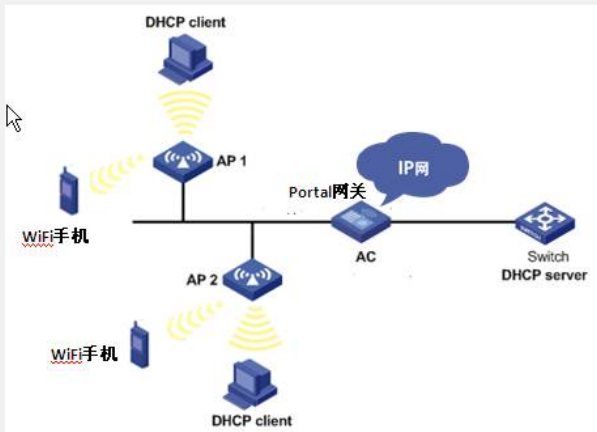


某办公楼做Portal后PC、WiFi手机获取地址慢或获不了地址的经验案例

一、组网：

某办公楼无线网络的拓扑如下，其所有终端皆通过二层方式获取地址（即Dhcp Server与Client为同一网段）；AC对业务vlan使能Portal认证。



二、问题描述：

某办公大楼的无线环境，若应用Portal认证后，常出现某些PC获取地址慢、WiFi手机获取不了地址问题；取消Portal则正常。

三、过程分析：

根据上述问题的简要分析，可排除无线环境对地址获取影响。通过对问题PC和WiFi手机客户端、AC交换板内联口抓包，发现：

- 1 . PC连续发送标识位为单播，没有响应；后续发送标识位为广播后即可正常获取地址

The screenshot shows a network traffic capture with a filter set to 'dhcp'. The table below lists the captured packets:

No.	Time	Source	Destination	Protocol	Info
3	14:14:35.871537	10.2.51.182	10.2.51.251	DHCP	DHCP Release
4	14:14:38.687431	0.0.0.0	255.255.255.255	DHCP	DHCP Discover
5	14:14:42.688452	0.0.0.0	255.255.255.255	DHCP	DHCP Discover
6	14:14:49.688900	0.0.0.0	255.255.255.255	DHCP	DHCP Discover
7	14:15:04.688993	0.0.0.0	255.255.255.255	DHCP	DHCP Discover
22	14:15:41.371506	0.0.0.0	255.255.255.255	DHCP	DHCP Discover
30	14:15:45.371291	0.0.0.0	255.255.255.255	DHCP	DHCP Discover
47	14:15:53.371319	0.0.0.0	255.255.255.255	DHCP	DHCP Discover
71	14:16:09.371567	0.0.0.0	255.255.255.255	DHCP	DHCP Discover
72	14:16:09.375932	10.2.51.251	255.255.255.255	DHCP	DHCP Offer
73	14:16:09.376799	0.0.0.0	255.255.255.255	DHCP	DHCP Request
74	14:16:09.379264	10.2.51.251	255.255.255.255	DHCP	DHCP ACK
92	14:16:12.527537	10.2.51.182	255.255.255.255	DHCP	DHCP Inform
130	14:16:15.527962	10.2.51.182	255.255.255.255	DHCP	DHCP Inform

Transaction ID: 0xe2127a5e
Seconds elapsed: 0
Bootp flags: 0x0000 (Unicast)
0... .. = Broadcast flag: Unicast
.000 0000 0000 0000 = Reserved flags: 0x0000
Client IP address: 0.0.0.0 (0.0.0.0)
Your (client) IP address: 0.0.0.0 (0.0.0.0)
Next server IP address: 0.0.0.0 (0.0.0.0)
Relay agent IP address: 0.0.0.0 (0.0.0.0)
Client MAC address: IntelCor_7a:67:4d (00:1b:77:7a:67:4d)

最后一个DHCP Discover包标识位为广播。

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3	14:14:35.871537	10.2.51.182	10.2.51.251	DHCP	DHCP Release
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92	14:16:42.527537	10.2.51.182	255.255.255.255	DHCP	DHCP Inform
130	14:16:15.527962	10.2.51.182	255.255.255.255	DHCP	DHCP Inform

Transaction ID: 0x706f3a77
Seconds elapsed: 28 (little endian bug?)
 Bootp flags: 0x8000 (Broadcast)
1... .. = Broadcast flag: Broadcast
.000 0000 0000 0000 = Reserved flags: 0x0000
Client IP address: 0.0.0.0 (0.0.0.0)
Your (client) IP address: 0.0.0.0 (0.0.0.0)
Next server IP address: 0.0.0.0 (0.0.0.0)
Relay agent IP address: 0.0.0.0 (0.0.0.0)
Client MAC address: IntelCor_7a:67:4d (00:1b:77:7a:67:4d)

2. WiFi手机一直发送标识位为单播DHCP请求报文，地址获取不了

3. 相应设备侧Debug调试信息，查看其服务器皆响应Offer报文

以下摘取为测试PC先发送连续的标识位为单播，最后为广播的调试：

*May 31 16:22:07:569 2000 6103-IAG DHCP/SD7/DHCPS_PACKET:

Rx, interface Vlan-interface54

Message type: request

Hardware type: 1, Hardware address length: 6

Hops: 0, Transaction ID: 3937838873

Seconds: 0, Broadcast flag: 0

Client IP address: 0.0.0.0 Your IP address: 0.0.0.0

Server IP address: 0.0.0.0 Relay agent IP address: 0.0.0.0

Client hardware address: 001b-777a-674d

Server host name: Not Configured, Boot file name: Not Configured

DHCP message type: DHCP Discover

*May 31 16:22:07:569 2000 6103-IAG DHCP/SD7/DHCPS_PACKET:

Tx, interface Vlan-interface54

Message type: reply

Hardware type: 1, Hardware address length: 6

Hops: 0, Transaction ID: 3937838873

Seconds: 0, Broadcast flag: 0 (此时回应Offer报文为单播报文)

Client IP address: 0.0.0.0 Your IP address: 10.2.51.182

Server IP address: 0.0.0.0 Relay agent IP address: 0.0.0.0

Client hardware address: 001b-777a-674d

Server host name: Not Configured, Boot file name: Not Configured

DHCP message type: DHCP Offer

最后为广播后即可正常获取地址：

Rx, interface Vlan-interface54

Message type: request

Hardware type: 1, Hardware address length: 6

Hops: 0, Transaction ID: 3576537726

Seconds: 0, Broadcast flag: 1

Client IP address: 0.0.0.0 Your IP address: 0.0.0.0

Server IP address: 0.0.0.0 Relay agent IP address: 0.0.0.0

Client hardware address: 001b-777a-674d

Server host name: Not Configured, Boot file name: Not Configured

DHCP message type: DHCP Discover

*May 31 16:23:52:500 2000 6103-IAG DHCPSPD/7/DHCPS_PACKET:

Tx, interface Vlan-interface54

Message type: reply

Hardware type: 1, Hardware address length: 6

Hops: 0, Transaction ID: 3576537726

Seconds: 0, Broadcast flag: 1 (此时对应Offer为广播报文)

Client IP address: 0.0.0.0 Your IP address: 10.2.51.182

Server IP address: 0.0.0.0 Relay agent IP address: 0.0.0.0

Client hardware address: 001b-777a-674d

Server host name: Not Configured, Boot file name: Not Configured

DHCP message type: DHCP Offer

*May 31 16:23:53:110 2000 6103-IAG DHCPSPD/7/DHCPS_PACKET:

Rx, interface Vlan-interface54

Message type: request

Hardware type: 1, Hardware address length: 6

Hops: 0, Transaction ID: 3576537726

Seconds: 0, Broadcast flag: 1

Client IP address: 0.0.0.0 Your IP address: 0.0.0.0

Server IP address: 0.0.0.0 Relay agent IP address: 0.0.0.0

Client hardware address: 001b-777a-674d

Server host name: Not Configured, Boot file name: Not Configured

DHCP message type: DHCP Request

*May 31 16:23:53:731 2000 6103-IAG DHCPSPD/7/DHCPS_PACKET:

Tx, interface Vlan-interface54

Message type: reply

Hardware type: 1, Hardware address length: 6

Hops: 0, Transaction ID: 3576537726

Seconds: 0, Broadcast flag: 1

Client IP address: 0.0.0.0 Your IP address: 10.2.51.182

Server IP address: 0.0.0.0 Relay agent IP address: 0.0.0.0

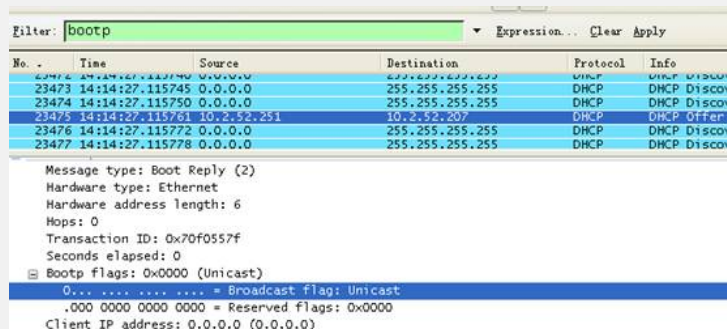
Client hardware address: 001b-777a-674d

Server host name: Not Configured, Boot file name: Not Configured

DHCP message type: DHCP Ack

4. 但在交换板内联口抓包发现，在响应Offer报文里，若为单播，则被AC板丢弃；若为广播则正常。

单播DHCP Offer报文，如类似截图：目标IP为具体IP地址



综合上述信息分析，其问题的主要原因为AC在业务Vlan使能Portal后，对同Vlan内DHCP Server响应报文，若为单播，则会被丢弃，而广播不受影响。

四、解决方法：

在AC配置对DHCP Server回应报文的源地址或源是内联口，目的any的报文做free-rule即解决。如：

```
portal free-rule 0 source ip x.x.x.x mask 255.255.255.255 destination any
```

或

```
portal free-rule 0 source interface Ten-GigabitEthernet1/0/1 destination any
```