

AR28/AR46系列路由器根据DSCP进行VRF绑定的典型配置

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【组网需求】

分支到总部之间有两条物理线路,每条线路建立一条GRE隧道与一个VRF绑定.分支有两个VRF,VRFa和VRFb,但是对于两个VRF中的业务要求VRF内重要的业务走安全性较高的链路Tunnel1,次要的业务走Tunnel2.

这种组网要求设计到两个问题:

- 1.不同的VRF与不同的GRE隧道的绑定.
- 2.通过OSPF多实例实现隧道间的路由.
- 3.按照用户的要求,同一个VRF内用户根据DSCP值走不同的VRF.这样就需要在,分支节点出接口根据DSCP作策略.

【组网图】



【配置步骤】

先实现VRF与GRE的绑定,实现VRF内可以互通,不同VRF内不可以互通.既:10.1.1.1和10.1.2.1可以互通,10.1.3.1和10.1.4.1可以互通,但相互之间不可以互通.

在PC机上ping对端不同的VRF如下图:

```
C:\Documents and Settings\freeman>ping 10.1.2.1

Pinging 10.1.2.1 with 32 bytes of data:

Reply from 10.1.2.1: bytes=32 time=1ms TTL=254

Ping statistics for 10.1.2.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 1ms, Average = 1ms

C:\Documents and Settings\freeman>ping 10.1.4.1

Pinging 10.1.4.1 with 32 bytes of data:

Reply from 192.168.1.2: TTL expired in transit.
```

如图所示:10.1.1.2可以和10.1.2.1互通,与10.1.4.1不通.

但是ping10.1.4.1显示的是TTL expired in transit原因是两边配置的是默认路由,导致报文在中间循环传递.

然后根据DSCP作策略:

在RTA上与PC相连的接口上作基于DSCP的策略,将DSCP为0的报文转到VPN:vafen中.

```

#
acl number 3000          //添加ACL DSCH=0
rule 0 permit ip vpn-instance vpna source 10.1.1.0 0.0.0.255 dscp be

#
interface Ethernet2/0
ip binding vpn-instance vpna
ip address 10.1.1.1 255.255.255.0
ip policy route-policy aaa           //应用在接口
#
route-policy aaa permit node 10      //定义策略
if-match acl 3000
apply access-vpn vpn-instance vpnb
#
ip route-static vpn-instance vpnb 10.1.1.0 255.255.255.0 vpn-instance vpna 10.1.1.2 preference 60    //指定回程路由
#

```

```

C:\Documents and Settings\freeman>ping 10.1.2.1

Pinging 10.1.2.1 with 32 bytes of data:

Reply from 192.168.1.6: TTL expired in transit.

Ping statistics for 10.1.2.1:
    Packets: Sent = 4, Received = 4, Lost = 0 <0% loss>,
Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Documents and Settings\freeman>ping 10.1.4.1

Pinging 10.1.4.1 with 32 bytes of data:

Reply from 10.1.4.1: bytes=32 time=1ms TTL=254

Ping statistics for 10.1.4.1:
    Packets: Sent = 4, Received = 4, Lost = 0 <0% loss>,
Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 1ms, Average = 1ms

```

可以看出对DSCH为0的报文做了VRF转换,同时在RTA上查看ACL匹配情况:

```

[RTA]dis acl 3000
Advanced ACL 3000, 1 rule
Acl's step is 1
rule 0 permit ip vpn-instance vpna source 10.1.1.0 0.0.0.255 dscp be (114 times matched)

```

【配置脚本】

RTA配置脚本

```

#
sysname RTA
#
router id 1.1.1.1
#
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 200:1
vpn-target 200:1 export-extcommunity
vpn-target 200:1 import-extcommunity
#
acl number 3000
rule 0 permit ip vpn-instance vpna source 10.1.1.0 0.0.0.255 dscp be
#
interface Ethernet2/0
ip binding vpn-instance vpna
ip address 10.1.1.1 255.255.255.255
ip policy route-policy aaa
#
interface Ethernet3/0
ip address 10.0.0.1 255.255.255.252
#
interface Ethernet3/1
ip address 10.0.0.5 255.255.255.252
#
interface Tunnel0
ip binding vpn-instance vpna
ip address 192.168.1.1 255.255.255.252
source 10.0.0.1
destination 10.0.0.2
#
interface Tunnel1
ip binding vpn-instance vpnb
ip address 192.168.1.5 255.255.255.252
source 10.0.0.5
destination 10.0.0.6
#
interface LoopBack0
ip address 1.1.1.1 255.255.255.255
#
interface LoopBack2
ip binding vpn-instance vpnb
ip address 10.1.3.1 255.255.255.0
#
ospf 1 vpn-instance vpna
vpn-instance-capability simple
import-route direct
import-route static
area 0.0.0
network 10.0.0.0 0.0.0.3
network 10.1.1.0 0.0.0.255
#
ospf 2 vpn-instance vpnb
vpn-instance-capability simple
import-route direct
import-route static
area 0.0.0
network 10.0.0.4 0.0.0.3
network 10.1.3.0 0.0.0.255
#
route-policy aaa permit node 10
if-match acl 3000
apply access-vpn vpn-instance vpnb
#
ip route-static vpn-instance vpna 0.0.0.0 0.0.0.0 Tunnel 0 preference 60
ip route-static vpn-instance vpnb 0.0.0.0 0.0.0.0 Tunnel 1 preference 60
ip route-static vpn-instance vpnb 10.1.1.0 255.255.255.0 vpn-instance vpna 10.1.1.2 preference 60
#
return

```

RTB配置脚本

```
#  
sysname RTB  
#  
router id 2.2.2.2  
#  
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 200:1  
vpn-target 200:1 export-extcommunity  
vpn-target 200:1 import-extcommunity  
#  
interface Ethernet3/0  
ip address 10.0.0.2 255.255.255.252  
#  
interface Ethernet3/1  
ip address 10.0.0.6 255.255.255.252  
#  
interface Tunnel0  
ip binding vpn-instance vpna  
ip address 192.168.1.2 255.255.255.252  
source 10.0.0.2  
destination 10.0.0.1  
#  
interface Tunnel1  
ip binding vpn-instance vpnb  
ip address 192.168.1.6 255.255.255.252  
source 10.0.0.6  
destination 10.0.0.5  
#  
interface LoopBack0  
ip address 2.2.2.2 255.255.255.255  
#  
interface LoopBack1  
ip binding vpn-instance vpna  
ip address 10.1.2.1 255.255.255.0  
#  
interface LoopBack2  
ip binding vpn-instance vpnb  
ip address 10.1.4.1 255.255.255.0  
#  
ospf 1 vpn-instance vpna  
vpn-instance-capability simple  
import-route direct  
import-route static  
area 0.0.0  
network 10.0.0.0 0.0.0.3  
network 10.1.2.0 0.0.0.255  
#  
ospf 2 vpn-instance vpnb  
vpn-instance-capability simple  
import-route static  
area 0.0.0  
network 10.0.0.4 0.0.0.3  
network 10.1.4.0 0.0.0.255  
#  
ip route-static vpn-instance vpna 0.0.0.0 0.0.0.0 Tunnel 0 preference 60  
ip route-static vpn-instance vpnb 0.0.0.0 0.0.0.0 Tunnel 1 preference 60  
#  
return
```