

Basic L2TP Virtual Private Dialup Network (VPDN) voor bellen en uitbellen

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Inleiding

Dit document biedt een voorbeeldconfiguratie voor Layer 2 Tunneling Protocol (L2TP) voor dialin- en dialect-oproepen.

Opmerking: Bij deze instellingen is geen verificatie-, autorisatie- en accounting (AAA) server betrokken.

Voorwaarden

Vereisten

Er zijn geen specifieke vereisten van toepassing op dit document.

Gebruikte componenten

De informatie in dit document is gebaseerd op Cisco IOS® software release 12.1.

De informatie in dit document is gebaseerd op de apparaten in een specifieke laboratoriumomgeving. Alle apparaten die in dit document worden beschreven, hadden een opgeschoonde (standaard)configuratie. Als uw netwerk live is, moet u de potentiële impact van elke opdracht begrijpen.

Conventies

Raadpleeg [Cisco Technical Tips Conventions](#) (Conventies voor technische tips van Cisco) voor meer informatie over documentconventies.

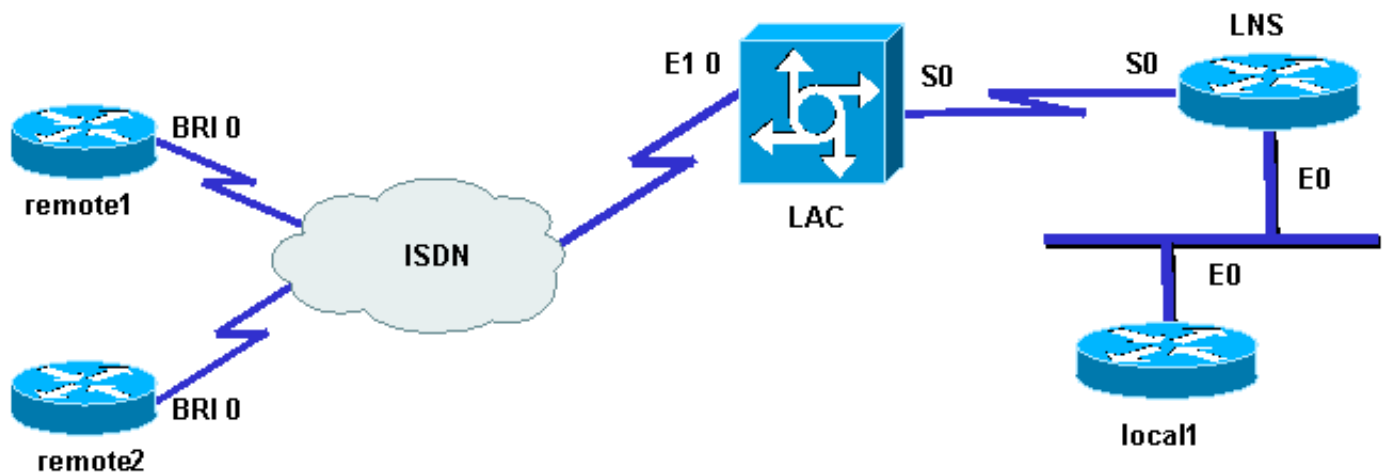
Configureren

Deze sectie bevat informatie over het configureren van de functies die in dit document worden beschreven.

N.B.: Als u aanvullende informatie wilt vinden over de opdrachten in dit document, gebruikt u het [Opdrachtplanningprogramma](#) (alleen geregistreerd klanten).

Netwerkdigram

Het netwerk in dit document is als volgt opgebouwd:



Configuraties

Dit document gebruikt deze configuraties:

- Routerafstandsbediening1:Loopback0: 17.17.17.1/32 Gebruikersnaam: remote1@cisco.com
ISDN-nummer (BRI 0): 6122
- Routerafstandsbediening2:Loopback: 17.17.17.2/32 Gebruikersnaam: remote2@cisco.com
ISDN-nummer (BRI 0): 6121
- RouterLAC:Loopback: 18.18.18.1/32 ISDN-nummer (E1 0): 8211 seriële interface (S0):
18.18.18.6/30
- LNS-router:Loopback: 18.18.18.2/32 seriële interface (S0): 18.18.18.5/30 Ethernet-interface
(E0): 10.200.20.24/24
- Router Local1:Loopback: 17.17.17.3/32 Ethernet-interface (E0): 10.200.20.32/24

Routers remote1@cisco.com en remote2@cisco.com gebruiken ISDN om toegang te krijgen tot de L2TP Access Concentrator (LAC). Een back-to-back seriële link sluit de LAC en de L2TP-netwerkserver (LNS) aan in deze installatie. De Local1 router en LNS delen dezelfde Ethernet-link

Hier volgt het proces:

1. **L2TP-bellen:** De remote1@cisco.com client wil met de Local1 router communiceren. De client genereert een ISDN-aanroep naar de LAC, die een L2TP-tunnel naar de LNS en vervolgens de L2TP-sessie oplevert. De LAC gebruikt de domeinnaam om de tunnel met de LNS te vergroten. LNS authenticceert de externe gebruikers lokaal.
2. **L2TP-uitbellen:** De local1 router wil met de remote2@cisco.com externe client communiceren. LNS gebruikt de bestaande tunnel met de LAC en maakt een nieuwe L2TP-sessie aan.

Opmerking: Deze configuraties zijn beperkt om de relevante informatie weer te geven.

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-
Templatel 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

```

Verifiëren

Deze sectie verschaft informatie die u kunt gebruiken om te bevestigen dat uw configuratie correct werkt.

Bepaalde opdrachten met **show** worden ondersteund door de tool [Output Interpreter \(alleen voor geregistreerde klanten\)](#). Hiermee kunt u een analyse van de output van opdrachten met **show** genereren.

- **vpdn**-toont informatie over actief Niveau 2 Forwarding (L2F) protocoltunnel en bericht identificatoren in een 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

Verificatie

Inbellen

De remote1@cisco.com router initieert een vraag naar de Local1 router.

LAC#

Een ISDN-oproep komt in de 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
```

De LAC stuurt een CHAP-uitdaging naar de cliënt.

```
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 ontvangt een CHAP reactie maar authentiek de gebruiker niet. De LNS voert de authenticatie uit.

```
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

De LAC controleert of het domein "cisco.com" bestaat en verzamelt vervolgens de informatie die nodig is om de tunnel met de LNS te verbinden.

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

De LAC brengt de tunnel naar de 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

De LAC presenteert de sessie voor de gebruiker remote1@cisco.com.

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

[Uitbel](#)

De Local1 router initieert een vraag naar de remote2@cisco.com router.

LAC#

De LAC ontvangt een verzoek van de LNS om een nieuwe sessie voor een dialoog op te zetten.

```
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 gebruikt ISDN om het nummer 6121 te bellen.

```
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
```

De LAC-modus rondom de ISDN-sessie 0:30 met de VPDN-sessie.

```
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#
```

Problemen oplossen

Deze sectie bevat informatie waarmee u problemen met de configuratie kunt oplossen.

Opdrachten voor troubleshooting

Bepaalde opdrachten met **show** worden ondersteund door de tool [Output Interpreter \(alleen voor geregistreerde klanten\)](#). [Hiermee kunt u een analyse van de output van opdrachten met show genereren.](#)

Opmerking: Voordat u **debug**-opdrachten afgeeft, raadpleegt u [Belangrijke informatie over debug-opdrachten](#).

- **debug dialer gebeurtenissen**-toont debuginformatie over de pakketten die worden ontvangen op een dialerinterface.
- **debug vpdn l2x-gebeurtenissen** toont berichten over gebeurtenissen die deel uitmaken van normale tunnelvestiging of shutdown.
- **debug vpdn l2x-pakketten** - toont elk protocol pakket dat wordt uitgewisseld. Deze opdracht kan resulteren in een groot aantal debug-berichten. Gebruik deze opdracht alleen op een debug chassis met één actieve sessie.
- **debug vpdn l2x-fouten** toont fouten die de inrichting van een tunnel verhinderen of fouten die een gevestigde tunnel om te sluiten veroorzaken.
- **debug PPP onderhandeling**-veroorzaakt het **debug ppp** bevel om PPP pakketten die tijdens PPP opstarten worden verzonden te tonen, waar PPP opties worden besproken.
- **debug ppp verificatie**—veroorzaakt de **debug ppp** opdracht om authenticatie protocol berichten weer te geven. De berichten omvatten Challenge Handshake Authentication Protocol (CHAP), pakketuitwisselingen en Password Authentication Protocol (PAP).
- **debug ISDN-gebeurtenissen**: toont gebeurtenissen in het digitale netwerk voor geïntegreerde services (ISDN) die aan de gebruikerskant (op de router) van de ISDN-interface voorkomen.
- **debug ISDN q931** geeft informatie weer over de installatie van oproepen en de uitschakeling van ISDN-netwerkverbindingen (Layer 3) tussen de lokale router (gebruikerszijde) en het netwerk.
- **debug Vsjabloon**—geeft informatie over klonen weer voor een virtuele toegangsinterface vanaf het moment dat de sjabloon wordt gekloond vanaf een virtuele sjabloon tot het moment dat de virtuele toegangsinterface afloopt wanneer de oproep stopt.

Debug in de LNS

Inbellen

De remote1@cisco.com router initieert een vraag naar de Local1 router.

De LNS ontvangt een verzoek van de LAC om een tunnel op te zetten.

```
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
```

De LNS ontvangt een verzoek van de LAC om een zitting voor te leggen.

```
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 klonen de virtuele toegang voor de gebruiker 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)
```

LNS ontvangt de LCP-laag die de LAC met de remote1@cisco.com-client heeft onderhandeld.

Daarom onderhandelt de LNS niet opnieuw over LCP met de cliënt.

```
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

[Uitbel](#)

De Local1 router initieert een vraag naar de remote2@cisco.com router.

```
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
```

De LNS stuurt een verzoek aan de LAC voor een dialoog.

```
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
```

Virtual-access 1 is gebonden aan profieldialer 2, waar de configuratie voor remote2@cisco.com zich bevindt.

```
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
```

De PPP fase begint tussen de LNS en de remote2@cisco.com client.

```
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

[Gerelateerde informatie](#)

- [Ondersteuning van kiestechnologie](#)
- [Technische ondersteuning en documentatie – Cisco Systems](#)