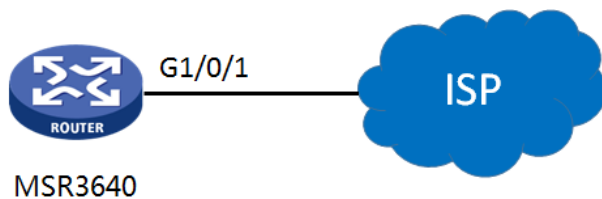


某局点MSR路由器PPPOE拨号IPCP阶段协商失败处理案例

PPPoE 王鸿渐 2018-12-08 发表

组网及说明

拓扑如下:



问题描述

某局点配置了PPPOE拨号后，始终无法获取地址，且接口物理状态属于UP，但是协议层协商为DOWN，LCP协商为 **initial**。

=====display interface=====

```
Dialer1
Current state: UP
Line protocol state: DOWN
Description: Dialer1
Interface Bandwidth: 64 kbps
Maximum transmission unit: 1500
Hold timer: 10 seconds, retry times: 5
Internet protocol processing: Disabled
Link layer protocol: PPP
LCP: initial
Physical: Dialer, baudrate: 64000 bps
```

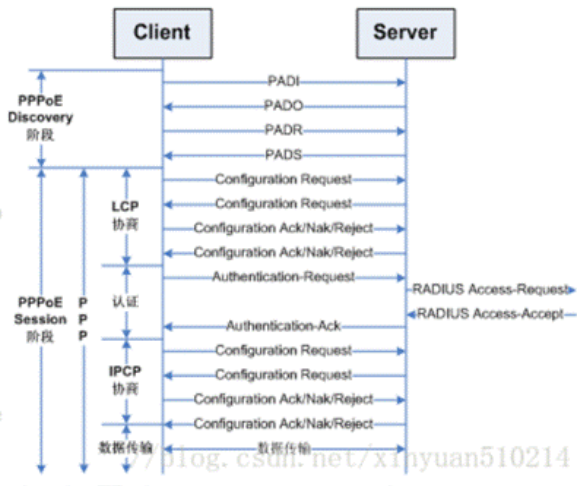
设备配置如下:

```
interface Dialer1
mtu 1492
ppp chap password cipher XXXXXX
ppp chap user XXXXXX
ppp ipcp dns admit-any
ppp ipcp remote-address match
ppp pap local-user XXXXXX password cipher XXXXXX
dialer bundle enable
dialer-group 1
dialer timer idle 0
ip address ppp-negotiate
tcp mss 1024
nat outbound
```

过程分析

检查配置没有发现具体问题，现来分析debugging 信息:

首先理解PPPOE拨号的整个交互过程



PPPOE交互示意图

由于查看当前接口物理层UP，则说明PPP已经开始进入链路建立阶段（Establish）阶段，PPP在Establish阶段主要进行LCP协商，而LCP协商完成后会进行PAP或CHAP的验证。

```
*Nov 16 18:00:02:789 2018 ZWIE-MSR5620 PPP/7/EXTERNAL_EVENT: -Slot=2;
```

PPP External Event:

Virtual-Access0 deliver packet to user space success

```
*Nov 16 18:00:02:790 2018 ZWIE-MSR5620 PPP/7/CHAP_PACKET_0: -Slot=2;
```

PPP Packet:

Virtual-Access0 Input CHAP(c223) Pkt, Len 31

State ListenChallenge, code Challenge(01), id 1, Len 27

Value_Size: 16 Value:d1 df 25 50 00 3e e2 1b a0 7a 4a 82 58 c7 6e 6f

Name: Huawei

```
*Nov 16 18:00:02:790 2018 ZWIE-MSR5620 PPP/7/CHAP_EVENT_0: -Slot=2;
```

PPP Event:

Virtual-Access0 CHAP Receive Challenge Event

State ListenChallenge

```
*Nov 16 18:00:02:790 2018 ZWIE-MSR5620 PPP/7/CHAP_PACKET_0: -Slot=2;
```

PPP Packet:

Virtual-Access0 Output CHAP(c223) Pkt, Len 43

State ListenChallenge, code Response(02), id 1, Len 39

Value_Size: 16 Value:17 6c 55 4f 3f cc de 9d 96 e1 f0 dc 76 54 f0 08

Name: xxxx

```
*Nov 16 18:00:02:790 2018 ZWIE-MSR5620 PPP/7/CHAP_STATE_0: -Slot=2;
```

PPP State Change:

Virtual-Access0 CHAP: ListenChallenge --> SendResponse

```
%Nov 16 18:00:03:343 2018 ZWIE-MSR5620 IFNET/5/LINK_UPDOWN: Line protocol state on the interface Virtual-Access0 changed to up.
```

```
*Nov 16 18:00:02:790 2018 ZWIE-MSR5620 PPP/7/EXTERNAL_EVENT: -Slot=2;
```

PPP External Event:

Virtual-Access0 deliver packet to user space success

```
*Nov 16 18:00:02:814 2018 ZWIE-MSR5620 PPP/7/CHAP_PACKET_0: -Slot=2;
```

PPP Packet:

Virtual-Access0 Input CHAP(c223) Pkt, Len 39

State SendResponse, code SUCCESS(03), id 1, Len 35

Message: Authentication success,Welcome!

```
*Nov 16 18:00:02:814 2018 ZWIE-MSR5620 PPP/7/CHAP_EVENT_0: -Slot=2;
```

PPP Event:

Virtual-Access0 CHAP Receive Success Event

State SendResponse

```
*Nov 16 18:00:02:815 2018 ZWIE-MSR5620 PPP/7/CHAP_STATE_0: -Slot=2;
```

PPP State Change:

Virtual-Access0 CHAP: SendResponse --> ClientSuccess

此时显示CHAP验证成功，LCP上报Success事件。由于PPPOE在认证完成后则会进入网络层配置协

商阶段, 进行IPCP协商。IPCP协商的主要内容则是IP地址、DNS服务器地址等, 只有当IPCP协商通过后, PPP才可以承载IP报文。

```
*Nov 16 18:00:02:815 2018 ZWIE-MSR5620 PPP/7/FSM_PACKET_0: -Slot=2;
PPP Packet:
  Virtual-Access0 Input IPCP(8021) Packet, PktLen 14
  Current State null, code ConfReq(01), id 1, len 10
  IP Address(3), len 6, val 64 40 00 01
*Nov 16 18:00:02:815 2018 ZWIE-MSR5620 PPP/7/FSM_PACKET_0: -Slot=2;
PPP Packet:
  Virtual-Access0 Input IPv6CP(8057) Packet, PktLen 18
  Current State null, code ConfReq(01), id 1, len 14
  IPv6CP InterfaceID(1), len a, val b6 38 06 ff fe be 00 15
*Nov 16 18:00:02:815 2018 ZWIE-MSR5620 PPP/7/FSM_EVENT_0: -Slot=2;
PPP Event:
  Virtual-Access0 IPCP Open Event
  State initial
*Nov 16 18:00:02:815 2018 ZWIE-MSR5620 PPP/7/FSM_STATE_0: -Slot=2;
PPP State Change:
  Virtual-Access0 IPCP: initial --> starting    此时从初始状态变为启动状态
*Nov 16 18:00:02:815 2018 ZWIE-MSR5620 PPP/7/FSM_EVENT_0: -Slot=2;
PPP Event:
  Virtual-Access0 IPCP Lower Up Event
  State starting
*Nov 16 18:00:02:815 2018 ZWIE-MSR5620 PPP/7/FSM_STATE_0: -Slot=2;
PPP State Change:
  Virtual-Access0 IPCP: starting --> reqsent    从初始状态变为配置请求发送状态
.....
*Nov 16 18:00:02:818 2018 ZWIE-MSR5620 PPP/7/FSM_PACKET_0: -Slot=2;
PPP Packet:
  Virtual-Access0 Input IPCP(8021) Packet, PktLen 14
  Current State reqsent, code ConfAck(02), id 1, len 10
  IP Address(3), len 6, val 64 40 2b 44
*Nov 16 18:00:02:818 2018 ZWIE-MSR5620 PPP/7/FSM_EVENT_0: -Slot=2;
PPP Event:
  Virtual-Access0 IPCP RCA(Receive Config Ack) Event
  State reqsent
*Nov 16 18:00:02:818 2018 ZWIE-MSR5620 PPP/7/FSM_STATE_0: -Slot=2;
PPP State Change:
  Virtual-Access0 IPCP: reqsent --> ackrcvd    从配置请求发送状态变为收到对端确认状态
*Nov 16 18:00:02:818 2018 ZWIE-MSR5620 PPP/7/EXTERNAL_EVENT: -Slot=2;
PPP External Event:
  Virtual-Access0 deliver packet to user space success
*Nov 16 18:00:05:807 2018 ZWIE-MSR5620 PPP/7/FSM_PACKET_0: -Slot=2;
PPP Packet:
  Virtual-Access0 Input IPCP(8021) Packet, PktLen 14
  Current State ackrcvd, code ConfReq(01), id 2, len 10
  IP Address(3), len 6, val 64 40 00 01
*Nov 16 18:00:05:807 2018 ZWIE-MSR5620 PPP/7/FSM_EVENT_0: -Slot=2;
PPP Event:
  Virtual-Access0 IPCP RCR+(Receive Config Good Request) Event    此时从对端收到 Config Good Request 报文
  State ackrcvd
.....
*Nov 16 18:00:05:809 2018 ZWIE-MSR5620 PPP/7/FSM_PACKET_0: -Slot=2;
PPP Packet:
  Virtual-Access0 Input LCP(c021) Packet, PktLen 8
  Current State closing, code TermAck(06), id 1, len 4
*Nov 16 18:00:05:809 2018 ZWIE-MSR5620 PPP/7/FSM_EVENT_0: -Slot=2;
PPP Event:
  Virtual-Access0 LCP RTA(Receive Terminate Ack) Event    收到确认终止确认答复
  State closing
*Nov 16 18:00:05:809 2018 ZWIE-MSR5620 PPP/7/FSM_STATE_0: -Slot=2;
PPP State Change:
```

Virtual-Access0 LCP: closing --> closed LCP协商关闭

此时我们怀疑还是在IPCP出现了问题，查询相关命令说明发现配置存在以下一点问题。

在Dialer口下配置了ppp ipcp dns request 和ppp ipcp remote-address match。ppp ipcp remote-address match用来使能接口的IP网段检查功能，如果不在同一网段时则IPCP协商失败。

解决方法

在Dialer口下删除 ppp ipcp remote-address match后问题解决。