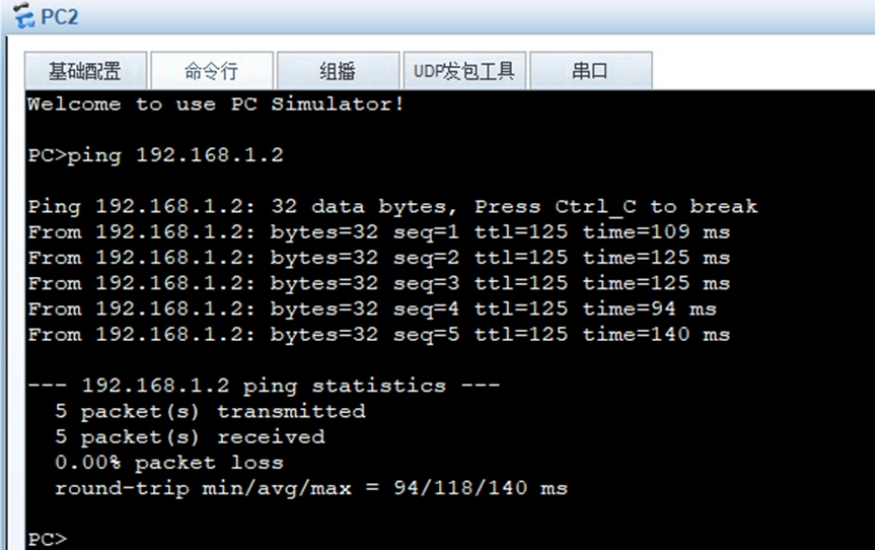
基础配置 命令行 组播 UDP发包工具 串口

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!

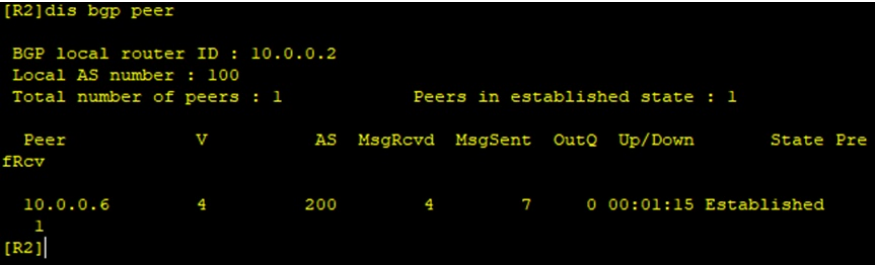
PC>ping 192.168.1.2

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。

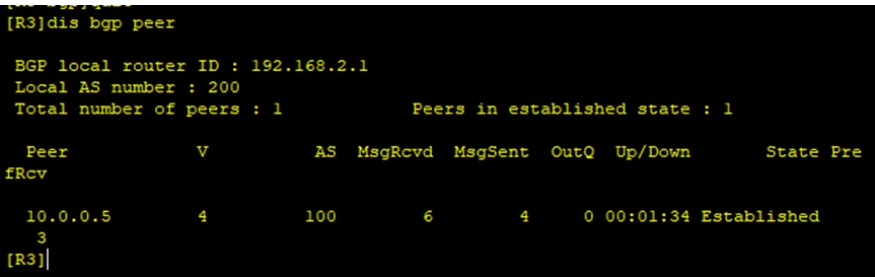


[R2]dis bgp peer

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
10.0.0.6	4	200	4	7	0	00:01:15	Established	

[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
10.0.0.5	4	100	6	4	0	00:01:34	Established	

[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 : 7          Routes : 7

Destination/Mask    Proto   Pre  Cost      Flags NextHop         Interface
-----
0.0.0.0/0           Static  60   0          RD   10.0.0.2       Ethernet0/0/1
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
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

[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
-----
0.0.0.0/0           Static  60   0          RD   10.0.0.1       Ethernet0/0/0
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
192.168.2.0/24        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 : 7          Routes : 7

Destination/Mask    Proto   Pre  Cost      Flags NextHop         Interface
-----
0.0.0.0/0           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
192.168.2.0/24        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与默认路由典型组网配置案例已完成。