

在Pseudowire数据转发器的IPoE会话在宽带网络网关

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简介

本文描述步骤配置在以太网(IPoE)会话的IP在Pseudowire数据转发器(PWHE)在ASR9K。

Prerequisites

Requirements

Cisco 建议您了解以下主题：

- MPLS第2层VPN
- 在ASR9K的BNG功能

提示：请参见[Cisco ASR 9000系列](#) Cisco条款[宽带网络网关配置指南](#)为了获取与BNG功能的熟悉。

提示：请参见[MPLS第2层VPN配置指南](#) Cisco条款为了获取与MPLS第2层VPN的熟悉。

Components Used

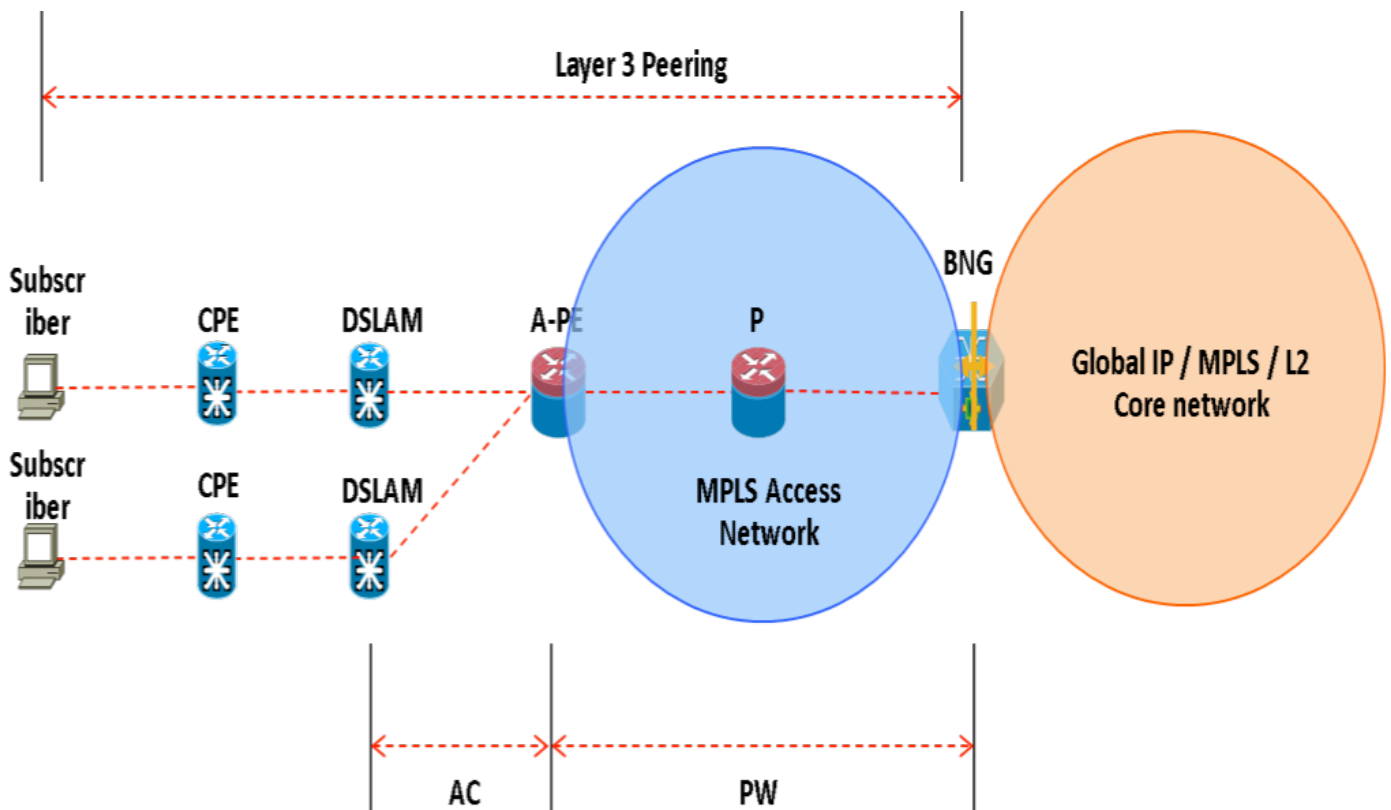
本文不限于特定软件版本，但是我们在ASR9K使用的线卡是A9K-MPA-20X1GE。

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.

背景信息

BNG提供在PWHE的订户技术支持。PWHE提供L3连接给用户边缘节点通过pseudowire连接。存在访问提供边缘的PWHE中断L2VPN电路(猿)节点之间，对虚拟接口，并且执行在本地IP信息包的路由。每个虚拟接口能使用往访问网云的一个或更多物理接口通过猿节点到达用户路由器。

Note:此功能为PPPoE在PWHE的PTA，PPPoE LAC订户和IPoE订户支持。



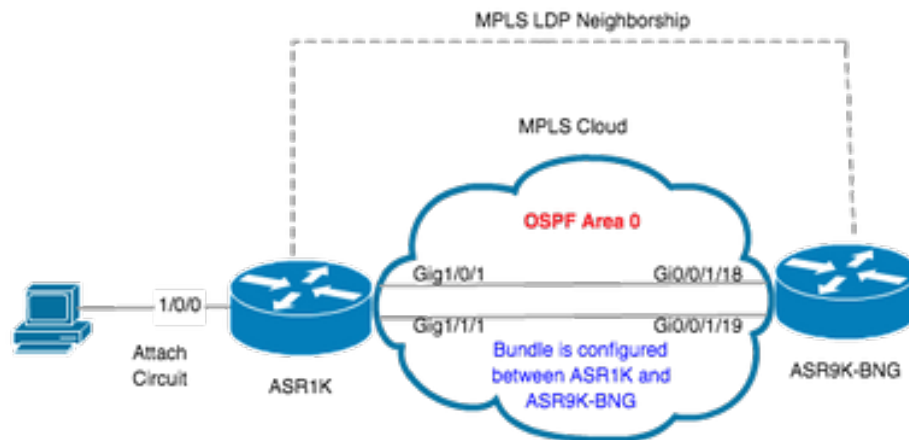
Configure

Network Diagram

为了执行此测试，一个ASR1K与版本154-3.S2被使用和与版本IOS-XR 5.2.2的ASR9K。OSPF用于，路由协议互相到达环回地址。

ASR9K环回地址：10.1.1.1/32

ASR1K环回地址：10.2.2.2/32



ASR1K

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

```
interface GigabitEthernet1/0/0 no ip address media-type rj45 negotiation auto cdp enable
xconnect 10.1.1.1 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 192.168.20.2 255.255.255.0
no negotiation auto
mpls ip
end

```

ASR9K

这是从ASR9K的配置，作为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 192.168.20.2 255.255.255.0
no negotiation auto
mpls ip
end

```

现在，请配置在ASR1K和ASR9K之间的xconnect。指定ASR1K (10.2.2.2/32)的环回地址作为xconnect相邻。

```

12vpn router-id 10.1.1.1 pw-class ASR1K encapsulation mpls transport-mode ethernet !! xconnect group PWHE p2p ASR1K
interface PW-Ether20 neighbor ipv4 10.2.2.2 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 192.168.1.1 255.255.255.0
attach generic-interface-list BE20_ONLY

```

!
现在，请配置订户控制政策并且适用在订户被终止的PW以太网接口。

```
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 192.168.10.1 255.255.255.252
  service-policy type control subscriber IPoE_WDAAR_PWHE
  encapsulation dot1q 250
  ipsubscriber ipv4 l2-connected
  initiator dhcp
  !
  !
```

Verify

此部分提供您能使用为了验证的信息您的配置适当地工作。这是您能使用验证的命令xconnect是UP/UP在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 Group	Name	ST	Segment 1 Description	ST	Segment 2 Description	ST
PWHE	ASR1K	UP	PE20	UP	10.2.2.2 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 192.168.44.254
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 192.168.44.254 (default)

一旦xconnect上，并且IPoE会话在您能看到的ASR9K来联机访问接口是PW以太。

```
RP/0/RSP0/CPU0:ACDC-ASR9000-1#show subscriber session filter ipv4-address 192.168.44.254 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: 192.168.44.254, 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
现在，请验证BNG订户第3层连通性在PWHE的。
```

```
RP/0/RSP0/CPU0:ACDC-ASR9000-1#show subscriber session filter ipv4-address 192.168.44.254 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: 192.168.44.254, 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

Troubleshoot

此部分提供您能使用为了排除您的配置故障和验证在ASR9K的xconnect状态的信息。

命令验证ASR9K配置

这些命令可以用于验证配置是正确的在ASR9K。

- **show running-configuration l2vpn**
- **show running-configuration int PW-Ether<Interface-Number>**
- **show running-configuration mpls LDP**
- **show running-configuration**通用的接口列表

检查L2VPN XC

检查xconnect。xconnect (并且AC和PW)必须是UP。您能使用这些命令验证状态。

- **显示l2vpn xconnect汇总**

```
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 10.2.2.2, PW ID 2020, state is up (established)

PW class asr1k, XC ID 0xc0000001

Encapsulation MPLS, protocol LDP

Source address 10.1.1.1

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

```

检查接口列表

显示PWHE使用的接口列表：它应该存在和有适当的接口。

- 显示通用的接口列表命名<NAME>

```

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 10.2.2.2, PW ID 2020, state is up (established)

PW class asr1k, XC ID 0xc0000001

Encapsulation MPLS, protocol LDP

Source address 10.1.1.1

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

检查接口列表使用的PWHE

下面专用的输出指示哪些成员接口是“活跃”即哪个下载了到FIB。

- 显示I2vpn通用的接口列表名字<NAME>
- 显示专用I2vpn的通用的接口列表

```
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 10.2.2.2, PW ID 2020, state is up (established)

PW class asr1k, XC ID 0xc0000001

Encapsulation MPLS, protocol LDP

Source address 10.1.1.1

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

检查MA有与正确的信息的PWHE

接口列表信息、CW，VC型的等，在MA必须适当地设置。

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: 10.2.2.2

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

检查PWHE汇总信息

检查计数器在输出中是正确的：

• 显示l2vpn pwhe汇总

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 publish attr	0x52	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: 10.2.2.2
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
```

检查标签

检查标签在标签表里。您需要从xconnect信息首先获得内部标号用此命令。

- 显示l2vpn xconnect详细资料

然后内部标号的search在output然后执行show命令的此验证lable并且建立接口在ASR9K的关联。

- 显示mpls标签表标签<internal_label>详细资料

```
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 10.2.2.2, PW ID 2020, state is up ( established )
PW class asr1k, XC ID 0xc0000001
Encapsulation MPLS, protocol LDP
Source address 10.1.1.1
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 10.2.2.2, PW ID 2020, state is up ( established )
PW class asr1k, XC ID 0xc0000001
Encapsulation MPLS, protocol LDP
Source address 10.1.1.1
PW type Ethernet, control word disabled, interworking none
PW backup disable delay 0 sec
Sequencing not set
```

数据流丢弃/会话不出现

如果会话不出来，检查是否被丢弃的数据包在NP。您能使用这些命令发现信息包丢弃在ASR9K的NP。

- clear counters
- 显示I2vpn xconnect详细资料|包括信息包
- clear controller np抵抗所有
- show controller np抵抗所有

涉及的BNG显示命令

请使用这些in命令顺序检查关于ASR9K的BNG相关信息。

- 显示订户会话所有汇总
- 显示订户管理器断开历史记录唯一汇总
- 显示订户管理器统计数据调试总数
- 显示订户管理器统计数据汇总总数
- 显示订户管理器跟踪事件/错误

将被启用的调试

如果会话在ASR9K没有出来，并且您在NP没有查找任何信息包被丢弃您能enable (event)在然后看到会话为什么的ASR9K的这些调试在ASR9K不出来。

- 调试I2vpn ea冗长pwhe的平台
- 调试I2vpn转发平台共同性全部
- 调试pm api位置<location>
- 调试pm错误定位<location>
- 调试uidb api错误定位<location>

逐步升级

如果请仍然安排一个问题提供援助到Cisco TAC和从ASR9K收集Show tech。

- show tech-support订户
- show tech-support I2vpn