在VPDN场景中配置前缀委派

目录

简介

本文档介绍在第2层隧道协议网络服务器(LNS)通过虚拟专用拨号网络(VPDN)隧道将IPv6前缀委派到在第2层隧道协议访问集中器(LAC)和LNS之间构建的客户端路由器的场景中的前缀委派配置示例。

先决条件

要求

思科建议您了解UP的端到端第1层连接

使用的组件

本文档不限于特定的软件和硬件版本。

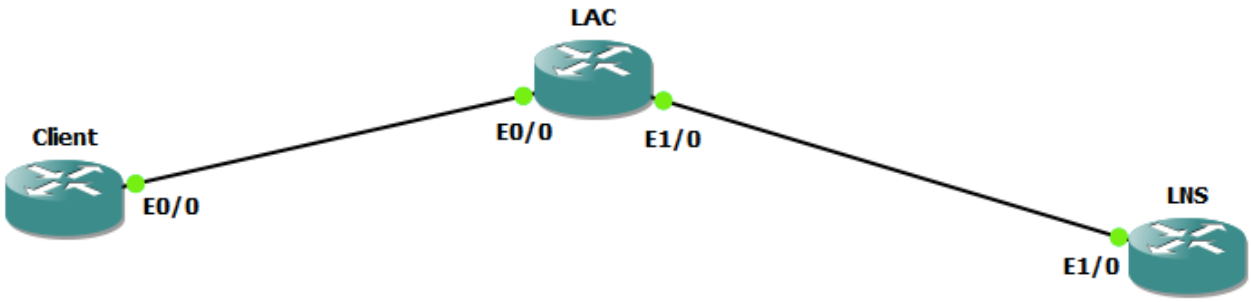
本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您使用的是真实网络，请确保您已经了解所有命令的潜在影响。

配置

> **注意**：使用命令查找工具（仅限注册用户）可获取有关本部分所使用命令的详细信息。

网络图

本文档使用以下网络设置：



配置

客户端配置:

客户端路由器上的配置示例如下所示：

```
ipv6 unicast-routing
!
interface Ethernet0/0
 no ip address
 pppoe enable group global
 pppoe-client dial-pool-number 1
end

interface Dialer1
 ip address negotiated
 encapsulation ppp
 dialer pool 1
 ipv6 address FE80::1234 link-local
 ipv6 address autoconfig
 ipv6 enable
 no ipv6 nd ra suppress
 ipv6 dhcp client pd my-prefix1
 no keepalive
 ppp chap hostname test@cisco.com
 ppp chap password 0 cisco
 no cdp enable
end ! interface FastEthernet0/2  description -  This interface is connected to the LAN segment
 no ip address
 ipv6 address my-prefix1 ::1/64
 ipv6 enable
```

LAC 配置:

LAC上的配置示例如下所示：

```
hostname LAC
!
vpdn enable
!
vpdn-group 1
 request-dialin
 protocol l2tp
 domain cisco.com
 initiate-to ip 192.168.1.2
 source-ip 192.168.1.1
```

```
 no l2tp tunnel authentication
! bba-group pppoe global virtual-template 1 ! interface Ethernet0/0  no ip address  pppoe enable
group global ! interface Ethernet1/0   ip address 192.168.1.1 255.255.255.0 ! interface Virtual-
Template1  no ip address  ppp authentication chap !
```

LNS 配置:

LNS上的配置示例如下所示：

```
ipv6 unicast-routing

!
vpdn enable
!
vpdn-group 1
accept-dialin
protocol l2tp
virtual-template 1
terminate-from hostname LAC
vpn vrf test
lcp renegotiation on-mismatch
no l2tp tunnel authentication
!
username test@cisco.com password cisco
interface Ethernet1/0
 ip vrf forwarding test
 ip address 192.168.1.2 255.255.255.0
 negotiation auto
 cdp enable
end   interface Virtual-Template1  ip address 10.1.1.1 255.255.255.0  ipv6 enable
 ipv6 dhcp server AAA
 peer default ip address pool local
 peer default ipv6 pool PPPOE_POOL6
 no keepalive
 ppp authentication chap ! ipv6 dhcp pool AAA
 prefix-delegation pool DHCPv6Pool
!
ipv6 local pool PPPOE_POOL6 2001:DB8:5AB:10::/60 64
!
ip local pool local 10.1.1.2 10.1.1.100
!
ipv6 local pool DHCPv6Pool 2A02:838F:F880::/42 56
!
```

验证

```
Client#show ipv6 interface brief FastEthernet0/2
FastEthernet0/2              [up/up]
   FE80::205:FF:FE77:2C1B
   2A02:838F:F880::1

Client#show ipv6 interface brief dialer1
Dialer1                [up/up]
   FE80::1234
   2001:DB8:5AB:10::1234
```

客户端故障排除

这些调试有助于调试问题：

```
debug ppp negotiation
debug ipv6 dhcp detail

Client#show debug
PPP:
 PPP protocol negotiation debugging is on
IPv6 DHCP:
  IPv6 DHCP debugging is on (detailed)
```

这是完成PPP协商后客户端路由器上调试ipv6 dhcp detail的片段，并且各自的虚拟访问处于UP状态。

```
*Jun 27 15:08:53.019: %LINEPROTO-5-UPDOWN: Line protocol on Interface Virtual-Access2, changed
state to up
*Jun 27 15:09:03.711: IPv6 DHCP: detailed packet contents
*Jun 27 15:09:03.711:   src FE80::1234
*Jun 27 15:09:03.711:   dst FF02::1:2 (Dialer1)
*Jun 27 15:09:03.711:   type REQUEST(3), xid 1849347
*Jun 27 15:09:03.711:   option ELAPSED-TIME(8), len 2
*Jun 27 15:09:03.711:     elapsed-time 3202
*Jun 27 15:09:03.711:   option CLIENTID(1), len 10
*Jun 27 15:09:03.711:     00030001000500772C1B
*Jun 27 15:09:03.711:   option ORO(6), len 6
*Jun 27 15:09:03.711:     IA-PD,DNS-SERVERS,DOMAIN-LIST
*Jun 27 15:09:03.711:   option SERVERID(2), len 10
*Jun 27 15:09:03.711:     000300017CAD74F9EB00
*Jun 27 15:09:03.711:   option IA-PD(25), len 41
*Jun 27 15:09:03.711:     IAID 0x000B0001, T1 0, T2 0
*Jun 27 15:09:03.711:     option IAPREFIX(26), len 25
*Jun 27 15:09:03.711:       preferred 0, valid 0, prefix 2A02:838F:F880::/56
*Jun 27 15:09:03.711: IPv6 DHCP: Sending REQUEST to FF02::1:2 on Dialer1
*Jun 27 15:09:03.711: IPv6 DHCP: Received REPLY from FE80::7EAD:74FF:FEF9:EB00 on Dialer1
*Jun 27 15:09:03.711: IPv6 DHCP: detailed packet contents
*Jun 27 15:09:03.711:   src FE80::7EAD:74FF:FEF9:EB00 (Dialer1)
*Jun 27 15:09:03.711:   dst FE80::1234 (Dialer1)
*Jun 27 15:09:03.711:   type REPLY(7), xid 1849347
*Jun 27 15:09:03.711:   option SERVERID(2), len 10
*Jun 27 15:09:03.711:     000300017CAD74F9EB00
*Jun 27 15:09:03.711:   option CLIENTID(1), len 10
*Jun 27 15:09:03.711:     00030001000500772C1B
*Jun 27 15:09:03.711:   option IA-PD(25), len 41
*Jun 27 15:09:03.711:     IAID 0x000B0001, T1 302400, T2 483840
*Jun 27 15:09:03.711:     option IAPREFIX(26), len 25
*Jun 27 15:09:03.711:       preferred 604800, valid 2592000, prefix 2A02:838F:F880::/56
*Jun 27 15:09:03.711: IPv6 DHCP: Processing options
*Jun 27 15:09:03.711: IPv6 DHCP: Adding prefix 2A02:838F:F880::/56 to my-prefix1
*Jun 27 15:09:03.711: IPv6 DHCP: T1 set to expire in 302400 seconds
*Jun 27 15:09:03.711: IPv6 DHCP: T2 set to expire in 483840 seconds
*Jun 27 15:09:03.711: IPv6 DHCP: DHCPv6 changes state from REQUEST to OPEN (REPLY_RECEIVED) on
Dialer1
```

相关信息

- IPv6访问服务：DHCPv6前缀委派
- T技术支持和文档 — Cisco Systems