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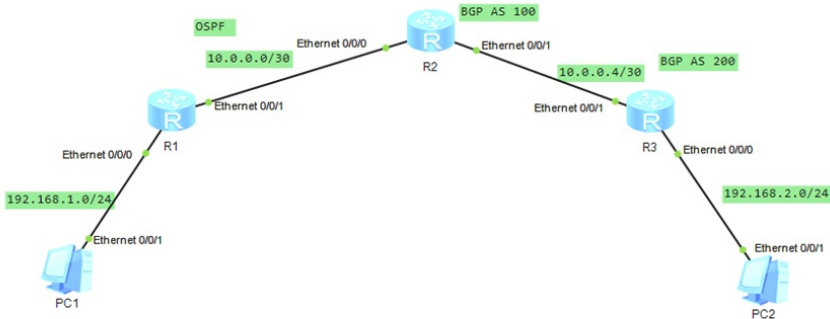
【MVS】华为路由器OSPF与BGP重分布典型组网配置案例

网络相关

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2024-07-12 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OSPF，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OSPF与BGP重分布。

配置步骤

- 按照网络拓扑图配置IP地址。
- 部署R1与R2的OSPF。
- 部署R2与R3的BGP。
- 在R2配置OSPF与BGP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>system
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]ospf 1
[R1-ospf-1]area 0.0.0.0
[R1-ospf-1-area-0.0.0.0]network 10.0.0.0 0.0.0.3
[R1-ospf-1-area-0.0.0.0]network 192.168.1.0 0.0.0.255
[R1-ospf-1-area-0.0.0.0]quit
[R1-ospf-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]ip route-static 192.168.2.0 24 10.0.0.6
[R2]ospf 1
[R2-ospf-1]import-route bgp
[R2-ospf-1]area 0.0.0.0
[R2-ospf-1-area-0.0.0.0]network 10.0.0.0 0.0.0.3
[R2-ospf-1-area-0.0.0.0]quit
[R2-ospf-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]ipv4-family unicast
[R2-bgp-af-ipv4]import-route ospf 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 0/0/1
[R3-Ethernet0/0/1]ip address 10.0.0.6 30
[R3-Ethernet0/0/1]quit
[R3]int eth 0/0/0
[R3-Ethernet0/0/0]ip address 192.168.2.1 24
[R3-Ethernet0/0/0]quit
[R3]bgp 200
[R3-bgp]peer 10.0.0.5 as-number 100
[R3-bgp]peer 10.0.0.5 connect-interface eth 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

主机名:

MAC 地址:

IPv4 配置

☒ 静态 ☐ DHCP ☐ 自动获取 DNS 服务器地址

IP 地址: DNS1:

子网掩码: DNS2:

网关:

PC2

基础配置 命令行 组播 UDP发包工具 串口

主机名:

MAC 地址:

IPv4 配置

☒ 静态 ☐ DHCP ☐ 自动获取 DNS 服务器地址

IP 地址: DNS1:

子网掩码: DNS2:

网关:

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=141 ms
From 192.168.2.2: bytes=32 seq=2 ttl=125 time=78 ms
From 192.168.2.2: bytes=32 seq=3 ttl=125 time=94 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=110 ms

--- 192.168.2.2 ping statistics ---
 5 packet(s) transmitted
 5 packet(s) received
 0.00% packet loss
 round-trip min/avg/max = 78/106/141 ms

PC>
```

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=78 ms
From 192.168.1.2: bytes=32 seq=2 ttl=125 time=93 ms
From 192.168.1.2: bytes=32 seq=3 ttl=125 time=94 ms
From 192.168.1.2: bytes=32 seq=4 ttl=125 time=110 ms
From 192.168.1.2: bytes=32 seq=5 ttl=125 time=109 ms

--- 192.168.1.2 ping statistics ---
 5 packet(s) transmitted
 5 packet(s) received
 0.00% packet loss
 round-trip min/avg/max = 78/96/110 ms
```

在R1与R2分别使用dis ospf peer brief命令查看到R1、R2已完成OSPF邻居的建立。

```
[R1]dis ospf peer brief

      OSPF Process 1 with Router ID 192.168.1.1
        Peer Statistic Information
-----
Area Id      Interface      Neighbor id    State
0.0.0.0      Ethernet0/0/1  10.0.0.2      Full
-----
[R1]
```

```
[R2]dis ospf peer brief

      OSPF Process 1 with Router ID 10.0.0.2
      Peer Statistic Information
-----
Area Id      Interface      Neighbor id    State
0.0.0.0      Ethernet0/0/0    192.168.1.1   Full
-----
[R2]
```

在R2与R3分别使用dis BGP peer命令查看到R2、R3已完成OSPF邻居的建立。

```
[R3]dis bgp peer

BGP local router ID : 10.0.0.6
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      5        4       0 00:01:14 Established
2
[R3]
```

```
[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         8       0 00:01:00 Established
1
[R2]
```

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         O_ASE   150  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       O_ASE   150  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       OSPF    10    2          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        EGBP    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      EGBP    255  2       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OSPF与BGP路由重分布典型组网配置案例已完成。