

知 Typical Configuration of Inter-AS VPN-OptionA

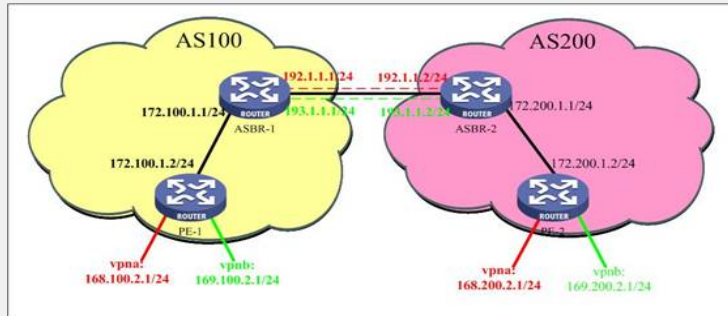
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Typical Configuration of Inter-AS VPN-OptionA

[Requirements]

Realize the interworking of BGP/MPLS VPN services across ASs by means of OptionA.

[Networking diagram]



[Configuration script]

Configuration script (PE-1)

```

#
sysname PE1
#
router id 202.100.1.2
#
mpls lsr-id 202.100.1.2
#
radius scheme system
#
mpls
#
mpls ldp
#
ip vpn-instance vpna
route-distinguisher 100:1
vpn-target 100:1 export-extcommunity
vpn-target 100:1 import-extcommunity
#
ip vpn-instance vpnb
route-distinguisher 101:1
vpn-target 101:1 export-extcommunity
vpn-target 101:1 import-extcommunity
#
domain system
#
interface Serial2/0/0
link-protocol ppp
ip address 172.100.1.2 255.255.255.0
mpls
mpls ldp enable
#
interface NULL0
#
interface LoopBack0
ip address 202.100.1.2 255.255.255.255
#
interface LoopBack10
ip binding vpn-instance vpna
ip address 168.100.2.1 255.255.255.0
#
interface LoopBack11
ip binding vpn-instance vpnb
ip address 169.100.2.1 255.255.255.0
#
bgp 100
undo synchronization
group in internal
peer in connect-interface LoopBack0
peer 202.100.1.1 group in
#
ipv4-family vpn-instance vpna
import-route direct
undo synchronization
#
ipv4-family vpn-instance vpnb
import-route direct
undo synchronization
#
ipv4-family vpv4
peer in enable
peer 202.100.1.1 group in
#
ospf 1
area 0.0.0.0
network 172.100.1.0 0.0.0.255
network 202.100.1.2 0.0.0.0
#
return

```

Configuration script (ASBR-1)

```

#
sysname ASBR-1
#
router id 202.100.1.1
#
mpls lsr-id 202.100.1.1
#
radius scheme system
#
mpls
#
mpls ldp
#
ip vpn-instance vpna
route-distinguisher 100:1
vpn-target 100:1 export-extcommunity
vpn-target 100:1 import-extcommunity
#
ip vpn-instance vpnb
route-distinguisher 101:1
vpn-target 101:1 export-extcommunity
vpn-target 101:1 import-extcommunity
#
domain system
#
interface Ethernet1/0/0
#
interface Ethernet1/0/0.10      /Set up the sub-interface between ASBRs, and
bind it to vpna/
ip binding vpn-instance vpna
ip address 192.1.1.1 255.255.255.0
vlan-type dot1q vid 10
#
interface Ethernet1/0/0.20      /Set up the sub-interface between ASBRs, and
bind it to vpnb/
ip binding vpn-instance vpnb
ip address 193.1.1.1 255.255.255.0
vlan-type dot1q vid 20
#
interface Serial2/0/0
link-protocol ppp
ip address 172.100.1.1 255.255.255.0
mpls
mpls ldp enable
#
interface NULL0
#
interface LoopBack0
ip address 202.100.1.1 255.255.255.255
#
interface LoopBack10
ip binding vpn-instance vpna
ip address 168.100.1.1 255.255.255.0
#
interface LoopBack11
ip binding vpn-instance vpnb
ip address 169.100.1.1 255.255.255.0
#
bgp 100
undo synchronization
group in internal
peer in connect-interface LoopBack0
peer 202.100.1.2 group in
#
ipv4-family vpn-instance vpna
import-route direct
undo synchronization
group ex external
peer 192.1.1.2 group ex as-number 200 /Set up EBGP between ASBR-1 and
ASBR-2/
#
ipv4-family vpn-instance vpnb
import-route direct
undo synchronization
group ex external
peer 193.1.1.2 group ex as-number 200 /Set up EBGP between ASBR-1 and
ASBR-2/
#
ipv4-family vpnv4
peer in enable
peer 202.100.1.2 group in
#
ospf 1
area 0.0.0.0
network 172.100.1.0 0.0.0.255
network 202.100.1.1 0.0.0.0
#
return

```

Configuration script (PE-2)

```
#
sysname PE2
#
router id 202.200.1.2
#
mpls lsr-id 202.200.1.2
#
radius scheme system
#
mpls
#
mpls ldp
#
ip vpn-instance vpna
route-distinguisher 200:1
vpn-target 200:1 export-extcommunity
vpn-target 200:1 import-extcommunity
#
ip vpn-instance vpnb
route-distinguisher 201:1
vpn-target 201:1 export-extcommunity
vpn-target 201:1 import-extcommunity
#
domain system
#
interface Serial2/0/0
link-protocol ppp
ip address 172.200.1.2 255.255.255.0
mpls
mpls ldp enable
#
interface NULL0
#
interface LoopBack0
ip address 202.200.1.2 255.255.255.255
#
interface LoopBack10
ip binding vpn-instance vpna
ip address 168.200.2.1 255.255.255.0
#
interface LoopBack11
ip binding vpn-instance vpnb
ip address 169.200.2.1 255.255.255.0
#
bgp 200
undo synchronization
group in internal
peer in connect-interface LoopBack0
peer 202.200.1.1 group in
#
ipv4-family vpn-instance vpnb
import-route direct
undo synchronization
#
ipv4-family vpn-instance vpna
import-route direct
undo synchronization
#
ipv4-family vpnv4
peer in enable
peer 202.200.1.1 group in
#
ospf 1
area 0.0.0.0
network 172.200.1.0 0.0.0.255
network 202.200.1.2 0.0.0.0
#
return
```

Configuration script (ASBR-2)

```

#
sysname ASBR-2
#
router id 202.200.1.1
#
mpls lsr-id 202.200.1.1
#
radius scheme system
#
mpls
#
mpls ldp
#
ip vpn-instance vpna
route-distinguisher 200:1
vpn-target 200:1 export-extcommunity
vpn-target 200:1 import-extcommunity
#
ip vpn-instance vpnb
route-distinguisher 201:1
vpn-target 201:1 export-extcommunity
vpn-target 201:1 import-extcommunity
#
domain system
#
interface Ethernet1/0/0
#
interface Ethernet1/0/0.10      /Set up the sub-interface between ASBRs,
and bind it to vpna/
ip binding vpn-instance vpna
ip address 192.1.1.2 255.255.255.0
vlan-type dot1q vid 10
#
interface Ethernet1/0/0.20      /Set up the sub-interface between ASBRs, an
d bind it to vpnb/
ip binding vpn-instance vpnb
ip address 193.1.1.2 255.255.255.0
vlan-type dot1q vid 20
#
interface Serial2/0/0
link-protocol ppp
ip address 172.200.1.1 255.255.255.0
mpls
mpls ldp enable
#
interface NULL0
#
interface LoopBack0
ip address 202.200.1.1 255.255.255.255
#
interface LoopBack10
ip binding vpn-instance vpna
ip address 168.200.1.1 255.255.255.0
#
interface LoopBack11
ip binding vpn-instance vpnb
ip address 169.200.1.1 255.255.255.0
#
bgp 200
undo synchronization
group in internal
peer in connect-interface LoopBack0
peer 202.200.1.2 group in
#
ipv4-family vpn-instance vpna
import-route direct
undo synchronization
group ex external
peer 192.1.1.1 group ex as-number 100 /Set up EBGP between ASBR-1 and
ASBR-2/
#
ipv4-family vpn-instance vpnb
import-route direct
undo synchronization
group ex external
peer 193.1.1.1 group ex as-number 100 /Set up EBGP between ASBR-1 and
ASBR-2/
#
ipv4-family vpnv4
peer in enable
peer 202.200.1.2 group in
#
ospf 1
area 0.0.0.0
network 172.200.1.0 0.0.0.255
network 202.200.1.1 0.0.0.0
#
return

```

[Tip]

1. The inter-AS OptionA is also known as VRF to VRF.
2. The internal working mechanism and configuration of AS are the same as those of common MPLS/VPN.
3. It is usually to divide sub-interfaces between the ASBR peers, and bind each sub-interface to a VRF to ensure the privacy of routes broadcast between ASs.
If it is impossible to divide sub-interfaces, an independent physical line shall be provided for every VPN.
4. Every ASBR router regards the peer as a CE router.
5. IP is used for forwarding between ASs.