Configurar PPPoE sobre BDI em roteadores da série ASR1k

Contents

Introduction

Este documento descreve como configurar o servidor PPPoE (Point-to-Point Protocol over Ethernet) com BDI (Bridge Domain Interface) e intervalo de vlan.

Prerequisites

Requirements

A Cisco recomenda que você tenha conhecimento destes tópicos:

- A conectividade de ponta a ponta da camada 1 é excelente
- Conceitos básicos de PPP e PPPoE são bem compreendidos

Componentes Utilizados

As informações neste documento são baseadas nestas versões de software e hardware:

- HOST-1 - CISCO887G
- HOST-2 - CISCO887
- SWITCH - WS-C3560-24TS-S
- SERVIDOR PPPoE - ASR1001-X

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.

Configurar

Note: Use a Command Lookup Tool (somente clientes registrados) para obter mais informações sobre os comandos usados nesta seção.

HOST-1

```
!
interface FastEthernet0
 switchport access vlan 100
 no ip address
end

!

interface Vlan100
 no ip address
 pppoe enable group global
 pppoe-client dial-pool-number 1
end

!

interface Dialer1
 ip address negotiated
 encapsulation ppp
 dialer pool 1
 ppp chap hostname dsl
 ppp chap password 0 dsl
end

!
```

HOST-2

```
!

interface FastEthernet0
 switchport access vlan 200
 no ip address
end

!

!
interface Vlan200
 no ip address
 pppoe enable group global
 pppoe-client dial-pool-number 1
end

!

!
interface Dialer1
 ip address negotiated
 encapsulation ppp
 dialer pool 1
 ppp chap hostname dsl
 ppp chap password 0 dsl
end
```

```
!
```

SWITCH

```
SWITCH#sh cdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone,
                  D - Remote, C - CVTA, M - Two-port Mac Relay

Device ID        Local Intrfce     Holdtme    Capability  Platform  Port ID
SERVER           Gig 0/1           130              R I   ASR1001-X Gig 0/0/0
HOST-1           Fas 0/2           141            R B S I 887G      Fas 0
HOST-2           Fas 0/1           167            R B S I 887       Fas 0



!
interface FastEthernet0/2
 switchport access vlan 100
end

!
interface FastEthernet0/1
 switchport access vlan 200
end

!

!
interface GigabitEthernet0/1
 switchport trunk encapsulation dot1q
 switchport trunk allowed vlan 100,200
 switchport mode trunk
end

!
```

SERVIDOR PPPoE

```
!

username dsl password 0 dsl

!
bba-group pppoe global
 virtual-template 1
!
interface GigabitEthernet0/0/0
 no ip address
 negotiation auto
 cdp enable
 service instance 100 ethernet
  encapsulation dot1q 100 etype pppoe-all
   rewrite ingress tag pop 1 symmetric
  bridge-domain 100
 !
 service instance 200 ethernet
  encapsulation dot1q 200 etype pppoe-all
   rewrite ingress tag pop 1 symmetric
  bridge-domain 200
 !
```

```
!

interface Virtual-Template1
 ip unnumbered Loopback0
 peer default ip address pool POOL
 ppp authentication chap
!
interface BDI100
 no ip address
 pppoe enable group global
!
interface BDI200
 no ip address
 pppoe enable group global
!
interface Loopback0
 ip address 192.168.10.1 255.255.255.255
end

!
ip local pool POOL 192.168.1.1 192.168.1.100

!
```

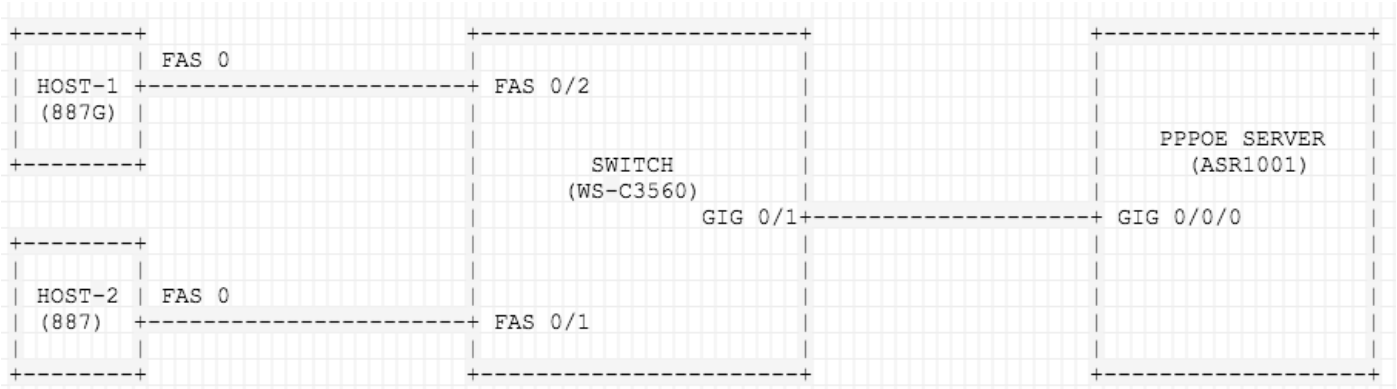
Como alternativa, você pode configurar '**vlan-range**' como mostrado:

```
!
interface GigabitEthernet0/0/0
 no ip address
 negotiation auto
 service instance 100 ethernet
 encapsulation default
 bridge-domain 1
 !
end



!
interface BDI1
 no ip address
 vlan-range dot1q 1 4094
 pppoe enable group global
 !
end
```

Diagrama de Rede



Verificar

Use esta seção para confirmar se a sua configuração funciona corretamente.

No HOST-1

```
HOST-1#show pppoe session
      1 client session

 Uniq ID  PPPoE  RemMAC          Port                      VT  VA         State
             SID  LocMAC                                      VA-st      Type
     N/A       5  00a2.eee6.663f  Vl100                     Di1 Vi2        UP
                  c471.fe93.d112                                UP


HOST-1#show ip interface brief | exclude un
Interface                  IP-Address      OK? Method Status                Protocol
Dialer1                    192.168.1.4     YES IPCP   up                    up



HOST-1#show caller ip
  Line           User       IP Address      Local Number    Remote Number   <->
  Vi2            SERVER     192.168.10.1    -               <unknown phone  in



HOST-1#ping 192.168.10.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.10.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/4 ms



HOST-1#show ppp interface virtual-Access 2
PPP Serial Context Info
-------------------
Interface        : Vi2
PPP Serial Handle: 0x1F000003
PPP Handle       : 0xB2000003
SSS Handle       : 0x8000004
AAA ID           : 24
Access IE        : 0xA7000003
SHDB Handle      : 0x0
State            : Up
Last State       : Binding
Last Event       : LocalTerm

PPP Session Info
----------------
Interface        : Vi2
PPP ID           : 0xB2000003
Phase            : UP
Stage            : Local Termination
Peer Name        : SERVER
Peer Address     : 192.168.10.1
Control Protocols: LCP[Open] IPCP[Open] CDPCP[Stopped]
Session ID       : 3
AAA Unique ID    : 24
SSS Manager ID   : 0x8000004
SIP ID           : 0x1F000003
PPP_IN_USE       : 0x11
```

```
Vi2 LCP: [Open]
Our Negotiated Options
Vi2 LCP:    MagicNumber 0x7735647E (0x05067735647E)
Peer's Negotiated Options
Vi2 LCP:    MRU 1500 (0x010405DC)
Vi2 LCP:    AuthProto CHAP (0x0305C22305)
Vi2 LCP:    MagicNumber 0xA7A011AC (0x0506A7A011AC)

Vi2 IPCP: [Open]
Our Negotiated Options
Vi2 IPCP:    Address 192.168.1.5 (0x0306C0A80105)
Peer's Negotiated Options
Vi2 IPCP:    Address 192.168.10.1 (0x0306C0A80A01)
```

No HOST-2

```
HOST-2#show pppoe session
      1 client session

Uniq ID  PPPoE  RemMAC          Port                    VT  VA          State
            SID  LocMAC                                      VA-st       Type
     N/A      6  00a2.eee6.663f  Vl200                   Di1 Vi2         UP
                 e8b7.4886.b8ea                              UP
```

```
HOST-2#show ip interface brief | exclude un
Interface                  IP-Address      OK? Method Status                Protocol
Dialer1                    192.168.1.6     YES IPCP   up                    up
```

```
HOST-2#show caller ip
  Line           User       IP Address      Local Number    Remote Number   <->
  Vi2            SERVER     192.168.10.1    -               <unknown phone  in
```

```
HOST-2#ping 192.168.10.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.10.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/4 ms
```

```
HOST-2#show ppp interface virtual-Access 2
PPP Serial Context Info
-------------------
Interface        : Vi2
PPP Serial Handle: 0x7B00000A
PPP Handle       : 0xA000000A
SSS Handle       : 0x4C00000B
AAA ID           : 68
Access IE        : 0x1D00000A
SHDB Handle      : 0x0
State            : Up
Last State       : Binding
Last Event       : LocalTerm

PPP Session Info
----------------
Interface        : Vi2
PPP ID           : 0xA000000A
```

```
Phase            : UP
Stage            : Local Termination
Peer Name        : SERVER
Peer Address     : 192.168.10.1
Control Protocols: LCP[Open] IPCP[Open] CDPCP[Stopped]
Session ID       : 10
AAA Unique ID    : 68
SSS Manager ID   : 0x4C00000B
SIP ID           : 0x7B00000A
PPP_IN_USE       : 0x11

Vi2 LCP: [Open]
Our Negotiated Options
Vi2 LCP:    MagicNumber 0x421AC8AB (0x0506421AC8AB)
Peer's Negotiated Options
Vi2 LCP:    MRU 1500 (0x010405DC)
Vi2 LCP:    AuthProto CHAP (0x0305C22305)
Vi2 LCP:    MagicNumber 0xA7A0942C (0x0506A7A0942C)

Vi2 IPCP: [Open]
Our Negotiated Options
Vi2 IPCP:    Address 192.168.1.6 (0x0306C0A80106)
Peer's Negotiated Options
Vi2 IPCP:    Address 192.168.10.1 (0x0306C0A80A01)
```

NO SWITCH

```
SWITCH#show vlan brief

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Fa0/4, Fa0/5, Fa0/6, Fa0/7
                                                Fa0/8, Fa0/9, Fa0/10, Fa0/11
                                                Fa0/12, Fa0/13, Fa0/14, Fa0/15
                                                Fa0/16, Fa0/17, Fa0/18, Fa0/19
                                                Fa0/20, Fa0/21, Fa0/22, Fa0/23
                                                Fa0/24, Gi0/2
11   VLAN0011                         active
12   VLAN0012                         active
13   VLAN0013                         active
100  VLAN0100                         active    Fa0/2
200  VLAN0200                         active    Fa0/1



SWITCH#Show interface trunk

Port        Mode             Encapsulation  Status        Native vlan
Gi0/1       on               802.1q         trunking      1

Port        Vlans allowed on trunk
Gi0/1       100,200

Port        Vlans allowed and active in management domain
Gi0/1       100,200

Port        Vlans in spanning tree forwarding state and not pruned
Gi0/1       100,200
```

No SERVIDOR PPPoE

```
SERVER#show pppoe  session
     2 sessions in LOCALLY_TERMINATED (PTA) State
     2 sessions total

Uniq ID  PPPoE  RemMAC          Port                      VT  VA         State
           SID  LocMAC                                      VA-st      Type
      5      5  c471.fe93.d112  BD100                      1  Vi2.2      PTA
                00a2.eee6.663f                               UP
      6      6  e8b7.4886.b8ea  BD200                      1  Vi2.1      PTA
                00a2.eee6.663f                               UP


SERVER#show caller ip
  Line           User       IP Address      Local Number    Remote Number   <->
  Vi2.1          dsl        192.168.1.6     -               -               in
  Vi2.2          dsl        192.168.1.5     -               -               in


SERVER#show ip local pool POOL
 Pool                    Begin           End             Free  In use
 POOL                    192.168.1.1     192.168.1.100     98       2
Available addresses:
   192.168.1.7
   192.168.1.8
   192.168.1.9

.....

.....
```

Quando você usa '**vlan-range**', observe uma alteração em 'Port':

```
SERVER#show pppoe session
     2 sessions in LOCALLY_TERMINATED (PTA) State
     2 sessions total

Uniq ID  PPPoE  RemMAC          Port                      VT  VA         State
           SID  LocMAC                                      VA-st      Type
      7      7  c471.fe93.d112  BD1                        1  Vi2.1      PTA
                00a2.eee6.663f  VLAN: 100                    UP
      8      8  e8b7.4886.b8ea  BD1                        1  Vi2.2      PTA
                00a2.eee6.663f  VLAN: 200                    UP


SERVER#show caller ip
 Line           User       IP Address      Local Number    Remote Number   <->
 Vi2.1          dsl        192.168.1.7     -               -               in
 Vi2.2          dsl        192.168.1.8     -               -               in
```

Troubleshoot

Esta seção disponibiliza informações para a solução de problemas de configuração.

Essas depurações serão úteis para solucionar problemas de PPP/PPPoE.

- debug pppoe events
- debug pppoe errors

- negociação de debug ppp

Informações Relacionadas

- PPPoE sobre BDI no CISCO CSR 1000V
- Erro de aprimoramento - Terminação PPPoE em BDI e intervalo de vlan em ASR1k
- Suporte Técnico e Documentação - Cisco Systems