

MSR系列路由器

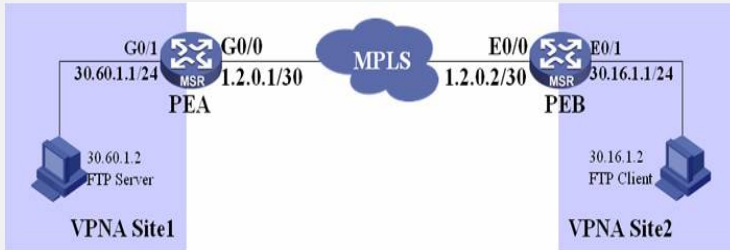
MPLS L3VPN QoS功能的配置

关键字: MPLS; BGP; L3VPN; QoS

**一、组网需求:**

2台PE设备之间建立MPLS L3VPN网络, PEA和PEB之间物理链路实际带宽为2M, PEA连接VPNA Site1内部的一台FTP服务器30.60.1.2, 需要对该FTP服务器发出的数据流量进行50% QoS带宽保证。

**二、组网图:**



**三、配置步骤**

PEA配置

```

#
//配置MPLS LSR-ID为Loopback0接口地址
mpls lsr-id 30.60.30.60
#
//配置VPN实例VPNA
ip vpn-instance vpna
route-distinguisher 30:60
vpn-target 1:1 export-extcommunity
vpn-target 1:1 import-extcommunity
#
mpls
#
mpls ldp
#
//定义流分类exp5匹配MPLS的EXP域为5的流
traffic classifier exp5 operator and
if-match mpls-exp 5
//定义流分类ftp-data匹配ACL 3000的流
traffic classifier ftp-data operator and
if-match acl 3000
#
//定义流行为exp5, 给数据流打MPLS EXP标记5
traffic behavior exp5
remark mpls-exp 5
//定义流行为af50%, 让数据流入AF队列, 保证50%接口QoS带宽
traffic behavior af50%
queue af bandwidth pct 50
#
//QoS策略mplsaf50%, 即对流分类exp5入AF队列, 保证50%接口QoS带宽
qos policy mplsaf50%
classifier exp5 behavior af50%
//QoS策略markexp5, 即对ftp-data数据流打MPLS EXP标记5
qos policy markexp5
classifier ftp-data behavior exp5
#
//ACL 3000匹配30.60.1.2发出的FTP-DATA报文
acl number 3000
rule 0 permit tcp vpn-instance vpna source 30.60.1.2 0 source-port eq ftp-dat
a
#
//Loopback0接口, 用于定位MPLS LSR-ID
interface LoopBack0
ip address 30.60.30.60 255.255.255.255
#
//连接PEB的接口
interface GigabitEthernet0/0
port link-mode route
//配置接口带宽为2M, QoS缺省预留带宽为接口带宽的80%
qos max-bandwidth 2048
ip address 1.2.0.1 255.255.255.252
//应用出方向策略mplsaf50%
qos apply policy mplsaf50% outbound
mpls
mpls ldp
//使用QoS物理限速2M
qos lr outbound cir 2048 cbs 128000 ebs 0
#
//连接FTP服务器的接口
interface GigabitEthernet0/1
port link-mode route
ip binding vpn-instance vpna
ip address 30.60.1.1 255.255.255.0
//应用入方向QoS策略markexp5
qos apply policy markexp5 inbound
#
//BGP部分配置
bgp 1
undo synchronization
peer 30.16.30.16 as-number 1
peer 30.16.30.16 connect-interface LoopBack0
#
ipv4-family vpnv4
peer 30.16.30.16 enable
#
ipv4-family vpn-instance vpna
import-route direct
#
//静态路由配置, 用于获得对端LSR-ID路由, 可以使用OSPF等路由协议代替
ip route-static 30.16.30.16 255.255.255.255 1.2.0.2
#

```

PEB配置

```
#
mpls lsr-id 30.16.30.16
#
ip vpn-instance vpna
route-distinguisher 30:16
vpn-target 1:1 export-extcommunity
vpn-target 1:1 import-extcommunity
#
mpls
#
mpls ldp
#
interface Ethernet0/0
port link-mode route
ip address 1.2.0.2 255.255.255.252
mpls
mpls ldp
#
interface Ethernet0/1
port link-mode route
ip binding vpn-instance vpna
ip address 30.16.1.1 255.255.255.0
#
#
interface LoopBack0
ip address 30.16.30.16 255.255.255.255
#
bgp 1
undo synchronization
peer 30.60.30.60 as-number 1
peer 30.60.30.60 connect-interface LoopBack0
#
ipv4-family vpv4
peer 30.60.30.60 enable
#
ipv4-family vpn-instance vpna
import-route direct
#
ip route-static 30.60.30.60 255.255.255.255 1.2.0.1
#
```

#### 四、配置关键点

- 1、在连接VPNA Site1的接口对感兴趣的数据流进行MPLS EXP着色；
- 2、在连接MPLS网络一侧的接口对EXP值为5的数据流进行特殊的业务保证。