適用於撥入和撥出的基本L2TP虛擬專用撥接網路(VPDN)

目錄

簡介

本檔案將提供撥入和撥出呼叫的第2層通道通訊協定(L2TP)的組態範例。

注意：此設定不涉及身份驗證、授權和記帳(AAA)伺服器。

必要條件

需求

本文件沒有特定需求。

採用元件

本檔案中的資訊是根據Cisco IOS®軟體版本12.1。

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除（預設）的組態來啟動。如果您的網路正在作用，請確保您已瞭解任何指令可能造成的影響。

慣例

如需文件慣例的詳細資訊，請參閱思科技術提示慣例。

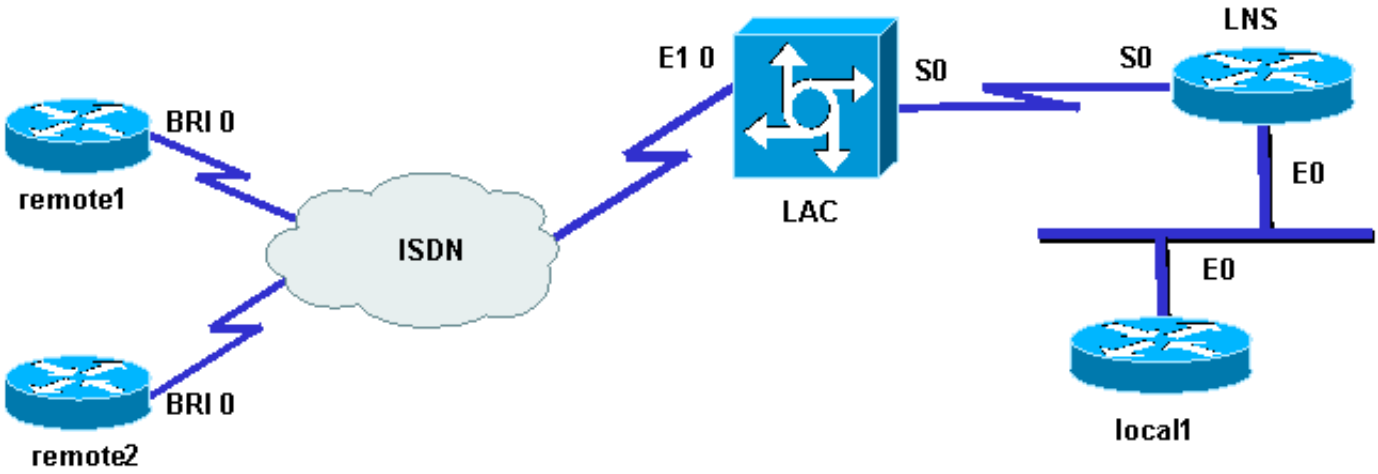
設定

本節提供用於設定本文件中所述功能的資訊。

注意：要查詢有關本文檔中使用的命令的其他資訊，請使用命令查詢工具(僅限註冊客戶)。

網路圖表

此文件使用以下網路設定：



組態

本檔案會使用以下設定：

- Router remote1:

  Loopback0:17.17.17.1/32使用者名稱：remote1@cisco.com ISDN編號(BRI 0):6122

- Router remote2:

  環回：17.17.17.2/32使用者名稱：remote2@cisco.com ISDN編號(BRI 0):6121

- 路由器LAC:

  環回：18.18.18.1/32 ISDN編號(E1 0):8211串列介面(S0):18.18.18.6/30

- 路由器LNS:

  環回：18.18.18.2/32串列介面(S0):18.18.18.5/30乙太網介面(E0):10.200.20.24/24

- Router local1:

  環回：17.17.17.3/32乙太網介面(E0):10.200.20.32/24

路由器remote1@cisco.com和remote2@cisco.com使用ISDN訪問L2TP訪問集中器(LAC)。在此設

定中，背靠背串列鏈路連線LAC和L2TP網路伺服器(LNS)。本地1路由器和LNS共用同一乙太網鏈路

流程如下：

1. L2TP撥入:remote1@cisco.com客戶端希望與local1路由器通訊。客戶端生成對LAC的ISDN呼叫，這將啟動到LNS的L2TP隧道，然後啟動L2TP會話。LAC使用域名來啟動LNS的隧道。LNS在本地對遠端使用者進行身份驗證。
2. L2TP撥出：本地1路由器希望與remote2@cisco.com遠端客戶端通訊。LNS使用具有LAC的現有隧道並建立新的L2TP會話。

註：這些配置將被截斷，以顯示相關資訊。

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 remote1@cisco.com
dialer string 6122

!--- ISDN number that the LAC uses to dialout the remote client remote1@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
```

驗證

本節提供的資訊可用於確認您的組態是否正常運作。

輸出直譯器工具(僅供註冊客戶使用)支援某些show命令，此工具可讓您檢視show命令輸出的分析。

- show vpdn — 顯示有關虛擬專用撥接網路(VPDN)中作用中第2層轉送(L2F)通訊協定通道和訊息識別符的資訊。

<#root>

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
```

驗證

撥入

remote1@cisco.com路由器發起對local1路由器的呼叫。

```
LAC#
```

ISDN呼叫進入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_Chan 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 (0x056066BDE50CC)
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 (0x056066BDE50CC)
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向客戶端傳送CHAP質詢。

```
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響應，但不會驗證使用者的身份。LNS執行身份驗證。

```
Sep 29 02:25:43.295: Se0:17 CHAP: I RESPONSE id 7 len 38 from "remote1@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檢查域「cisco.com」是否存在，然後收集與LNS建立隧道所需的資訊。

```
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將通道與LNS連線起來。

```
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 remote1@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/Cl 45029/291 L2TP: Session FS enabled
Sep 29 02:25:43.511: Tnl/Cl 45029/291 L2TP: Session state change from idle to
   wait-for-tunnel
Sep 29 02:25:43.515: Se0:17 Tnl/Cl 45029/291 L2TP: Create session
Sep 29 02:25:43.519: Tnl 45029 L2TP: SM State established
```

LAC為使用者remote1@cisco.com啟動會話。

<#root>

```
Sep 29 02:25:43.523: Se0:17 Tnl/Cl 45029/291 L2TP: O ICRQ to LNS 11407/0
Sep 29 02:25:43.531: Se0:17 Tnl/Cl 45029/291 L2TP: Session state change from
   wait-for-tunnel to wait-reply
Sep 29 02:25:43.535: Se0:17 VPDN: remote1@cisco.com is forwarded
Sep 29 02:25:43.635: Se0:17 Tnl/Cl 45029/291 L2TP: O ICCN to LNS 11407/303
Sep 29 02:25:43.639: Se0:17 Tnl/Cl 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 remote1@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 remote1@cisco.com est 00:00:14 enabled

% No active L2F tunnels
```

撥出

local1路由器發起對remote2@cisco.com路由器的呼叫。

```
LAC#
```

LAC收到來自LNS的請求，啟動用於撥出的新會話。

```
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呼叫號碼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將ISDN會話se0:30與VPDN會話繫結。

<#root>

```
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 remote1@cisco.com est 00:00:57 enabled
```

```
292 304 45029 Se0:30 est 00:00:20 enabled

% No active L2F tunnels
LAC#
```

疑難排解

本節提供的資訊可用於對組態進行疑難排解。

疑難排解指令

輸出直譯器工具(僅供註冊客戶使用)支援某些show命令，此工具可讓您檢視show命令輸出的分析。

注意：發出debug指令之前，請先參閱有關Debug指令的重要資訊。

- debug dialer events — 顯示有關撥號器介面上接收的資料包的調試資訊。
- debug vpdn l2x-events — 顯示有關屬於正常隧道建立或關閉的事件的消息。
- debug vpdn l2x-packets — 顯示交換的每個協定資料包。此命令可能會導致大量調試消息。僅對具有單個活動會話的調試機箱使用此命令。
- debug vpdn l2x-errors — 顯示阻止建立通道的錯誤或導致已建立的通道關閉的錯誤。
- debug ppp negotiation — 使debug ppp命令顯示PPP啟動期間傳輸的PPP資料包，其中會協商PPP選項。
- debug ppp authentication — 使debug ppp命令顯示身份驗證協定消息。這些消息包括質詢握手身份驗證協定(CHAP)資料包交換和密碼身份驗證協定(PAP)交換。
- debug isdn events — 顯示ISDN介面使用者端（路由器上）發生的整合服務數位網路(ISDN)事件。
- debug isdn q931 — 顯示有關本地路由器（使用者端）與網路之間的ISDN網路連線（第3層）的呼叫建立和拆除的資訊。
- debug vtemplate — 顯示虛擬訪問介面的克隆資訊，從虛擬模板克隆到呼叫結束時虛擬訪問介面關閉為止。

在LNS上調試

撥入

remote1@cisco.com路由器發起對local1路由器的呼叫。

LNS接收來自LAC的啟動隧道的請求。

```
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接收來自LAC的啟動會話的請求。

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

LNS為使用者remote1@cisco.com克隆虛擬訪問。

```
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 remote1@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LAC與remote1@cisco.com客戶端協商的LCP層。因此，LNS不會與客戶端重新協商LCP。

<#root>

```
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 "remote1@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 remote1@cisco.com est 00:00:22 enabled

% No active L2F tunnels
```

撥出

local1路由器發起對remote2@cisco.com路由器的呼叫。

```
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向LAC傳送撥出請求。

```
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
```

虛擬訪問1繫結到remote2@cisco.com的配置所在的配置檔案撥號器2。

```
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階段開始於LNS和remote2@cisco.com客戶端之間。

<#root>

```
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 CONFREJ [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
```

相關資訊

- 撥號技術支援頁
- 技術支援與文件 - Cisco Systems

關於此翻譯

思科已使用電腦和人工技術翻譯本文件，讓全世界的使用者能夠以自己的語言理解支援內容。請注意，即使是最佳機器翻譯，也不如專業譯者翻譯的內容準確。Cisco Systems, Inc. 對這些翻譯的準確度概不負責，並建議一律查看原始英文文件（提供連結）。