Typical Configuration of Inter-AS VPN-OptionB

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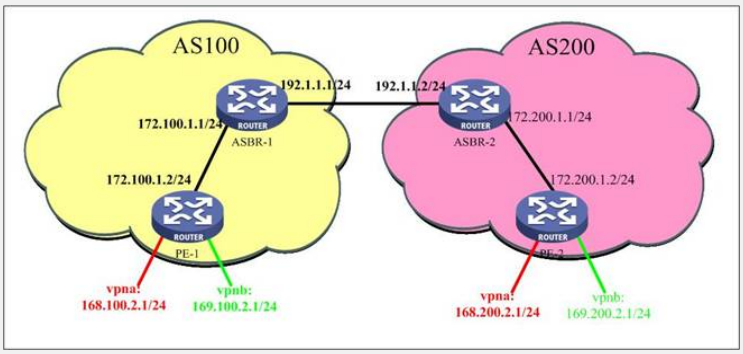
Typical Configuration of Inter-AS VPN-OptionB

[Requirements]

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

[Networking diagram]



[Configuration script]

Configuration script (PE-1)

```
#
sysname PE-1
#
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 vpnv4
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
#
user-interface con 0
user-interface vty 0 4
#
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
ip address 192.1.1.1 255.255.255.0
mpls
#
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
group ex external
peer 192.1.1.2 group ex as-number 200     /Set up EBGP with ASBR-2/
#
ipv4-family vpn-instance vpna
import-route direct
undo synchronization
#
ipv4-family vpn-instance vpnb
import-route direct
undo synchronization
group ex external
peer 193.1.1.2 group ex as-number 200
#
ipv4-family vpnv4
undo policy vpn-target    /Cancel filtering of RT extcommunity to the received route information/
peer in enable
peer in next-hop-local    /Change the next hop to itself/
peer 202.100.1.2 group in
peer ex enable
peer 192.1.1.2 group ex
#
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
#
user-interface con 0
user-interface vty 0 4
#
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 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
ip address 192.1.1.2 255.255.255.0
mpls
#
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 ex external
peer 192.1.1.1 group ex as-number 100  /Set up EBGP with ASBR-1/
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
#
ipv4-family vpn-instance vpnb
import-route direct
undo synchronization
#
ipv4-family vpnv4
undo policy vpn-target      /Cancel filtering of RT extcommunity to the receive
d route information/
peer ex enable
peer 192.1.1.1 group ex
peer in enable
peer in next-hop-local      /Change the next hop to itself/
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
#
user-interface con 0
user-interface vty 0 4
#
return
```

Configuration script (PE-2)

```
#
sysname PE-2
#
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 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 172.200.1.2 255.255.255.0
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 vpna
import-route direct
undo synchronization
#
ipv4-family vpn-instance vpnb
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
#
user-interface con 0
user-interface vty 0 4
#
return
```

[Tip]

1. The inter-AS OptionB is also known as single-hop MP-EBGP (or 2.2 mode).
2. Be sure to change next hop on the ASBR.
3. The settings of RTs for interworkable VPNs in different ASs must be the same.
4. It is unnecessary to run LDP or RSVP between ASBRs.