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PPPOE topology

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LAB 1: Configure PPPOE:

TASK 1: PPPoE Configuration

Step 1 Configure PPoE on Server end

Server:

PPPoE requires a BBA (BroadBand Access) group which is where you can configure session limitations per client:

```
bba-group pppoe pppoegroup
virtual-template 1
exit
```

This is where we configure the IP address for the server and we also have to set the MTU here. Since PPPoE adds another header (8 bytes) we have to reduce the MTU size to 1492. A simple pool called “CLIENT” for this is used:

```
interface virtual-template 1
ip address 192.168.12.1 255.255.255.0
peer default ip address pool client
mtu 1492
exit
```

Whenever the client connects it will receive IP address between 192.168.12.2 - 192.168.12.5. You can also use DHCP if you want some more options. Activate the BBA group on the interface:

```
ip local pool client 192.168.12.2 192.168.12.5
interface f0/0
pppoe enable group pppoegroup
no shutdown
```

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Step 2 Configure PPoE on Client end

Client:

Create a dialer interface to handle the PPPoE connection, and tie it to a physical interface which provides the transport.

The line ip address negotiated instructs the client to use an IP address provided by the PPPoE server. The PPP header adds 8 bytes of overhead to each frame. Assuming the default Ethernet MTU of 1500 bytes, we'll want to lower our MTU on the dialer interface to 1492 to avoid unnecessary fragmentation.

```
interface dialer 1
dialer pool 1
encapsulation ppp
mtu 1492
ip address negotiated
exit
```

Lastly we assign our server-facing interface to created PPPoE dial group:

```
interface f0/0
pppoe-client dial-pool-number 1
no shutdown
exit
```

Notification indicating the PPPoE session has successfully formed:

```
*Mar  1 00:28:06.559: %DIALER-6-BIND: Interface Vi1 bound to profile Di1
*Mar  1 00:28:06.639: %LINK-3-UPDOWN: Interface Virtual-Access1, changed state to up
*Mar  1 00:28:07.687: %LINEPROTO-5-UPDOWN: Line protocol on Interface Virtual-
Access1, changed state to up
```

Verification:

```
Client# show ip interface brief
Interface              IP-Address      OK?  Method  Status                Protocol
FastEthernet0/0        unassigned      YES  unset   up                    up
FastEthernet0/1        unassigned      YES  unset   administratively down down
Virtual-Access1        unassigned      YES  unset   up                    up
Dialer1                192.168.12.2    YES  IPCP    up                    up
```

```
Client#show pppoe session
 1 client session
Uniq ID  PPPoE  RemMAC        Port            VT  VA      State
         SID  LocMAC                          VA-st
   N/A     1  c203.1278.0000   Fa0/0           Di1  Vi1     UP
              c202.1278.0000                                UP
```


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TASK 2: PPoE Authentication

Step 1 Configure PPoE Authentication

Server:

Enforce CHAP authentication on our virtual template:

```
interface virtual-template 1
ppp authentication chap callin
exit
```

Client:

```
interface dialer 1
ppp chap password cisco
exit
```

Step 2 Verification

Server:

```
Server#debug ppp authentication
PPP authentication debugging is on
*Mar  1 00:45:47.867: ppp23 PPP: Using vpn set call direction
*Mar  1 00:45:47.867: ppp23 PPP: Treating connection as a callin
*Mar  1 00:45:47.867: ppp23 PPP: Session handle[D9000019] Session id[23]
*Mar  1 00:45:47.967: ppp23 PPP: Authorization required
*Mar  1 00:45:47.999: ppp23 CHAP: O CHALLENGE id 1 len 27 from "Server"
*Mar  1 00:45:48.023: ppp23 CHAP: I RESPONSE id 1 len 27 from "Client"
*Mar  1 00:45:48.031: ppp23 PPP: Sent CHAP LOGIN Request
*Mar  1 00:45:48.031: ppp23 PPP: Received LOGIN Response PASS
*Mar  1 00:45:48.035: ppp23 CHAP: O SUCCESS id 1 len 25 msg is "Authentication PASS"
```

PPOE can use PAP or CHAP to authenticate clients

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