

用于拨入和拨出的基本 L2TP 虚拟专用拨号网络 (VPDN)

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简介

本文为第2层隧道协议提供一配置示例拨入和拨出呼叫的。

注意： 此设置不介入一个验证、授权和统计(AAA)服务器。

先决条件

要求

本文档没有任何特定的要求。

使用的组件

本文档中的信息根据Cisco IOS软件版本12.1。

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。

规则

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

配置

本部分提供有关如何配置本文档所述功能的信息。

注意：要查找本文档所用命令的其他信息，请使用[命令查找工具](#)（[仅限注册用户](#)）。

网络图

本文档使用以下网络设置：

配置

本文档使用以下配置：

- 路由器remote1：Loopback0：17.17.17.1/32 用户名：remote1@cisco.com ISDN编号(BRI 0)：6122
- 路由器remote2：环回：17.17.17.2/32 用户名：remote2@cisco.com ISDN编号(BRI 0)：6121
- 路由器LAC：环回：18.18.18.1/32 ISDN编号(E1 0)：8211 Serial interfaces (S0)：18.18.18.6/30
- 路由器LNS：环回：18.18.18.2/32 Serial interfaces (S0)：18.18.18.5/30 以太网接口(E0)：10.200.20.24/24
- 路由器local1：环回：17.17.17.3/32 以太网接口(E0)：10.200.20.32/24

路由器remote1@cisco.com和remote2@cisco.com访问L2TP接入集中器的使用ISDN (LAC)。一个背对背串行链路连接LAC和L2TP网络服务器(LNS)在此设置。local1路由器和LNS共享同一条以太网链路

这是进程：

1. **L2TP拨入**：remote1@cisco.com客户端要用local1路由器通信。客户端生成ISDN呼叫对LAC，启动L2TP通道对LNS然后L2TP会话。LAC使用域名启动有LNS的通道。LNS本地验证远程用户。
2. **L2TP拨出**：local1路由器要连通与remote2@cisco.com远程客户端。LNS以LAC使用现有隧道并且创建一次新的L2TP会话。

注意：这些配置被删节显示相关信息。

```
LAC
hostname LAC
!
!
ip subnet-zero
no ip domain-lookup
!
vpdn enable
no vpdn logging
vpdn search-order domain
!--- VPDN tunnel authorization is based on the domain
only. ! vpdn-group 1 request-dialin !--- Enables the LAC
to make requests to the LNS for dialin. protocol l2tp
domain cisco.com accept-dialout !--- Enables the LAC to
```

```

accept requests from the LNS for dialout. protocol l2tp
dialer 1 !--- Specifies the dialer used to dial out.
terminate-from hostname LNS initiate-to ip 18.18.18.2
local name LAC l2tp tunnel password l2tptunnel source-ip
18.18.18.1 ! isdn switch-type primary-net5 ! !
controller E1 0 clock source line primary pri-group
timeslots 1-31 ! interface Loopback0 ip address
18.18.18.1 255.255.255.255 ! interface Ethernet0 ip
address 10.200.20.34 255.255.255.0 no ip route-cache no
ip mroute-cache no cdp enable ! ! interface Serial0
description -- Connection to the LNS ip address
18.18.18.6 255.255.255.252 no fair-queue clockrate 64000
no cdp enable ! interface Serial0:15 no ip address
encapsulation ppp dialer rotary-group 1 isdn switch-type
primary-net5 no cdp enable ppp authentication chap ppp
chap hostname LAC ! interface Dialer1 ip unnumbered
Loopback0 encapsulation ppp dialer in-band dialer aaa !-
-- L2TP dialout functionality requires this command even
if you do not use AAA. dialer-group 1 no cdp enable ppp
authentication chap ppp chap hostname LAC ppp chap
password 7 1511021F0725 ! no ip http server ip classless
ip route 18.18.18.2 255.255.255.255 18.18.18.5 ! dialer-
list 1 protocol ip permit no cdp run

```

LNS

```

hostname LNS
!
vpdn enable
vpdn-group 1
accept-dialin
!--- Enables the LNS to accept request from the LAC for
dialin. protocol l2tp virtual-template 1 !--- For each
user, a virtual-access is cloned from this virtual-
template. request-dialout !--- Enables the LNS to
request the LAC for dialout. protocol l2tp pool-member 1
!--- Specifies the dialer profile to be used to dial
out. terminate-from hostname LAC initiate-to ip
18.18.18.1 local name LNS l2tp tunnel password
l2tptunnel source-ip 18.18.18.2 ! ! interface Loopback0
ip address 18.18.18.2 255.255.255.255 ! interface
Ethernet0 ip address 10.200.20.24 255.255.255.0 no ip
route-cache no ip mroute-cache ! interface Virtual-
Template1 ip unnumbered Loopback0 no peer default ip
address ppp chap hostname LNS ! interface Serial0
description -- Connection to the LAC ip address
18.18.18.5 255.255.255.252 no ip route-cache no ip
mroute-cache ! interface Dialer1 !--- For each user, a
dialer profile is configured. ip unnumbered Loopback0
encapsulation ppp dialer pool 1 !--- "dialer pool 1"
must match "pool-member 1" in the VPDN-group. dialer
remote-name remotel@cisco.com dialer string 6122 !---
ISDN number that the LAC uses to dialout the remote
client remotel@cisco.com. dialer vpdn !--- Enables the
dialer profile to use L2TP dialout, and so place a VPDN
call. dialer-group 1 ppp authentication chap callin ppp
chap hostname LNS ! interface Dialer2 ip unnumbered
Loopback0 encapsulation ppp dialer pool 1 dialer remote-
name remote2@cisco.com dialer string 6121 dialer vpdn
dialer-group 1 no cdp enable ppp authentication chap
callin ppp chap hostname LNS ! no ip http server ip
classless ip route 10.200.16.26 255.255.255.255
10.200.20.1 ip route 17.17.17.1 255.255.255.255 Dialer1
ip route 17.17.17.2 255.255.255.255 Dialer2 ip route
17.17.17.3 255.255.255.255 10.200.20.32 ip route

```

```
18.18.18.1 255.255.255.255 18.18.18.6 ! dialer-list 1
protocol ip permit no cdp run
```

验证

本部分所提供的信息可用于确认您的配置是否正常工作。

[命令输出解释程序工具 \(仅限注册用户 \)](#) 支持某些 **show** 命令，使用此工具可以查看对 **show** 命令输出的分析。

- **show vpdn** —显示关于活动第2层转发(L2F)协议隧道和消息标识符的信息在虚拟专用拨号网络 (VPDN)。LAC#**show debug** Dial on demand: Dial on demand events debugging is on VPN: L2X protocol events debugging is on VPDN events debugging is on PPP: PPP authentication debugging is on PPP protocol negotiation debugging is on ISDN: ISDN events debugging is on ISDN events debug DSLs. (On/Off/No DSL:1/0/-) DSL 0 --> 1 1 - LNS#**show debug** Dial on demand: Dial on demand events debugging is on VPN: L2X protocol events debugging is on VPDN events debugging is on PPP: PPP authentication debugging is on PPP protocol negotiation debugging is on VTEMPLATE: Virtual Template debugging is on

验证

拨入

remote1@cisco.com路由器发起呼叫到local1路由器。

LAC#

ISDN呼叫进入LAC。

```
Sep 29 02:25:42.923: ISDN Se0:15: Incoming call id = 0x011B, dsl 0
Sep 29 02:25:42.927: Negotiated CCB->int_id 0 B-chan 0, req->int_id 0, B-chan 18
Sep 29 02:25:42.931: CCPRI_ReleaseChan CCB->B_Ch an zero
Sep 29 02:25:42.939: ISDN Se0:15: received CALL_INCOMING call_id 0x11B
Sep 29 02:25:42.939: ISDN Se0:15: CALL_INCOMING: call type is DATA , bchan = 17
Sep 29 02:25:42.943: ISDN Se0:15: Event: Received a DATA call from 6122 on B17
at 64 Kb/s
Sep 29 02:25:42.947: ISDN Se0:15: RM returned call_type 0 resource type 0
Sep 29 02:25:42.959: ISDN Se0:15: isdn_send_connect(): msg 74, call id 0x11B,
ces 1 bchan 17, call type DATA
Sep 29 02:25:43.031: %LINK-3-UPDOWN: Interface Serial0:17, changed state to up
Sep 29 02:25:43.059: Se0:17 PPP: Treating connection as a callin
Sep 29 02:25:43.063: Se0:17 PPP: Phase is ESTABLISHING, Passive Open
Sep 29 02:25:43.067: Se0:17 LCP: State is Listen
Sep 29 02:25:43.127: ISDN Se0:15: received CALL_PROGRESSing call_id 0x11B
Sep 29 02:25:43.199: Se0:17 LCP: I CONFREQ [Listen] id 125 len 10
Sep 29 02:25:43.203: Se0:17 LCP: MagicNumber 0xEB818699 (0x0506EB818699)
Sep 29 02:25:43.207: Se0:17 LCP: O CONFREQ [Listen] id 7 len 15
Sep 29 02:25:43.211: Se0:17 LCP: AuthProto CHAP (0x0305C22305)
Sep 29 02:25:43.215: Se0:17 LCP: MagicNumber 0x6BDE50CC (0x05066BDE50CC)
Sep 29 02:25:43.219: Se0:17 LCP: O CONFACK [Listen] id 125 len 10
Sep 29 02:25:43.223: Se0:17 LCP: MagicNumber 0xEB818699 (0x0506EB818699)
Sep 29 02:25:43.247: Se0:17 LCP: I CONFACK [ACKsent] id 7 len 15
Sep 29 02:25:43.251: Se0:17 LCP: AuthProto CHAP (0x0305C22305)
Sep 29 02:25:43.255: Se0:17 LCP: MagicNumber 0x6BDE50CC (0x05066BDE50CC)
Sep 29 02:25:43.259: Se0:17 LCP: State is Open
Sep 29 02:25:43.259: Se0:17 PPP: Phase is AUTHENTICATING, by this end
```

LAC 将 CHAP 质询发送到客户端。

Sep 29 02:25:43.263: Se0:17 CHAP: Using alternate hostname LAC
Sep 29 02:25:43.267: Se0:17 CHAP: O CHALLENGE id 7 len 24 from "LAC"

LAC收到CHAP答复，但是不验证用户。LNS执行验证。

Sep 29 02:25:43.295: Se0:17 CHAP: I RESPONSE id 7 len 38 from "remotel@cisco.com"
Sep 29 02:25:43.303: Se0:17 PPP: Phase is FORWARDING
Sep 29 02:25:43.303: Se0:17 VPDN: Got DNIS string 211

LAC检查域“cisco.com”是否存在，然后收集必要的信息启动有LNS的通道。

Sep 29 02:25:43.307: Se0:17 VPDN: Looking for tunnel -- cisco.com --
Sep 29 02:25:43.347: Se0:17 VPDN/LAC/1: Got tunnel info for cisco.com
Sep 29 02:25:43.351: Se0:17 VPDN/LAC/1: LAC LAC
Sep 29 02:25:43.351: Se0:17 VPDN/LAC/1: source-ip 18.18.18.1
Sep 29 02:25:43.355: Se0:17 VPDN/LAC/1: l2tp-busy-disconnect yes
Sep 29 02:25:43.359: Se0:17 VPDN/LAC/1: l2tp-tunnel-password xxxxxx
Sep 29 02:25:43.359: Se0:17 VPDN/LAC/1: IP 18.18.18.2
Sep 29 02:25:43.371: Se0:17 VPDN/1: curlvl 1 Address 0: 18.18.18.2, priority 1
Sep 29 02:25:43.375: Se0:17 VPDN/1: Select non-active address 18.18.18.2, priority 1
Sep 29 02:25:43.379: Tnl 45029 L2TP: SM State idle

LAC启动有LNS的通道。

Sep 29 02:25:43.383: Tnl 45029 L2TP: O SCCRQ
Sep 29 02:25:43.391: Tnl 45029 L2TP: Tunnel state change from idle to
wait-ctl-reply
Sep 29 02:25:43.395: Tnl 45029 L2TP: SM State wait-ctl-reply
Sep 29 02:25:43.399: Se0:17 VPDN: Find LNS process created
Sep 29 02:25:43.403: Se0:17 VPDN: Forward to address 18.18.18.2
Sep 29 02:25:43.403: Se0:17 VPDN: Pending
Sep 29 02:25:43.411: Se0:17 VPDN: Process created
Sep 29 02:25:43.463: Tnl 45029 L2TP: I SCCRP from LNS
Sep 29 02:25:43.467: Tnl 45029 L2TP: Got a challenge from remote peer, LNS
Sep 29 02:25:43.471: Tnl 45029 L2TP: Got a response from remote peer, LNS
Sep 29 02:25:43.475: Tnl 45029 L2TP: Tunnel Authentication success
Sep 29 02:25:43.479: Tnl 45029 L2TP: Tunnel state change from wait-ctl-reply
to established
Sep 29 02:25:43.483: Tnl 45029 L2TP: O SCCCN to LNS tnlid 11407
Sep 29 02:25:43.487: Tnl 45029 L2TP: SM State established
Sep 29 02:25:43.495: Se0:17 VPDN: Forwarding...
Sep 29 02:25:43.499: Se0:17 DDR: Authenticated host remotel@cisco.com with no
matching dialer map
Sep 29 02:25:43.503: Se0:17 VPDN: Bind interface direction=1
Sep 29 02:25:43.507: Tnl/C1 45029/291 L2TP: Session FS enabled
Sep 29 02:25:43.511: Tnl/C1 45029/291 L2TP: Session state change from idle to
wait-for-tunnel
Sep 29 02:25:43.515: Se0:17 Tnl/C1 45029/291 L2TP: Create session
Sep 29 02:25:43.519: Tnl 45029 L2TP: SM State established

LAC启动用户的remotel@cisco.com会话。

Sep 29 02:25:43.523: Se0:17 Tnl/C1 45029/291 L2TP: O ICRQ to LNS 11407/0
Sep 29 02:25:43.531: Se0:17 Tnl/C1 45029/291 L2TP: Session state change from
wait-for-tunnel to wait-reply
Sep 29 02:25:43.535: Se0:17 VPDN: remotel@cisco.com is forwarded
Sep 29 02:25:43.635: Se0:17 Tnl/C1 45029/291 L2TP: O ICCN to LNS 11407/303
Sep 29 02:25:43.639: Se0:17 Tnl/C1 45029/291 L2TP: Session state change from
wait-reply to established
Sep 29 02:25:44.535: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0:17,
changed state to up
Sep 29 02:25:49.055: %ISDN-6-CONNECT: Interface Serial0:17 is now connected to
6122 remotel@cisco.com

LAC#show vpdn L2TP Tunnel and Session Information Total tunnels 1 sessions 1 LocID RemID Remote
Name State Remote Address Port Sessions 45029 11407 LNS est 18.18.18.2 1701 1 LocID RemID TunID

```
Intf Username State Last Chg Fastswitch 291 303 45029 Se0:17 remotel@cisco.com est 00:00:14
enabled % No active L2F tunnels
```

拨出

local1路由器发起呼叫到remote2@cisco.com路由器。

LAC#

LAC收到从LNS的一请求启动拨出的一个新会话。

```
Sep 29 02:26:19.479: Tnl 45029 L2TP: I OCRQ from LNS tnl 11407
Sep 29 02:26:19.483: Tnl/Cl 45029/292 L2TP: Session FS enabled
Sep 29 02:26:19.487: Tnl/Cl 45029/292 L2TP: New session created
Sep 29 02:26:19.491: 1D4C: Same state, 0
Sep 29 02:26:19.495: DSES 1D4C: Session create
Sep 29 02:26:19.499: L2TP: Send OCRP
Sep 29 02:26:19.503: Tnl/Cl 45029/292 L2TP: Session state change from
idle to wait-cs-answer
```

LAC使用ISDN呼叫第6121。

```
Sep 29 02:26:19.511: DSES 0x1D4C: Building dialer map
Sep 29 02:26:19.511: Dialout 0x1D4C: Next hop name is 6121
Sep 29 02:26:19.515: Se0:15 DDR: rotor dialout [priority]
Sep 29 02:26:19.519: Se0:15 DDR: Dialing cause dialer session 0x1D4C
Sep 29 02:26:19.523: Se0:15 DDR: Attempting to dial 6121
Sep 29 02:26:19.523: ISDN Se0:15: Outgoing call id = 0x8055, dsl 0
Sep 29 02:26:19.527: ISDN Se0:15: Event: Call to 6121 at 64 Kb/s
Sep 29 02:26:19.531: ISDN Se0:15: process_pri_call(): call id 0x8055,
number 6121, speed 64, call type DATA
Sep 29 02:26:19.539: building outgoing channel id for call nfas_int is 0 len is 0
Sep 29 02:26:19.623: ISDN Se0:15: received CALL_ACCEPT call_id 0x8055
Sep 29 02:26:19.623: ISDN Se0:15: PRI Event: CALL_ACCEPT, bchan = 30,
call type = DATA
Sep 29 02:26:20.043: ISDN Se0:15: received CALL_CONNECT call_id 0x8055
Sep 29 02:26:20.115: %LINK-3-UPDOWN: Interface Serial0:30, changed state to up
Sep 29 02:26:20.147: Di1: Session free, 1D4C
Sep 29 02:26:20.151: : 0 packets unqueued and discarded
Sep 29 02:26:20.155: Se0:30 VPDN: Bind interface direction=1
Sep 29 02:26:20.159: Se0:30 Tnl/Cl 45029/292 L2TP: Session state change
from wait-cs-answer to established
Sep 29 02:26:20.163: L2TP: Send OCCN
```

LAC限制有VPDN会话的ISDN会话se0:30。

```
Sep 29 02:26:20.167: Se0:30 VPDN: bound to vpdn session
Sep 29 02:26:20.175: ISDN Se0:15: received CALL_PROGRESSing call_id 0x8055
Sep 29 02:26:26.143: %ISDN-6-CONNECT: Interface Serial0:30 is now connected to 6121
LAC#
```

```
LAC#show vpdn L2TP Tunnel and Session Information Total tunnels 1 sessions 2 LocID RemID Remote
Name State Remote Address Port Sessions 45029 11407 LNS est 18.18.18.2 1701 2 LocID RemID TunID
Intf Username State Last Chg Fastswitch 291 303 45029 Se0:17 remotel@cisco.com est 00:00:57
enabled 292 304 45029 Se0:30 est 00:00:20 enabled % No active L2F tunnels LAC#
```

故障排除

本部分提供的信息可用于对配置进行故障排除。

故障排除命令

命令输出解释程序工具 ([仅限注册用户](#)) 支持某些 **show** 命令，使用此工具可以查看对 **show** 命令

输出的分析。

注意：在发出 `debug` 命令之前，请参阅[有关 Debug 命令的重要信息](#)。

- `debug dialer events` —显示关于在拨号接口接收的数据包的调试信息。
- `debug vpdn l2x-events` —显示关于正常隧道建立的一部分或关闭的事件的消息。
- `debug vpdn l2x-packets` —显示被交换的每个协议信息包。此命令能导致很大数量的调试消息。以单个激活的会话使用此命令在调试机箱。
- `debug vpdn l2x-errors` —显示防止通道建立或错误造成一个已建隧道关闭的错误。
- `debug ppp协商` —导致`debug ppp`命令显示在PPP启动期间传送的PPP数据包，PPP选项协商。
- `debug ppp authentication` —导致`debug ppp`命令显示认证协议消息。消息包括质询握手验证协议(CHAP)信息包交换和密码认证协议交换。
- `debug isdn events` —显示在用户端发生的综合业务数字网络(ISDN)事件(在路由器) ISDN接口。
- `debug isdn q931` —显示关于呼叫建立及拆线的信息ISDN网络连接(在本地路由器(用户端)和网络之间的层3)。
- `debug vtemplate` —显示从一个虚拟模板被克隆到时间虚拟访问接口下来的一个虚拟访问接口的克隆信息从时间，当呼叫结束时。

[在LNS的调试](#)

[拨入](#)

remote1@cisco.com路由器发起呼叫到local1路由器。

LNS收到从LAC的一请求启动通道。

```
Sep 29 02:25:44.531: L2TP: I SCCRQ from LAC tnl 45029
Sep 29 02:25:44.539: Tnl 11407 L2TP: Got a challenge in SCCRQ, LAC
Sep 29 02:25:44.543: Tnl 11407 L2TP: New tunnel created for remote LAC,
address 18.18.18.1
Sep 29 02:25:44.547: Tnl 11407 L2TP: O SCCRP to LAC tnlid 45029
Sep 29 02:25:44.555: Tnl 11407 L2TP: Tunnel state change from idle to
wait-ctl-reply
Sep 29 02:25:44.623: Tnl 11407 L2TP: I SCCCN from LAC tnl 45029
Sep 29 02:25:44.627: Tnl 11407 L2TP: Got a Challenge Response in SCCCN from LAC
Sep 29 02:25:44.631: Tnl 11407 L2TP: Tunnel Authentication success
Sep 29 02:25:44.635: Tnl 11407 L2TP: Tunnel state change from wait-ctl-reply
to established
Sep 29 02:25:44.639: Tnl 11407 L2TP: SM State established
```

LNS收到从LAC的一请求启动会话。

```
Sep 29 02:25:44.667: Tnl 11407 L2TP: I ICRQ from LAC tnl 45029
Sep 29 02:25:44.671: Tnl/C1 11407/303 L2TP: Session FS enabled
Sep 29 02:25:44.679: Tnl/C1 11407/303 L2TP: Session state change from idle
to wait-connect
Sep 29 02:25:44.679: Tnl/C1 11407/303 L2TP: New session created
Sep 29 02:25:44.683: Tnl/C1 11407/303 L2TP: O ICRP to LAC 45029/291
Sep 29 02:25:44.791: Tnl/C1 11407/303 L2TP: I ICCN from LAC tnl 45029, c1 291
Sep 29 02:25:44.799: Tnl/C1 11407/303 L2TP: Session state change from wait-connect
to established
```

LNS复制用户的remote1@cisco.com虚拟访问。

```
Sep 29 02:25:44.803: Vt1 VTEMPLATE: Unable to create and clone vaccess
Sep 29 02:25:44.803: Vi2 VTEMPLATE: Reuse Vi2, recycle queue size 1
Sep 29 02:25:44.807: Vi2 VTEMPLATE: Hardware address 0060.4780.ac23
Sep 29 02:25:44.807: Vi2 VPDN: Virtual interface created for remotel@cisco.com
Sep 29 02:25:44.811: Vi2 PPP: Phase is DOWN, Setup
Sep 29 02:25:44.815: Vi2 VPDN: Clone from Vtemplate 1 filterPPP=0 blocking
Sep 29 02:25:44.819: Vi2 VTEMPLATE: Has a new cloneblk vtemplate,
    now it has vtemplate
Sep 29 02:25:44.827: Vi2 VTEMPLATE: ***** CLONE VACCESS2 *****
Sep 29 02:25:44.827: Vi2 VTEMPLATE: Clone from Virtual-Template1 interface
Virtual-Access2
encapsulation ppp
ip unnumbered loopback 0
ppp chap hostname LNS
ppp authentication chap
end
```

```
Sep 29 02:25:46.975: %LINK-3-UPDOWN: Interface Virtual-Access2,
    changed state to up
Sep 29 02:25:46.995: Vi2 PPP: Using set call direction
Sep 29 02:25:46.999: Vi2 PPP: Treating connection as a callin
Sep 29 02:25:46.999: Vi2 PPP: Phase is ESTABLISHING, Passive Open
Sep 29 02:25:47.003: Vi2 LCP: State is Listen
Sep 29 02:25:47.007: Vi2 VPDN: Bind interface direction=2
Sep 29 02:25:47.007: Vi2 LCP: I FORCED CONFREQ len 11
Sep 29 02:25:47.011: Vi2 LCP: AuthProto CHAP (0x0305C22305)
Sep 29 02:25:47.015: Vi2 LCP: MagicNumber 0x6BDE50CC (0x05066BDE50CC)
```

LNS接收该LCP的层LAC协商与remote1@cisco.com客户端。所以，LNS不重新协商与客户端的LCP。

```
Sep 29 02:25:47.019: Vi2 VPDN: PPP LCP accepted rcv CONFACK
Sep 29 02:25:47.019: Vi2 VPDN: PPP LCP accepted sent CONFACK
Sep 29 02:25:47.023: Vi2 PPP: Phase is AUTHENTICATING, by this end
Sep 29 02:25:47.023: Vi2 CHAP: Using alternate hostname LNS
Sep 29 02:25:47.027: Vi2 CHAP: O CHALLENGE id 8 len 24 from "LNS"
Sep 29 02:25:47.039: Vi2 CHAP: I RESPONSE id 7 len 38 from "remotel@cisco.com"
Sep 29 02:25:47.051: Vi2 CHAP: O SUCCESS id 7 len 4
Sep 29 02:25:47.055: Vi2 PPP: Phase is UP
Sep 29 02:25:47.059: Vi2 IPCP: O CONFREQ [Not negotiated] id 1 len 10
Sep 29 02:25:47.063: Vi2 IPCP: Address 18.18.18.2 (0x030612121202)
Sep 29 02:25:47.111: Vi2 IPCP: I CONFREQ [REQsent] id 110 len 10
Sep 29 02:25:47.115: Vi2 IPCP: Address 17.17.17.1 (0x030611111101)
Sep 29 02:25:47.119: Vi2 IPCP: O CONFACK [REQsent] id 110 len 10
Sep 29 02:25:47.123: Vi2 IPCP: Address 17.17.17.1 (0x030611111101)
Sep 29 02:25:47.127: Vi2 IPCP: I CONFACK [ACKsent] id 1 len 10
Sep 29 02:25:47.131: Vi2 IPCP: Address 18.18.18.2 (0x030612121202)
Sep 29 02:25:47.135: Vi2 IPCP: State is Open
Sep 29 02:25:47.143: Vi2 IPCP: Install route to 17.17.17.1
Sep 29 02:25:48.131: %LINEPROTO-5-UPDOWN: Line protocol on
Interface Virtual-Access2, changed state to up
```

```
LNS#show vpdn L2TP Tunnel and Session Information Total tunnels 1 sessions 1 LocID RemID Remote
Name State Remote Address Port Sessions 11407 45029 LAC est 18.18.18.1 1701 1 LocID RemID TunID
Intf Username State Last Chg Fastswitch 303 291 11407 Vi2 remotel@cisco.com est 00:00:22 enabled
% No active L2F tunnels
```

拨出

local1路由器发起呼叫到remote2@cisco.com路由器。

```
LNS#
Sep 29 02:26:20.531: Vi1 VTEMPLATE: Reuse Vi1, recycle queue size 0
```



```
Sep 29 02:26:20.531: Vi1 VTEMPLATE: Hardware address 0060.4780.ac23
Sep 29 02:26:20.535: Vi1 PPP: Phase is DOWN, Setup
Sep 29 02:26:20.543: Vi1 VTEMPLATE: Has a new cloneblk dialer, now it has dialer
Sep 29 02:26:20.547: Vi1 DDR: Dialing cause ip (s=10.200.20.32, d=17.17.17.2)
Sep 29 02:26:20.551: Vi1 DDR: Attempting to dial 6121
Sep 29 02:26:20.555: Tnl/Cl 11407/304 L2TP: Session FS enabled
Sep 29 02:26:20.559: Tnl/Cl 11407/304 L2TP: Session state change from idle
to wait-for-tunnel
Sep 29 02:26:20.563: Tnl/Cl 11407/304 L2TP: Create dialout session
Sep 29 02:26:20.567: Tnl 11407 L2TP: SM State established
```

LNS发送请求对拨出的LAC。

```
Sep 29 02:26:20.571: L2TP: O OCRQ
Sep 29 02:26:20.575: Vi1 Tnl/Cl 11407/304 L2TP: Session state change from
wait-for-tunnel to wait-reply
Sep 29 02:26:20.579: Vi1 VPDN: Bind interface direction=2
Sep 29 02:26:20.635: Vi1 Tnl/Cl 11407/304 L2TP: I OCRP from LAC tnl 45029, cl 0
Sep 29 02:26:20.639: Vi1 Tnl/Cl 11407/304 L2TP: Session state change from
wait-reply to wait-connect
Sep 29 02:26:21.299: Vi1 Tnl/Cl 11407/304 L2TP: I OCCN from LAC tnl 45029, cl 292
Sep 29 02:26:21.303: Vi1 Tnl/Cl 11407/304 L2TP: Session state change from
wait-connect to established
Sep 29 02:26:21.307: Vi1 VPDN: Connection is up, start LCP negotiation now
Sep 29 02:26:21.315: %LINK-3-UPDOWN: Interface Virtual-Access1, changed state to up
Sep 29 02:26:21.335: Vi1 DDR: Dialer statechange to up
```

虚拟访问1一定描出remote2@cisco.com的配置查找的dialer2。

```
Sep 29 02:26:21.335: %DIALER-6-BIND: Interface Vi1 bound to profile Di2
Sep 29 02:26:21.339: Vi1 DDR: Dialer call has been placed
```

PPP相位开始在LNS和remote2@cisco.com客户端之间。

```
Sep 29 02:26:21.343: Vi1 PPP: Treating connection as a callout
Sep 29 02:26:21.343: Vi1 PPP: Phase is ESTABLISHING, Active Open
Sep 29 02:26:21.347: Vi1 PPP: No remote authentication for call-out
Sep 29 02:26:21.351: Vi1 LCP: O CONFREQ [Closed] id 1 len 10
Sep 29 02:26:21.355: Vi1 LCP: MagicNumber 0x6F87121F (0x05066F87121F)
Sep 29 02:26:21.427: Vi1 LCP: I CONFREQ [REQsent] id 79 len 39
Sep 29 02:26:21.431: Vi1 LCP: AuthProto CHAP (0x0305C22305)
Sep 29 02:26:21.435: Vi1 LCP: MagicNumber 0x059935DB (0x0506059935DB)
Sep 29 02:26:21.435: Vi1 LCP: MRRU 1524 (0x110405F4)
Sep 29 02:26:21.439: Vi1 LCP: EndpointDisc 1 Local
Sep 29 02:26:21.443: Vi1 LCP: (0x13140172656D6F74653240636973636F)
Sep 29 02:26:21.447: Vi1 LCP: (0x2E636F6D)
Sep 29 02:26:21.451: Vi1 LCP: O CONFREQ [REQsent] id 79 len 28
Sep 29 02:26:21.455: Vi1 LCP: MRRU 1524 (0x110405F4)
Sep 29 02:26:21.455: Vi1 LCP: EndpointDisc 1 Local
Sep 29 02:26:21.459: Vi1 LCP: (0x13140172656D6F74653240636973636F)
Sep 29 02:26:21.463: Vi1 LCP: (0x2E636F6D)
Sep 29 02:26:21.467: Vi1 LCP: I CONFACK [REQsent] id 1 len 10
Sep 29 02:26:21.471: Vi1 LCP: MagicNumber 0x6F87121F (0x05066F87121F)
Sep 29 02:26:21.559: Vi1 LCP: I CONFREQ [ACKrcvd] id 80 len 15
Sep 29 02:26:21.563: Vi1 LCP: AuthProto CHAP (0x0305C22305)
Sep 29 02:26:21.567: Vi1 LCP: MagicNumber 0x059935DB (0x0506059935DB)
Sep 29 02:26:21.571: Vi1 LCP: O CONFACK [ACKrcvd] id 80 len 15
Sep 29 02:26:21.575: Vi1 LCP: AuthProto CHAP (0x0305C22305)
Sep 29 02:26:21.579: Vi1 LCP: MagicNumber 0x059935DB (0x0506059935DB)
Sep 29 02:26:21.583: Vi1 LCP: State is Open
Sep 29 02:26:21.583: Vi1 PPP: Phase is AUTHENTICATING, by the peer
Sep 29 02:26:21.647: Vi1 CHAP: I CHALLENGE id 8 len 38 from "remote2@cisco.com"
Sep 29 02:26:21.651: Vi1 CHAP: Using alternate hostname LNS
Sep 29 02:26:21.655: Vi1 CHAP: O RESPONSE id 8 len 24 from "LNS"
Sep 29 02:26:21.699: Vi1 CHAP: I SUCCESS id 8 len 4
```

```
Sep 29 02:26:21.703: Vi1 PPP: Phase is UP
Sep 29 02:26:21.707: Vi1 IPCP: O CONFREQ [Closed] id 1 len 10
Sep 29 02:26:21.711: Vi1 IPCP: Address 18.18.18.2 (0x030612121202)
Sep 29 02:26:21.715: Vi1 IPCP: I CONFREQ [REQsent] id 40 len 10
Sep 29 02:26:21.719: Vi1 IPCP: Address 17.17.17.2 (0x030611111102)
Sep 29 02:26:21.723: Vi1 IPCP: O CONFACK [REQsent] id 40 len 10
Sep 29 02:26:21.727: Vi1 IPCP: Address 17.17.17.2 (0x030611111102)
Sep 29 02:26:21.775: Vi1 IPCP: I CONFACK [ACKsent] id 1 len 10
Sep 29 02:26:21.779: Vi1 IPCP: Address 18.18.18.2 (0x030612121202)
Sep 29 02:26:21.783: Vi1 IPCP: State is Open
```

```
Sep 29 02:26:21.791: Vi1 DDR: dialer protocol up
Sep 29 02:26:21.795: Di2 IPCP: Install route to 17.17.17.2
Sep 29 02:26:22.703: %LINEPROTO-5-UPDOWN: Line protocol on
Interface Virtual-Access1, changed state to up
```

```
LNS#show vpdn L2TP Tunnel and Session Information Total tunnels 1 sessions 2 LocID RemID Remote
Name State Remote Address Port Sessions 11407 45029 LAC est 18.18.18.1 1701 2 LocID RemID TunID
Intf Username State Last Chg Fastswitch 304 292 11407 Vi1 est 00:00:16 enabled 303 291 11407 Vi2
remote1@cisco.com est 00:00:52 enabled % No active L2F tunnels
```

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