

知 某局点SR8808-X IPoE 一次认证，双栈放行失败

IPv6 IPv4 蒋笑添 2020-09-17 发表

组网及说明

BRAS-----GW Switch-----Host

问题描述

现场希望在BRAS上实现IPoE一次认证双栈放行。发现3层IPoE不行，但是2层IPoE是可以的。

过程分析

以下是二层组网方式会话信息，不同终端尝试都可以联动上线。

可以看到在线用户信息是有v4 v6地址的

```
<zcmu-bras>dis ip subscriber session username wuchcs verbose
```

Basic:

```
Description          : -
Username              : wuchcs
Domain                : dm2
VPN instance          : N/A
IP address           : 172.20.176.237
IPv6 address        : 2001:DA8:xxxx:800::6
User address type     : N/A
MAC address           : A-B-C
Service-VLAN/Client-VLAN : 800/-
Access interface      : RAGG1.800
User ID               : 0x38200275
VPI/VCID(for ATM)    : -/-
VSI Index             : -
VSI link ID           : -
VXLAN ID              : -
DNS servers           : 192.168.99.16
                      10.100.1.44
IPv6 DNS servers      : N/A
DHCP lease            : 3600 sec
DHCP remain lease     : N/A
DHCPv6 lease          : 2592000 sec
DHCPv6 remain lease   : N/A
Access time           : Aug 26 10:55:56 2020
Online time(hh:mm:ss) : 00:14:27
Service node          : Slot 0 CPU 0
Authentication type    : Web
IPv4 access type       : DHCP
IPv6 access type       : DHCP
IPv4 detect state      : Detecting
IPv6 detect state      : Detecting
State                  : Online
```

AAA:

```
ITA policy name       : N/A
IP pool               : wuxian
IPv6 pool             : wuxian
IPv6 nd prefix pool   : N/A
Primary DNS server    : N/A
Secondary DNS server   : N/A
Primary IPv6 DNS server : N/A
Secondary IPv6 DNS server : N/A
Session idle cut      : 1800 sec, 10240 bytes, direction:Both
Session duration       : N/A, remaining: N/A
Traffic quota         : N/A
Traffic remained       : N/A
Acct start-fail action : Online
Acct update-fail action : Online
```

Acct quota-out action : Offline
Dual-stack accounting mode : Merge
Max IPv4 multicast addresses: 4
IPv4 multicast address list : N/A
Max IPv6 multicast addresses: 4
IPv6 multicast address list : N/A
Accounting start time : Aug 26 10:56:11 2020
Redirect URL : N/A
Subscriber ID : -

QoS:

User profile : N/A
Session group profile : N/A
User group ACL : N/A
Inbound CAR : N/A
Outbound CAR : N/A
Inbound user priority : N/A
Outbound user priority : N/A

Flow statistic:

Uplink packets/bytes : 4204/645918
Downlink packets/bytes : 5623/5725799
IPv6 uplink packets/bytes : 0/0
IPv6 downlink packets/bytes : 0/0

三层组网方式:

三层组网会生成两个ipoe会话表项，从下边也可以看出来

ipv4和ipv6 ipoe触发方式都是dhcp

但是ipv4和ipv6的ipoe会话是两个，不能够做到ipv4上线ipv6跟着ipv4上线

<zcmu-bras>dis ip subscriber session username yqm verbose

Basic:

Description : -
Username : yqm
Domain : dm2
VPN instance : N/A
IP address : 172.16.144.3
User address type : N/A
MAC address : A-B-C
Service-VLAN/Customer-VLAN : -/-
Access interface : XGE0/0/3
User ID : 0x30000099
VPI/VCID(for ATM) : -/-
VSI Index : -
VSI link ID : -
VXLAN ID : -
DNS servers : N/A
IPv6 DNS servers : N/A
DHCP lease : N/A
DHCP remain lease : N/A
Access time : Aug 26 10:25:07 2020
Online time(hh:mm:ss) : 00:05:26
Service node : Slot 0 CPU 0
Authentication type : Web
IPv4 access type : Static
IPv4 detect state : Detecting
State : Online

AAA:

ITA policy name : N/A
IP pool : N/A
IPv6 pool : N/A
IPv6 nd prefix pool : N/A
Primary DNS server : N/A

Secondary DNS server : N/A
Primary IPv6 DNS server : N/A
Secondary IPv6 DNS server : N/A
Session idle cut : 1800 sec, 10240 bytes, direction:Both
Session duration : N/A, remaining: N/A
Traffic quota : N/A
Traffic remained : N/A
Acct start-fail action : Online
Acct update-fail action : Online
Acct quota-out action : Offline
Dual-stack accounting mode : Merge
Max IPv4 multicast addresses: 4
IPv4 multicast address list : N/A
Max IPv6 multicast addresses: 4
IPv6 multicast address list : N/A
Accounting start time : Aug 26 11:44:20 2020
Redirect URL : N/A
Subscriber ID : -

QoS:

User profile : N/A
Session group profile : N/A
User group ACL : N/A
Inbound CAR : N/A
Outbound CAR : N/A
Inbound user priority : N/A
Outbound user priority : N/A

Flow statistic:

Uplink packets/bytes : 1679/140880
Downlink packets/bytes : 375/139352
IPv6 uplink packets/bytes : 0/0
IPv6 downlink packets/bytes : 0/0

Basic:

Description : -
Username : yqm
Domain : dm2
VPN instance : N/A
IPv6 address : 2001:DA8:xxxx:299::3
User address type : N/A
MAC address : A-B-C
Service-VLAN/Customer-VLAN : -/-
Access interface : XGE0/0/3
User ID : 0x3000009b
VPI/VCI(for ATM) : -/-
VSI Index : -
VSI link ID : -
VXLAN ID : -
DNS servers : N/A
IPv6 DNS servers : N/A
DHCPv6 lease : N/A
DHCPv6 remain lease : N/A
Access time : Aug 26 11:44:03 2020
Online time(hh:mm:ss) : 00:00:53
Service node : Slot 0 CPU 0
Authentication type : Web
IPv6 access type : Static
IPv6 detect state : Detecting
State : Online

AAA:

ITA policy name : N/A
IP pool : N/A

IPv6 pool : N/A
IPv6 nd prefix pool : N/A
Primary DNS server : N/A
Secondary DNS server : N/A
Primary IPv6 DNS server : N/A
Secondary IPv6 DNS server : N/A
Session idle cut : 1800 sec, 10240 bytes, direction:Both
Session duration : N/A, remaining: N/A
Traffic quota : N/A
Traffic remained : N/A
Acct start-fail action : Online
Acct update-fail action : Online
Acct quota-out action : Offline
Dual-stack accounting mode : Merge
Max IPv4 multicast addresses: 4
IPv4 multicast address list : N/A
Max IPv6 multicast addresses: 4
IPv6 multicast address list : N/A
Accounting start time : Aug 26 11:48:52 2020
Redirect URL : N/A
Subscriber ID : -

QoS:

User profile : N/A
Session group profile : N/A
User group ACL : N/A
Inbound CAR : N/A
Outbound CAR : N/A
Inbound user priority : N/A
Outbound user priority : N/A

Flow statistic:

Uplink packets/bytes : 27/4525
Downlink packets/bytes : 32/10795
IPv6 uplink packets/bytes : 0/0
IPv6 downlink packets/bytes : 0/0

解决方法

跨三层的ipoe web，只有v4v6都是dhcp、且BRAS和dhcp relay都支持dhcp option 79的情况下，才能实现联动，也就是v4上线后，v6不需要再认证、直接上线，反过来也可以。Dhcp option 79可以让dhcp relay把终端mac带到bras上，bras就知道v4和v6属于同一个用户。BRAS是在R7953的版本才支持option79，只有V7交换机才支持option79。

配置举例，供参考：

BRAS配置

```
#
interface GigabitEthernet1/7/1/15
port link-mode route
duplex full
speed 1000
ip address x.229.9.109 255.255.255.252
undo dhcp select server
ipv6 address 2402:xxx::0:96C::109/64
undo ipv6 nd ra halt
ipv6 nd ra interval 70 52
ipv6 nd unsolicited-na-learning enable
portal bas-ip x.x.1.1
ip subscriber routed enable
ip subscriber initiator dhcp enable
ip subscriber initiator dhcpv6 enable
ip subscriber initiator unclassified-ip enable matching-user
ip subscriber initiator unclassified-ipv6 enable matching-user
undo ip subscriber user-detect ip
```

```
undo ip subscriber user-detect ipv6
ip subscriber authentication-method web
ip subscriber dhcp username include string DHCP-l3defpre
ip subscriber unclassified-ip username include string DHCP-l3defpre
ip subscriber password ciphertext $c$3$Nt0xUwndQY+amoBTNquT5n1Du3yc5pE/7Esh7rgFkN0=
ip subscriber pre-auth domain l3default
ip subscriber trust option79
ip subscriber web-auth domain l3web
#
```

接入交换机配置

```
#
interface Vlan-interface500
ip address 1.1.1.1 255.255.255.192
dhcp select relay
dhcp relay server-address 2.2.2.2
dhcp relay server-address 2.2.2.3
ipv6 dhcp select relay
ipv6 dhcp relay server-address 1::1
ipv6 dhcp relay server-address 1::2
ipv6 dhcp relay client-link-address enable
ipv6 nd ra prefix 3::/64 no-advertise
ipv6 address 3::1/64
ipv6 nd autoconfig managed-address-flag
ipv6 nd autoconfig other-flag
undo ipv6 nd ra halt
#
```