

VPDN を介した MLPPP の設定例

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概要

この記事では、クライアントとレイヤ 2 トンネリング プロトコル アクセス コンセントレータ (LNS) 間にバーチャルプライベートダイヤルアップネットワーク (VPDN) を介してマルチリンク ポイントツーポイント プロトコル (MLPPP) セッションを確立するのに役立つ、クライアント、LAC およびレイヤ 2 トンネリング プロトコル ネットワークサーバ (LNA) の構成について説明します。

前提条件

要件

この設定を行う前に、以下の要件を満たしていることを確認してください。

- エンドツーエンドのレイヤ 1 接続が有効

使用するコンポーネント

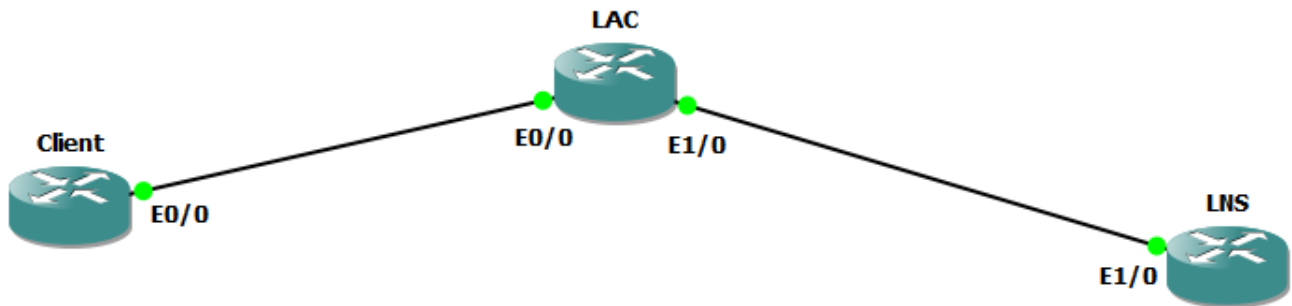
このドキュメントは、特定のソフトウェアやハードウェアのバージョンに限定されるものではありません。

本書の情報は、特定のラボ環境にあるデバイスに基づいて作成されたものです。このドキュメントで使用するすべてのデバイスは、初期 (デフォルト) 設定の状態から起動しています。稼働中のネットワークで作業を行う場合、コマンドの影響について十分に理解したうえで作業してください。

設定

注: このセクションで使用されているコマンドの詳細を調べるには、[Command Lookup Tool](#) ([登録ユーザ専用](#)) を使用してください。

ネットワーク図



設定

注：PPP またはマルチリンク PPP セッションの開始時における PPP 制御パケット交換の際には、マルチリンク PPP セッションは、CPE と LNS との間（LAC との間ではなく）でネゴシエートされます。LAC は、マルチリンク PPP セッションについて認識しません。そのため、CPE が PPP-LCP セッションを開始すると、LCP ネゴシエーションの一部として含まれるマルチリンク（Maximum Receive Reconstructed Unit (MRRU)）ネゴシエーションは、LAC が LNS との接続をまだ確立していない場合（通常は確立していません）に失敗することがあります。LAC と LNS 間で IP 到達可能性が確立されると、LNS は CPE とマルチリンク（MRRU）LCP オプションを再ネゴシエートし、2 つのピア デバイスがエンドツーエンドのマルチリンク PPP セッションを確立できるようになります。

クライアントの設定：

クライアント ルータの設定例を以下に示します。

```
interface Ethernet0/0

no ip address

pppoe enable group global

pppoe-client dial-pool-number 1

interface Dialer1

bandwidth 64

ip address negotiated

encapsulation ppp

dialer pool 1

dialer idle-timeout 0

keepalive 30

ppp max-failure 30
```

```
ppp chap hostname user@cisco.com
```

```
ppp chap password cisco
```

```
ppp multilink
```

```
no cdp enable
```

LAC 設定 :

LAC ルータの設定例を次に示します。

```
hostname LAC
```

```
!!
```

```
vpdn enable
```

```
!!
```

```
vpdn-group 1
```

```
request-dialin
```

```
protocol l2tp
```

```
domain cisco.com
```

```
initiate-to ip 192.168.1.2
```

```
no l2tp tunnel authentication
```

```
!!
```

```
bba-group pppoe global
```

```
virtual-template 1
```

```
!!
```

```
interface Ethernet0/0
```

```
no ip address
```

```
pppoe enable group global
```

```
interface Ethernet1/0
```

```
ip address 192.168.1.1 255.255.255.0
```

```
interface Virtual-Template1
```

```
no ip address
```

```
ppp authentication chap
```

```
ppp multilink
```

LNS 設定 :

LNS ルータの設定例を次に示します。

```
vpdn enable
```

```
!!
```

```
vpdn-group 1
```

```
accept-dialin
```

```
protocol l2tp
```

```
virtual-template 1
```

```
terminate-from hostname LAC
```

```
lcp renegotiation on-mismatch
```

```
no l2tp tunnel authentication
```

```
!!
```

```
username user@cisco.com password cisco
```

```
int loopback0
```

```
ip address 10.10.10.10 255.255.255.0
```

```
interface Ethernet1/0
```

```
ip address 192.168.1.2 255.255.255.0
```

```
interface Virtual-Template1
```

```
mtu 1492
```

```
ip unnumbered Loopback0
```

```
peer default ip address pool cisco
```

```
ppp authentication chap
```

```
ppp multilink
```

```
!!
```

```
ip local pool cisco 10.10.10.11 10.10.10.24
```

確認

次のデバッグが、クライアント、LAC、LNS で有効であることを確認します。

- Debug ppp negotiation
- PPPoE イベントのデバッグ
- PPP マルチリンク イベントのデバッグ
- Debug vpdn event
- VPDN 発信イベントのデバッグ

クライアント ログ :

```
**Jan 14 11:01:12.744: Sending PADI: Interface = Ethernet0/0
**Jan 14 11:01:12.744: PPPoE 0: I PADO R:aabb.cc02.bd00 L:aabb.cc02.bc00
Et0/0
**Jan 14 11:01:14.824: PPPOE: we've got our pado and the pado timer went
off
**Jan 14 11:01:14.824: OUT PADR from PPPoE Session
**Jan 14 11:01:14.825: PPPoE 9: I PADS R:aabb.cc02.bd00 L:aabb.cc02.bc00
Et0/0
**Jan 14 11:01:14.825: IN PADS from PPPoE Session
**Jan 14 11:01:14.825: %DIALER-6-BIND: Interface Vi3 bound to profile
Di1
**Jan 14 11:01:14.825: PPPoE : Virtual Access interface obtained.
**Jan 14 11:01:14.825: PPPoE : encap string prepared
**Jan 14 11:01:14.825: [[0]PPPoE 9: data path set to PPPoE Client
**Jan 14 11:01:14.834: %LINK-3-UPDOWN: Interface Virtual-Access3,
changed state to up
**Jan 14 11:01:14.834: Vi3 PPP: Sending cstate UP notification
**Jan 14 11:01:14.834: Vi3 PPP: Processing CstateUp message
**Jan 14 11:01:14.834: PPP: Alloc Context [2A970D92E8]
**Jan 14 11:01:14.834: ppp14 PPP: Phase is ESTABLISHING
**Jan 14 11:01:14.834: Vi3 PPP: Using dialer call direction
**Jan 14 11:01:14.834: Vi3 PPP: Treating connection as a callout
**Jan 14 11:01:14.834: Vi3 PPP: Session handle[C2000013] Session id[14]
**Jan 14 11:01:14.834: Vi3 LCP: Event[OPEN] State[Initial to Starting]
**Jan 14 11:01:14.834: Vi3 PPP: No remote authentication for call-out
**Jan 14 11:01:14.834: Vi3 LCP: O CONFREQ [Starting] id 1 len 30
**Jan 14 11:01:14.834: Vi3 LCP: MagicNumber 0xBC220EF6
(0x0506BC220EF6)
**Jan 14 11:01:14.835: Vi3 LCP: MRRU 1524 (0x110405F4)
**Jan 14 11:01:14.835: Vi3 LCP: EndpointDisc 1 user@cisco.com
(0x1310017573657240737572662E6F7267)
**Jan 14 11:01:14.835: Vi3 LCP: Event[UP] State[Starting to REQsent]
**Jan 14 11:01:14.835: Vi3 LCP: I CONFREQ [REQsent] id 1 len 29
**Jan 14 11:01:14.835: Vi3 LCP: MRU 1492 (0x010405D4)
**Jan 14 11:01:14.835: Vi3 LCP: AuthProto CHAP (0x0305C22305)
**Jan 14 11:01:14.835: Vi3 LCP: MagicNumber 0xBC21F6F0
(0x0506BC21F6F0)
**Jan 14 11:01:14.835: Vi3 LCP: MRRU 1524 (0x110405F4)
**Jan 14 11:01:14.835: Vi3 LCP: EndpointDisc 1 LAC (0x1306014C4143)
**Jan 14 11:01:14.835: Vi3 LCP: O CONFNAK [REQsent] id 1 len 8
```

```
**Jan 14 11:01:14.835: Vi3 LCP: MRU 1500 (0x010405DC)
**Jan 14 11:01:14.835: Vi3 LCP: Event[Receive ConfReq-] State[REQsent to
REQsent]
**Jan 14 11:01:14.835: Vi3 LCP: I CONFACK [REQsent] id 1 len 30
**Jan 14 11:01:14.835: Vi3 LCP: MagicNumber 0xBC220EF6
(0x0506BC220EF6)
**Jan 14 11:01:14.835: Vi3 LCP: MRRU 1524 (0x110405F4)
**Jan 14 11:01:14.835: Vi3 LCP: EndpointDisc 1 user@cisco.com
(0x1310017573657240737572662E6F7267)
**Jan 14 11:01:14.835: Vi3 LCP: Event[Receive ConfAck] State[REQsent to
ACKrcvd]
**Jan 14 11:01:14.836: Vi3 LCP: I CONFREQ [ACKrcvd] id 2 len 29
**Jan 14 11:01:14.836: Vi3 LCP: MRU 1500 (0x010405DC)
**Jan 14 11:01:14.836: Vi3 LCP: AuthProto CHAP (0x0305C22305)
**Jan 14 11:01:14.836: Vi3 LCP: MagicNumber 0xBC21F6F0
(0x0506BC21F6F0)
**Jan 14 11:01:14.836: Vi3 LCP: MRRU 1524 (0x110405F4)
**Jan 14 11:01:14.836: Vi3 LCP: EndpointDisc 1 LAC (0x1306014C4143)
**Jan 14 11:01:14.836: Vi3 LCP: O CONFACK [ACKrcvd] id 2 len 29
**Jan 14 11:01:14.836: Vi3 LCP: MRU 1500 (0x010405DC)
**Jan 14 11:01:14.836: Vi3 LCP: AuthProto CHAP (0x0305C22305)
**Jan 14 11:01:14.836: Vi3 LCP: MagicNumber 0xBC21F6F0
(0x0506BC21F6F0)
**Jan 14 11:01:14.836: Vi3 LCP: MRRU 1524 (0x110405F4)
**Jan 14 11:01:14.836: Vi3 LCP: EndpointDisc 1 LAC (0x1306014C4143)
**Jan 14 11:01:14.836: Vi3 LCP: Event[Receive ConfReq+] State[ACKrcvd to
Open]
**Jan 14 11:01:14.854: Vi3 PPP: Phase is AUTHENTICATING, by the peer
**Jan 14 11:01:14.854: Vi3 LCP: State is Open
**Jan 14 11:01:14.856: Vi3 CHAP: I CHALLENGE id 1 len 24 from "LAC"
**Jan 14 11:01:14.856: Vi3 CHAP: Using hostname from interface CHAP
**Jan 14 11:01:14.856: Vi3 CHAP: Using password from interface CHAP
**Jan 14 11:01:14.856: Vi3 CHAP: O RESPONSE id 1 len 34 from
"user@cisco.com"
**Jan 14 11:01:14.861: Vi3 LCP: I CONFREQ [Open] id 1 len 39
**Jan 14 11:01:14.861: Vi3 LCP: MRU 1492 (0x010405D4)
**Jan 14 11:01:14.861: Vi3 LCP: AuthProto CHAP (0x0305C22305)
**Jan 14 11:01:14.861: Vi3 LCP: MagicNumber 0xBC21E526
(0x0506BC21E526)
**Jan 14 11:01:14.861: Vi3 LCP: MRRU 1524 (0x110405F4)
**Jan 14 11:01:14.861: Vi3 LCP: EndpointDisc 1 user@cisco.com
(0x1310017573657240737572662E6F7267)
**Jan 14 11:01:14.861: Vi3 PPP DISC: PPP Renegotiating
**Jan 14 11:01:14.861: PPP: NET STOP send to AAA.
**Jan 14 11:01:14.861: Vi3 LCP: Event[LCP Reneg] State[Open to Open]
**Jan 14 11:01:14.861: Vi3 LCP: Event[DOWN] State[Open to Starting]
**Jan 14 11:01:14.861: Vi3 PPP: Phase is DOWN
**Jan 14 11:01:14.861: PPP: Alloc Context [2A970D9898]
**Jan 14 11:01:14.861: ppp14 PPP: Phase is ESTABLISHING
**Jan 14 11:01:14.861: Vi3 PPP: Using dialer call direction
**Jan 14 11:01:14.861: Vi3 PPP: Treating connection as a callout
**Jan 14 11:01:14.861: Vi3 PPP: Session handle[2B000014] Session id[14]
**Jan 14 11:01:14.861: Vi3 LCP: Event[OPEN] State[Initial to Starting]
```

```
**Jan 14 11:01:14.861: Vi3 PPP: No remote authentication for call-out
**Jan 14 11:01:14.861: Vi3 LCP: O CONFREQ [Starting] id 1 len 30
**Jan 14 11:01:14.861: Vi3 LCP: MagicNumber 0xBC220F12
(0x0506BC220F12)
**Jan 14 11:01:14.861: Vi3 LCP: MRRU 1524 (0x110405F4)
**Jan 14 11:01:14.861: Vi3 LCP: EndpointDisc 1 user@cisco.com
(0x1310017573657240737572662E6F7267)
**Jan 14 11:01:14.862: Vi3 LCP: Event[UP] State[Starting to REQsent]
**Jan 14 11:01:14.862: Vi3 LCP: I CONFREQ [REQsent] id 1 len 39
**Jan 14 11:01:14.862: Vi3 LCP: MRU 1492 (0x010405D4)
**Jan 14 11:01:14.862: Vi3 LCP: AuthProto CHAP (0x0305C22305)
**Jan 14 11:01:14.862: Vi3 LCP: MagicNumber 0xBC21E526
(0x0506BC21E526)
**Jan 14 11:01:14.862: Vi3 LCP: MRRU 1524 (0x110405F4)
**Jan 14 11:01:14.862: Vi3 LCP: EndpointDisc 1 user@cisco.com
(0x1310017573657240737572662E6F7267)
**Jan 14 11:01:14.862: Vi3 PPP: Remote endpoint user@cisco.com invalid,
matches local value
**Jan 14 11:01:14.862: Vi3 LCP: O CONFNAK [REQsent] id 1 len 8
**Jan 14 11:01:14.862: Vi3 LCP: MRU 1500 (0x010405DC)
**Jan 14 11:01:14.862: Vi3 LCP: Event[Receive ConfReq-] State[REQsent to
REQsent]
**Jan 14 11:01:14.862: Vi3 LCP: I CONFACK [REQsent] id 1 len 30
**Jan 14 11:01:14.862: Vi3 LCP: MagicNumber 0xBC220F12
(0x0506BC220F12)
**Jan 14 11:01:14.862: Vi3 LCP: MRRU 1524 (0x110405F4)
**Jan 14 11:01:14.862: Vi3 LCP: EndpointDisc 1 user@cisco.com
(0x1310017573657240737572662E6F7267)
**Jan 14 11:01:14.862: Vi3 LCP: Event[Receive ConfAck] State[REQsent to
ACKrcvd]
**Jan 14 11:01:14.862: Vi3 LCP: I CONFREQ [ACKrcvd] id 2 len 39
**Jan 14 11:01:14.862: Vi3 LCP: MRU 1500 (0x010405DC)
**Jan 14 11:01:14.862: Vi3 LCP: AuthProto CHAP (0x0305C22305)
**Jan 14 11:01:14.862: Vi3 LCP: MagicNumber 0xBC21E526
(0x0506BC21E526)
**Jan 14 11:01:14.862: Vi3 LCP: MRRU 1524 (0x110405F4)
**Jan 14 11:01:14.862: Vi3 LCP: EndpointDisc 1 user@cisco.com
(0x1310017573657240737572662E6F7267)
**Jan 14 11:01:14.862: Vi3 PPP: Remote endpoint user@cisco.com invalid,
matches local value
**Jan 14 11:01:14.862: Vi3 LCP: O CONFACK [ACKrcvd] id 2 len 39
**Jan 14 11:01:14.862: Vi3 LCP: MRU 1500 (0x010405DC)
**Jan 14 11:01:14.862: Vi3 LCP: AuthProto CHAP (0x0305C22305)
**Jan 14 11:01:14.862: Vi3 LCP: MagicNumber 0xBC21E526
(0x0506BC21E526)
**Jan 14 11:01:14.862: Vi3 LCP: MRRU 1524 (0x110405F4)
**Jan 14 11:01:14.862: Vi3 LCP: EndpointDisc 1 user@cisco.com
(0x1310017573657240737572662E6F7267)
**Jan 14 11:01:14.862: Vi3 LCP: Event[Receive ConfReq+] State[ACKrcvd to
Open]
**Jan 14 11:01:14.884: Vi3 PPP: Phase is AUTHENTICATING, by the peer
**Jan 14 11:01:14.884: Vi3 LCP: State is Open
**Jan 14 11:01:14.895: Vi3 CHAP: I CHALLENGE id 2 len 27 from "LNS"
```

```
**Jan 14 11:01:14.895: Vi3 CHAP: Using hostname from interface CHAP
**Jan 14 11:01:14.895: Vi3 CHAP: Using password from interface CHAP
**Jan 14 11:01:14.895: Vi3 CHAP: O RESPONSE id 2 len 34 from
"user@cisco.com"
**Jan 14 11:01:14.896: Vi3 CHAP: I SUCCESS id 2 len 4
**Jan 14 11:01:14.896: Vi3 PPP: Phase is FORWARDING, Attempting Forward
**Jan 14 11:01:14.897: Vi3 PPP: Phase is ESTABLISHING, Finish LCP
**Jan 14 11:01:14.897: Vi3 MLP: Request add link to bundle
**Jan 14 11:01:14.897: Vi3 PPP: Phase is VIRTUALIZED
**Jan 14 11:01:14.897: Vi3 MLP: Adding link to bundle
**Jan 14 11:01:14.897: Vi3 MLP: Requested bundle vaccess creation
**Jan 14 11:01:14.897: Vi3 MLP: Determine clone source for SSS
**Jan 14 11:01:14.897: Vi3 MLP: Clone from dialer profile Di1
**Jan 14 11:01:14.897: Vi3 MLP: Determine clone source for SSS
**Jan 14 11:01:14.897: Vi3 MLP: Clone from dialer profile Di1
**Jan 14 11:01:14.897: Vi3 MLP: SSS connect, bundle interface Vi4
**Jan 14 11:01:14.897: PPP: Alloc Context [2A970D95C0]
**Jan 14 11:01:14.897: ppp15 PPP: Phase is ESTABLISHING
**Jan 14 11:01:14.897: Vi4 MLP: Changing bundle bandwidth from 100000 to
64
**Jan 14 11:01:14.897: Vi4 MLP: Bandwidth manually configured, updating
lost frag timeout on bundle
**Jan 14 11:01:14.897: Vi4 MLP: Increasing lost frag timeout from 100 to
1524 ms due to slippage constraints
**Jan 14 11:01:14.897: Vi4 MLP: Increasing lost frag timeout from 100 to
1524 ms due to slippage constraints
**Jan 14 11:01:14.897: %DIALER-6-BIND: Interface Vi4 bound to profile
Di1
**Jan 14 11:01:14.897: Vi4 MLP: Added to dialer pool Di1
**Jan 14 11:01:14.897: Vi4 MLP: Ready to finish adding link Vi3 to
bundle
**Jan 14 11:01:14.897: Vi4 MLP: Update bundle bandwidth 64 set 64
**Jan 14 11:01:14.897: Vi3 MLP: Change transmit status from Init to
Enabled, transmit links 1
**Jan 14 11:01:14.897: Vi4 MLP: Idle timer running, restart
**Jan 14 11:01:14.897: Vi4 MLP: Added first link Vi3 to bundle LNS
**Jan 14 11:01:14.897: Vi4 MLP: Increasing lost frag timeout from 100 to
1524 ms due to slippage constraints
**Jan 14 11:01:14.898: Vi3 MLP: Updating bundle's PPP handle[0x6F000015]
in SSS context
**Jan 14 11:01:14.898: %LINEPROTO-5-UPDOWN: Line protocol on Interface
Virtual-Access3, changed state to up
**Jan 14 11:01:14.898: Vi4 MLP: Received segment updated message for
bundle
**Jan 14 11:01:14.914: %LINK-3-UPDOWN: Interface Virtual-Access4,
changed state to up
**Jan 14 11:01:14.914: Vi4 PPP: Force LCP OPEN on MLP Bundle
**Jan 14 11:01:14.914: Vi4 PPP: Phase is UP
**Jan 14 11:01:14.914: Vi4 IPCP: Protocol configured, start CP.
state[Initial]
**Jan 14 11:01:14.914: Vi4 IPCP: Event[OPEN] State[Initial to Starting]
**Jan 14 11:01:14.914: Vi4 IPCP: O CONFREQ [Starting] id 1 len 10
**Jan 14 11:01:14.914: Vi4 IPCP: Address 0.0.0.0 (0x030600000000)
```



```

**Jan 14 11:01:14.914: Vi4 IPCP: Event[UP] State[Starting to REQsent]
**Jan 14 11:01:14.915: Vi4 IPCP: I CONFREQ [REQsent] id 1 len 10
**Jan 14 11:01:14.915: Vi4 IPCP: Address 10.10.10.10 (0x03060A0A0A0A)
**Jan 14 11:01:14.915: Vi4 IPCP: O CONFACK [REQsent] id 1 len 10
**Jan 14 11:01:14.915: Vi4 IPCP: Address 10.10.10.10 (0x03060A0A0A0A)
**Jan 14 11:01:14.915: Vi4 IPCP: Event[Receive ConfReq+] State[REQsent
to ACKsent]
**Jan 14 11:01:14.915: %LINEPROTO-5-UPDOWN: Line protocol on Interface
Virtual-Access4, changed state to up
**Jan 14 11:01:14.915: Vi4 IPCP: I CONFNAK [ACKsent] id 1 len 10
**Jan 14 11:01:14.915: Vi4 IPCP: Address 10.10.10.18 (0x03060A0A0A12)
**Jan 14 11:01:14.915: Vi4 IPCP: O CONFREQ [ACKsent] id 2 len 10
**Jan 14 11:01:14.915: Vi4 IPCP: Address 10.10.10.18 (0x03060A0A0A12)
**Jan 14 11:01:14.915: Vi4 IPCP: Event[Receive ConfNak/Rej]
State[ACKsent to ACKsent]
**Jan 14 11:01:14.936: Vi4 IPCP: I CONFACK [ACKsent] id 2 len 10
**Jan 14 11:01:14.936: Vi4 IPCP: Address 10.10.10.18 (0x03060A0A0A12)
**Jan 14 11:01:14.936: Vi4 IPCP: Event[Receive ConfAck] State[ACKsent to
Open]
**Jan 14 11:01:14.954: Vi4 IPCP: State is Open
**Jan 14 11:01:14.954: Di1 IPCP: Install negotiated IP interface address
10.10.10.18
**Jan 14 11:01:14.954: Di1 Added to neighbor route AVL tree: topoid 0,
address 10.10.10.10
**Jan 14 11:01:14.954: Di1 IPCP: Install route to 10.10.10.10

```

Client#show ppp all

Interface/ID	OPEN+	Nego*	Fail-	Stage	Peer Address	Peer Name
Vi4	IPCP+			LocalT	10.10.10.10	LNS
Vi3	LCP+			LocalT	10.10.10.10	LNS

Client#show ppp multilink

```

Virtual-Access4
Bundle name: LNS
Remote Username: LNS
Remote Endpoint Discriminator: [[1] user@cisco.com
Local Username: user@cisco.com
Local Endpoint Discriminator: [[1] user@cisco.com
Bundle up for 00:00:17, total bandwidth 64, load 1/255

```

Receive buffer limit 12192 bytes, frag timeout 1524 ms

Dialer interface is Dialer1

0/0 fragments/bytes in reassembly list

0 lost fragments, 0 reordered

0/0 discarded fragments/bytes, 0 lost received

0x3 received sequence, 0x0 sent sequence

Member links: 1 (max 255, min not set)

Vi3, since 00:00:17

No inactive multilink interfaces

LAC

**Jan 14 11:01:12.744: PPPoE 0: I PADI R:aabb.cc02.bc00 L:
ffff.ffff.ffff Et0/0

**Jan 14 11:01:12.744: Service tag: NULL Tag

**Jan 14 11:01:12.744: PPPoE 0: O PADO, R:aabb.cc02.bd00
L:aabb.cc02.bc00 Et0/0

**Jan 14 11:01:12.744: Service tag: NULL Tag

**Jan 14 11:01:14.824: PPPoE 0: I PADR R:aabb.cc02.bc00 L:aabb.cc02.bd00
Et0/0

**Jan 14 11:01:14.824: Service tag: NULL Tag

**Jan 14 11:01:14.824: PPPoE : encap string prepared

**Jan 14 11:01:14.824: [[9]PPPoE 9: Access IE handle allocated

**Jan 14 11:01:14.824: [[9]PPPoE 9: AAA unique ID 17 allocated

**Jan 14 11:01:14.824: [[9]PPPoE 9: No AAA accounting method list

**Jan 14 11:01:14.824: [[9]PPPoE 9: Service request sent to SSS

**Jan 14 11:01:14.824: [[9]PPPoE 9: Created, Service: None
R:aabb.cc02.bd00 L:aabb.cc02.bc00 Et0/0

**Jan 14 11:01:14.825: [[9]PPPoE 9: State NAS_PORT_POLICY_INQUIRY
Event SSS MORE KEYS

**Jan 14 11:01:14.825: PPP: Alloc Context [2A970D9898]

```
**Jan 14 11:01:14.825: ppp9 PPP: Phase is ESTABLISHING
**Jan 14 11:01:14.825: [[9]PPPoE 9: data path set to PPP
**Jan 14 11:01:14.825: [[9]PPPoE 9: Segment (SSS class): [PROVISION]
**Jan 14 11:01:14.825: [[9]PPPoE 9: State PROVISION_PPP Event SSM
PROVISIONED
**Jan 14 11:01:14.825: [[9]PPPoE 9: O PADS R:aabb.cc02.bc00
L:aabb.cc02.bd00 Et0/0
**Jan 14 11:01:14.825: ppp9 PPP: Using vpn set call direction
**Jan 14 11:01:14.825: ppp9 PPP: Treating connection as a callin
**Jan 14 11:01:14.825: ppp9 PPP: Session handle[B4000009] Session id[9]
**Jan 14 11:01:14.825: ppp9 LCP: Event[OPEN] State[Initial to Starting]
**Jan 14 11:01:14.825: ppp9 PPP LCP: Enter passive mode, state[Stopped]
**Jan 14 11:01:14.835: ppp9 LCP: I CONFREQ [Stopped] id 1 len 30
**Jan 14 11:01:14.835: ppp9 LCP: MagicNumber 0xBC220EF6
(0x0506BC220EF6)
**Jan 14 11:01:14.835: ppp9 LCP: MRRU 1524 (0x110405F4)
**Jan 14 11:01:14.835: ppp9 LCP: EndpointDisc 1 user@cisco.com
(0x1310017573657240737572662E6F7267)
**Jan 14 11:01:14.835: ppp9 LCP: O CONFREQ [Stopped] id 1 len 29
**Jan 14 11:01:14.835: ppp9 LCP: MRU 1492 (0x010405D4)
**Jan 14 11:01:14.835: ppp9 LCP: AuthProto CHAP (0x0305C22305)
**Jan 14 11:01:14.835: ppp9 LCP: MagicNumber 0xBC21F6F0
(0x0506BC21F6F0)
**Jan 14 11:01:14.835: ppp9 LCP: MRRU 1524 (0x110405F4)
**Jan 14 11:01:14.835: ppp9 LCP: EndpointDisc 1 LAC (0x1306014C4143)
**Jan 14 11:01:14.835: ppp9 LCP: O CONFACK [Stopped] id 1 len 30
**Jan 14 11:01:14.835: ppp9 LCP: MagicNumber 0xBC220EF6
(0x0506BC220EF6)
**Jan 14 11:01:14.835: ppp9 LCP: MRRU 1524 (0x110405F4)
**Jan 14 11:01:14.835: ppp9 LCP: EndpointDisc 1 user@cisco.com
```

(0x1310017573657240737572662E6F7267)

```
**Jan 14 11:01:14.835: ppp9 LCP: Event[Receive ConfReq+] State[Stopped to ACKsent]
**Jan 14 11:01:14.836: ppp9 LCP: I CONFNAK [ACKsent] id 1 len 8
**Jan 14 11:01:14.836: ppp9 LCP: MRU 1500 (0x010405DC)
**Jan 14 11:01:14.836: ppp9 LCP: O CONFREQ [ACKsent] id 2 len 29
**Jan 14 11:01:14.836: ppp9 LCP: MRU 1500 (0x010405DC)
**Jan 14 11:01:14.836: ppp9 LCP: AuthProto CHAP (0x0305C22305)
**Jan 14 11:01:14.836: ppp9 LCP: MagicNumber 0xBC21F6F0 (0x0506BC21F6F0)
**Jan 14 11:01:14.836: ppp9 LCP: MRRU 1524 (0x110405F4)
**Jan 14 11:01:14.836: ppp9 LCP: EndpointDisc 1 LAC (0x1306014C4143)
**Jan 14 11:01:14.836: ppp9 LCP: Event[Receive ConfNak/Rej] State[ACKsent to ACKsent]
**Jan 14 11:01:14.836: ppp9 LCP: I CONFACK [ACKsent] id 2 len 29
**Jan 14 11:01:14.836: ppp9 LCP: MRU 1500 (0x010405DC)
**Jan 14 11:01:14.836: ppp9 LCP: AuthProto CHAP (0x0305C22305)
**Jan 14 11:01:14.836: ppp9 LCP: MagicNumber 0xBC21F6F0 (0x0506BC21F6F0)
**Jan 14 11:01:14.836: ppp9 LCP: MRRU 1524 (0x110405F4)
**Jan 14 11:01:14.836: ppp9 LCP: EndpointDisc 1 LAC (0x1306014C4143)
**Jan 14 11:01:14.836: ppp9 LCP: Event[Receive ConfAck] State[ACKsent to Open]
**Jan 14 11:01:14.856: ppp9 PPP: Phase is AUTHENTICATING, by this end
**Jan 14 11:01:14.856: ppp9 CHAP: O CHALLENGE id 1 len 24 from "LAC"
**Jan 14 11:01:14.856: ppp9 LCP: State is Open
**Jan 14 11:01:14.856: ppp9 CHAP: I RESPONSE id 1 len 34 from "user@cisco.com"
**Jan 14 11:01:14.856: ppp9 PPP: Phase is FORWARDING, Attempting Forward
**Jan 14 11:01:14.856: VPDN CALL [uid:9]: Requesting connection
```

```

**Jan 14 11:01:14.856: VPDN CALL [uid:9]: Call request sent
**Jan 14 11:01:14.857: [[9]PPPoE 9: Access IE nas port called
**Jan 14 11:01:14.857: VPDN uid:9 Obtained connect speeds are
TX(10000000) RX(10000000)
**Jan 14 11:01:14.857: VPDN uid:9 Obtained connect speeds are
TX(10000000) RX(10000000)
**Jan 14 11:01:14.857: VPDN uid:9 L2TUN socket session connect requested
for socket handle F600000C
**Jan 14 11:01:14.857: VPDN uid:9 Setting up dataplane for L2-L2, no idb
**Jan 14 11:01:14.857: VPDN MGR [uid:9]: Initiating compulsory
connection to 192.168.1.2
**Jan 14 11:01:14.857: [[9]PPPoE 9: State LCP_NEGOTIATION    Event PPP
FORWARDING
**Jan 14 11:01:14.857: [[9]PPPoE 9: Segment (SSS class): UPDATED
**Jan 14 11:01:14.857: [[9]PPPoE 9: SSS switch updated
**Jan 14 11:01:14.859: VPDN Received L2TUN socket message Status
**Jan 14 11:01:14.859: VPDN uid:9 cannot find swidb for session
**Jan 14 11:01:14.859: [[9]PPPoE 9: Segment (SSS class): BOUND
**Jan 14 11:01:14.859: [[9]PPPoE 9: data path set to SSS Switch
**Jan 14 11:01:14.859: VPDN Received L2TUN socket message Connected
**Jan 14 11:01:14.859: VPDN MGR [uid:9]: Succeed to forward
user@cisco.com
**Jan 14 11:01:14.859: VPDN uid:9 VPDN session up
**Jan 14 11:01:14.859: VPDN CALL [uid:9]: Connection succeeded
**Jan 14 11:01:14.860: ppp9 PPP: Phase is FORWARDED, Session Forwarded
**Jan 14 11:01:14.860: [[9]PPPoE 9: State LCP_NEGOTIATION    Event PPP
FORWARDED
**Jan 14 11:01:14.860: [[9]PPPoE 9: Connected Forwarded

```

LAC#show ppp all

```

Interface/ID OPEN+ Nego* Fail-      Stage   Peer Address   Peer Name

```


0xB4000009 LCP+ CHAP* Fwded 0.0.0.0
user@cisco.com

LAC#show ppp multilink

No active bundles

No inactive multilink interfaces

LNS

**Jan 14 11:01:14.858: VPDN Received L2TUN socket message Incoming
**Jan 14 11:01:14.859: VPDN uid:13 L2TUN socket session accept requested
**Jan 14 11:01:14.859: VPDN uid:13 Setting up dataplane for L2-L2, no
idb
**Jan 14 11:01:14.860: VPDN Received L2TUN socket message Connected
**Jan 14 11:01:14.860: VPDN uid:13 VPDN session up
**Jan 14 11:01:14.860: PPP: Alloc Context [2A970D95C0]
**Jan 14 11:01:14.860: ppp13 PPP: Phase is ESTABLISHING
**Jan 14 11:01:14.860: ppp13 LCP: Event[Jam Start] State[Initial to
Closed]
**Jan 14 11:01:14.860: ppp13 LCP: I FORCED rcvd CONFACK len 29
**Jan 14 11:01:14.861: ppp13 LCP: MRU 1500 (0x010405DC)
**Jan 14 11:01:14.861: ppp13 LCP: AuthProto CHAP (0x0305C22305)
**Jan 14 11:01:14.861: ppp13 LCP: MagicNumber 0xBC21F6F0
(0x0506BC21F6F0)
**Jan 14 11:01:14.861: ppp13 LCP: MRRU 1524 (0x110405F4)
**Jan 14 11:01:14.861: ppp13 LCP: EndpointDisc 1 LAC (0x1306014C4143)
**Jan 14 11:01:14.861: ppp13 PPP: LCP not accepting rcv CONFACK
**Jan 14 11:01:14.861: ppp13 LCP: I FORCED sent CONFACK len 30
**Jan 14 11:01:14.861: ppp13 LCP: MagicNumber 0xBC220EF6
(0x0506BC220EF6)
**Jan 14 11:01:14.861: ppp13 LCP: MRRU 1524 (0x110405F4)

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**Jan 14 11:01:14.861: ppp13 LCP: EndpointDisc 1 user@cisco.com
(0x1310017573657240737572662E6F7267)

**Jan 14 11:01:14.861: ppp13 LCP: Event[DOWN] State[Closed to Initial]

**Jan 14 11:01:14.861: ppp13 LCP: Event[CLOSE] State[Initial to Initial]

**Jan 14 11:01:14.861: ppp13 LCP: Event[OPEN] State[Initial to Starting]

**Jan 14 11:01:14.861: ppp13 LCP: O CONFREQ [Starting] id 1 len 39

**Jan 14 11:01:14.861: ppp13 LCP: MRU 1492 (0x010405D4)

**Jan 14 11:01:14.861: ppp13 LCP: AuthProto CHAP (0x0305C22305)

**Jan 14 11:01:14.861: ppp13 LCP: MagicNumber 0xBC21E526
(0x0506BC21E526)

**Jan 14 11:01:14.861: ppp13 LCP: MRRU 1524 (0x110405F4)

**Jan 14 11:01:14.861: ppp13 LCP: EndpointDisc 1 user@cisco.com
(0x1310017573657240737572662E6F7267)

**Jan 14 11:01:14.861: ppp13 LCP: Event[UP] State[Starting to REQsent]

**Jan 14 11:01:14.862: ppp13 LCP: I CONFREQ [REQsent] id 1 len 30

**Jan 14 11:01:14.862: ppp13 LCP: MagicNumber 0xBC220F12
(0x0506BC220F12)

**Jan 14 11:01:14.862: ppp13 LCP: MRRU 1524 (0x110405F4)

**Jan 14 11:01:14.862: ppp13 LCP: EndpointDisc 1 user@cisco.com
(0x1310017573657240737572662E6F7267)

**Jan 14 11:01:14.862: ppp13 PPP: Remote endpoint user@cisco.com
invalid, matches local value

**Jan 14 11:01:14.862: ppp13 LCP: O CONFACK [REQsent] id 1 len 30

**Jan 14 11:01:14.862: ppp13 LCP: MagicNumber 0xBC220F12
(0x0506BC220F12)

**Jan 14 11:01:14.862: ppp13 LCP: MRRU 1524 (0x110405F4)

**Jan 14 11:01:14.862: ppp13 LCP: EndpointDisc 1 user@cisco.com
(0x1310017573657240737572662E6F7267)

**Jan 14 11:01:14.862: ppp13 LCP: Event[Receive ConfReq+] State[REQsent
to ACKsent]

**Jan 14 11:01:14.862: ppp13 LCP: I CONFNAK [ACKsent] id 1 len 8
```

**Jan 14 11:01:14.862: ppp13 LCP: MRU 1500 (0x010405DC)

**Jan 14 11:01:14.862: ppp13 LCP: O CONFREQ [ACKsent] id 2 len 39

**Jan 14 11:01:14.862: ppp13 LCP: MRU 1500 (0x010405DC)

**Jan 14 11:01:14.862: ppp13 LCP: AuthProto CHAP (0x0305C22305)

**Jan 14 11:01:14.862: ppp13 LCP: MagicNumber 0xBC21E526
(0x0506BC21E526)

**Jan 14 11:01:14.862: ppp13 LCP: MRRU 1524 (0x110405F4)

**Jan 14 11:01:14.862: ppp13 LCP: EndpointDisc 1 user@cisco.com
(0x1310017573657240737572662E6F7267)

**Jan 14 11:01:14.862: ppp13 LCP: Event[Receive ConfNak/Rej]
State[ACKsent to ACKsent]

**Jan 14 11:01:14.863: ppp13 LCP: I CONFACK [ACKsent] id 2 len 39

**Jan 14 11:01:14.863: ppp13 LCP: MRU 1500 (0x010405DC)

**Jan 14 11:01:14.863: ppp13 LCP: AuthProto CHAP (0x0305C22305)

**Jan 14 11:01:14.863: ppp13 LCP: MagicNumber 0xBC21E526
(0x0506BC21E526)

**Jan 14 11:01:14.863: ppp13 LCP: MRRU 1524 (0x110405F4)

**Jan 14 11:01:14.863: ppp13 LCP: EndpointDisc 1 user@cisco.com
(0x1310017573657240737572662E6F7267)

**Jan 14 11:01:14.863: ppp13 LCP: Event[Receive ConfAck] State[ACKsent
to Open]

**Jan 14 11:01:14.895: ppp13 PPP: Phase is AUTHENTICATING, by this end

**Jan 14 11:01:14.895: ppp13 CHAP: O CHALLENGE id 2 len 27 from "LNS"

**Jan 14 11:01:14.895: ppp13 LCP: State is Open

**Jan 14 11:01:14.895: ppp13 CHAP: I RESPONSE id 2 len 34 from
"user@cisco.com"

**Jan 14 11:01:14.895: ppp13 PPP: Phase is FORWARDING, Attempting
Forward

**Jan 14 11:01:14.895: ppp13 PPP: Phase is AUTHENTICATING,
Unauthenticated User

**Jan 14 11:01:14.895: ppp13 PPP: Phase is FORWARDING, Attempting
Forward

**Jan 14 11:01:14.896: VPDN uid:13 Virtual interface created for user@cisco.com bandwidth 10000 Kbps

**Jan 14 11:01:14.896: VPDN Vi3 Virtual interface created for user@cisco.com, bandwidth 10000 Kbps

L2X_ADJ: Vi3:allocated ctx, size 1

**Jan 14 11:01:14.896: VPDN Received L2TUN socket message Data UP

**Jan 14 11:01:14.896: Vi3 PPP: Phase is AUTHENTICATING, Authenticated User

**Jan 14 11:01:14.896: Vi3 CHAP: O SUCCESS id 2 len 4

**Jan 14 11:01:14.896: Vi3 MLP: Request add link to bundle

**Jan 14 11:01:14.896: Vi3 PPP: Phase is VIRTUALIZED

**Jan 14 11:01:14.896: Vi3 MLP: Adding link to bundle

**Jan 14 11:01:14.896: Vi3 MLP: Requested bundle vaccess creation

**Jan 14 11:01:14.896: Vi3 MLP: Determine clone source for SSS

**Jan 14 11:01:14.896: Vi3 MLP: Link is Virtual-Access, clone from Virtual-Template 1

**Jan 14 11:01:14.897: Vi3 MLP: Determine clone source for SSS

**Jan 14 11:01:14.897: Vi3 MLP: Link is Virtual-Access, clone from Virtual-Template 1

**Jan 14 11:01:14.897: %LINK-3-UPDOWN: Interface Virtual-Access3, changed state to up

**Jan 14 11:01:14.897: Vi3 MLP: SSS connect, bundle interface Vi4

**Jan 14 11:01:14.897: PPP: Alloc Context [2A970D9898]

**Jan 14 11:01:14.897: ppp14 PPP: Phase is ESTABLISHING

**Jan 14 11:01:14.897: Vi4 MLP: Changing bundle bandwidth from 100000 to 10000

**Jan 14 11:01:14.897: Vi4 MLP: Ready to finish adding link Vi3 to bundle

**Jan 14 11:01:14.897: Vi3 MLP: Computed frag size 37492 exceeds MTU, changed to 1488

**Jan 14 11:01:14.897: Vi4 MLP: Update bundle bandwidth 10000 set 10000

**Jan 14 11:01:14.897: Vi3 MLP: Change transmit status from Init to Enabled, transmit links 1

**Jan 14 11:01:14.897: Vi4 MLP: Added first link Vi3 to bundle user@cisco.com

**Jan 14 11:01:14.898: Vi3 MLP: Updating bundle's PPP handle[0x5900000E] in SSS context

**Jan 14 11:01:14.898: %LINEPROTO-5-UPDOWN: Line protocol on Interface Virtual-Access3, changed state to up

**Jan 14 11:01:14.898: Vi4 MLP: Received segment updated message for bundle

**Jan 14 11:01:14.915: %LINK-3-UPDOWN: Interface Virtual-Access4, changed state to up

**Jan 14 11:01:14.915: Vi4 PPP: Force LCP OPEN on MLP Bundle

**Jan 14 11:01:14.915: Vi3 PPP: Queue IPCP code[1] id[1]

**Jan 14 11:01:14.915: Vi4 PPP: Phase is UP

**Jan 14 11:01:14.915: Vi4 IPCP: Protocol configured, start CP. state[Initial]

**Jan 14 11:01:14.915: Vi4 IPCP: Event[OPEN] State[Initial to Starting]

**Jan 14 11:01:14.915: Vi4 IPCP: O CONFREQ [Starting] id 1 len 10

**Jan 14 11:01:14.915: Vi4 IPCP: Address 10.10.10.10 (0x03060A0A0A0A)

**Jan 14 11:01:14.915: Vi4 IPCP: Event[UP] State[Starting to REQsent]

**Jan 14 11:01:14.915: Vi3 PPP: Process pending ncp packets

**Jan 14 11:01:14.915: Vi3 IPCP: Redirect packet to Vi4

**Jan 14 11:01:14.915: Vi4 IPCP: I CONFREQ [REQsent] id 1 len 10

**Jan 14 11:01:14.915: Vi4 IPCP: Address 0.0.0.0 (0x030600000000)

**Jan 14 11:01:14.915: Vi4 IPCP AUTHOR: Her address 0.0.0.0, we want 0.0.0.0

**Jan 14 11:01:14.915: Vi4 IPCP: Pool returned 10.10.10.18

**Jan 14 11:01:14.915: Vi4 IPCP: O CONFNAK [REQsent] id 1 len 10

**Jan 14 11:01:14.915: Vi4 IPCP: Address 10.10.10.18 (0x03060A0A0A12)

**Jan 14 11:01:14.915: Vi4 IPCP: Event[Receive ConfReq-] State[REQsent

to REQsent]

**Jan 14 11:01:14.915: Vi4 IPCP: I CONFACK [REQsent] id 1 len 10

**Jan 14 11:01:14.915: Vi4 IPCP: Address 10.10.10.10 (0x03060A0A0A0A)

**Jan 14 11:01:14.915: Vi4 IPCP: Event[Receive ConfAck] State[REQsent to ACKrcvd]

**Jan 14 11:01:14.916: %LINEPROTO-5-UPDOWN: Line protocol on Interface Virtual-Access4, changed state to up

**Jan 14 11:01:14.936: Vi4 IPCP: I CONFREQ [ACKrcvd] id 2 len 10

**Jan 14 11:01:14.936: Vi4 IPCP: Address 10.10.10.18 (0x03060A0A0A12)

**Jan 14 11:01:14.936: Vi4 IPCP: O CONFACK [ACKrcvd] id 2 len 10

**Jan 14 11:01:14.936: Vi4 IPCP: Address 10.10.10.18 (0x03060A0A0A12)

**Jan 14 11:01:14.936: Vi4 IPCP: Event[Receive ConfReq+] State[ACKrcvd to Open]

**Jan 14 11:01:14.965: Vi4 IPCP: State is Open

**Jan 14 11:01:14.965: Vi4 Added to neighbor route AVL tree: topoid 0, address 10.10.10.18

**Jan 14 11:01:14.965: Vi4 IPCP: Install route to 10.10.10.18

LNS#show ppp all

Interface/ID	OPEN+	Nego*	Fail-	Stage	Peer Address	Peer Name
--------------	-------	-------	-------	-------	--------------	-----------

Vi4		IPCP+		LocalT	10.10.10.18	
user@cisco.com						

Vi3		LCP+ CHAP+		LocalT	10.10.10.18	
user@cisco.com						

LNS#show ppp multilink

Virtual-Access4

Bundle name: user@cisco.com

Remote Username: user@cisco.com

Remote Endpoint Discriminator: [[1] user@cisco.com

Local Username: LNS

Local Endpoint Discriminator: [[1] user@cisco.com

Bundle up for 00:00:10, total bandwidth 10000, load 1/255

Receive buffer limit 12192 bytes, frag timeout 15 ms

Using relaxed lost fragment detection algorithm.

0/0 fragments/bytes in reassembly list

0 lost fragments, 0 reordered

0/0 discarded fragments/bytes, 0 lost received

0x0 received sequence, 0x3 sent sequence

Member links: 1 (max 255, min not set)

LAC:Vi3 (192.168.1.1), since 00:00:10, 37500 weight, 1488 frag size, unsequenced

No inactive multilink interfaces

関連情報

- [クライアント開始ダイヤルイン VPDN トンネリングの設定](#)