设置从Windows计算机到Cisco路由器的PPPoE会话

目录

简介

本文档介绍在Windows计算机（用作PPPoE客户端）和用作PPPoE服务器的思科路由器之间配置以太网点对点连接(PPPoE)的过程。

先决条件

要求

思科建议您了解端到端第1层连接是用户优先级(UP)。
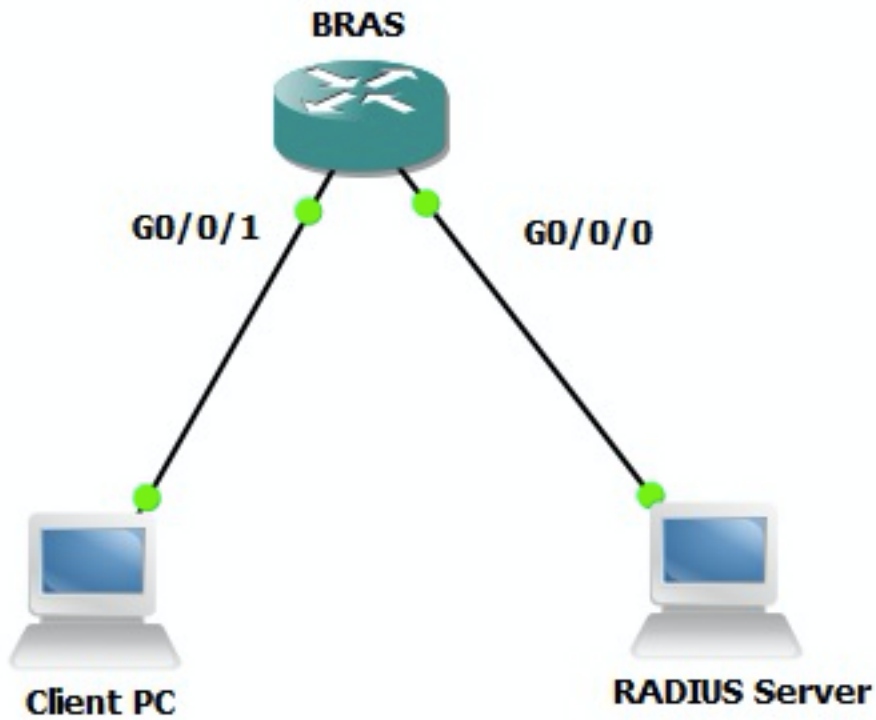
使用的组件

本文档不限于特定的软件和硬件版本。

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您使用的是真实网络，请确保您已经了解所有命令的潜在影响。

配置

网络图

本文档使用图中所示的网络设置：

配置

BRAS配置

```
aaa new-model

! Enabling AAA on router

!

aaa authentication ppp PPPOE-METD group PPPOE-RADIUS

! Defining AAA method list for PPP Authentication

aaa authorization network PPPOE-AUTHOR-METD group PPPOE-RADIUS

! Defining AAA method list for PPP Authorization

aaa accounting network PPPOE-ACCT-METD start-stop group PPPOE-RADIUS

! Defining AAA method list for PPP Accounting

!

aaa group server radius PPPOE-RADIUS

! Defining AAA Server Group named PPPOE-RADIUS
server-private 10.106.39.253 key cisco
ip radius source-interface GigabitEthernet0/0/0

!

bba-group pppoe BBA-TEST
virtual-template 10

!
```

```
interface GigabitEthernet0/0/1.47
encapsulation dot1Q 1 native
pppoe enable group BBA-TEST
end


!


interface Virtual-Template10
ip unnumbered Loopback10
peer default ip address pool local

! Calling three named AAA Method lists configured above under this Virtual Template
ppp authentication pap chap PPPOE-METD
ppp authorization PPPOE-AUTHOR-METD
ppp accounting PPPOE-ACCT-METD
end


!


ip local pool local 192.168.1.2 192.168.1.10


!


interface Loopback10
ip address 192.168.1.1 255.255.255.255
end


!
```
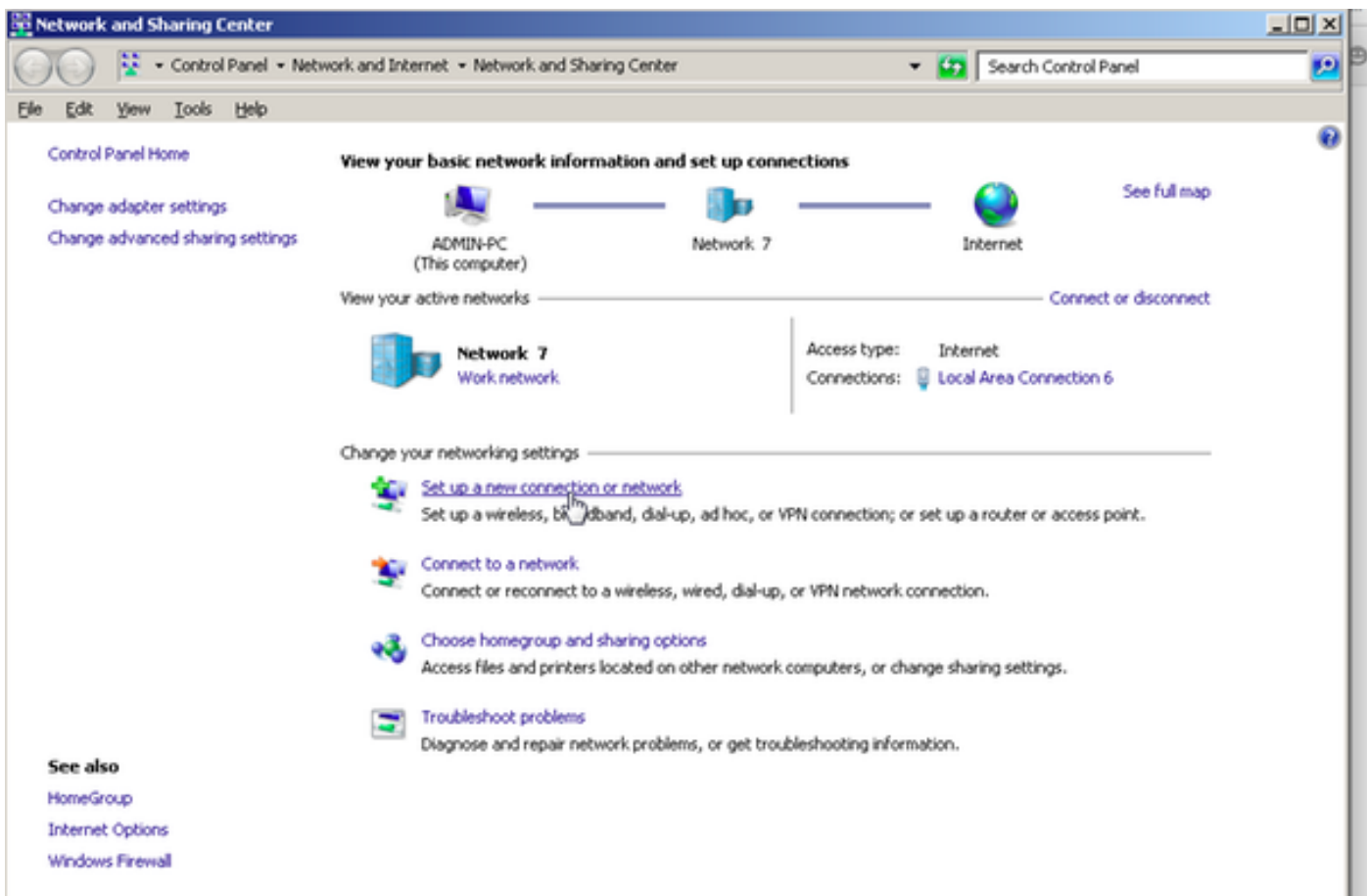
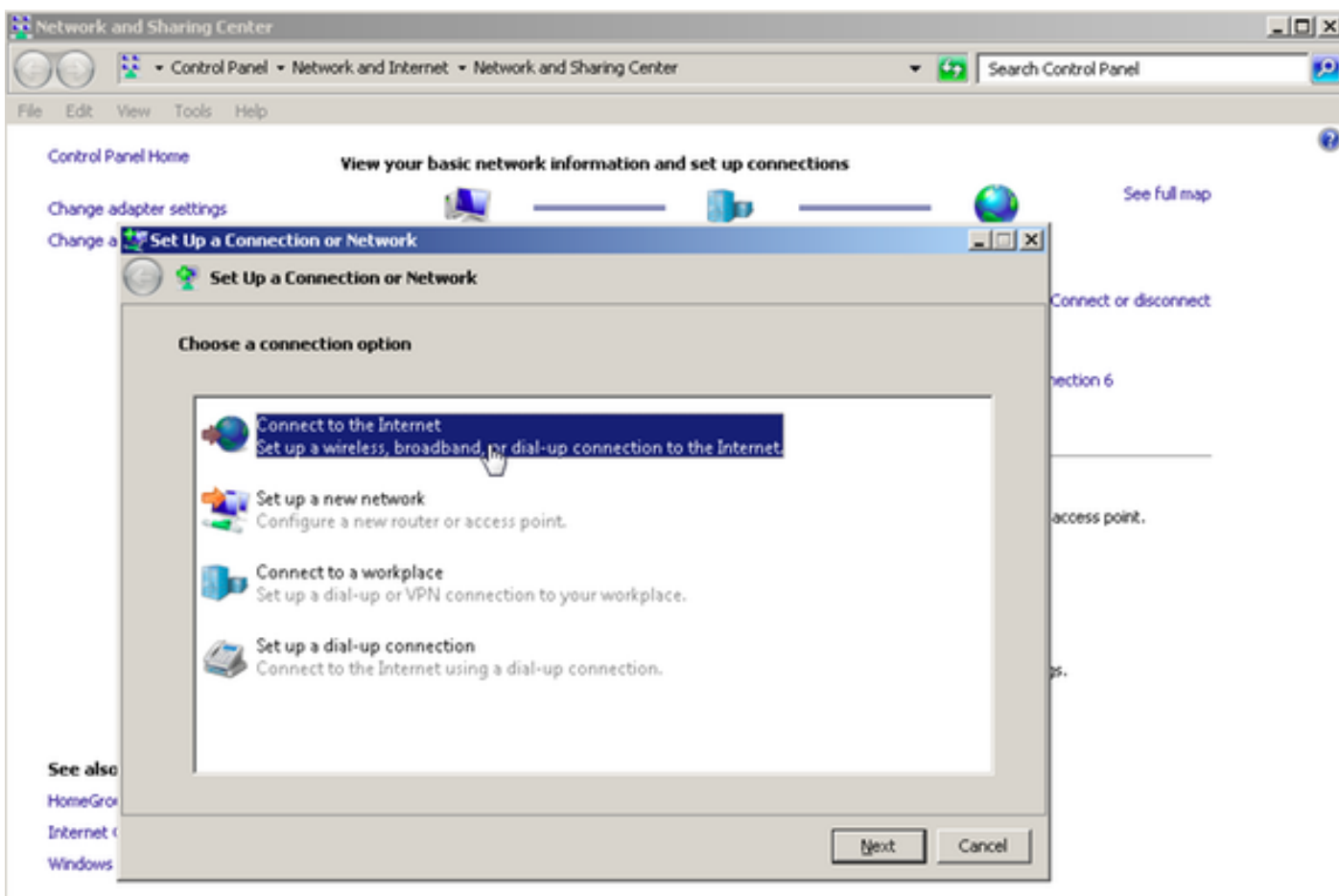## Windows计算机配置和设置

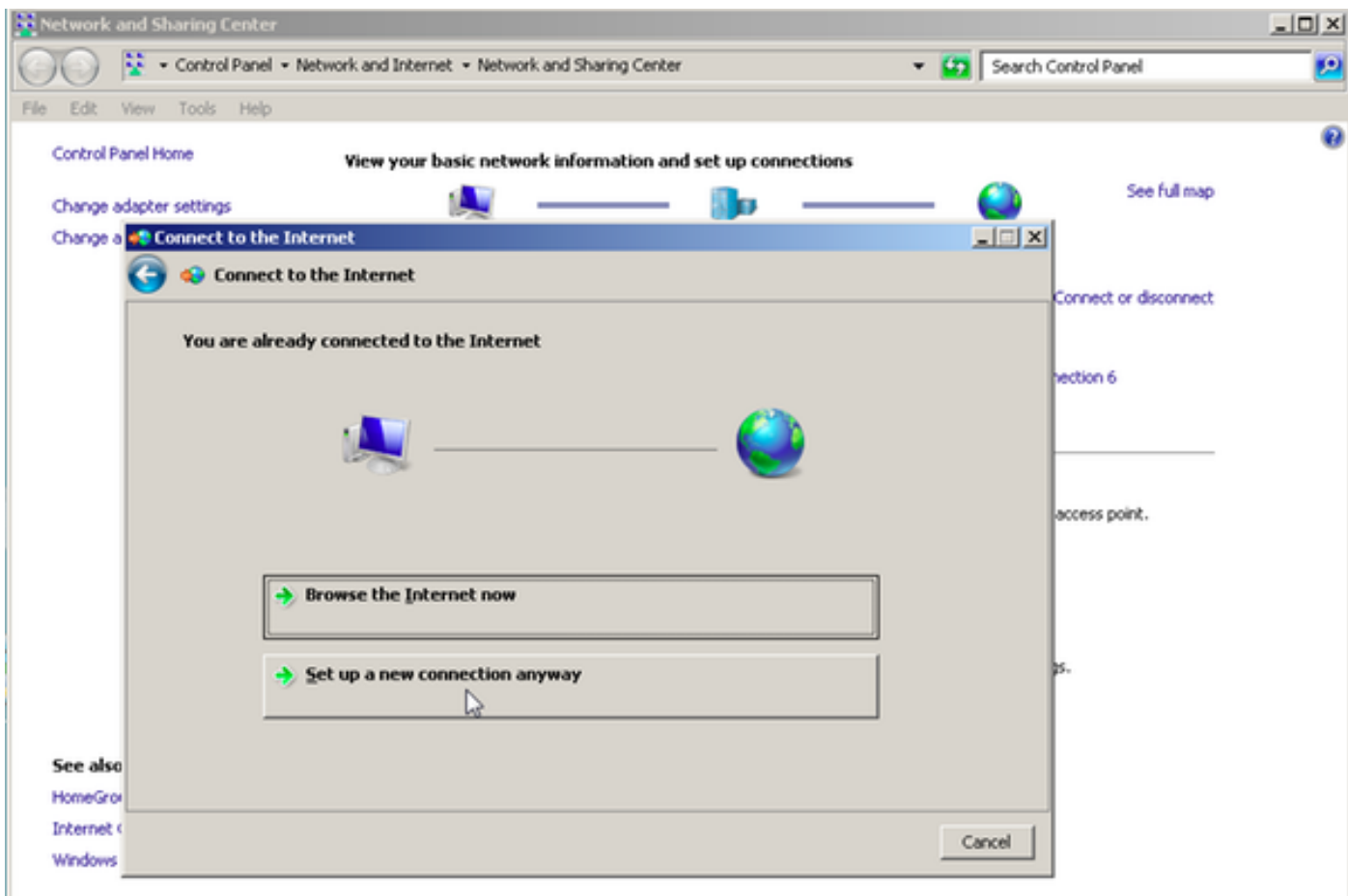完成以下步骤，从充当PPPoE客户端的Windows计算机启动PPPoE会话。
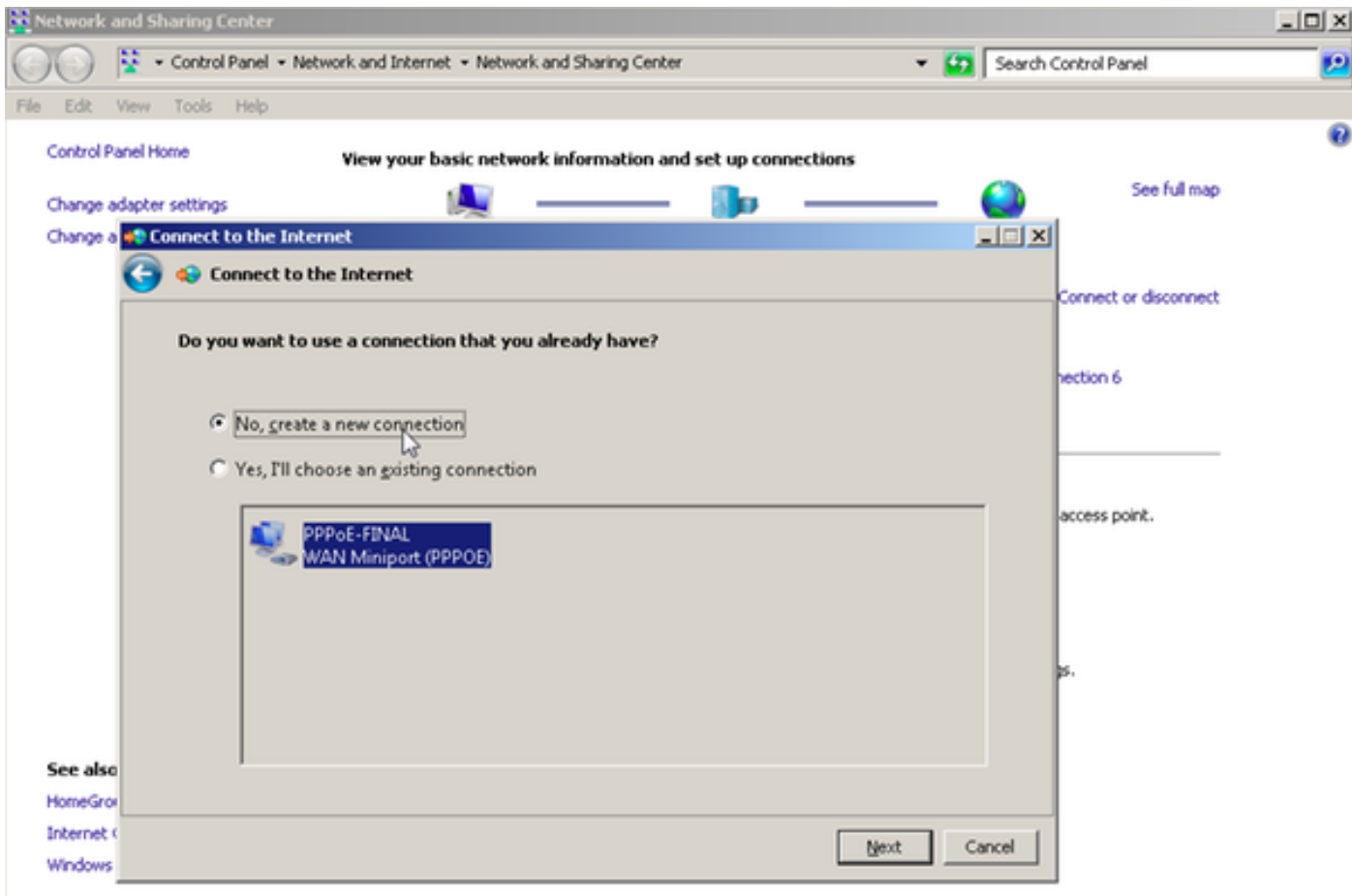
步骤1.打开**网络和共享中心**，然后**单击"设置新连接或**网络"，如图所示。

步骤2.如图所示，选择"连接到Internet"并单击"下一步"。

步骤3.选择Set up a new connection anyway，如图所示：
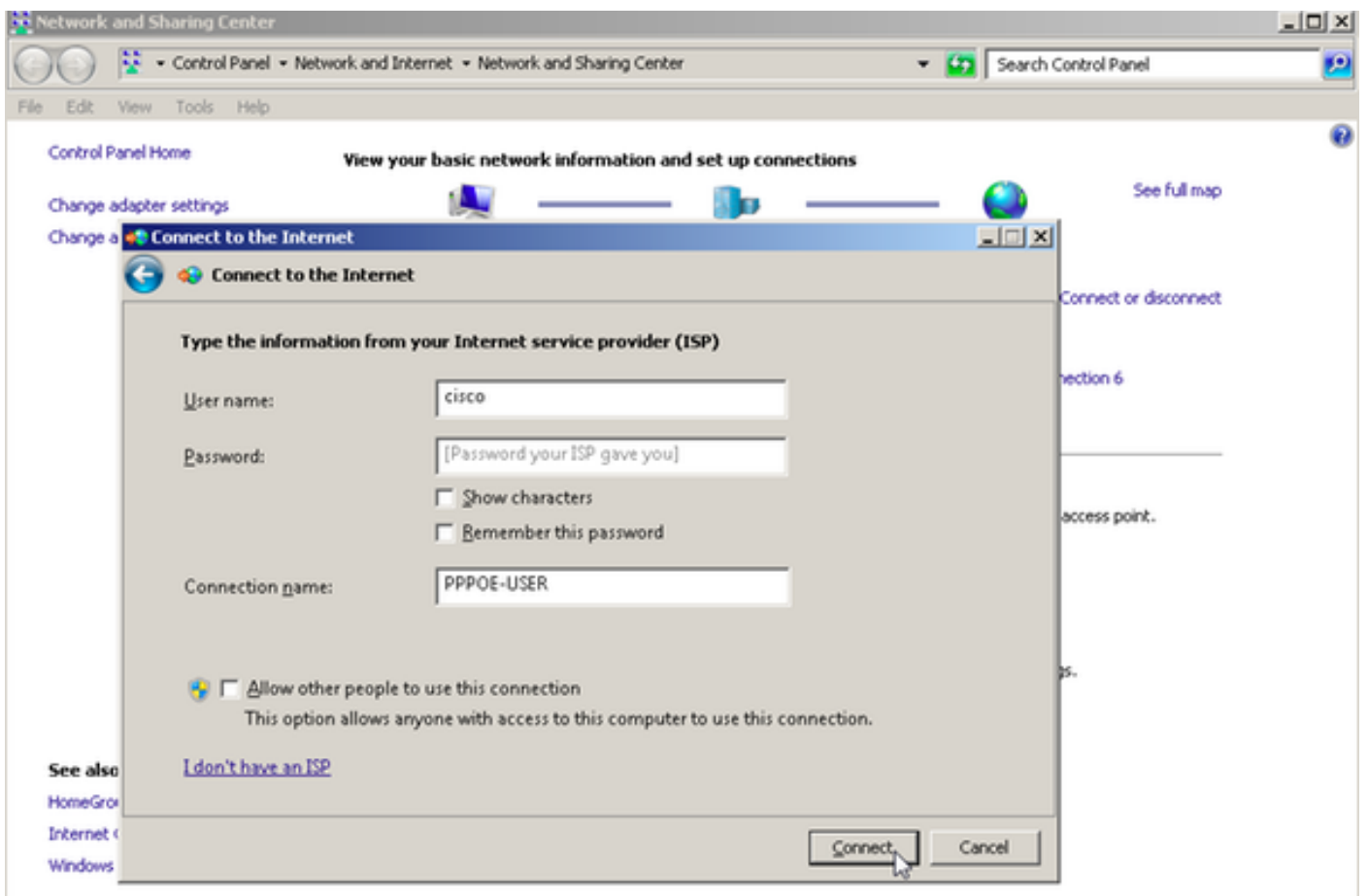
步骤4.选择**否，创建新连接**，如图所示：
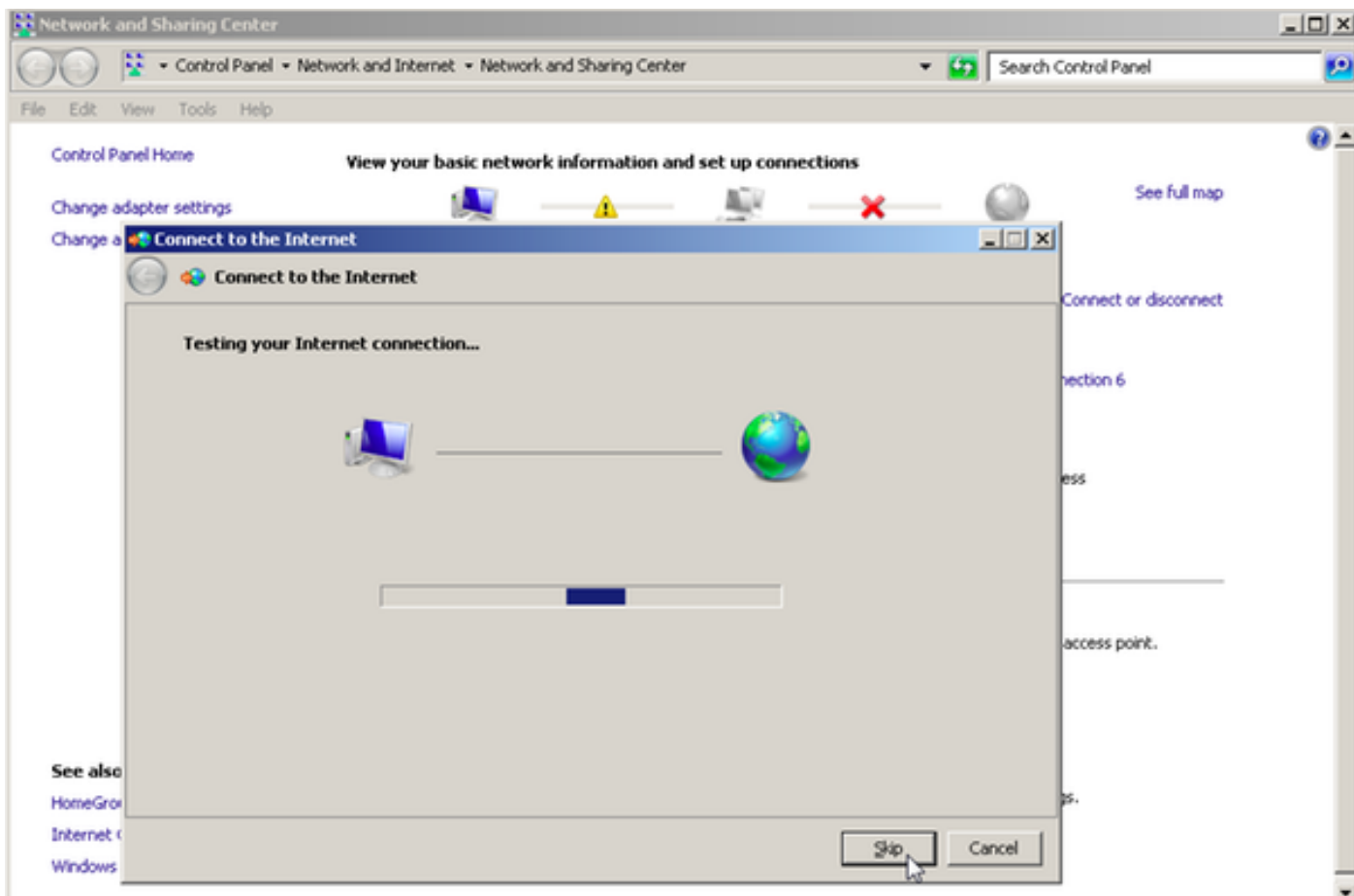

步骤5.如图所示，单击"Broadband(PPPoE**)"**:
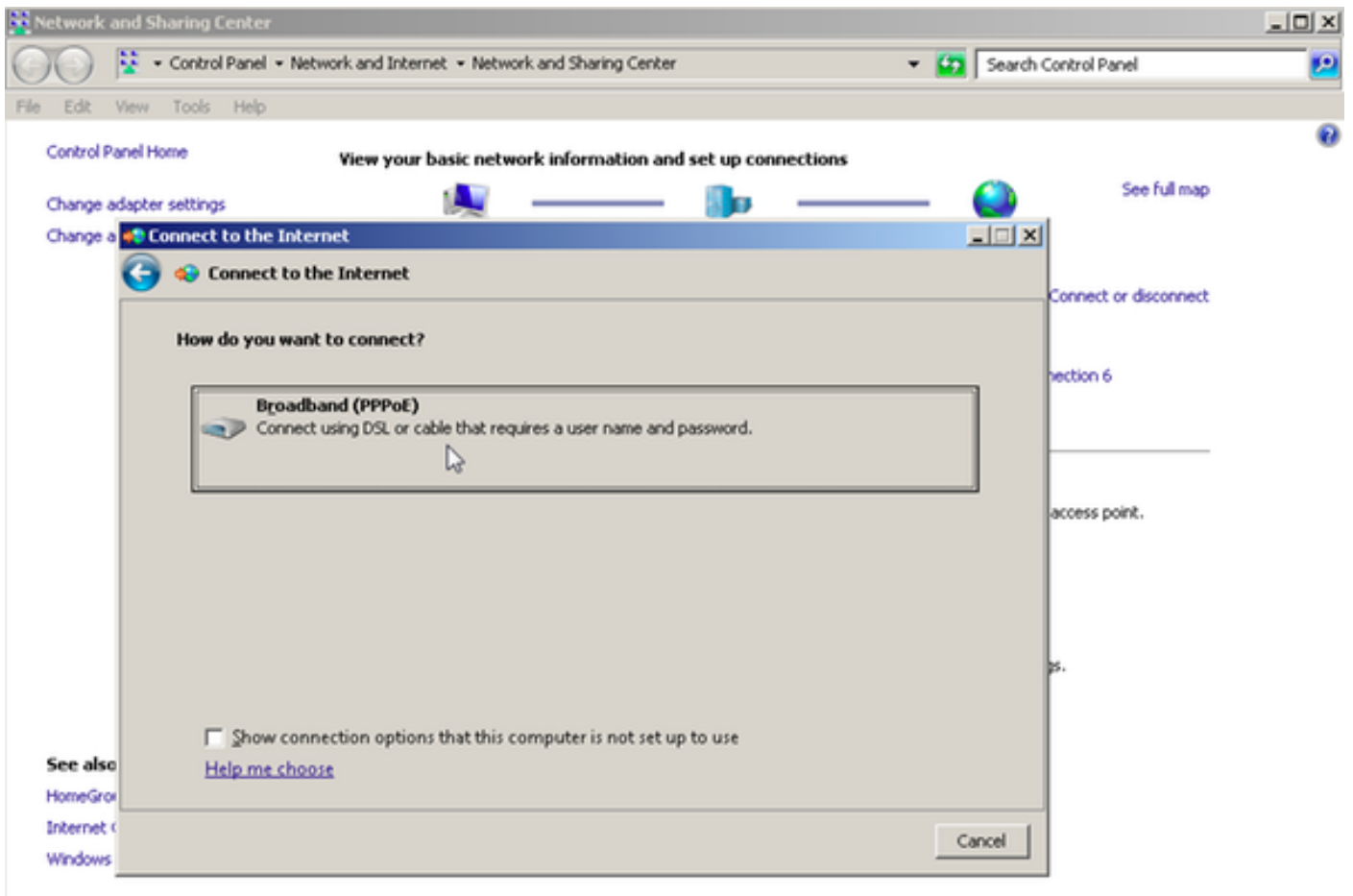
步骤6.如图所示，输入用户名、**密码和连**接名称，**然**后单击 **连接**.

这将启动到服务器的PPPoE会话。如图所示检查验证部分：

验证

步骤1.再次打开**Networks**选项卡，选择网络（在本例中名为PPPOE-USER）并验证状态。如图所示，在输入"用户名"和"密码"后，单击**连接**启动会话：

Control Panel ▾ Network and Internet ▾ Network and Sharing Center   ▾ 🔄 | Search Control Panel   🔎

File   Edit   View   Tools   Help

Control Panel Home

Change adapter settings

Change advanced sharing settings

View your basic network information and set up connections

ADMIN-PC   Network 7   Internet
(This computer)   See full map

View your active networks ──────────────────────────────────── Connect or disconnect

Network 7   Access type: Internet
Work network   Connections: 🖥 Local Area Connection 6

Change your networking settings ─────────────────────────────────

➕ Set up a new connection or network
   Set up a wireless, broadband, dial-up, ad hoc, or VPN connection; or set up a router or access point.

🔌 Connect to a network
   Connect or reconnect to a wireless, wired, dial-up, or VPN network conne

👥 Choose homegroup and sharing options
   Access files and printers located on other network computers, or change s

🔧 Troubleshoot problems
   Diagnose and repair network problems, or get troubleshooting information

See also

HomeGroup

Internet Options

Windows Firewall

Currently connected to: ⁴⁷

🖥 **Network 7**
   Internet access

Dial-up and VPN   ▲

PPPOE-USER   ▸   ◔

                                         [Connect]

PPPoE-FINAL   ◔

PPP-1   🖥

pppoe   🖥

(non
10.76
TFTP Server: \\10.1
TFTP User\pass: tftpu

Open Network and Sharing Center
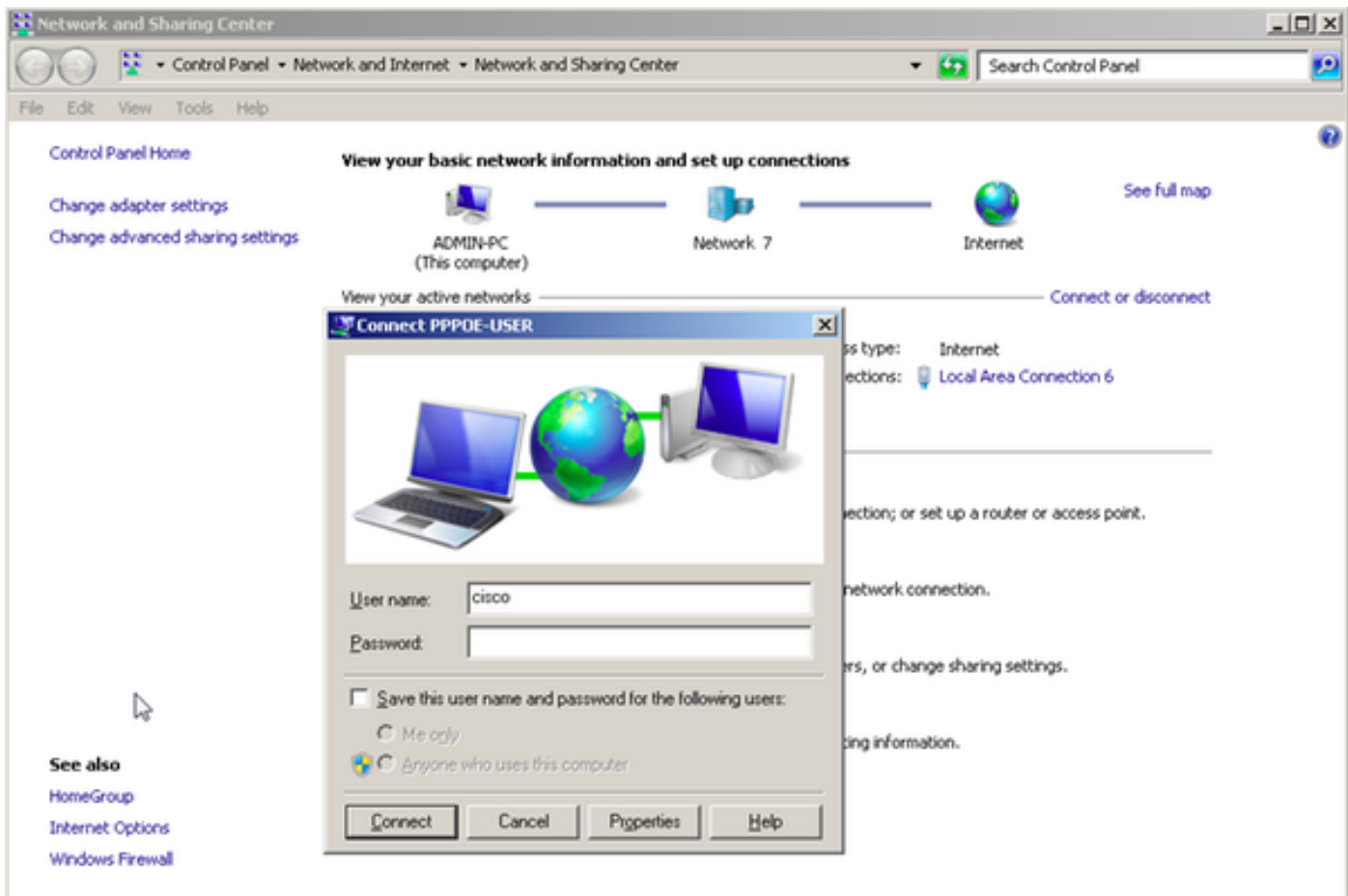
步骤2.打开命令提示符并运行ipconfig /all命令以检查协商的IP地址，如图所示：
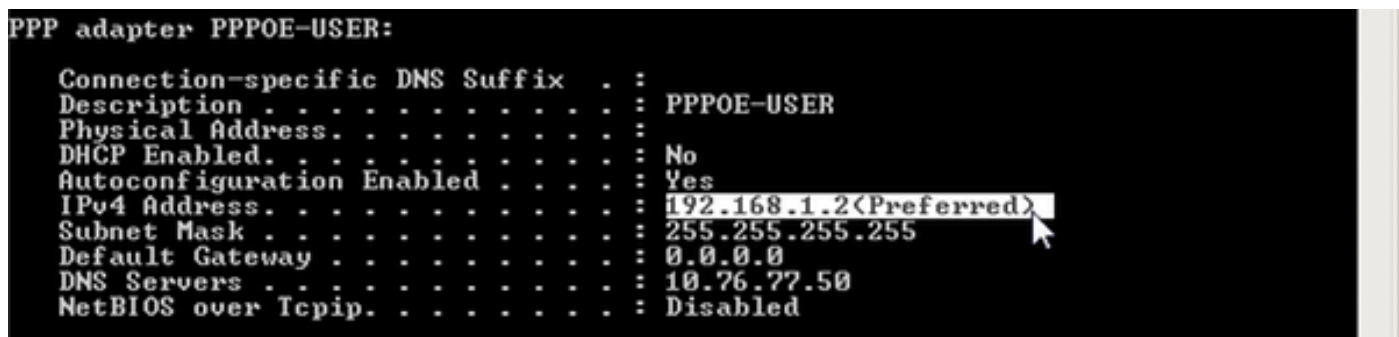
步骤3.启用debug pppoe event、debug pppoe error 和debug ppp negotiation ，以检查PPPoE会话的建立。我们还可以启用debug radius ，以查看与Radius服务器交换的消息。

```
BRAS#show debugging


PPP:
PPP protocol negotiation debugging is on
PPPoE:
PPPoE protocol events debugging is on
PPPoE protocol errors debugging is on


Radius protocol debugging is on
Radius packet protocol debugging is on
```

Debug snippet:

```
BRAS#
*Sep 19 18:44:14.531: PPPoE 0: I PADI R:0050.56ad.7206 L:ffff.ffff.ffff Gi0/0/1.47
```

! Receiving PPPoE Active Discovery Initiation (PADI) broadcast packet from Windows Machine (MAC 0050.56ad.7206) on Router interface Gi0/0/1.47

```
*Sep 19 18:44:14.531: Service tag: NULL Tag
*Sep 19 18:44:14.531: PPPoE 0: O PADO, R:d867.d99f.6601 L:0050.56ad.7206 Gi0/0/1.47
```

! Sending PPPoE Active Discovery Offer (PADO) unicast packet from Router interface Gi0/0/1.47 (MAC d867.d99f.6601) to Windows Machine (MAC 0050.56ad.7206)

```
*Sep 19 18:44:14.531: Service tag: NULL Tag
*Sep 19 18:44:14.533: PPPoE 0: I PADR R:0050.56ad.7206 L:d867.d99f.6601 Gi0/0/1.47
```

! Receiving PPPoE Active Discovery Request (PADR) unicast packet from Windows Machine (MAC 0050.56ad.7206) on Router interface Gi0/0/1.47

```
*Sep 19 18:44:14.533: Service tag: NULL Tag
*Sep 19 18:44:14.533: PPPoE : encap string prepared
*Sep 19 18:44:14.533: [76]PPPoE 63: Access IE handle allocated
*Sep 19 18:44:14.533: [76]PPPoE 63: AAA get retrieved attrs
*Sep 19 18:44:14.533: [76]PPPoE 63: AAA get nas port details
*Sep 19 18:44:14.533: [76]PPPoE 63: Error adjusting nas port format did
*Sep 19 18:44:14.533: [76]PPPoE 63: AAA get dynamic attrs
*Sep 19 18:44:14.533: [76]PPPoE 63: AAA unique ID 88 allocated
*Sep 19 18:44:14.533: [76]PPPoE 63: No AAA accounting method list
*Sep 19 18:44:14.534: [76]PPPoE 63: Service request sent to SSS
*Sep 19 18:44:14.534: [76]PPPoE 63: Created, Service: None R:d867.d99f.6601 L:0050.56ad.7206 Gi0/0/1.47
*Sep 19 18:44:14.534: [76]PPPoE 63: State NAS_PORT_POLICY_INQUIRY Event SSS MORE KEYS
*Sep 19 18:44:14.534: PPP: Alloc Context [7FE79EC0D8C8]
*Sep 19 18:44:14.534: ppp76 PPP: Phase is ESTABLISHING
*Sep 19 18:44:14.534: [76]PPPoE 63: data path set to PPP
*Sep 19 18:44:14.534: [76]PPPoE 63: Segment (SSS class): PROVISION
```

! We can also enable 'debug sss events' and 'debug sss error' to debug this stage

```
*Sep 19 18:44:14.534: [76]PPPoE 63: State PROVISION_PPP Event SSM PROVISIONED
*Sep 19 18:44:14.534: [76]PPPoE 63: O PADS R:0050.56ad.7206 L:d867.d99f.6601 Gi0/0/1.47
```

! Sending PPPoE Active Discovery Session Confirmation (PADS) unicast packets from Router interface Gi0/0/1.47 (MAC d867.d99f.6601) to Windows Machine (MAC 0050.56ad.7206)

```
*Sep 19 18:44:14.534: [76]PPPoE 63: Unable to Add ANCP Line attributes to the PPPoE Authen
attributes
```

! Access Node Control Protocol (ANCP) is configured between the Digital Subscriber Line Access
Concentrator (DSLAM) and Broadband Remote Access Server (BRAS), which is used to aggregate
traffic from multiple subscribers and deliver information for any application independently.
More information related to ANCP could be found here. It is expected for the IOS to print this
message even if ANCP is not enabled.

```
*Sep 19 18:44:14.534: ppp76 PPP: Using vpn set call direction
*Sep 19 18:44:14.534: ppp76 PPP: Treating connection as a callin
*Sep 19 18:44:14.534: ppp76 PPP: Session handle[8800004C] Session id[76]
*Sep 19 18:44:14.534: ppp76 LCP: Event[OPEN] State[Initial to Starting]
*Sep 19 18:44:14.534: ppp76 PPP LCP: Enter passive mode, state[Stopped]
*Sep 19 18:44:14.539: ppp76 LCP: I CONFREQ [Stopped] id 0 len 21
*Sep 19 18:44:14.539: ppp76 LCP: MRU 1480 (0x010405C8)
*Sep 19 18:44:14.539: ppp76 LCP: MagicNumber 0x61EB5A46 (0x050661EB5A46)
*Sep 19 18:44:14.539: ppp76 LCP: PFC (0x0702)
*Sep 19 18:44:14.539: ppp76 LCP: ACFC (0x0802)
*Sep 19 18:44:14.539: ppp76 LCP: Callback 6 (0x0D0306)
*Sep 19 18:44:14.539: ppp76 LCP: O CONFREQ [Stopped] id 1 len 18
*Sep 19 18:44:14.539: ppp76 LCP: MRU 1492 (0x010405D4)
*Sep 19 18:44:14.539: ppp76 LCP: AuthProto PAP (0x0304C023)
*Sep 19 18:44:14.539: ppp76 LCP: MagicNumber 0x7B063BEA (0x05067B063BEA)
*Sep 19 18:44:14.539: ppp76 LCP: O CONFREJ [Stopped] id 0 len 7
*Sep 19 18:44:14.539: ppp76 LCP: Callback 6 (0x0D0306)
*Sep 19 18:44:14.539: ppp76 LCP: Event[Receive ConfReq-] State[Stopped to REQsent]
*Sep 19 18:44:14.540: ppp76 LCP: I CONFACK [REQsent] id 1 len 18
*Sep 19 18:44:14.540: ppp76 LCP: MRU 1492 (0x010405D4)
*Sep 19 18:44:14.540: ppp76 LCP: AuthProto PAP (0x0304C023)
*Sep 19 18:44:14.540: ppp76 LCP: MagicNumber 0x7B063BEA (0x05067B063BEA)
*Sep 19 18:44:14.540: ppp76 LCP: Event[Receive ConfAck] State[REQsent to ACKrcvd]
*Sep 19 18:44:14.540: ppp76 LCP: I CONFREQ [ACKrcvd] id 1 len 18
*Sep 19 18:44:14.540: ppp76 LCP: MRU 1480 (0x010405C8)
*Sep 19 18:44:14.540: ppp76 LCP: MagicNumber 0x61EB5A46 (0x050661EB5A46)
*Sep 19 18:44:14.540: ppp76 LCP: PFC (0x0702)
*Sep 19 18:44:14.540: ppp76 LCP: ACFC (0x0802)
*Sep 19 18:44:14.540: ppp76 LCP: O CONFACK [ACKrcvd] id 1 len 18
*Sep 19 18:44:14.540: ppp76 LCP: MRU 1480 (0x010405C8)
*Sep 19 18:44:14.540: ppp76 LCP: MagicNumber 0x61EB5A46 (0x050661EB5A46)
*Sep 19 18:44:14.540: ppp76 LCP: PFC (0x0702)
*Sep 19 18:44:14.540: ppp76 LCP: ACFC (0x0802)
*Sep 19 18:44:14.540: ppp76 LCP: Event[Receive ConfReq+] State[ACKrcvd to Open]
*Sep 19 18:44:14.541: ppp76 LCP: I IDENTIFY [Open] id 2 len 18 magic 0x61EB5A46MSRASV5.20
*Sep 19 18:44:14.541: ppp76 LCP: I IDENTIFY [Open] id 3 len 24 magic 0x61EB5A46MSRAS-0-ADMIN-PC
*Sep 19 18:44:14.541: ppp76 LCP: I IDENTIFY [Open] id 4 len 24 magic 0x61EB5A46sPPY.X`I?Z5SWE}}
*Sep 19 18:44:14.541: ppp76 PPP: Queue PAP code[1] id[78]
*Sep 19 18:44:14.563: ppp76 PPP: Phase is AUTHENTICATING, by this end
*Sep 19 18:44:14.564: ppp76 PAP: Redirect packet to ppp76
*Sep 19 18:44:14.564: ppp76 PAP: I AUTH-REQ id 78 len 11 from "cisco"
```

! Incoming Authentication Request from Windows Machine using User name "cisco"

```
*Sep 19 18:44:14.564: ppp76 PAP: Authenticating peer cisco
*Sep 19 18:44:14.564: ppp76 PPP: Phase is FORWARDING, Attempting Forward
*Sep 19 18:44:14.564: ppp76 LCP: State is Open
*Sep 19 18:44:14.564: ppp76 PPP: Phase is AUTHENTICATING, Unauthenticated User
```

```
*Sep 19 18:44:14.564: RADIUS/ENCODE(00000088):Orig. component type = PPPoE
*Sep 19 18:44:14.564: RADIUS: DSL line rate attributes successfully added
*Sep 19 18:44:14.564: RADIUS/ENCODE: Skip encoding 0 length AAA Cisco vsa password
*Sep 19 18:44:14.564: RADIUS(00000088): Config NAS IP: 10.106.39.212
*Sep 19 18:44:14.564: RADIUS(00000088): Config NAS IPv6: ::
*Sep 19 18:44:14.564: RADIUS/ENCODE: No idb found! Framed IP Addr might not be included
*Sep 19 18:44:14.564: RADIUS/ENCODE(00000088): acct_session_id: 125
*Sep 19 18:44:14.564: RADIUS(00000088): Config NAS IP: 10.106.39.212
*Sep 19 18:44:14.564: RADIUS(00000088): sending
*Sep 19 18:44:14.564: RADIUS(00000088): Send Access-Request to 10.106.39.253:1645 id 1645/106,
len 147


! Sending an Access-Request to Radius Server at 10.106.39.253 on port 1645.


*Sep 19 18:44:14.564: RADIUS: authenticator C1 5B AA 62 1D E1 31 6C - 16 A5 CE 92 D6 9C 12 E7
*Sep 19 18:44:14.564: RADIUS: Framed-Protocol [7] 6 PPP [1]
*Sep 19 18:44:14.564: RADIUS: User-Name [1] 7 "cisco"
*Sep 19 18:44:14.564: RADIUS: User-Password [2] 18 *
*Sep 19 18:44:14.564: RADIUS: NAS-Port-Type [61] 6 Virtual [5]
*Sep 19 18:44:14.564: RADIUS: NAS-Port [5] 6 0
*Sep 19 18:44:14.564: RADIUS: NAS-Port-Id [87] 9 "0/0/1/1"
*Sep 19 18:44:14.564: RADIUS: Vendor, Cisco [26] 41
*Sep 19 18:44:14.564: RADIUS: Cisco AVpair [1] 35 "client-mac-address=0050.56ad.7206"
*Sep 19 18:44:14.564: RADIUS: Service-Type [6] 6 Framed [2]
*Sep 19 18:44:14.564: RADIUS: NAS-IP-Address [4] 6 10.106.39.212
*Sep 19 18:44:14.564: RADIUS: Acct-Session-Id [44] 10 "0000007D"
*Sep 19 18:44:14.564: RADIUS: Nas-Identifier [32] 12 "BRAS"
*Sep 19 18:44:14.564: RADIUS(00000088): Sending a IPv4 Radius Packet
*Sep 19 18:44:14.564: RADIUS(00000088): Started 5 sec timeout
*Sep 19 18:44:14.566: RADIUS: Received from id 1645/106 10.106.39.253:1645, Access-Accept, len
52


! Receiving an Access-Accep from Radius Server


*Sep 19 18:44:14.566: RADIUS: authenticator C0 0D 6C 33 F1 A3 04 27 - F0 C2 76 F5 54 FD E2 42
*Sep 19 18:44:14.566: RADIUS: Class [25] 32
*Sep 19 18:44:14.566: RADIUS: 4A 83 05 60 00 00 01 37 00 01 0A 6A 27 FD 01 D2 12 2E 98 D0 4F B0
00 00 00 00 00 00 00 14 [ J`7j'.O]
*Sep 19 18:44:14.566: RADIUS(00000088): Received from id 1645/106
*Sep 19 18:44:14.566: ppp76 PPP: Phase is FORWARDING, Attempting Forward
*Sep 19 18:44:14.568: [76]PPPoE 63: State LCP_NEGOTIATION Event SSS CONNECT LOCAL
*Sep 19 18:44:14.568: [76]PPPoE 63: Segment (SSS class): UPDATED
*Sep 19 18:44:14.568: [76]PPPoE 63: Segment (SSS class): BOUND
*Sep 19 18:44:14.568: [76]PPPoE 63: data path set to Virtual Acess
*Sep 19 18:44:14.569: [76]PPPoE 63: State LCP_NEGOTIATION Event SSM UPDATED
*Sep 19 18:44:14.569: Vi2.1 PPP: Phase is AUTHENTICATING, Authenticated User
*Sep 19 18:44:14.569: Vi2.1 PAP: O AUTH-ACK id 78 len 5
*Sep 19 18:44:14.569: Vi2.1 PPP: Reducing MTU to peer's MRU
*Sep 19 18:44:14.569: [76]PPPoE 63: AAA get dynamic attrs
*Sep 19 18:44:14.569: Vi2.1 PPP: Phase is UP
*Sep 19 18:44:14.569: Vi2.1 IPCP: Protocol configured, start CP. state[Initial]
*Sep 19 18:44:14.569: Vi2.1 IPCP: Event[OPEN] State[Initial to Starting]
*Sep 19 18:44:14.569: Vi2.1 IPCP: O CONFREQ [Starting] id 1 len 10
*Sep 19 18:44:14.569: Vi2.1 IPCP: Address 192.168.1.1 (0x0306C0A80101)
*Sep 19 18:44:14.569: Vi2.1 IPCP: Event[UP] State[Starting to REQsent]
*Sep 19 18:44:14.569: [76]PPPoE 63: State PTA_BINDING Event STATIC BIND RESPONSE
*Sep 19 18:44:14.569: [76]PPPoE 63: Connected PTA
<snip>
```

```
*Sep 19 18:44:14.572: Vi2.1 IPCP: Event[Receive ConfReq+] State[ACKrcvd to Open]
*Sep 19 18:44:14.595: Vi2.1 IPCP: State is Open
*Sep 19 18:44:14.595: PPPoE : ipfib_encapstr prepared
*Sep 19 18:44:14.596: Vi2.1 Added to neighbor route AVL tree: topoid 0, address 192.168.1.2
*Sep 19 18:44:14.596: Vi2.1 IPCP: Install route to 192.168.1.2

! Installing route to PPPoE client
BRAS#sh pppoe sess
     1 session  in LOCALLY_TERMINATED (PTA) State
     1 session  total


Uniq ID  PPPoE  RemMAC           Port               VT  VA      State
         SID    LocMAC                                  VA-st   Type
    76     63   0050.56ad.7206  Gi0/0/1.47         10  Vi2.1   PTA
                d867.d99f.6601                          UP
BRAS#
```

```
BRAS#sh caller ip
Line User IP Address Local Number Remote Number <->
Vi2.1 cisco 192.168.1.2 - - in
BRAS# ping 192.168.1.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/1 ms
```

故障排除

目前没有针对此配置的故障排除信息。但是，我们可以借助相关调试应用与PPP和PPPoE相关的标准故障排除技术。

相关信息

- 技术支持和文档 - Cisco Systems