

MSR路由器

MPLS L3VPN + OSPF + Sham-Link功能的配置

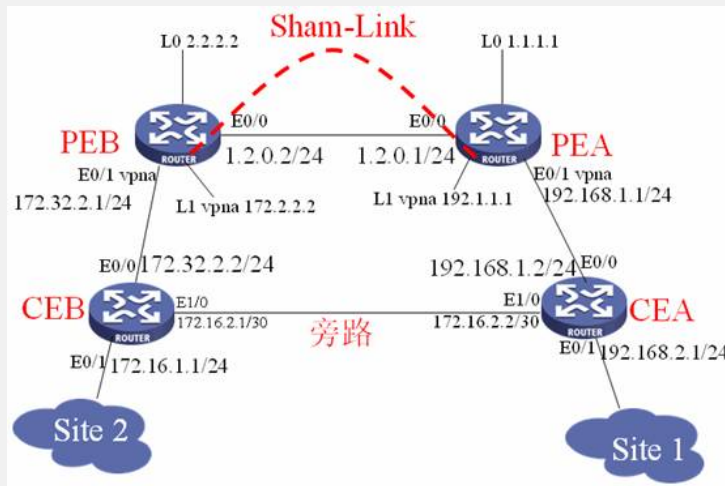
关键词: MSR;MPLS;BGP;VPN;L3VPN;OSPF多实例;Sham-Link

一、组网需求:

2台PE各接着一个vpna的站点, PEA连接vpna站点1出口CEA, PEB连接vpna站点2出口CEB, PEA与CEA、PEB与CEB通过OSPF多实例学习CEA下挂站点路由, CEA和CEB有一条旁路, 要求PEA和PEB的OSPF多实例建立伪连接

设备清单: MSR路由器4台

二、组网图:



三、配置步骤:

设备和版本: MSR、Version 5.20, Beta 1105.

```
CEA配置
#
interface Ethernet0/0
port link-mode route
ip address 192.168.1.2 255.255.255.0
#
interface Ethernet0/1
port link-mode route
ip address 192.168.2.1 255.255.255.0
#
interface Ethernet1/0
port link-mode route
ip address 172.16.2.2 255.255.255.252
#
ospf 1
area 0.0.0.0
network 192.168.1.0 0.0.0.255
network 192.168.2.0 0.0.0.255
network 172.16.2.0 0.0.0.3
#
CEB配置
```

```
#
interface Ethernet0/0
port link-mode route
ip address 172.32.2.2 255.255.255.0
#
interface Ethernet0/1
port link-mode route
ip address 172.16.1.1 255.255.255.0
#
interface Ethernet1/0
port link-mode route
ip address 172.16.2.1 255.255.255.252
#
ospf 1
area 0.0.0.0
network 172.32.2.0 0.0.0.255
network 172.16.1.0 0.0.0.255
network 172.16.2.0 0.0.0.3
#
```

PEA配置

```
#
router id 1.1.1.1
#
//配置vpn实例vpna
ip vpn-instance vpna
route-distinguisher 1:1
vpn-target 100:1 export-extcommunity
vpn-target 100:1 import-extcommunity
#
mpls lsr-id 1.1.1.1
#
mpls
#
mpls ldp
#
interface Ethernet0/0
port link-mode route
ip address 1.2.0.1 255.255.255.0
//接口使能mpls和ldp
mpls
mpls ldp
#
interface Ethernet0/1
port link-mode route
//连接vpna站点1出口CEA的接口
ip binding vpn-instance vpna
ip address 192.168.1.1 255.255.255.0
#
interface LoopBack0
ip address 1.1.1.1 255.255.255.255
#
//用于建立伪连接的Loopback口
interface LoopBack1
ip binding vpn-instance vpna
ip address 192.1.1.1 255.255.255.255
#
bgp 100
undo synchronization
peer 2.2.2.2 as-number 100
peer 2.2.2.2 connect-interface LoopBack0
#
//使能vpn4路由传送
ipv4-family vpnv4
peer 2.2.2.2 enable
#
//引入vpna的路由
ipv4-family vpn-instance vpna
import-route direct
#
ospf 1
area 0.0.0.0
network 1.2.0.0 0.0.0.255
network 1.1.1.1 0.0.0.0
#
//ospf进程100学习vpna路由
ospf 100 router-id 192.1.1.1 vpn-instance vpna
area 0.0.0.0
network 192.168.1.0 0.0.0.255
//建立伪连接的源和目的
sham-link 192.1.1.1 172.2.2.2
#
```

PEB配置

```

#
router id 2.2.2.2
#
//配置vpn实例vpna
ip vpn-instance vpna
route-distinguisher 2:1
vpn-target 100:1 export-extcommunity
vpn-target 100:1 import-extcommunity
#
mpls lsr-id 2.2.2.2
#
mpls
#
mpls ldp
#
interface Ethernet0/0
port link-mode route
ip address 1.2.0.2 255.255.255.0
mpls
mpls ldp
#
interface Ethernet0/1
port link-mode route
//连接vpna站点1出口CEB的接口
ip binding vpn-instance vpna
ip address 192.168.2.1 255.255.255.0
#
interface LoopBack0
ip address 2.2.2.2 255.255.255.255
#
interface LoopBack1
//用于建立伪连接的loopback口
ip binding vpn-instance vpna
ip address 172.2.2.2 255.255.255.255
#
bgp 100
undo synchronization
peer 1.1.1.1 as-number 100
peer 1.1.1.1 connect-interface LoopBack0
#
ipv4-family vpnv4
peer 1.1.1.1 enable
#
ipv4-family vpn-instance vpna
import-route direct
#
ospf 1
area 0.0.0.0
network 2.2.2.2 0.0.0.0
network 1.2.0.0 0.0.0.255
#
ospf 100 router-id 172.2.2.2 vpn-instance vpna
domain-id 0.0.0.100
area 0.0.0.0
network 192.168.2.0 0.0.0.255
//建立伪连接的源和目的
sham-link 172.2.2.2 192.1.1.1
#

```

四、配置关键点：

- 1) 在vpna站点间存在旁路时需要建立伪连接；
- 2) PEA和PEB需要建立vpna的loopback口用于建立伪连接；
- 3) 伪连接要指定源和目的。