

Session d'IPoE au-dessus de Headend de pseudowire dans la passerelle de réseau haut débit (BNG)

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Introduction

Ce document décrit les étapes pour configurer l'IP au-dessus des sessions d'Ethernets (IPoE) au-dessus de Headend de pseudowire sur ASR9K.

Conditions préalables

Conditions requises

Cisco vous recommande de prendre connaissance des rubriques suivantes :

- Couche 2 VPN MPLS
- Fonctionnalité BNG sur ASR9K

Conseil : Référez-vous au [guide de configuration de passerelle de réseau haut débit pour l'article de Cisco de gamme 9000 de Cisco ASR](#) afin de gagner la connaissance de la fonctionnalité BNG.

Conseil : Référez-vous à l'article de Cisco de [guide de configuration de VPN de couche 2 MPLS](#) afin de gagner la connaissance du VPN de couche 2 MPLS.

Composants utilisés

Ce document n'est pas limité à la version de logiciel spécifique mais le linecard que nous avons utilisé sur ASR9K est A9K-MPA-20X1GE.

Les informations contenues dans ce document ont été créées à partir des périphériques d'un environnement de laboratoire spécifique. Tous les périphériques utilisés dans ce document ont démarré avec une configuration effacée (par défaut). Si votre réseau est opérationnel, assurez-vous que vous comprenez l'effet potentiel de toute commande.

Informations générales

BNG fournit le support d'abonné au-dessus du Headend de pseudowire (PWHE). PWHE fournit la Connectivité L3 aux Noeuds de Customer Edge par une connexion de pseudowire. PWHE termine les circuits de L2VPN qui existe entre les Noeuds de périphérie d'Access-fourniture (SINGE), à une interface virtuelle, et exécute le routage sur le paquet IP indigène. Chaque interface virtuelle peut employer un ou plusieurs interfaces physiques vers le nuage d'accès pour accéder des routeurs client par les Noeuds de SINGE.

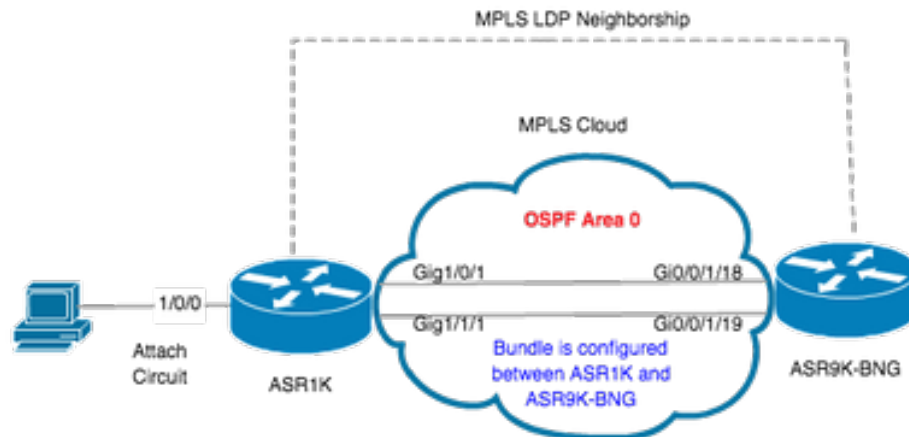
Remarque: Cette caractéristique est prise en charge pour l'abonné Pta de PPPoE, de LAC de PPPoE au-dessus de PWHE et les abonnés d'IPoE.

Diagramme du réseau

Pour ce test un ASR1K avec la version 154-3.S2 est utilisé et ASR9K avec la version IOS-XR 5.2.2. L'OSPF est utilisé comme protocole de routage pour s'atteindre des adresses de bouclage.

Adresse de bouclage ASR9K : 5.5.5.5/32

Adresse de bouclage ASR1K : 6.6.6.6/32



Configuration

Configurez 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
```

Configurez ASR9K

Voici la configuration d'ASR9K, qui agit en tant que 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
```

Configurez maintenant le xconnect entre ASR1K et ASR9K. Spécifiez l'adresse de bouclage d'ASR1K (6.6.6/32) comme voisin de 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
!
```

Maintenant configurez la politique de contrôle d'abonné et appliquez sur l'interface de Picowatt-Ethernets où l'abonné est terminé.

```
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
!
!

```

Vérification

Cette section fournit les informations que vous pouvez employer afin de vérifier que votre configuration fonctionne correctement. Sont ci-dessous les commandes que vous pouvez utiliser pour vérifier que le xconnect est UP/UP sur 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 | UP | PE20 | UP | 6.6.6.6 2020 | UP | |

```

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) |

Une fois que le xconnect est HAUT et la session d'IPoE est livré en ligne sur ASR9K que vous pouvez voir ci-dessous que l'Access-interface est Picowatt-Ether.

```

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

Vérifiez maintenant la Connectivité de la couche 3 de l'abonné BNG au-dessus de 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

Dépannez PWHE

Cette section fournit les informations que vous pouvez employer afin de dépanner votre configuration et vérifier l'état de xconnect sur ASR9K.

Commande de vérifier la configuration ASR9K

Ces commandes peuvent être utilisées pour vérifier la configuration est correcte sur ASR9K.

- l2vpn de show running-configuration
- show running-configuration international PW-Ether<Interface-Number>
- LDP de MPLS de show running-configuration
- générique-interface-liste de show running-configuration

L2VPN XC de contrôle

Vérifiez le xconnect. Le xconnect (et donc le courant alternatif et le picowatt) doit être. Vous pouvez utiliser ces commandes de vérifier l'état.

- résumé de show l2vpn xconnect

```
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

Vérifiez la liste interface

Affichez la liste interface utilisée par le PW-HE : il devrait exister et avoir les interfaces appropriées.

- affichez le nom <NAME> de générique-interface-liste

```
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 (LSP ping verification) | 0x2 (LSP ping verification) |
| VCCV CC type | 0x6 (router alert label) (TTL expiry) | 0x6 (router alert label) (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
```

Contrôle PW-HE utilisé par une liste interface

La sortie privée ci-dessous indique quelles interfaces de membre sont « en activité » c.-à-d. lesquels ont été téléchargés POUR MENTIR.

- affichez le nom <NAME> de générique-interface-liste de l2vpn
- affichez la générique-interface-liste de l2vpn privée

```
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

Vérifiez que le mA a le PW-HE avec l'information juste

Les informations de liste interface, l'onde entretenue, le Circuit virtuel-type etc., doivent être placés correctement dans le 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: 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

Les informations de résumé du contrôle PW-HE

Vérifiez que les compteurs dans la sortie sont corrects

- affichez le résumé de pwhe de 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: 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

Étiquettes de contrôle

Étiquette de contrôle dans la table d'étiquette

Vous devez d'abord obtenir les étiquettes internes des informations de xconnct avec cette

commande.

- détail de show l2vpn xconnect

et puis le search pour l'**étiquette interne** dans la sortie et exécutent alors cette commande show de vérifier l'association d'étiquette et d'interface sur ASR9K.

- détail d'**internal_label** d'étiquette de show mpls label table

```
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
```

Baisse/sessions du trafic n'étant pas soulevé

Si la session n'était pas soulevée, satisfaire vérifiez si les paquets relâchent au NP. vous pouvez utiliser ces commandes de voir la perte de paquets au NP sur ASR9K.

- [clear counters](#)
- détail de show l2vpn xconnect | incluez le paquet
- les clears controllers NP pare tous
- le show controller NP pare tous

Commandes show relatives BNG

Utilisez ces commandes dans le contrôle de commande les informations relatives BNG sur ASR9K.

- show subscriber session tout le résumé

- affichez à débranchement-historique de gestionnaire d'abonné le seul résumé
- les statistiques de gestionnaire d'abonné d'exposition mettent au point le total
- affichez le total de résumé de statistiques de gestionnaire d'abonné
- affichez l'événement/erreur de suivi de gestionnaire d'abonné

Debugs à activer

Si la session n'était pas soulevée sur ASR9K et vous n'avez trouvé aucun paquet lâché sur le NP alors que vous pouvez activer ces derniers met au point sur ASR9K pour voir pourquoi la session n'est pas soulevée dans ASR9K.

- mettez au point la plate-forme de pwhe du l2vpn ea bavarde
- mettez au point le terrain communal tout de plate-forme d'expédition de l2vpn
- <location> d'emplacement du debug pm api
- <location> d'emplacement d'erreur de debug pm
- mettez au point le <location> d'emplacement d'erreurs de l'uidb api

Transmission des problèmes

Si vous faites toujours collecter une question s'il vous plaît atteindre à Cisco TAC et le tech d'exposition d'ASR9K.

- abonné de show tech-support
- l2vpn de show tech-support