

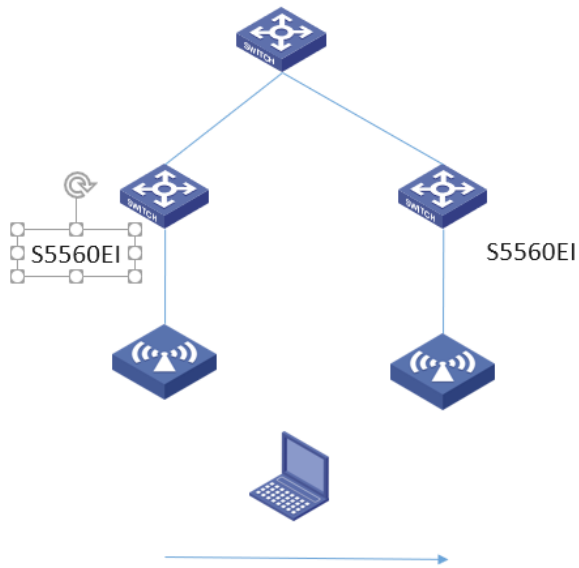
知 S5560EI下联无线终端DHCP获取地址慢

DHCP/DHCP Relay

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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 | 0x18ba (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 | 0xfbf7 (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 | 0xa2a8 (6696) | DHCP ACK - Transaction ID 0x50f97f85 |
| 277 | 2022-06-02 11:48:26.020273 | 0.0.0.0 | 255.255.255.255 | DHCP | 342 | 0xfbf8 (64506) | DHCP Inform - Transaction ID 0xf2ada97 |
| 278 | 2022-06-02 11:48:26.033610 | 0.0.0.0 | 255.255.255.255 | DHCP | 364 | 0xfbf8 (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 | 0xfbf8 (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 | 0xfbf9 (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 | 0xfbf8 (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 | 0x18ba (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 | 0xfbf7 (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 | 0xa2a8 (6696) | DHCP ACK - Transaction ID 0x50f97f85 |
| 277 | 2022-06-02 11:48:26.020273 | 0.0.0.0 | 255.255.255.255 | DHCP | 342 | 0xfbf8 (64506) | DHCP Inform - Transaction ID 0xf2ada97 |
| 278 | 2022-06-02 11:48:26.033610 | 0.0.0.0 | 255.255.255.255 | DHCP | 364 | 0xfbf8 (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 | 0xfbf8 (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 | 0xfbf9 (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 | 0xfbf8 (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 | 10.10.60.2 | 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 11:46:44.289334 | 10.10.60.1 | 10.10.60.2 | DHCP | 346 | 0xfbf4 (64091) | DHCP Offer - 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

