Multilink via Virtual-Template sur deux interfaces série

Contenu

Introduction

Le protocole MLP (Multilink PPP) équilibre la charge sur les interfaces de numérotation, telles que les interfaces RNIS, synchrones et asynchrones. MLP divise les paquets et envoie les fragments sur des circuits parallèles. De cette manière, MLP améliore le débit et réduit la latence entre les systèmes. MLP fournit une méthode pour fractionner, recombiner et séquencer des datagrammes sur plusieurs liaisons de données logiques. MLP permet aux paquets de se fragmenter et aux fragments d'être envoyés simultanément sur plusieurs liaisons point à point vers la même adresse distante.

Ce document illustre une connexion multiliaison entre les interfaces série via la configuration de modèle virtuel.

Conditions préalables

Conditions requises

Aucune spécification déterminée n'est requise pour ce document.

Components Used

Les informations contenues dans ce document sont basées sur les versions de matériel et de logiciel suivantes :

- Logiciel Cisco IOS® version 11.2 ou ultérieure.
- Deux routeurs Cisco 2503, dotés chacun de deux interfaces série WAN. Ces routeurs exécutent le logiciel Cisco IOS Version 12.2(7b).

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Produits connexes

Cette configuration peut également être utilisée avec les versions de matériel et de logiciel suivantes .

- Deux routeurs qui ont deux interfaces série WAN. Vous pouvez utiliser des interfaces série WIC-1T, WIC-2T et WAN fixes.

Conventions

Pour plus d'informations sur les conventions utilisées dans ce document, reportez-vous à Conventions relatives aux conseils techniques Cisco.

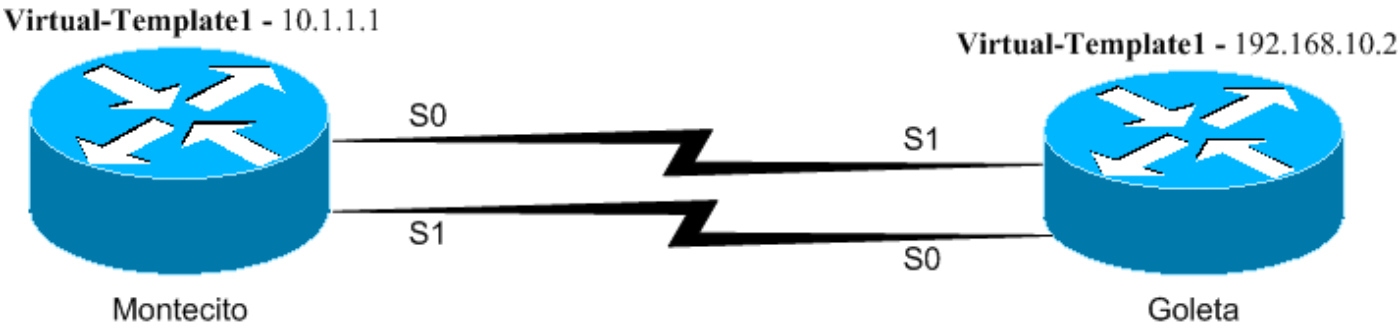
Configuration

Cette section vous fournit des informations pour configurer les fonctionnalités décrites dans ce document.

Remarque : Utilisez l'outil de recherche de commandes (clients inscrits seulement) pour en savoir plus sur les commandes figurant dans le présent document.

Diagramme du réseau

Ce document utilise la configuration réseau suivante :



Les routeurs Montecito et Goleta sont connectés dos à dos via les interfaces Serial0 et Serial1. Cette configuration utilise un modèle virtuel de chaque côté, le protocole PPP (Multilink Point-to-Point Protocol), ainsi que des ponts et routes IP et IPX entre les routeurs.

Configurations

Ce document utilise les configurations suivantes :

- Montecito
- Goleta

Montecito

```
Montecito#write terminal
 Building configuration...
 Current configuration : 945 bytes
 !
 version 12.2
 service timestamps debug uptime
 service timestamps log uptime
 no service password-encryption
 !
 hostname Montecito
 !
 boot system flash c2500-d-l.122-7b.bin
 no logging buffered
 !
 ip subnet-zero
 no ip domain-lookup
 !
 !
 multilink virtual-template 1
  !--- Applies the virtual interface template to the
multilink bundle. !--- All multilink calls have virtual-
access interfaces cloned !--- from virtual-template 1. !
ipx routing 0000.0c31.aac2 ! interface Loopback0 ip
address 10.1.1.1 255.0.0.0 ipx network BEEF ! interface
Ethernet0 no ip address shutdown ! ! !--- Virtual-
template is a logical interface that creates virtual
access !--- interfaces dynamically, and applies them to
physical serial interfaces. interface Virtual-Template1
!--- Assumes the IP & IPX address of Loopback0. ip
unnumbered Loopback0 ipx ppp-client Loopback0 ppp
multilink !--- Enables Multilink PPP on the interface.
bridge-group 1 ! interface Serial0 no ip address
encapsulation ppp no ip route-cache no ip mroute-cache
no fair-queue !--- Enables Multilink PPP on the
interface. ppp multilink ! interface Serial1 no ip
address encapsulation ppp no ip route-cache no ip
mroute-cache no fair-queue !--- Enables Multilink PPP on
the interface. ppp multilink ! interface BRI0 no ip
address shutdown ! no ip classless ! bridge 1 protocol
ieee ! line con 0 line aux 0 line vty 0 4 login ! end
```

Goleta

```
Goleta#write terminal
 Building configuration...
 Current configuration : 960 bytes
 version 12.2
 service timestamps debug uptime
 service timestamps log uptime
 no service password-encryption
 !
 hostname Goleta
 !
 !
```

```
 ip subnet-zero
 no ip domain-lookup
 !
 !
!--- Applies the virtual interface template to the
multilink bundle. !--- Skip this step for ISDN or dialer
interfaces. multilink virtual-template 1 ipx routing
0000.0c47.4e9a ! ! ! interface Loopback0 ip address
192.168.10.2 255.255.255.0 ipx network BEEF ! interface
Ethernet0 no ip address shutdown ! !--- Virtual-template
is a logical interface that Creates virtual access !---
interfaces dynamically and applies them to physical
serial interfaces. interface Virtual-Template1 !---
Assumes the IP & IPX address of Loopback0. ip unnumbered
Loopback0 ipx ppp-client Loopback0 ! !--- Enables
Multilink PPP on the interface. ppp multilink bridge-
group 1 ! interface Serial0 no ip address encapsulation
ppp no fair-queue clockrate 1000000 ! !--- Enables
Multilink PPP on the interface. ppp multilink !
interface Serial1 no ip address encapsulation ppp no
fair-queue clockrate 1000000 ! !--- Enables Multilink
PPP on the interface. ppp multilink ! interface BRI0 no
ip address shutdown ! ip classless ! bridge 1 protocol
ieee ! line con 0 line aux 0 line vty 0 4 ! end
```

Vérification

Référez-vous à cette section pour vous assurer du bon fonctionnement de votre configuration.

L'Outil Interpréteur de sortie (clients enregistrés uniquement) (OIT) prend en charge certaines commandes show. Utilisez l'OIT pour afficher une analyse de la sortie de la commande **show .**

- **show ppp multilink** : affiche des informations sur les ensembles multiliaison actifs. Utilisez cette commande pour vérifier la connexion multiliaison.
- **show interface virtual-access** - affiche l'état, les données de trafic et les informations de configuration d'une interface d'accès virtuelle spécifique.
- **show interface serial** : vous permet de résoudre les problèmes liés à l'interface série.

Exemple de résultat de show

Commandes show sur Montecito après la connexion

```
Montecito#show interface virtual-access 1
  Virtual-Access1 is up, line protocol is up
  Hardware is Virtual Access interface
  Interface is unnumbered. Using address of Loopback0 (10.1.1.1)
  MTU 1500 bytes, BW 3088 Kbit, DLY 100000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation PPP, loopback not set
  Keepalive set (10 sec)
  DTR is pulsed for 5 seconds on reset
  LCP Open, multilink Open
  Open: BRIDGECP, IPCP, IPXCP
  Last input 00:00:00, output never, output hang never
  Last clearing of "show interface" counters 00:02:09
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
```

```
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
   22 packets input, 743 bytes, 0 no buffer
   Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
   0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
   8 packets output, 124 bytes, 0 underruns
   0 output errors, 0 collisions, 0 interface resets
   0 output buffer failures, 0 output buffers swapped out
   0 carrier transitions
```

```
Montecito#show interface serial 0
Serial0 is up, line protocol is up
Hardware is HD64570
MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation PPP, loopback not set
Keepalive set (10 sec)
LCP Open, multilink Open
Last input 00:00:00, output 00:00:06, output hang never
Last clearing of "show interface" counters 02:04:30
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
3320 packets input, 107170 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
1483 packets output, 24622 bytes, 0 underruns
0 output errors, 0 collisions, 6 interface resets
0 output buffer failures, 0 output buffers swapped out
8 carrier transitions
DCD=up DSR=up DTR=up RTS=up CTS=up
```

```
Montecito#show interface serial 1
Serial1 is up, line protocol is up
Hardware is HD64570
MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation PPP, loopback not set
Keepalive set (10 sec)
LCP Open, multilink Open
Last input 00:00:00, output 00:00:00, output hang never
Last clearing of "show interface" counters 02:04:32
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
3320 packets input, 107161 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
1482 packets output, 24646 bytes, 0 underruns
0 output errors, 0 collisions, 6 interface resets
0 output buffer failures, 0 output buffers swapped out
8 carrier transitions
DCD=up DSR=up DTR=up RTS=up CTS=up
```

```
Montecito#show ppp multilink
Virtual-Access1, bundle name is Goleta
Bundle up for 00:01:39
0 lost fragments, 0 reordered, 0 unassigned
```

```
   0 discarded, 0 lost received, 1/255 load
   0x3D received sequence, 0xB sent sequence
   Member links: 2 (max not set, min not set)
   Serial1, since 00:01:40, last rcvd seq 00003C
   Serial0, since 00:01:39, last rcvd seq 00003B

   Montecito#show bridge group
   Bridge Group 1 is running the IEEE compatible Spanning Tree protocol
   Port 10 (Virtual-Access1) of bridge group 1 is forwarding
   Port 9 (Virtual-Template1) of bridge group 1 is down
   Montecito#
```

Commandes show sur Goleta après la connexion

```
Goleta#show interface virtual-access 1
   Virtual-Access1 is up, line protocol is up
   Hardware is Virtual Access interface
   Interface is unnumbered. Using address of Loopback0 (192.168.10.2)
   MTU 1500 bytes, BW 3088 Kbit, DLY 100000 usec,
   reliability 255/255, txload 1/255, rxload 1/255
   Encapsulation PPP, loopback not set
   Keepalive set (10 sec)
   DTR is pulsed for 5 seconds on reset
   LCP Open, multilink Open
   Open: BRIDGECP, IPCP, IPXCP
   Last input 00:00:10, output never, output hang never
   Last clearing of "show interface" counters 00:02:18
   Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
   Queueing strategy: fifo
   Output queue :0/40 (size/max)
   5 minute input rate 0 bits/sec, 0 packets/sec
   5 minute output rate 0 bits/sec, 0 packets/sec
   4 packets input, 52 bytes, 0 no buffer
   Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
   0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
   28 packets output, 892 bytes, 0 underruns
   0 output errors, 0 collisions, 0 interface resets
   0 output buffer failures, 0 output buffers swapped out
   0 carrier transitions

   Goleta#show interface serial 0
   Serial0 is up, line protocol is up
   Hardware is HD64570
   MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
   reliability 255/255, txload 1/255, rxload 1/255
   Encapsulation PPP, loopback not set
   Keepalive set (10 sec)
   LCP Open, multilink Open
   Last input 01:52:28, output 00:00:00, output hang never
   Last clearing of "show interface" counters 02:55:09
   Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
   Queueing strategy: fifo
   Output queue :0/40 (size/max)
   5 minute input rate 0 bits/sec, 0 packets/sec
   5 minute output rate 0 bits/sec, 0 packets/sec
   2364 packets input, 41972 bytes, 0 no buffer
   Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
   0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
   4465 packets output, 134689 bytes, 0 underruns
   0 output errors, 0 collisions, 148 interface resets
   0 output buffer failures, 0 output buffers swapped out
   294 carrier transitions
   DCD=up DSR=up DTR=up RTS=up CTS=up
```

```
Goleta#show interface serial 1
Serial1 is up, line protocol is up
Hardware is HD64570
MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation PPP, loopback not set
Keepalive set (10 sec)
LCP Open, multilink Open
Last input 01:52:38, output 00:00:00, output hang never
Last clearing of "show interface" counters 02:55:18
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
2366 packets input, 42030 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
4472 packets output, 134930 bytes, 0 underruns
0 output errors, 0 collisions, 147 interface resets
0 output buffer failures, 0 output buffers swapped out
289 carrier transitions
DCD=up DSR=up DTR=up RTS=up CTS=up

Goleta#sh ppp multilink
Virtual-Access1, bundle name is Montecito
Bundle up for 00:01:35
0 lost fragments, 0 reordered, 0 unassigned
0 discarded, 0 lost received, 1/255 load
0xB received sequence, 0x3B sent sequence
Member links: 2 (max not set, min not set)
Serial0, since 00:01:36, last rcvd seq 00000A
Serial1, since 00:01:35, last rcvd seq 000009

Goleta#show bridge group
Bridge Group 1 is running the IEEE compatible Spanning Tree protocol
Port 10 (Virtual-Access1) of bridge group 1 is forwarding
Port 9 (Virtual-Template1) of bridge group 1 is down
```

Dépannage

Utilisez cette section pour dépanner votre configuration.

Ressources de dépannage

Utilisez ces ressources de dépannage selon les besoins :

- Dépannage des problèmes de ligne série
- Connexions dos à dos HDLC
- Dépannage des lignes louées

Dépannage des commandes

L'Outil Interpréteur de sortie (clients enregistrés uniquement) (OIT) prend en charge certaines commandes show. Utilisez l'OIT pour afficher une analyse de la sortie de la commande **show .**

Remarque : Consulter les renseignements importants sur les commandes de débogage avant

d’utiliser les commandes de **débogage**.

- **debug ppp negotiation** : indique si un client passe la négociation PPP. Vérifie également la négociation d'adresse.
- **debug ppp authentication** : indique si un client passe l'authentification. Utilisez cette commande si vous utilisez le logiciel Cisco IOS Version 11.2 ou ultérieure.
- **debug ppp chap** : indique si un client passe l'authentification. Utilisez cette commande si vous utilisez une version du logiciel Cisco IOS antérieure à la version 11.2.
- **debug ppp error** : affiche les erreurs de protocole et les statistiques d'erreur associées à la négociation et au fonctionnement de la connexion PPP.
- **debug vtemplate** : vous permet de voir quelles configurations de modèles virtuels sont utilisées.
- **debug vprofile** : vous permet de voir quelles options de configuration sont appliquées à l'interface d'accès virtuel.

Exemple de sortie de débogage

Voici quelques sorties de débogage pour les appels réussis. Attention aux sections en **gras**. Comparez la sortie que vous obtenez avec le résultat affiché ici :

Débogues PPP sur Montecito

```
Montecito#debug ppp negotiation
     PPP protocol negotiation debugging is on
     Montecito#
     00:07:30: %LINK-3-UPDOWN: Interface Serial1, changed state to up
     00:07:30: Se1 PPP: Treating connection as a dedicated line
     00:07:30: Se1 PPP: Phase is ESTABLISHING, Active Open [0 sess, 2 load]
     00:07:30: Se1 LCP: O CONFREQ [Closed] id 4 len 26
     00:07:30: Se1 LCP:    MagicNumber 0x6063D57E (0x05066063D57E)
     00:07:30: Se1 LCP:    MRRU 1524 (0x110405F4)
     00:07:30: Se1 LCP:    EndpointDisc 1 Montecito (0x130C014D6F6E74656369746F)
     00:07:30: Se1 LCP: I CONFREQ [REQsent] id 101 len 23
     00:07:30: Se1 LCP:    MagicNumber 0x60944B81 (0x050660944B81)
     00:07:30: Se1 LCP:    MRRU 1524 (0x110405F4)
     00:07:30: Se1 LCP:    EndpointDisc 1 Goleta (0x130901476F6C657461)
     00:07:30: Se1 LCP: O CONFACK [REQsent] id 101 len 23
     00:07:30: Se1 LCP:    MagicNumber 0x60944B81 (0x050660944B81)
     00:07:30: Se1 LCP:    MRRU 1524 (0x110405F4)
     00:07:30: Se1 LCP:    EndpointDisc 1 Goleta (0x130901476F6C657461)
     00:07:30: Se1 LCP: I CONFACK [ACKsent] id 4 len 26
     00:07:30: Se1 LCP:    MagicNumber 0x6063D57E (0x05066063D57E)
     00:07:30: Se1 LCP:    MRRU 1524 (0x110405F4)
     00:07:30: Se1 LCP:    EndpointDisc 1 Montecito (0x130C014D6F6E74656369746F)
     00:07:30: Se1 LCP: State is Open
     00:07:30: Se1 PPP: Phase is VIRTUALIZED [0 sess, 1 load]
     00:07:31: Vi1 PPP: Phase is DOWN, Setup [0 sess, 0 load]
     00:07:31: Vi1 PPP: Phase is ESTABLISHING [0 sess, 0 load]
     00:07:31: %LINK-3-UPDOWN: Interface Serial0, changed state to up
     00:07:31: Se0 PPP: Treating connection as a dedicated line
     00:07:31: Se0 PPP: Phase is ESTABLISHING, Active Open [0 sess, 0 load]
     00:07:31: Se0 LCP: O CONFREQ [Closed] id 4 len 26
     00:07:31: Se0 LCP:    MagicNumber 0x6063D8DC (0x05066063D8DC)
     00:07:31: Se0 LCP:    MRRU 1524 (0x110405F4)
     00:07:31: Se0 LCP:    EndpointDisc 1 Montecito (0x130C014D6F6E74656369746F)
```

```
00:07:31: %LINK-3-UPDOWN: Interface Virtual-Access1, changed state to up
00:07:31: Vi1 PPP: Treating connection as a dedicated line
00:07:31: Vi1 LCP: O CONFREQ [Closed] id 1 len 26
00:07:31: Vi1 LCP:    MagicNumber 0x6063D8F9 (0x05066063D8F9)
00:07:31: Vi1 LCP:    MRRU 1524 (0x110405F4)
00:07:31: Vi1 LCP:    EndpointDisc 1 Montecito (0x130C014D6F6E74656369746F)
00:07:31: Vi1 PPP: Phase is UP [0 sess, 0 load]
00:07:31: Vi1 BNCP: O CONFREQ [Closed] id 1 len 4
00:07:31: Vi1 IPCP: O CONFREQ [Closed] id 1 len 10
00:07:31: Vi1 IPCP:    Address 10.1.1.1 (0x03060A010101)
00:07:31: Vi1 IPXCP: O CONFREQ [Closed] id 1 len 18
00:07:31: Vi1 IPXCP:    Network 0x0000BEEF (0x01060000BEEF)
00:07:31: Vi1 IPXCP:    Node 0000.0c31.aac2 (0x020800000C31AAC2)
00:07:31: Vi1 MLP: Added first link Se1 to bundle Goleta
00:07:31: Se0 LCP: I CONFREQ [REQsent] id 101 len 23
00:07:31: Se0 LCP:    MagicNumber 0x60944EF7 (0x050660944EF7)
00:07:31: Se0 LCP:    MRRU 1524 (0x110405F4)
00:07:31: Se0 LCP:    EndpointDisc 1 Goleta (0x130901476F6C657461)
00:07:31: Se0 LCP: O CONFACK [REQsent] id 101 len 23
00:07:31: Se0 LCP:    MagicNumber 0x60944EF7 (0x050660944EF7)
00:07:31: Se0 LCP:    MRRU 1524 (0x110405F4)
00:07:31: Se0 LCP:    EndpointDisc 1 Goleta (0x130901476F6C657461)
00:07:31: Se1 BNCP: MLP bundle interface is built, process packets now
00:07:31: Se1 BNCP: Redirect packet to Vi1
00:07:31: Vi1 BNCP: I CONFREQ [REQsent] id 1 len 4
00:07:31: Vi1 BNCP: O CONFACK [REQsent] id 1 len 4
00:07:31: Vi1 IPCP: I CONFREQ [REQsent] id 1 len 10
00:07:31: Vi1 IPCP:    Address 192.168.10.2 (0x0306C0A80A02)
00:07:31: Vi1 IPCP: O CONFACK [REQsent] id 1 len 10
00:07:31: Vi1 IPCP:    Address 192.168.10.2 (0x0306C0A80A02)
00:07:31: Vi1 IPXCP: I CONFREQ [REQsent] id 1 len 18
00:07:31: Vi1 IPXCP:    Network 0x0000BEEF (0x01060000BEEF)
00:07:31: Vi1 IPXCP:    Node 0000.0c47.4e9a (0x020800000C474E9A)
00:07:31: Vi1 IPXCP: O CONFACK [REQsent] id 1 len 18
00:07:31: Vi1 IPXCP:    Network 0x0000BEEF (0x01060000BEEF)
00:07:31: Vi1 IPXCP:    Node 0000.0c47.4e9a (0x020800000C474E9A)
00:07:31: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1,
changed state to up
00:07:31: Se0 LCP: I CONFACK [ACKsent] id 4 len 26
00:07:31: Se0 LCP:    MagicNumber 0x6063D8DC (0x05066063D8DC)
00:07:31: Se0 LCP:    MRRU 1524 (0x110405F4)
00:07:31: Se0 LCP:    EndpointDisc 1 Montecito (0x130C014D6F6E74656369746F)
00:07:31: Se0 LCP: State is Open
00:07:31: Se0 PPP: Phase is VIRTUALIZED [0 sess, 2 load]
00:07:31: Vi1 MLP: Added link Se0 to bundle Goleta
00:07:31: Vi1 BNCP: I CONFACK [ACKsent] id 1 len 4
00:07:31: Vi1 BNCP: State is Open
00:07:31: Vi1 IPCP: I CONFACK [ACKsent] id 1 len 10
00:07:31: Vi1 IPCP:    Address 10.1.1.1 (0x03060A010101)
00:07:31: Vi1 IPCP: State is Open
00:07:31: Vi1 IPXCP: I CONFACK [ACKsent] id 1 len 18
00:07:31: Vi1 IPXCP:    Network 0x0000BEEF (0x01060000BEEF)
00:07:31: Vi1 IPXCP:    Node 0000.0c31.aac2 (0x020800000C31AAC2)
00:07:31: Vi1 IPXCP: State is Open
00:07:31: Vi1 IPCP: Install route to 192.168.10.2
00:07:32: %LINEPROTO-5-UPDOWN: Line protocol on Interface Virtual-Access1,
changed state to up
00:07:32: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0,
changed state to up
Montecito#

Montecito#ping  192.168.10.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.10.2, timeout is 2 seconds:
```

```
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 8/9/12 ms

Montecito#ping ipx
Target IPX address: BEEF.0000.0c47.4e9a
Repeat count [5]:
Datagram size [100]:
Timeout in seconds [2]:
Verbose [n]:
Type escape sequence to abort.
Sending 5, 100-byte IPX Novell Echoes to BEEF.0000.0c47.4e9a,
timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 8/10/12 ms
Montecito#
```

Débogues PPP sur Goleta

```
Goleta#debug ppp negotiation
PPP protocol negotiation debugging is on

Goleta#
01:00:26: Se0 PPP: Treating connection as a dedicated line
01:00:26: Se0 PPP: Phase is ESTABLISHING, Active Open [0 sess, 0 load]
01:00:26: Se0 LCP: O CONFREQ [Closed] id 101 len 23
01:00:26: Se0 LCP: MagicNumber 0x60944B81 (0x050660944B81)
01:00:26: Se0 LCP: MRRU 1524 (0x110405F4)
01:00:26: Se0 LCP: EndpointDisc 1 Goleta (0x130901476F6C657461)
01:00:26: Se0 LCP: I CONFREQ [REQsent] id 4 len 26
01:00:26: Se0 LCP: MagicNumber 0x6063D57E (0x05066063D57E)
01:00:26: Se0 LCP: MRRU 1524 (0x110405F4)
01:00:26: Se0 LCP: EndpointDisc 1 Montecito (0x130C014D6F6E74656369746F)
01:00:26: Se0 LCP: O CONFACK [REQsent] id 4 len 26
01:00:26: Se0 LCP: MagicNumber 0x6063D57E (0x05066063D57E)
01:00:26: Se0 LCP: MRRU 1524 (0x110405F4)
01:00:26: Se0 LCP: EndpointDisc 1 Montecito (0x130C014D6F6E74656369746F)
01:00:26: Se0 LCP: I CONFACK [ACKsent] id 101 len 23
01:00:26: Se0 LCP: MagicNumber 0x60944B81 (0x050660944B81)
01:00:26: Se0 LCP: MRRU 1524 (0x110405F4)
01:00:26: Se0 LCP: EndpointDisc 1 Goleta (0x130901476F6C657461)
01:00:26: Se0 LCP: State is Open
01:00:26: Se0 PPP: Phase is VIRTUALIZED [0 sess, 0 load]
01:00:26: Vi1 PPP: Phase is DOWN, Setup [0 sess, 0 load]
01:00:26: Vi1 PPP: Phase is ESTABLISHING [0 sess, 0 load]
01:00:27: %LINK-3-UPDOWN: Interface Serial1, changed state to up
01:00:27: Se1 PPP: Treating connection as a dedicated line
01:00:27: Se1 PPP: Phase is ESTABLISHING, Active Open [0 sess, 0 load]
01:00:27: Se1 LCP: O CONFREQ [Closed] id 101 len 23
01:00:27: Se1 LCP: MagicNumber 0x60944EF7 (0x050660944EF7)
01:00:27: Se1 LCP: MRRU 1524 (0x110405F4)
01:00:27: Se1 LCP: EndpointDisc 1 Goleta (0x130901476F6C657461)
01:00:27: %LINK-3-UPDOWN: Interface Virtual-Access1, changed state to up
01:00:27: Vi1 PPP: Treating connection as a dedicated line
01:00:27: Vi1 LCP: O CONFREQ [Closed] id 1 len 23
01:00:27: Vi1 LCP: MagicNumber 0x60944F10 (0x050660944F10)
01:00:27: Vi1 LCP: MRRU 1524 (0x110405F4)
01:00:27: Vi1 LCP: EndpointDisc 1 Goleta (0x130901476F6C657461)
01:00:27: Vi1 PPP: Phase is UP [0 sess, 0 load]
01:00:27: Vi1 BNCP: O CONFREQ [Closed] id 1 len 4
01:00:27: Vi1 IPCP: O CONFREQ [Closed] id 1 len 10
01:00:27: Vi1 IPCP: Address 192.168.10.2 (0x0306C0A80A02)
01:00:27: Vi1 IPXCP: O CONFREQ [Closed] id 1 len 18
01:00:27: Vi1 IPXCP: Network 0x0000BEEF (0x01060000BEEF)
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01:00:27: Vi1 IPXCP: Node 0000.0c47.4e9a (0x020800000C474E9A)
01:00:27: Vi1 MLP: Added first link Se0 to bundle Montecito
01:00:27: Se1 LCP: I CONFREQ [REQsent] id 4 len 26
01:00:27: Se1 LCP: MagicNumber 0x6063D8DC (0x05066063D8DC)
01:00:27: Se1 LCP: MRRU 1524 (0x110405F4)
01:00:27: Se1 LCP: EndpointDisc 1 Montecito (0x130C014D6F6E74656369746F)
01:00:27: Se1 LCP: O CONFACK [REQsent] id 4 len 26
01:00:27: Se1 LCP: MagicNumber 0x6063D8DC (0x05066063D8DC)
01:00:27: Se1 LCP: MRRU 1524 (0x110405F4)
01:00:27: Se1 LCP: EndpointDisc 1 Montecito (0x130C014D6F6E74656369746F)
01:00:27: Se0 BNCP: MLP bundle interface is built, process packets now
01:00:27: Se0 BNCP: Redirect packet to Vi1
01:00:27: Vi1 BNCP: I CONFREQ [REQsent] id 1 len 4
01:00:27: Vi1 BNCP: O CONFACK [REQsent] id 1 len 4
01:00:27: Se0 IPCP: MLP bundle interface is built, process packets now
01:00:27: Se0 IPCP: Redirect packet to Vi1
01:00:27: Vi1 IPCP: I CONFREQ [REQsent] id 1 len 10
01:00:27: Vi1 IPCP: Address 10.1.1.1 (0x03060A010101)
01:00:27: Vi1 IPCP: O CONFACK [REQsent] id 1 len 10
01:00:27: Vi1 IPCP: Address 10.1.1.1 (0x03060A010101)
01:00:27: Se0 IPXCP: MLP bundle interface is built, process packets now
01:00:27: Se0 IPXCP: Redirect packet to Vi1
01:00:27: Vi1 IPXCP: I CONFREQ [REQsent] id 1 len 18
01:00:27: Vi1 IPXCP: Network 0x0000BEEF (0x01060000BEEF)
01:00:27: Vi1 IPXCP: Node 0000.0c31.aac2 (0x020800000C31AAC2)
01:00:27: Vi1 IPXCP: O CONFACK [REQsent] id 1 len 18
01:00:27: Vi1 IPXCP: Network 0x0000BEEF (0x01060000BEEF)
01:00:27: Vi1 IPXCP: Node 0000.0c31.aac2 (0x020800000C31AAC2)
01:00:27: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0,
changed state to up
01:00:27: Se1 LCP: I CONFACK [ACKsent] id 101 len 23
01:00:27: Se1 LCP: MagicNumber 0x60944EF7 (0x050660944EF7)
01:00:27: Se1 LCP: MRRU 1524 (0x110405F4)
01:00:27: Se1 LCP: EndpointDisc 1 Goleta (0x130901476F6C657461)
01:00:27: Se1 LCP: State is Open
01:00:27: Se1 PPP: Phase is VIRTUALIZED [0 sess, 4 load]
01:00:27: Vi1 BNCP: I CONFACK [ACKsent] id 1 len 4
01:00:27: Vi1 BNCP: State is Open
01:00:27: Vi1 MLP: Added link Se1 to bundle Montecito
01:00:27: Vi1 IPCP: I CONFACK [ACKsent] id 1 len 10
01:00:27: Vi1 IPCP: Address 192.168.10.2 (0x0306C0A80A02)
01:00:27: Vi1 IPCP: State is Open
01:00:27: Vi1 IPXCP: I CONFACK [ACKsent] id 1 len 18
01:00:27: Vi1 IPXCP: Network 0x0000BEEF (0x01060000BEEF)
01:00:27: Vi1 IPXCP: Node 0000.0c47.4e9a (0x020800000C474E9A)
01:00:27: Vi1 IPXCP: State is Open
01:00:27: Vi1 IPCP: Install route to 10.1.1.1
01:00:28: %LINEPROTO-5-UPDOWN: Line protocol on Interface Virtual-Access1,
changed state to up
01:00:28: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1,
changed state to up
Goleta#

Goleta#ping 10.1.1.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.1.1.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 8/10/12 ms

Goleta#ping ipx
Target IPX address: BEEF.0000.0c31.aac2
Repeat count [5]:
Datagram size [100]:
Timeout in seconds [2]:
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Verbose [n]:
Type escape sequence to abort.
Sending 5, 100-byte IPX Novell Echoes to BEEF.0000.0c31.aac2,
timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 8/10/12 ms
```

Informations connexes

- Accès aux pages d'assistance technologique
- Support et documentation techniques - Cisco Systems