

Basic L2TP Virtual Private Dialup Network (VPDN) para Marcado de Entrada y de Salida

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[Introducción](#)

Este documento proporciona una configuración de muestra para el protocolo de tunelización de capa 2 (L2TP) para llamadas de marcación de entrada y de salida.

Nota: Esta configuración no implica un servidor del Authentication, Authorization, and Accounting (AAA).

[prerrequisitos](#)

[Requisitos](#)

No hay requisitos específicos para este documento.

[Componentes Utilizados](#)

La información en este documento se basa en el Software Release 12.1 de Cisco IOS®.

La información que contiene este documento se creó a partir de los dispositivos en un ambiente de laboratorio específico. Todos los dispositivos que se utilizan en este documento se pusieron en funcionamiento con una configuración verificada (predeterminada). Si la red está funcionando, asegúrese de haber comprendido el impacto que puede tener cualquier comando.

Convenciones

Para obtener más información sobre las convenciones del documento, consulte las [Convenciones de Consejos Técnicos de Cisco](#).

Configurar

En esta sección encontrará la información para configurar las funciones descritas en este documento.

Nota: Para obtener información adicional sobre los comandos que se utilizan en este documento, use la Command Lookup Tool (solo para clientes [registrados](#)).

Diagrama de la red

En este documento, se utiliza esta configuración de red:

Configuraciones

En este documento, se utilizan estas configuraciones:

- Router remoto 1:Loopback0: Nombre de usuario 17.17.17.1/32 : número ISDN de remote1@cisco.com (BRI0): 6122
- Router remote2:Loopback: 17.17.17.2/32 Nombre de usuario: número ISDN de remote2@cisco.com (BRI0): 6121
- Router LAC:Loopback: 18.18.18.1/32 Número ISDN (e1 0): Interfaz serial 8211 (s0): 18.18.18.6/30
- Router LNS:Loopback: 18.18.18.2/32 Interfaz serial (s0): 18.18.18.5/30 Interfaz de Ethernet (E0): 10.200.20.24/24
- Router local 1:Loopback: 17.17.17.3/32 Interfaz de Ethernet (E0): 10.200.20.32/24

Routers remote1@cisco.com y uso ISDN de remote2@cisco.com de acceder el L2TP Access Concentrator (LAC). Un link serial continuo conecta el LAC y el L2TP Network Server (LNS) en esta configuración. El router del local1 y el LNS comparten el mismo link Ethernet

Aquí está el proceso:

1. L2TP de marcado de entrada: El cliente de remote1@cisco.com quiere comunicar con el router del local1. El cliente genera una llamada ISDN al LAC, que trae para arriba un túnel L2TP al LNS y entonces a la sesión L2TP. El LAC utiliza el Domain Name para traer para arriba el túnel con el LNS. LSN autentica los usuarios remotos localmente.
2. **Dialout L2TP:** El router del local1 quiere comunicar con el cliente remoto de remote2@cisco.com. El LNS utiliza el túnel existente con el LAC y crea una nueva sesión L2TP.

Nota: Estas configuraciones se truncan para visualizar la información pertinente.

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
```

Verificación

En esta sección encontrará información que puede utilizar para confirmar que su configuración esté funcionando correctamente.

La herramienta [Output Interpreter](#) (sólo para clientes [registrados](#)) permite utilizar algunos comandos “show” y ver un análisis del resultado de estos comandos.

- **vpdn de la demostración** — información de las visualizaciones sobre el túnel de protocolo y los identificadores de mensajes activos del Level 2 Forwarding (L2F) en un Virtual Private Dialup Network (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

Verificación

Marcado

El router de remote1@cisco.com inicia una llamada al router del local1.

LAC#

Una llamada ISDN entra en el 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 (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
```

El LAC envía un desafío CHAP al cliente.

```
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"
```

El LAC recibe una respuesta de la GRIETA pero no autentica al usuario. El LNS realiza la autenticación.

```
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
```

El LAC marca si existe el dominio "cisco.com", y después recoge la información necesaria para traer para arriba el túnel con el LNS.

```
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 xxxxxxx
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
```

El LAC trae para arriba el túnel con el LNS.

```
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
```

El LAC saca a colación la sesión para el usuario remote1@cisco.com.

```
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: remotel@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 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
```

Llamadas salientes

El router del local1 inicia una llamada al router de remote2@cisco.com.

LAC#

El LAC recibe una solicitud del LNS para abrir una sesión de marcado de salida nueva.

```
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
```

El LAC utiliza el ISDN para llamar el número 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
```

El LAC limita la sesión ISDN se0:30 con la sesión VPDN.

```
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#
```

Troubleshooting

En esta sección encontrará información que puede utilizar para solucionar problemas de configuración.

Comandos para resolución de problemas

La herramienta [Output Interpreter](#) (sólo para clientes [registrados](#)) permite utilizar algunos comandos “show” y ver un análisis del resultado de estos comandos.

Nota: Antes de ejecutar un comando debug, consulte Información Importante sobre Comandos Debug.

- **eventos del debug dialer** — información de debugging de las visualizaciones sobre los paquetes recibidos en una interfaz del dialer.
- **debug vpdn l2x-events** — mensajes de las visualizaciones sobre los eventos que son parte del establecimiento normal de túneles o apagan.
- **debug vpdn l2x-packets** — visualiza cada paquete del protocolo intercambiado. Este comando puede dar lugar a un gran número de mensajes del debug. Utilice este comando solamente en un chasis del debug con una sola sesión activa.
- **debug vpdn l2x-errors** — errores de las visualizaciones que previenen el establecimiento de un túnel o los errores que hacen un túnel establecido ser cerrados.
- **negociación ppp del debug** — causa el **comando debug ppp** de visualizar los paquetes PPP transmitidos durante el inicio de PPP, donde se negocian las opciones PPP.
- **autenticación PPP del debug** — causa el **comando debug ppp** de visualizar los mensajes de protocolo de la autenticación. Los mensajes incluyen los intercambios de paquetes del Challenge Handshake Authentication Protocol (CHAP) y los intercambios del protocolo password authentication (PAP).
- **debug isdn events** — eventos del Integrated Services Digital Network de las visualizaciones (ISDN) que ocurren en el lado del usuario (en el router) de la interfaz de ISDN.
- información de las visualizaciones del **debug ISDN q931** — sobre la configuración de la llamada y cierre de las conexiones de red ISDN (capa 3) entre el router local (lado del usuario) y la red.
- **debug vtemplate** — información de clonación de las visualizaciones para una interfaz de acceso virtual a partir del tiempo que se reproduce de una plantilla virtual al tiempo la interfaz de acceso virtual viene abajo de cuando la llamada termina.

Debug en el LNS

Marcado

El router de remote1@cisco.com inicia una llamada al router del local1.

El LNS recibe una petición del LAC de traer para arriba un túnel.

```
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
```

El LNS recibe una petición desde el LAC para activar una sesión.

```
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
```

El LNS reproduce el acceso virtual para el usuario remote1@cisco.com.

```
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-Templatel 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)
```

El LNS recibe la capa LCP que el LAC negoció con el cliente de remote1@cisco.com. Por lo tanto, el LNS no renegocia el LCP con el cliente.

```
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
```

Llamadas salientes

El router del local1 inicia una llamada al router de remote2@cisco.com.

```
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
```

El LNS envía una petición al LAC para el dialout.

```
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
```

El acceso virtual 1 está limitado para perfilar el marcador 2 donde la configuración para remote2@cisco.com se localiza.

```
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
```

La fase PPP comienza entre el LNS y el cliente de remote2@cisco.com.

```
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
remotel@cisco.com est 00:00:52 enabled % No active L2F tunnels
```

[Información Relacionada](#)

- [Páginas de soporte de la tecnología de marcación](#)
- [Soporte Técnico y Documentación - Cisco Systems](#)