

# Sesión de IPoE sobre el headend de Pseudowire en el gateway de la red de banda ancha (BNG)

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## Introducción

Este documento describe los pasos para configurar el IP sobre las sesiones de los Ethernetes (IPoE) sobre el headend de Pseudowire en ASR9K.

## Prerrequisitos

### Requisitos

Cisco recomienda que tenga conocimiento sobre estos temas:

- Capa 2 VPN MPLS
- Funciones BNG en ASR9K

Consejo: Refiera a la [guía de configuración de gateway de la red de banda ancha para el artículo de Cisco de las 9000 Series de Cisco ASR](#) para ganar la familiaridad con las

funciones BNG.

Consejo: Refiera al artículo de Cisco de la [guía de configuración del VPN de Capa 2 MPLS](#) para ganar la familiaridad con el VPN de Capa 2 MPLS.

## Componentes Utilizados

Este documento no se restringe a la versión de software específica pero el linecard que utilizamos en ASR9K es A9K-MPA-20X1GE.

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

## Antecedentes

BNG proporciona el soporte del suscriptor sobre el headend de Pseudowire (PWHE). PWHE proporciona la Conectividad L3 a los Nodos de la frontera del cliente a través de una conexión del pseudowire. PWHE termina los circuitos L2VPN que existe entre los Nodos del borde del acceso-proporcionar (MONO), a una interfaz virtual, y realiza la encaminamiento en paquete IP nativa. Cada interfaz virtual puede utilizar una o más interfaces físicas hacia la nube del acceso para alcanzar a los routers del cliente a través de los Nodos del MONO.

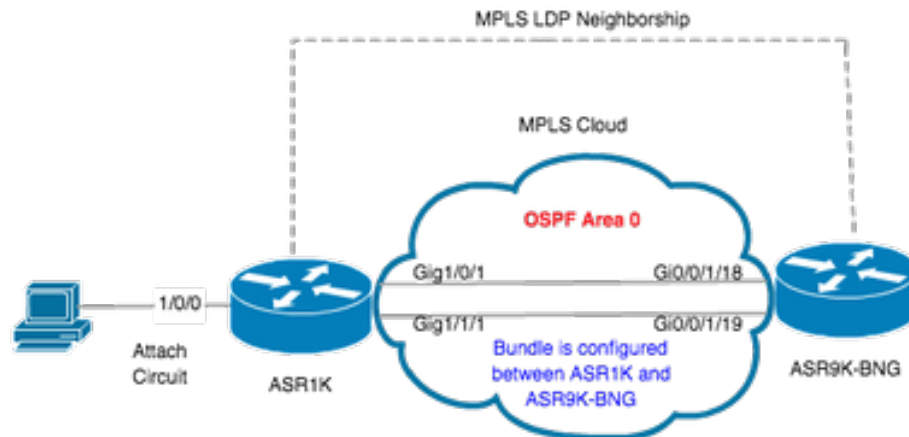
Nota: Esta característica se soporta para el suscriptor PPPoE PTA, PPPoE LAC sobre PWHE y los suscriptores de IPoE.

## Diagrama de la red

Para esta prueba un ASR1K con la versión 154-3.S2 se emplea y ASR9K con la versión IOS-XR 5.2.2. El OSPF se utiliza como Routing Protocol para alcanzarse los Loopback Address.

Loopback Address ASR9K: 5.5.5.5/32

Loopback Address ASR1K: 6.6.6.6/32



## Configuración

### Configuración ASR1K

```
pseudowire-class MPLS
encapsulation mpls
```

```
interface GigabitEthernet1/0/0 no ip address media-type rj45 negotiation auto cdp enable
xconnect 5.5.5.5 2020 encapsulation mpls pw-class MPLS end ASR1K#show etherchannel summary
```

```
Flags:  D - down          P/bndl - bundled in port-channel
        I - stand-alone  s/susp - suspended
        H - Hot-standby (LACP only)
        R - Layer3      S - Layer2
        U - in use      f - failed to allocate aggregator
```

```
M - not in use, minimum links not met
u - unsuitable for bundling
w - waiting to be aggregated
d - default port
```

```
Number of channel-groups in use: 1
Number of aggregators:          1
```

```
Group  Port-channel  Protocol    Ports
-----+-----+-----+-----
20Po20(RU)LACP Gi1/0/1(bndl) Gi1/1/1(bndl)
```

```
RU - L3 port-channel UP State
SU - L2 port-channel UP state
P/bndl - Bundled
S/susp - Suspended
```

```
interface Port-channel20
ip address 20.20.20.2 255.255.255.0
no negotiation auto
```

```
mpls ip
end
```

## Configuración ASR9K

Aquí está la configuración de ASR9K, que actúa como BNG PWHE.

```
ASR1K#show etherchannel summary
Flags:  D - down          P/bndl - bundled in port-channel
        I - stand-alone  s/susp - suspended
        H - Hot-standby  (LACP only)
        R - Layer3       S - Layer2
        U - in use       f - failed to allocate aggregator

        M - not in use, minimum links not met
        u - unsuitable for bundling
        w - waiting to be aggregated
        d - default port
```

```
Number of channel-groups in use: 1
Number of aggregators:          1
```

```
Group  Port-channel  Protocol  Ports
-----+-----+-----+-----
20Po20(RU)LACP Gi1/0/1(bndl) Gi1/1/1(bndl)
```

```
RU - L3 port-channel UP State
SU - L2 port-channel UP state
P/bndl - Bundled
S/susp - Suspended
```

```
interface Port-channel20
ip address 20.20.20.2 255.255.255.0
no negotiation auto
```

```
mpls ip
end
```

Ahora configure el xconnect entre ASR1K y ASR9K. Especifique el Loopback Address de ASR1K (6.6.6.6/32) como vecino del xconnect.

```
l2vpn router-id 5.5.5.5 pw-class ASR1K encapsulation mpls transport-mode ethernet !! xconnect group PWHE p2p ASR1K
interface PW-Ether20 neighbor ipv4 6.6.6.6 pw-id 2020
    pw-class ASR1K
```

```
    !
    !
    !
    !
generic-interface-list BE20_ONLY
interface Bundle-Ether20
interface GigabitEthernet0/0/1/18
interface GigabitEthernet0/0/1/19
!
```

```
interface PW-Ether20
ipv4 address 173.1.1.1 255.255.255.0
attach generic-interface-list BE20_ONLY
!
```

Ahora configure la directiva de control del suscriptor y aplíquese en la interfaz de los Picovatio-Ethernetes donde terminan al suscriptor.

```
dynamic-template
type ipsubscriber WDAAR_PWHE_DT
ipv4 verify unicast source reachable-via rx
ipv4 unnumbered Loopback44
ipv4 unreachable disable
```

```

!
!
policy-map type control subscriber IPOE_WDAAR_PWHE
  event session-start match-first
  class type control subscriber DHCPv4 do-until-failure
    5 authorize aaa list WDAAR identifier source-address-mac password cisco
    10 activate dynamic-template WDAAR_PWHE_DT
  !
!
end-policy-map

```

```

interface PW-Ether20.250
  ipv4 address 178.1.1.1 255.255.255.252
  service-policy type control subscriber IPOE_WDAAR_PWHE
  encapsulation dot1q 250
  ipsubscriber ipv4 l2-connected
  initiator dhcp
!
!

```

### Verificación

Esta sección proporciona la información que usted puede utilizar para verificar que su configuración trabaja correctamente. Abajo están los comandos que usted puede emplear para verificar que el xconnect es UP/UP en ASR9K.

```

RP/0/RSP0/CPU0:ACDC-ASR9000-1#show l2vpn xconnect
Legend: ST = State, UP = Up, DN = Down, AD = Admin Down, UR = Unresolved,
        SB = Standby, SR = Standby Ready, (PP) = Partially Programmed

```

XConnect		Segment 1			Segment 2		
Group	Name	ST	Description	ST	Description	ST	
PWHE	ASR1K	<b>UP</b>	PE20	UP	6.6.6.6 2020	<b>UP</b>	

```

RP/0/RSP0/CPU0:ACDC-ASR9000-1#show l2vpn xconnect brief
AToM

```

Like-to-Like	UP	DOWN	UNR
PW-Ether	1	0	0
Total	1	0	0
Total	1	0	0

Total: 1 UP, 0 DOWN, 0 UNRESOLVED

```

RP/0/RSP0/CPU0:ACDC-ASR9000-1#show subscriber session filter ipv4-address 44.44.44.254
Codes: IN - Initialize, CN - Connecting, CD - Connected, AC - Activated,
        ID - Idle, DN - Disconnecting, ED - End

```

Type	Interface	State	IP Address (Vrf)
IP:DHCP	PE20.250.ip1	AC	44.44.44.254 (default)

Una vez que el xconnect es ASCENDENTE y la sesión de IPoE viene en línea en ASR9K que usted puede ver abajo que la interfaz de acceso es Picoovatio-éter.

```

RP/0/RSP0/CPU0:ACDC-ASR9000-1#show subscriber session filter ipv4-address 44.44.44.254 detail
Interface:          PW-Ether20.250.ip1
Circuit ID:         Unknown

```

Remote ID: Unknown  
Type: IP: **DHCP-trigger**  
IPv4 State: Up, Mon Apr 20 19:32:51 2015  
IPv4 Address: **44.44.44.254**, VRF: default  
Mac Address: 001f.ca3f.7924  
Account-Session Id: 00000068  
Nas-Port: Unknown  
User name: 001f.ca3f.7924  
Formatted User name: unknown  
Client User name: unknown  
Outer VLAN ID: 250  
Subscriber Label: 0x000001db  
Created: Mon Apr 20 19:32:49 2015  
State: Activated  
Authentication: unauthenticated  
Authorization: authorized

**Access-interface: PW-Ether20.250** Policy Executed:  
policy-map type control subscriber IPoE\_WDAAR\_PWHE  
  event Session-Start match-first [at Mon Apr 20 19:32:49 2015]  
  class type control subscriber DHCPv4 do-until-failure [Succeeded]  
    5 authorize aaa list WDAAR [Succeeded]  
    10 activate dynamic-template WDAAR\_PWHE\_DT [Succeeded]  
Session Accounting: disabled  
Last COA request received: unavailable

**Ahora verifique la Conectividad de la capa 3 del suscriptor BNG sobre PWHE.**

```
RP/0/RSP0/CPU0:ACDC-ASR9000-1#show subscriber session filter ipv4-address 44.44.44.254 detail
```

Interface: PW-Ether20.250.ip1  
Circuit ID: Unknown  
Remote ID: Unknown  
Type: IP: **DHCP-trigger**  
IPv4 State: Up, Mon Apr 20 19:32:51 2015  
IPv4 Address: **44.44.44.254**, VRF: default  
Mac Address: 001f.ca3f.7924  
Account-Session Id: 00000068  
Nas-Port: Unknown  
User name: 001f.ca3f.7924  
Formatted User name: unknown  
Client User name: unknown  
Outer VLAN ID: 250  
Subscriber Label: 0x000001db  
Created: Mon Apr 20 19:32:49 2015  
State: Activated  
Authentication: unauthenticated  
Authorization: authorized

**Access-interface: PW-Ether20.250** Policy Executed:  
policy-map type control subscriber IPoE\_WDAAR\_PWHE  
  event Session-Start match-first [at Mon Apr 20 19:32:49 2015]  
  class type control subscriber DHCPv4 do-until-failure [Succeeded]  
    5 authorize aaa list WDAAR [Succeeded]  
    10 activate dynamic-template WDAAR\_PWHE\_DT [Succeeded]  
Session Accounting: disabled  
Last COA request received: unavailable

## Resuelva problemas PWHE

Esta sección proporciona la información que usted puede utilizar para resolver problemas su configuración y verificar el estatus del xconnect en ASR9K.

### Comando de verificar la configuración ASR9K

Estos comandos se pueden utilizar para verificar la configuración están correctos en ASR9K.

- muestre la ejecutar-configuración l2vpn
- muestre la ejecutar-configuración internacional PW-Ether<Interface-Number>
- muestre el ldp de los mpls de la ejecutar-configuración
- muestre la genérico-interfaz-lista de la ejecutar-configuración

## Marque L2VPN XC

Marque el xconnect. El xconnect (y por lo tanto el AC y el picovatio) tiene que estar para arriba. Usted puede emplear estos comandos de verificar el estatus.

- muestre el resumen del xconnect l2vpn

```
RP/0/RSP0/CPU0:ACDC-ASR9000-1#show l2vpn xconnect summary
```

```
Thu May 21 05:40:05.068 UTC
```

```
Number of groups: 1
```

```
Number of xconnects: 1
```

```
  Up: 1   Down: 0   Unresolved: 0   Partially-programmed: 0
```

```
  AC-PW: 1   AC-AC: 0   PW-PW: 0   Monitor-Session-PW: 0
```

```
Number of Admin Down segments: 0
```

```
Number of MP2MP xconnects: 0
```

```
  Up 0 Down 0
```

```
  Advertised: 0 Non-Advertised: 0
```

```
Number of CE Connections: 0
```

```
  Advertised: 0 Non-Advertised: 0
```

```
Backup PW:
```

```
  Configured   : 0
```

```
  UP           : 0
```

```
  Down        : 0
```

```
  Admin Down  : 0
```

```
  Unresolved  : 0
```

```
  Standby     : 0
```

```
  Standby Ready: 0
```

```
Backup Interface:
```

```
  Configured   : 0
```

```
  UP           : 0
```

```
  Down        : 0
```

```
  Admin Down  : 0
```

```
  Unresolved  : 0
```

```
  Standby     : 0
```

```
RP/0/RSP0/CPU0:ACDC-ASR9000-1#show l2vpn xconnect summary
```

```
Thu May 21 05:40:05.068 UTC
```

```
Number of groups: 1
```

```
Number of xconnects: 1
```

```
  Up: 1   Down: 0   Unresolved: 0   Partially-programmed: 0
```

```
  AC-PW: 1   AC-AC: 0   PW-PW: 0   Monitor-Session-PW: 0
```

```
Number of Admin Down segments: 0
```

```
Number of MP2MP xconnects: 0
```

```
  Up 0 Down 0
```

```
  Advertised: 0 Non-Advertised: 0
```

```
Number of CE Connections: 0
```

```
  Advertised: 0 Non-Advertised: 0
```

```
Backup PW:
```

```
  Configured   : 0
```

```
  UP           : 0
```

```
  Down        : 0
```

```
  Admin Down  : 0
```

```
  Unresolved  : 0
```

```
  Standby     : 0
```

```
Standby Ready: 0
Backup Interface:
Configured    : 0
UP            : 0
Down         : 0
Admin Down   : 0
Unresolved   : 0
Standby      : 0
```

```
RP/0/RSP0/CPU0:ACDC-ASR9000-1#show l2vpn xconnect interface pw-eth20 detail
Thu May 21 05:40:55.789 UTC
```

Group PWHE, XC ASR1K, state is up; Interworking none

AC: PW-Ether20, state is up

Type PW-Ether

Interface-list: **BE20\_ONLY**

Replicate status:

BE20: success

Gi0/0/1/18: success

Gi0/0/1/19: success

MTU 1500; interworking none

Internal label: 16001

**Statistics:**

packets: received 52970, sent 0

bytes: received 3485714, sent 0

PW: neighbor 6.6.6.6, PW ID 2020, state is up ( established )

PW class asr1k, XC ID 0xc0000001

Encapsulation MPLS, protocol LDP

Source address 5.5.5.5

PW type Ethernet, control word disabled, interworking none

PW backup disable delay 0 sec

Sequencing not set

PW Status TLV in use

MPLS	Local	Remote
Label	16002	17
Group ID	0x920	unknown
Interface	PW-Ether20	unknown
MTU	1500	1500
Control word	disabled	disabled
PW type	Ethernet	Ethernet
VCCV CV type	0x2	0x2
	(LSP ping verification)	(LSP ping verification)
VCCV CC type	0x6	0x6
	(router alert label)	(router alert label)
	(TTL expiry)	(TTL expiry)

Incoming Status (PW Status TLV):

Status code: 0x0 (Up) in Notification message

Outgoing Status (PW Status TLV):

Status code: 0x0 (Up) in Notification message

MIB cpwVcIndex: 3221225473

Create time: 21/05/2015 02:52:43 (02:48:12 ago)

Last time status changed: 21/05/2015 05:21:17 (00:19:38 ago)

Last time PW went down: 21/05/2015 03:10:45 (02:30:10 ago)

**Statistics:**

packets: **received 52970**, sent 0

bytes: **received 3485714**, sent 0

## Marque la lista de interfaz

Visualice la lista de interfaz usada por el PW-HE: debe existir y tener las interfaces apropiadas.



- muestre el <NAME> del nombre de la genérico-interfaz-lista

```
RP/0/RSP0/CPU0:ACDC-ASR9000-1#show l2vpn xconnect interface pw-eth20 detail
Thu May 21 05:40:55.789 UTC
```

```
Group PWHE, XC ASR1K, state is up; Interworking none
```

```
AC: PW-Ether20, state is up
```

```
Type PW-Ether
```

```
Interface-list: BE20_ONLY
```

```
Replicate status:
```

```
BE20: success
```

```
Gi0/0/1/18: success
```

```
Gi0/0/1/19: success
```

```
MTU 1500; interworking none
```

```
Internal label: 16001
```

**Statistics:**

```
  packets: received 52970, sent 0
```

```
  bytes: received 3485714, sent 0
```

```
PW: neighbor 6.6.6.6, PW ID 2020, state is up ( established )
```

```
PW class asr1k, XC ID 0xc0000001
```

```
Encapsulation MPLS, protocol LDP
```

```
Source address 5.5.5.5
```

```
PW type Ethernet, control word disabled, interworking none
```

```
PW backup disable delay 0 sec
```

```
Sequencing not set
```

```
PW Status TLV in use
```

MPLS	Local	Remote
Label	16002	17
Group ID	0x920	unknown
Interface	PW-Ether20	unknown
MTU	1500	1500
Control word	disabled	disabled
PW type	Ethernet	Ethernet
VCCV CV type	0x2	0x2
	(LSP ping verification)	(LSP ping verification)
VCCV CC type	0x6	0x6
	(router alert label)	(router alert label)
	(TTL expiry)	(TTL expiry)

```
Incoming Status (PW Status TLV):
```

```
  Status code: 0x0 (Up) in Notification message
```

```
Outgoing Status (PW Status TLV):
```

```
  Status code: 0x0 (Up) in Notification message
```

```
MIB cpwVcIndex: 3221225473
```

```
Create time: 21/05/2015 02:52:43 (02:48:12 ago)
```

```
Last time status changed: 21/05/2015 05:21:17 (00:19:38 ago)
```

```
Last time PW went down: 21/05/2015 03:10:45 (02:30:10 ago)
```

**Statistics:**

```
  packets: received 52970, sent 0
```

```
  bytes: received 3485714, sent 0
```

## Marque PW-HE usado por una lista de interfaz

La salida privada abajo indica qué interfaces de miembro son “active” es decir cuáles se han descargado PARA MENTIR.

- muestre el <NAME> del nombre de la genérico-interfaz-lista l2vpn
- muestre el soldado de la genérico-interfaz-lista l2vpn

```
RP/0/RSP0/CPU0:ACDC-ASR9000-1#show l2vpn xconnect interface pw-eth20 detail
```

Thu May 21 05:40:55.789 UTC

Group PWHE, XC ASR1K, state is up; Interworking none

AC: PW-Ether20, state is up

Type PW-Ether

Interface-list: **BE20\_ONLY**

Replicate status:

BE20: success

Gi0/0/1/18: success

Gi0/0/1/19: success

MTU 1500; interworking none

Internal label: 16001

**Statistics:**

packets: received 52970, sent 0

bytes: received 3485714, sent 0

PW: neighbor 6.6.6.6, PW ID 2020, state is up ( established )

PW class asr1k, XC ID 0xc0000001

Encapsulation MPLS, protocol LDP

Source address 5.5.5.5

PW type Ethernet, control word disabled, interworking none

PW backup disable delay 0 sec

Sequencing not set

PW Status TLV in use

MPLS	Local	Remote
Label	16002	17
Group ID	0x920	unknown
Interface	PW-Ether20	unknown
MTU	1500	1500
Control word	disabled	disabled
PW type	Ethernet	Ethernet
VCCV CV type	0x2	0x2
	(LSP ping verification)	(LSP ping verification)
VCCV CC type	0x6	0x6
	(router alert label)	(router alert label)
	(TTL expiry)	(TTL expiry)

Incoming Status (PW Status TLV):

Status code: 0x0 (Up) in Notification message

Outgoing Status (PW Status TLV):

Status code: 0x0 (Up) in Notification message

MIB cpwVcIndex: 3221225473

Create time: 21/05/2015 02:52:43 (02:48:12 ago)

Last time status changed: 21/05/2015 05:21:17 (00:19:38 ago)

Last time PW went down: 21/05/2015 03:10:45 (02:30:10 ago)

**Statistics:**

packets: **received 52970**, sent 0

bytes: **received 3485714**, sent 0

## Marque que el MA tiene el PW-HE con la información correcta

La información de la lista de interfaz, el CW, el VC-tipo etc., tiene que ser fijada correctamente en el MA.

RP/0/RSP0/CPU0:ACDC-ASR9000-1#show l2vpn ma pwhe interface PW-Ether 20 private

Thu May 21 05:36:28.170 UTC

Interface: PW-Ether20 Interface State: Up, Admin state: Up

Interface handle 0x920

**MTU: 1514**

BW: 10000 Kbit

Interface MAC addresses (1 address):

10f3.1172.02c5

IDB is not in Replicate Linked List  
IDB is not in Create Linked List  
IDB is not in Attr Linked List  
Opaque flags: 0xe  
Flags: 0x3c

Valid : IFH, MTU, MAC, BW

MA trace history [Num events: 32]

```
-----
```

Time	Event	Value	Sticky	Many
====	=====	=====	=====	=====
05/21/2015 02:56:05	Remove retry list	0x3	No	No
05/21/2015 02:56:05	IDB Set flag	0x3c	No	No
05/21/2015 03:08:26	IDB Set State	0x1	No	No
05/21/2015 03:08:26	IM publish attr	0x45	No	No
05/21/2015 03:08:26	IM update init-data	0x1e	No	No
05/21/2015 03:08:26	IDB Set flag	0x3c	No	No
05/21/2015 03:08:26	Remove retry list	0x3	No	No
05/21/2015 03:08:26	IDB Set flag	0x3c	No	No
05/21/2015 03:09:54	IDB Set State	0	No	No
05/21/2015 03:09:54	IM publish attr	0x45	No	No
05/21/2015 03:09:54	IM publish attr	0x52	No	No
05/21/2015 03:09:54	IM update init-data	0x1e	No	No
05/21/2015 03:09:54	IDB Set flag	0x3c	No	No
05/21/2015 03:09:54	Remove retry list	0x3	No	No
05/21/2015 03:09:54	IDB Set flag	0x3c	No	No
05/21/2015 03:09:54	Remove retry list	0x3	No	No
05/21/2015 03:09:54	IDB Set flag	0x3c	No	No
05/21/2015 03:10:45	IDB Set State	0x1	No	No
05/21/2015 03:10:45	IM publish attr	0x45	No	No
05/21/2015 03:10:45	IM update init-data	0x1e	No	No
05/21/2015 03:10:45	IDB Set flag	0x3c	No	No
05/21/2015 03:10:45	Remove retry list	0x3	No	No
05/21/2015 03:10:45	IDB Set flag	0x3c	No	No
05/21/2015 05:21:17	IDB Set State	0	No	No
05/21/2015 05:21:17	IM publish attr	0x45	No	No
05/21/2015 05:21:17	IM publish attr	0x52	No	No
05/21/2015 05:21:17	IM update init-data	0x1e	No	No
05/21/2015 05:21:17	IDB Set flag	0x3c	No	No
05/21/2015 05:21:17	Remove retry list	0x3	No	No
05/21/2015 05:21:17	IDB Set flag	0x3c	No	No
05/21/2015 05:21:17	Remove retry list	0x3	No	No
05/21/2015 05:21:17	IDB Set flag	0x3c	No	No

CLIENT MA trace history [Num events: 27]

```
-----
```

Time	Event	Value	Sticky	Many
====	=====	=====	=====	=====
05/21/2015 02:54:01	IM Notify Up	0x50049e10	No	No
05/21/2015 02:54:01	FSM state change	0x200	No	No
05/21/2015 02:54:01	FSM state change	0x2030d	No	No
05/21/2015 02:54:02	Double restart detected	0x5	No	No
05/21/2015 02:55:00	I/f created/added	0x4000540	No	No
05/21/2015 02:55:00	I/f created/added	0x4000580	No	No
05/21/2015 02:55:00	I/f created/added	0x4000540	No	No
05/21/2015 02:55:00	I/f created/added	0x4000580	No	No
05/21/2015 02:55:00	Intf list change	0x3000300	No	No
05/21/2015 02:55:00	Intf add error	0x4000540	No	No
05/21/2015 02:55:00	Intf add error	0x4000580	No	No
05/21/2015 02:55:00	FSM state change	0x30505	No	No
05/21/2015 02:55:01	Replicate result	0x13fe	No	No
05/21/2015 02:55:01	FSM state change	0x5060b	No	No
05/21/2015 02:55:01	I/f up	0x4000580	No	No
05/21/2015 02:55:01	I/f up	0x4000580	No	No
05/21/2015 02:55:02	I/f up	0x4000540	No	No

```

05/21/2015 02:55:02 I/f up                0x4000540 No No
05/21/2015 02:56:05 Added to peer        0x6060606 No No
05/21/2015 02:56:05 FSM state change     0x60704 No No
05/21/2015 02:56:05 Fill VIMI attr       0x20002 No No
05/21/2015 03:08:26 FSM state change     0x70605 No No
05/21/2015 03:09:54 FSM state change     0x60704 No No
05/21/2015 03:09:54 Fill VIMI attr       0x20002 No No
05/21/2015 03:10:45 FSM state change     0x70605 No No
05/21/2015 05:21:17 FSM state change     0x60704 No No
05/21/2015 05:21:17 Fill VIMI attr       0x20002 No No

```

PW-HE IDB client data

-----

IDB handle 0x5016db2c

Dot1q vlan: 0x81000000

Label: 16001

Remote VC label: 17

Remote PE: 6.6.6.6

Use flow-label on tx: N

L2-overhead: 0

**VC-type: 5**

CW: N

FSM state: 'Up' (7)

Fwding is up: Y, got route update: Y

Use OWNED\_RESOURCE fwding: N

OWNED\_RESOURCE fwding is up: N

OWNED\_RESOURCE data&colon; 0

Replication error msg has been printed: N

VIF MA reg\_handle: 50049e10

PIC array:

(nil)

Replicate retry count: 0

Configured i/f list name: '**BE20\_ONLY**'

From L2VPN i/f list name: '**BE20\_ONLY**', i/f list id: 1

L3 i/f: '**Bundle-Ether20**', idx=0, repl\_status 1, fwding up:N, active:Y

L3 i/f: '**GigabitEthernet0/0/1/18**', idx=1, repl\_status 1, fwding up:Y, active:Y

L3 i/f: '**GigabitEthernet0/0/1/19**', idx=2, repl\_status 1, fwding up:Y, active:Y

List intf: 0x5016e154, PLs size:4, num in use:2

I/f: 'Gi0/0/1/18', ifh:0x4000540, bundle: 0xb20, ifl idx:1, in-use:Y, misconfig:Y, in peer route:Y, VIMI active:Y

Repl:Y pending:N failed:N not supp:N, unrepl pending:N failed:N, up:Y us:3

I/f: 'Gi0/0/1/19', ifh:0x4000580, bundle: 0xb20, ifl idx:2, in-use:Y, misconfig:Y, in peer route:Y, VIMI active:Y

Repl:Y pending:N failed:N not supp:N, unrepl pending:N failed:N, up:Y us:3

I/f: '', ifh:0x0, bundle: 0x0, ifl idx:0, in-use:N, misconfig:N, in peer route:N, VIMI active:N

Repl:N pending:N failed:N not supp:N, unrepl pending:N failed:N, up:N us:0

I/f: '', ifh:0x0, bundle: 0x0, ifl idx:0, in-use:N, misconfig:N, in peer route:N, VIMI active:N

Repl:N pending:N failed:N not supp:N, unrepl pending:N failed:N, up:N us:0

-----

## Información de resumen del control PW-HE

Marque que los contadores en la salida están correctos

- muestre el resumen del pwhe l2vpn

```
RP/0/RSP0/CPU0:ACDC-ASR9000-1#show l2vpn ma pwhe interface PW-Ether 20 private
```

```
Thu May 21 05:36:28.170 UTC
```

```
Interface: PW-Ether20 Interface State: Up, Admin state: Up
```

```
Interface handle 0x920
```

**MTU: 1514**

BW: 10000 Kbit

Interface MAC addresses (1 address):  
10f3.1172.02c5

IDB is not in Replicate Linked List

IDB is not in Create Linked List

IDB is not in Attr Linked List

Opaque flags: 0xe

Flags: 0x3c

Valid : IFH, MTU, MAC, BW

MA trace history [Num events: 32]

```
-----
```

Time	Event	Value	Sticky	Many
====	=====	=====	=====	=====
05/21/2015 02:56:05	Remove retry list	0x3	No	No
05/21/2015 02:56:05	IDB Set flag	0x3c	No	No
05/21/2015 03:08:26	IDB Set State	0x1	No	No
05/21/2015 03:08:26	IM publish attr	0x45	No	No
05/21/2015 03:08:26	IM update init-data	0x1e	No	No
05/21/2015 03:08:26	IDB Set flag	0x3c	No	No
05/21/2015 03:08:26	Remove retry list	0x3	No	No
05/21/2015 03:08:26	IDB Set flag	0x3c	No	No
05/21/2015 03:09:54	IDB Set State	0	No	No
05/21/2015 03:09:54	IM publish attr	0x45	No	No
05/21/2015 03:09:54	IM publish attr	0x52	No	No
05/21/2015 03:09:54	IM update init-data	0x1e	No	No
05/21/2015 03:09:54	IDB Set flag	0x3c	No	No
05/21/2015 03:09:54	Remove retry list	0x3	No	No
05/21/2015 03:09:54	IDB Set flag	0x3c	No	No
05/21/2015 03:09:54	Remove retry list	0x3	No	No
05/21/2015 03:09:54	IDB Set flag	0x3c	No	No
05/21/2015 03:10:45	IDB Set State	0x1	No	No
05/21/2015 03:10:45	IM publish attr	0x45	No	No
05/21/2015 03:10:45	IM update init-data	0x1e	No	No
05/21/2015 03:10:45	IDB Set flag	0x3c	No	No
05/21/2015 03:10:45	Remove retry list	0x3	No	No
05/21/2015 03:10:45	IDB Set flag	0x3c	No	No
05/21/2015 05:21:17	IDB Set State	0	No	No
05/21/2015 05:21:17	IM publish attr	0x45	No	No
05/21/2015 05:21:17	IM publish attr	0x52	No	No
05/21/2015 05:21:17	IM update init-data	0x1e	No	No
05/21/2015 05:21:17	IDB Set flag	0x3c	No	No
05/21/2015 05:21:17	Remove retry list	0x3	No	No
05/21/2015 05:21:17	IDB Set flag	0x3c	No	No
05/21/2015 05:21:17	Remove retry list	0x3	No	No
05/21/2015 05:21:17	IDB Set flag	0x3c	No	No

CLIENT MA trace history [Num events: 27]

```
-----
```

Time	Event	Value	Sticky	Many
====	=====	=====	=====	=====
05/21/2015 02:54:01	IM Notify Up	0x50049e10	No	No
05/21/2015 02:54:01	FSM state change	0x200	No	No
05/21/2015 02:54:01	FSM state change	0x2030d	No	No
05/21/2015 02:54:02	Double restart detected	0x5	No	No
05/21/2015 02:55:00	I/f created/added	0x4000540	No	No
05/21/2015 02:55:00	I/f created/added	0x4000580	No	No
05/21/2015 02:55:00	I/f created/added	0x4000540	No	No
05/21/2015 02:55:00	I/f created/added	0x4000580	No	No
05/21/2015 02:55:00	Intf list change	0x3000300	No	No
05/21/2015 02:55:00	Intf add error	0x4000540	No	No
05/21/2015 02:55:00	Intf add error	0x4000580	No	No
05/21/2015 02:55:00	FSM state change	0x30505	No	No
05/21/2015 02:55:01	Replicate result	0x13fe	No	No

```

05/21/2015 02:55:01 FSM state change      0x5060b    No    No
05/21/2015 02:55:01 I/f up                0x4000580  No    No
05/21/2015 02:55:01 I/f up                0x4000580  No    No
05/21/2015 02:55:02 I/f up                0x4000540  No    No
05/21/2015 02:55:02 I/f up                0x4000540  No    No
05/21/2015 02:56:05 Added to peer        0x6060606  No    No
05/21/2015 02:56:05 FSM state change      0x60704    No    No
05/21/2015 02:56:05 Fill VIMI attr        0x20002    No    No
05/21/2015 03:08:26 FSM state change      0x70605    No    No
05/21/2015 03:09:54 FSM state change      0x60704    No    No
05/21/2015 03:09:54 Fill VIMI attr        0x20002    No    No
05/21/2015 03:10:45 FSM state change      0x70605    No    No
05/21/2015 05:21:17 FSM state change      0x60704    No    No
05/21/2015 05:21:17 Fill VIMI attr        0x20002    No    No

```

PW-HE IDB client data

-----

IDB handle 0x5016db2c

Dot1q vlan: 0x81000000

Label: 16001

Remote VC label: 17

Remote PE: 6.6.6.6

Use flow-label on tx: N

L2-overhead: 0

**VC-type: 5**

CW: N

FSM state: 'Up' (7)

Fwding is up: Y, got route update: Y

Use OWNED\_RESOURCE fwding: N

OWNED\_RESOURCE fwding is up: N

OWNED\_RESOURCE data&colon; 0

Replication error msg has been printed: N

VIF MA reg\_handle: 50049e10

PIC array:

(nil)

Replicate retry count: 0

Configured i/f list name: '**BE20\_ONLY**'

From L2VPN i/f list name: '**BE20\_ONLY**', i/f list id: 1

L3 i/f: '**Bundle-Ether20**', idx=0, repl\_status 1, fwding up:N, active:Y

L3 i/f: '**GigabitEthernet0/0/1/18**', idx=1, repl\_status 1, fwding up:Y, active:Y

L3 i/f: '**GigabitEthernet0/0/1/19**', idx=2, repl\_status 1, fwding up:Y, active:Y

List intf: 0x5016e154, PLs size:4, num in use:2

I/f: 'Gi0/0/1/18', ifh:0x4000540, bundle: 0xb20, ifl idx:1, in-use:Y, misconfig:Y, in peer route:Y, VIMI active:Y

Repl:Y pending:N failed:N not supp:N, unrepl pending:N failed:N, up:Y us:3

I/f: 'Gi0/0/1/19', ifh:0x4000580, bundle: 0xb20, ifl idx:2, in-use:Y, misconfig:Y, in peer route:Y, VIMI active:Y

Repl:Y pending:N failed:N not supp:N, unrepl pending:N failed:N, up:Y us:3

I/f: '', ifh:0x0, bundle: 0x0, ifl idx:0, in-use:N, misconfig:N, in peer route:N, VIMI active:N

Repl:N pending:N failed:N not supp:N, unrepl pending:N failed:N, up:N us:0

I/f: '', ifh:0x0, bundle: 0x0, ifl idx:0, in-use:N, misconfig:N, in peer route:N, VIMI active:N

Repl:N pending:N failed:N not supp:N, unrepl pending:N failed:N, up:N us:0

-----

## Etiquetas de comprobación

Etiqueta de comprobación en la tabla de la escritura de la etiqueta

Usted necesita primero conseguir las escrituras de la etiqueta internas de la información del

xconnect con este comando.

- muestre el detalle del xconnect l2vpn

y entonces el seach para la **escritura de la etiqueta interna** en la salida y entonces ejecuta este comando show de verificar la escritura de la etiqueta y de interconectar la asociación en ASR9K.

- detalle del **internal\_label de la** escritura de la etiqueta de la tabla de la escritura de la etiqueta de los mpls de la demostración

```
RP/0/RSP0/CPU0:ACDC-ASR9000-1#show l2vpn xconnect detail
Thu May 21 05:27:11.762 UTC
```

```
Group PWHE, XC ASR1K, state is up; Interworking none
```

```
AC: PW-Ether20, state is up
```

```
Type PW-Ether
```

```
Interface-list: BE20_ONLY
```

```
Replicate status:
```

```
BE20: success
```

```
Gi0/0/1/18: success
```

```
Gi0/0/1/19: success
```

```
MTU 1500; interworking none
```

```
Internal label: 16001 Statistics: packets: received 27293, sent 0 bytes: received 1996176,
sent 0 PW: neighbor 6.6.6.6, PW ID 2020, state is up ( established ) PW class asr1k, XC ID
0xc0000001 Encapsulation MPLS, protocol LDP Source address 5.5.5.5 PW type Ethernet, control
word disabled, interworking none PW backup disable delay 0 sec Sequencing not set
```

```
RP/0/RSP0/CPU0:ACDC-ASR9000-1#show l2vpn xconnect detail
```

```
Thu May 21 05:27:11.762 UTC
```

```
Group PWHE, XC ASR1K, state is up; Interworking none
```

```
AC: PW-Ether20, state is up
```

```
Type PW-Ether
```

```
Interface-list: BE20_ONLY
```

```
Replicate status:
```

```
BE20: success
```

```
Gi0/0/1/18: success
```

```
Gi0/0/1/19: success
```

```
MTU 1500; interworking none
```

```
Internal label: 16001 Statistics: packets: received 27293, sent 0 bytes: received 1996176,
sent 0 PW: neighbor 6.6.6.6, PW ID 2020, state is up ( established ) PW class asr1k, XC ID
0xc0000001 Encapsulation MPLS, protocol LDP Source address 5.5.5.5 PW type Ethernet, control
word disabled, interworking none PW backup disable delay 0 sec Sequencing not set
```

## Descenso/sesiones del tráfico que no suben

Si no subió la sesión, satisfacer marque si los paquetes están cayendo en el NP. usted puede utilizar estos comandos de ver la caída de paquetes en el NP en ASR9K.

- clear counters
- muestre el detalle del xconnect l2vpn | incluya el paquete
- borre los reguladores que NP contradice todos
- muestre que el regulador NP contradice todos

## Comandos show relacionados BNG

Utilice estos comandos en el control de la orden la información relacionada BNG en ASR9K.

- muestre a sesión del suscriptor todo el resumen

- muestre a desconexión-historial del administrador del suscriptor el resumen único
- muestre el total del debug de las estadísticas del administrador del suscriptor
- muestre el total del resumen de las estadísticas del administrador del suscriptor
- muestre el evento/el error de la traza del administrador del suscriptor

## Debugs que se habilitarán

Si la sesión no subió en ASR9K y usted no encontró que cualquier paquete caído en el NP entonces usted puede permitir a estos debugs en ASR9K para ver porqué la sesión no está subiendo en ASR9K.

- plataforma del pwhe del debug l2vpn ea prolija
- campo común todo de la plataforma de la expedición del debug l2vpn
- <location> de la ubicación del debug P.M. api
- <location> de la ubicación de error del debug P.M.
- <location> de la ubicación de errores api del uidb del debug

## Escalada

Si usted todavía hace que un problema por favor alcance hacia fuera al TAC de Cisco y recoja la tecnología de la demostración de ASR9K.

- muestre al suscriptor del tecnología-soporte
- muestre el tecnología-soporte l2vpn