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

Contenido

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 de autenticación, autorización y contabilidad (AAA).

Prerequisites

Requirements

No hay requisitos específicos para este documento.

Componentes Utilizados

La información que contiene este documento se basa en la versión 12.1 de software del IOS® de Cisco.

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). If your network is live, make

sure that you understand the potential impact of any command.

Convenciones

For more information on document conventions, refer to the Cisco Technical Tips Conventions.

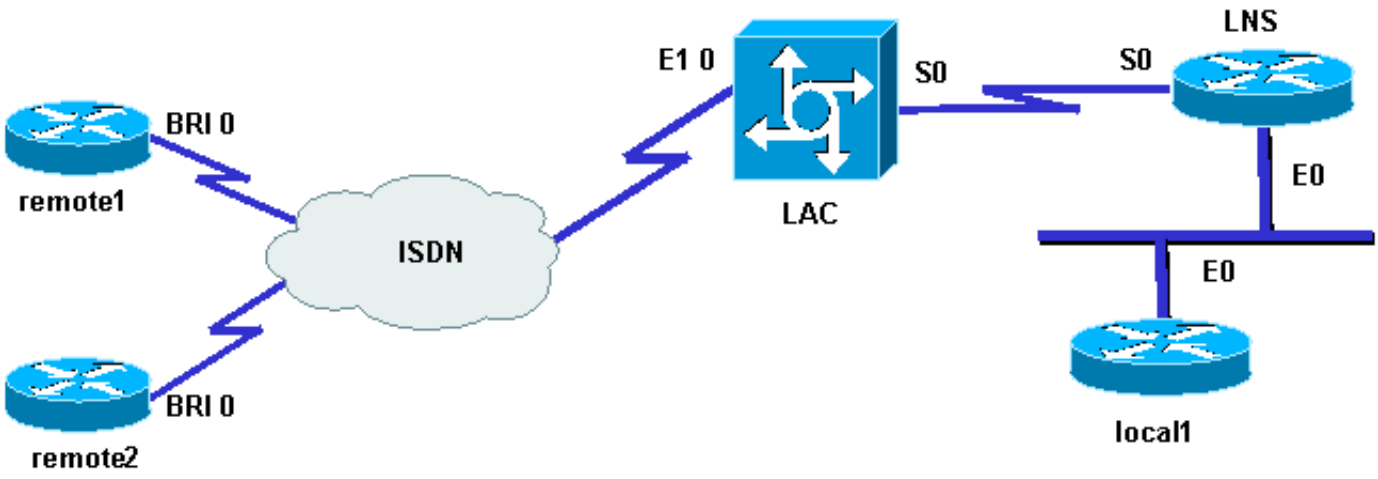
Configurar

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

Nota: Para encontrar información adicional sobre los comandos utilizados en este documento, utilice la Command Lookup Tool (sólo 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: 17.17.17.1/32 Nombre de usuario: remote1@cisco.com Número ISDN (BRI 0): 6122

- Router remoto2:

  Loopback: 17.17.17.2/32 Nombre de usuario: remote2@cisco.com Número ISDN (BRI 0): 6121

- Router LAC:

Loopback: 18.18.18.1/32 Número ISDN (E1.0): 8211 Interfaz serie (S0): 18.18.18.6/30

- Router LNS:

  Bucle invertido: 18.18.18.2/32 Interfaz serie (S0): 18.18.18.5/30 Interfaz Ethernet (E0): 10.200.20.24/24

- Router local 1:

  Loopback: 17.17.17.3/32 Interfaz Ethernet (E0): 10.200.20.32/24

Los routers remote1@cisco.com y remote2@cisco.com utilizan ISDN para acceder al concentrador de acceso L2TP (LAC). Un link serial adosado conecta el LAC y el Servidor de Red L2TP (LNS) en esta configuración. El router local1 y el LNS comparten el mismo enlace Ethernet

Este es el proceso:

1. L2TP Dialin: El cliente remote1@cisco.com quiere comunicarse con el router local1. El cliente genera una llamada ISDN al LAC, que hace surgir un túnel L2TP al LNS y luego a la sesión L2TP. El LAC utiliza el nombre de dominio para activar el túnel con el LNS. LSN autentica los usuarios remotos localmente.

2. L2TP Dialout: El router local1 desea comunicarse con el cliente remoto remote2@cisco.com. El LNS utiliza el túnel existente con el LAC y crea una nueva sesión L2TP.

Nota: Estas configuraciones se truncan para mostrar la información relevante.

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
```

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.

- show vpdn: muestra información sobre el túnel del protocolo L2F (reenvío de nivel 2) activo y los identificadores de mensajes en una red de marcación privada virtual (VPDN).

```
<#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
```

Verificación

Marcado

El router remote1@cisco.com inicia una llamada al router 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 (0x0506BDE50CC)
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 (0x0506BDE50CC)
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 CHAP 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 "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
```

El LAC verifica si el dominio "cisco.com" existe y luego recopila la información necesaria para activar 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 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
```

El LAC activa 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 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
```

El LAC abre la sesión para el usuario remote1@cisco.com.

<#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
```

Llamadas salientes

El router local1 inicia una llamada al router 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 ISDN para llamar al 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.

```
<#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#
```

Troubleshoot

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 los comandos debug, consulte Información Importante sobre Comandos Debug.

- debug dialer events: muestra información de depuración sobre los paquetes recibidos en una interfaz de marcador.
- debug vpdn l2x-events: muestra mensajes sobre eventos que forman parte del establecimiento o cierre normal del túnel.
- debug vpdn l2x-packets: muestra cada paquete de protocolo intercambiado. Este comando puede dar lugar a un gran número de mensajes de depuración. Utilice este comando solamente en un chasis de depuración con una sola sesión activa.
- debug vpdn l2x-errors: muestra errores que impiden el establecimiento de un túnel o errores que causan el cierre de un túnel establecido.

- debug ppp negotiation: hace que el comando debug ppp muestre los paquetes PPP transmitidos durante el inicio PPP, donde se negocian las opciones PPP.
- debug ppp authentication: hace que el comando debug ppp muestre los mensajes del protocolo de autenticación. Los mensajes incluyen intercambios de paquetes del protocolo de autenticación por desafío mutuo (CHAP) e intercambios del protocolo de autenticación de contraseña (PAP).
- debug isdn events: muestra los eventos de la Red digital de servicios integrados (ISDN) que se producen en el lado del usuario (en el router) de la interfaz ISDN.
- debug isdn q931: muestra información sobre la configuración de llamadas y el cierre de conexiones de red ISDN (RDSI) (capa 3) entre el router local (lado del usuario) y la red.
- debug vtemplate: muestra información de clonación para una interfaz de acceso virtual desde el momento en que se clona desde una plantilla virtual hasta el momento en que la interfaz de acceso virtual se desactiva cuando finaliza la llamada.

Depuración en el LNS

Marcado

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

El LNS recibe una solicitud del LAC para activar 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 clona 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 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 (0x056066BDE50CC)
```

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

<#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
```

Llamadas salientes

El router local1 inicia una llamada al router 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 solicitud al LAC para la marcación de salida.

```
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 enlazado al marcador de perfil 2 donde se encuentra la configuración para remote2@cisco.com.

```
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 remote2@cisco.com.

<#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
```

Información Relacionada

- Páginas de soporte de la tecnología de marcación
- Soporte Técnico y Documentación - Cisco Systems

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