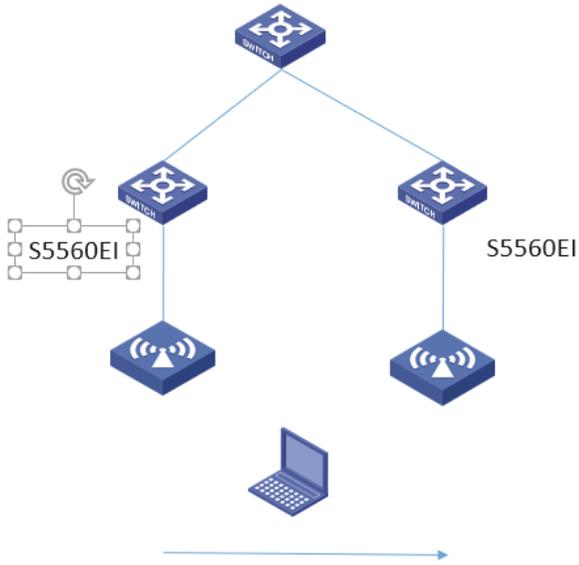


知 S5560EI下联无线终端DHCP获取地址慢

DHCP/DHCP Relay 李鹏飞 2022-07-14 发表

组网及说明



问题描述

无线组网存在漫游的情况，需要重新获取新的IP地址，当其他网关下的终端漫游到5560E1下时，获取地址慢

过程分析

因为是漫游，终端还有之前的IP地址的缓存，请求10.10.60.248的地址

No.	Time	Source	Destination	Protocol	Length	Identification	Info
1	2022-06-02 11:48:18.711053	0.0.0.0	255.255.255.255	DHCP	364	0xfbf6 (64502)	DHCP Request - Transaction ID 0x50f97f85
2	2022-06-02 11:48:18.718374	10.11.8.2	10.11.8.172	DHCP	342	0x18ba (6330)	DHCP ACK - Transaction ID 0x50f97f85
41	2022-06-02 11:48:20.711286	0.0.0.0	255.255.255.255	DHCP	364	0xfbf7 (64503)	DHCP Request - Transaction ID 0x50f97f85
42	2022-06-02 11:48:20.722588	10.11.8.2	10.11.8.172	DHCP	342	0x1937 (6455)	DHCP ACK - Transaction ID 0x50f97f85
151	2022-06-02 11:48:22.735622	0.0.0.0	255.255.255.255	DHCP	364	0xfbf8 (64504)	DHCP Request - Transaction ID 0x50f97f85
152	2022-06-02 11:48:22.739788	10.11.8.2	10.11.8.172	DHCP	342	0x19a2 (6562)	DHCP ACK - Transaction ID 0x50f97f85
263	2022-06-02 11:48:25.747656	0.0.0.0	255.255.255.255	DHCP	364	0xfbf9 (64505)	DHCP Request - Transaction ID 0x50f97f85
264	2022-06-02 11:48:25.752126	10.11.8.2	10.11.8.172	DHCP	342	0x1a28 (6696)	DHCP ACK - Transaction ID 0x50f97f85
277	2022-06-02 11:48:26.020273	0.0.0.0	255.255.255.255	DHCP	342	0xfbfa (64506)	DHCP Inform - Transaction ID 0xf2ada97
278	2022-06-02 11:48:26.033610	0.0.0.0	255.255.255.255	DHCP	364	0xfbf0 (64507)	DHCP Request - Transaction ID 0xd15201ad
284	2022-06-02 11:48:26.046227	10.11.8.2	10.11.8.172	DHCP	342	0x1a35 (6709)	DHCP ACK - Transaction ID 0xd15201ad
377	2022-06-02 11:48:28.040351	0.0.0.0	255.255.255.255	DHCP	364	0xfbf1 (64508)	DHCP Request - Transaction ID 0xd15201ad
378	2022-06-02 11:48:28.053474	10.11.8.2	10.11.8.172	DHCP	342	0x1a9a (6810)	DHCP ACK - Transaction ID 0xd15201ad
454	2022-06-02 11:48:31.064217	0.0.0.0	255.255.255.255	DHCP	364	0xfbf2 (64509)	DHCP Request - Transaction ID 0xd15201ad
455	2022-06-02 11:48:31.070728	10.11.8.2	10.11.8.172	DHCP	342	0x1b41 (6977)	DHCP ACK - Transaction ID 0xd15201ad
557	2022-06-02 11:48:34.079599	0.0.0.0	255.255.255.255	DHCP	364	0xfbf6 (64510)	DHCP Request - Transaction ID 0xd15201ad

Boot file name not given
Magic cookie: DHCP
> Option: (53) DHCP Message Type (Request)
> Option: (61) Client Identifier
> Option: (50) Requested IP Address
Length: 4
Requested IP Address: 10.10.60.248
> Option: (12) Host Name
> Option: (81) Client Fully Qualified Domain Name
> Option: (60) Vendor class identifier
Length: 8

设备上没有这个地址池，直接发送了ACK，给了一个新的地址10.11.8.172，导致终端一直发送request，获取地址慢

No.	Time	Source	Destination	Protocol	Length	Identification	Info
1	2022-06-02 11:48:18.711053	0.0.0.0	255.255.255.255	DHCP	364	0xfbf6 (64502)	DHCP Request - Transaction ID 0x50f97f85
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277	2022-06-02 11:48:26.020273	0.0.0.0	255.255.255.255	DHCP	342	0xfbfa (64506)	DHCP Inform - Transaction ID 0xf2ada97
278	2022-06-02 11:48:26.033610	0.0.0.0	255.255.255.255	DHCP	364	0xfbf0 (64507)	DHCP Request - Transaction ID 0xd15201ad
284	2022-06-02 11:48:26.046227	10.11.8.2	10.11.8.172	DHCP	342	0x1a35 (6709)	DHCP ACK - Transaction ID 0xd15201ad
377	2022-06-02 11:48:28.040351	0.0.0.0	255.255.255.255	DHCP	364	0xfbf1 (64508)	DHCP Request - Transaction ID 0xd15201ad
378	2022-06-02 11:48:28.053474	10.11.8.2	10.11.8.172	DHCP	342	0x1a9a (6810)	DHCP ACK - Transaction ID 0xd15201ad
454	2022-06-02 11:48:31.064217	0.0.0.0	255.255.255.255	DHCP	364	0xfbf2 (64509)	DHCP Request - Transaction ID 0xd15201ad
455	2022-06-02 11:48:31.070728	10.11.8.2	10.11.8.172	DHCP	342	0x1b41 (6977)	DHCP ACK - Transaction ID 0xd15201ad
557	2022-06-02 11:48:34.079599	0.0.0.0	255.255.255.255	DHCP	364	0xfbf6 (64510)	DHCP Request - Transaction ID 0xd15201ad

Frame 2: 342 bytes on wire (2736 bits), 342 bytes captured (2736 bits) on interface 0
Ethernet II, Src: NewH3CtE_57:8d:e8 (94:28:2e:57:8d:e8), Dst: 50:eb:71:22:14:56 (50:eb:71:22:14:56)
Internet Protocol Version 4, Src: 10.11.8.2, Dst: 10.11.8.172
User Datagram Protocol, Src Port: 67, Dst Port: 68
Bootstrap Protocol (ACK)
Message type: Boot Reply (2)
Hardware type: Ethernet (0x01)
Hardware address length: 6
Hops: 0
Transaction ID: 0x50f97f85
Seconds elapsed: 0
> Bootp flags: 0x0000 (unicast)
Client IP address: 0.0.0.0
Your (client) IP address: 10.11.8.172
Next server IP address: 0.0.0.0
Relay agent IP address: 0.0.0.0
Client MAC address: 50:eb:71:22:14:56 (50:eb:71:22:14:56)

正常应该是回应NAK，终端发送discover获取新的地址，如下

No.	Time	Source	Destination	Protocol	Length	Identification	Info
1	2022-06-02 11:46:44.145694	0.0.0.0	255.255.255.255	DHCP	364	0xfbf3 (64499)	DHCP Request - Transaction ID 0xad9d573c
4	2022-06-02 11:46:44.250358	10.10.60.2	255.255.255.255	DHCP	342	0x0435 (1077)	DHCP NAK - Transaction ID 0xad9d573c
5	2022-06-02 11:46:44.250804	10.10.60.1	255.255.255.255	DHCP	346	0xfa53 (64083)	DHCP NAK - Transaction ID 0xad9d573c [ETH]
6	2022-06-02 11:46:44.278352	0.0.0.0	255.255.255.255	DHCP	342	0xfbf4 (64500)	DHCP Discover - Transaction ID 0xa3f21937
15	2022-06-02 11:46:44.293434	10.10.60.1	10.10.60.248	DHCP	346	0xfbf5 (64501)	DHCP Request - Transaction ID 0xa3f21937 [ETH]
16	2022-06-02 11:46:44.293927	0.0.0.0	255.255.255.255	DHCP	370	0xfbf5 (64501)	DHCP Request - Transaction ID 0xa3f21937 [ETH]
17	2022-06-02 11:46:44.802100	10.10.60.1	10.10.60.248	DHCP	346	0xfa5c (64092)	DHCP ACK - Transaction ID 0xa3f21937 [ETH]

User Datagram Protocol, Src Port: 67, Dst Port: 68
Bootstrap Protocol (NAK)
Message type: Boot Reply (2)
Hardware type: Ethernet (0x01)
Hardware address length: 6

经过确认，现场的1311P05版本较老，检查不严格，具体实现如下：

报文信息中，可观察到收到的报文为reboot request报文，DHCP会先通过Request IP (option 50) 匹配租约地址；

- 1) 如果匹配不上，会通过uid/mac匹配地址，如果当前环境中存在相同uid/mac对应的租约地址，未检查与Request IP (option 50) 是否一致就回应了ACK。
- 2) 如果通过uid也匹配不上，则会回应NAK，触发客户端重新拨号上线。

所以应该是由之前的漫游，设备上还记录了之前终端的uid/mac对应关系，没有检查IP，所以回应了ACK

解决方法

可以升级版本至R3507P02解决，新版本实现如下：

- 1) 如果没有配置dhcp server request-ip-address check, 通过uid/mac匹配地址, 如果请求的ip 和原来的ip 在同一网段, 则会回应ACK, 否则会回应NAK
- 2) 如果配置了dhcp server request-ip-address check, 会检查uid/mac/ Request IP (option 50) , 只有完全对应才会发送ACK, 否则会回应NAK

