

某局点个别AP下无线终端关联失败，capwap数据隧道建立失败问题处理经验案例

wlan接入 殷俊 2023-12-22 发表

组网及说明

总部分支组网，AP部署在分支局点，上行通过MSR走NAT转换，与核心网AC互联，NAT后的地址与AC管理地址为二层

问题描述

无线终端关联无线失败，点击连接无线无响应，AC上dis wlan client查看均看不到终端表项，尝试空口抓包，终端有发送auth请求，AP没有响应。

Packet	Source	Destination	BSSID	Flags	Channel	Signal	Data Rate	Size	Relative Time	Protocol	Summary
3942	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	100%	6.0	137	0.000000	002.11 Probe Req	FC=.....,S/W=2856,Flw 0,SSID=sinopec
3943	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	100%	6.0	137	0.000026	002.11 Probe Req	FC=...R.....,S/W=2856,Flw 0,SSID=sinopec
3944	0E:A0:36:70	08:00:27:00:00:00	08:00:27:00:00:00	*	36	54%	6.0	14	0.000031	002.11 Ack	FC=.....
3945	0E:A0:36:70	08:00:27:00:00:00	08:00:27:00:00:00	*P	36	64%	6.0	232	0.001632	002.11 Probe Rsp	FC=.....,S/W=3899,Flw 0,BI=100,SSID=sin
3947	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	100%	6.0	34	0.003250	002.11 Auth	FC=.....,S/W=2857,Flw 0,Algorithm=0 (Op
3948	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	53%	6.0	14	0.003268	002.11 Ack	FC=.....
5130	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	100%	6.0	137	8.002951	002.11 Probe Req	FC=.....,S/W=2870,Flw 0,SSID=sinopec
5142	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	100%	6.0	34	8.006468	002.11 Auth	FC=.....,S/W=2871,Flw 0,Algorithm=0 (Op
5143	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	100%	6.0	34	8.006481	002.11 Auth	FC=...R.....,S/W=2871,Flw 0,Algorithm=0 (Op
5144	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	**	36	100%	6.0	34	8.006483	002.11 Auth	FC=...R.....,S/W=2871,Flw 0,Algorithm=0 (Op
5145	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	100%	6.0	34	8.006785	002.11 Auth	FC=...R.....,S/W=2871,Flw 0,Algorithm=0 (Op
5146	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	100%	6.0	34	8.006790	002.11 Auth	FC=...R.....,S/W=2871,Flw 0,Algorithm=0 (Op
5147	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	48%	6.0	14	8.006792	002.11 Ack	FC=.....
5704	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	100%	6.0	118	11.440875	002.11 Probe Req	FC=.....,S/W=2870,Flw 0,SSID=ceshi
5705	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	49%	6.0	14	11.440910	002.11 Ack	FC=.....
5706	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	50%	6.0	174	11.441787	002.11 Probe Rsp	FC=.....,S/W=3853,Flw 0,BI=100,SSID=ceshi
5708	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	100%	6.0	34	11.444861	002.11 Auth	FC=.....,S/W=2879,Flw 0,Algorithm=0 (Op
6300	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	50%	6.0	14	11.444885	002.11 Ack	FC=.....
6351	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	100%	6.0	137	14.003191	002.11 Probe Req	FC=.....,S/W=2884,Flw 0,SSID=sinopec
6352	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	48%	6.0	14	14.003220	002.11 Ack	FC=.....
6354	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*P	36	49%	6.0	232	14.004126	002.11 Probe Rsp	FC=.....,S/W=4089,Flw 0,BI=100,SSID=sin
6359	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	100%	6.0	34	14.005212	002.11 Auth	FC=.....,S/W=2885,Flw 0,Algorithm=0 (Op
6360	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	49%	6.0	14	14.005226	002.11 Ack	FC=.....
6729	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	100%	6.0	135	16.834785	002.11 Probe Req	FC=.....,S/W=2888,Flw 0,SSID=ceshi
6730	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	51%	6.0	14	16.834817	002.11 Ack	FC=.....
6731	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	51%	6.0	174	16.835282	002.11 Probe Rsp	FC=.....,S/W=3135,Flw 0,BI=100,SSID=ceshi
6733	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	100%	6.0	34	16.837920	002.11 Auth	FC=.....,S/W=2889,Flw 0,Algorithm=0 (Op
6734	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	50%	6.0	14	16.837946	002.11 Ack	FC=.....
8326	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	100%	6.0	118	24.161736	002.11 Probe Req	FC=.....,S/W=2899,Flw 0,SSID=ceshi
8327	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	54%	6.0	14	24.161762	002.11 Ack	FC=.....
8328	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	52%	6.0	174	24.163011	002.11 Probe Rsp	FC=.....,S/W=3287,Flw 0,BI=100,SSID=ceshi
8736	22:BF:78:7E	08:00:27:00:00:00	08:00:27:00:00:00	*	36	100%	6.0	34	24.163074	002.11 Ack	FC=.....,S/W=3287,Flw 0,BI=100,SSID=ceshi

过程分析

AP正常在线，怀疑AP与AC数据隧道建立失败，查看AC上AP capwap统计，发现data keep-alive报文统计比echo交互数量少很多，正常情况下应该是相同数量

[AC-probe]dis sys int wlan ap mac-address XXXX-XXb7-90c0 capwap packet-statistic s

Mac-address :XXXX-XXb7-90c0

Illegal Packet : 0

Discover Request/Response : 3/3

Join Request/Response : 4/3

Configuration Request/Response : 2/2

Configuration Update Request/Response : 2690/2689

WTP Event Request/Response : 539101/539108

Change State Event Request/Response : 2/2

Echo Request/Response : 148312/148312

Image Data Request/Response : 38498/38486

Reset Request/Response : 0/0

Primary Discovery Request/Response : 0/0

Data Transfer Request/Response : 0/0

Clear Config Indication/Response : 0/0

Mobile Configuration Request/Response : 115/115

Data Channel Keep Alive Request/Response: 146148/146148 //比echo request/response统计数量少2000多

Wlan Configuration Request/Response : 56/56

登陆AP查看，发现AP上的capwap统计请求比响应多，说明发出了请求未收到响应

```
[AP-22b7-90c0-probe]dis sys int wlan ap mac-address 22b7-90c0 capwap packet-statistics
Mac-address : 22b7-90c0
Illegal Packet : 0
Discover Request/Response : 3/2
Join Request/Response : 3/2
Configuration Request/Response : 2/2
Configuration Update Request/Response : 2702/2702
WTP Event Request/Response : 541745/541667
Change State Event Request/Response : 2/2
Echo Request/Response : 148908/148888
Image Data Request/Response : 0/0
Reset Request/Response : 0/0
Primary Discovery Request/Response : 0/0
Data Transfer Request/Response : 0/0
Clear Config Indication/Response : 0/0
Mobile Configuration Request/Response : 115/115
Data Channel Keep Alive Request/Response : 148910/146138
Wlan Configuration Request/Response : 56/56
```

明确数据隧道保活报文交互有问题，遂在AP与AC中间链路抓包，最终抓到AC互联的机框侧，发现机框已经发给AC，但AP未收到

机框侧抓包：

	Time	Source	Source	Destination	Protocol	Length	Data
162	2023-12-19 13:57:56.115172	10.10.10.10:89-00:0a:00:00:00:00	10.10.10.10:195.27	10.10.10.10:18.65	CAPWAP..	72	CAPWAP-Data Keep-Alive
163	2023-12-19 13:57:56.115172	10.10.10.10:89-00:0a:00:00:00:00	10.10.10.10:195.27	10.10.10.10:18.65	CAPWAP..	78	CAPWAP-Control - Echo Request
522	2023-12-19 13:57:58.690193	10.10.10.10:89-00:0a:00:00:00:00	10.10.10.10:195.27	10.10.10.10:18.65	CAPWAP..	212	CAPWAP-Control - WTP Event Request
1580	2023-12-19 13:58:06.119992	10.10.10.10:89-00:0a:00:00:00:00	10.10.10.10:195.27	10.10.10.10:18.65	CAPWAP..	72	CAPWAP-Data Keep-Alive
1581	2023-12-19 13:58:06.119992	10.10.10.10:89-00:0a:00:00:00:00	10.10.10.10:195.27	10.10.10.10:18.65	CAPWAP..	78	CAPWAP-Control - Echo Request
2383	2023-12-19 13:58:11.125389	10.10.10.10:89-00:0a:00:00:00:00	10.10.10.10:195.27	10.10.10.10:18.65	CAPWAP..	1383	CAPWAP-Control - WTP Event Request
3354	2023-12-19 13:58:11.125389	10.10.10.10:89-00:0a:00:00:00:00	10.10.10.10:195.27	10.10.10.10:18.65	CAPWAP..	1378	CAPWAP-Control - WTP Event Request

排查AC配置，发现AC侧IRF组网，用的是1/2口做IRF，3口跑业务，无线AC插卡40G和100G插卡都有聚合口限制，如果不按要求配置会导致分流异常。版本说明书中说明：

6 版本使用限制及注意事项

6.1 版本使用限制

- (1) AC管理网口不能处理业务，例如连接AP等。
- (2) 在分层组网环境下，同一个AP不能同时支持本地转发和集中转发。
- (3) 开启Fsim快转（FPGA快转），有如下的限制：
 - 对无线隧道的外层不做二层以上本口上的业务处理。
 - 聚合组的物理口下的nos相关业务不生效。
 - 注：如果需使用以上特性，需要手工关闭FSIM快转。
- (4) IRF组网，有如下限制：
 - 使用IRF+FSIM快转组网，端口配置限制，每块插卡上的FGEN0/1口、FGEN0/3口作为一组，FGEN0/2口、FGEN0/4口作为一组（n是IRF中的成员编号），其中一组必须作为业务口，另一组作为IRF物理端口。例如：当FGEN0/1和FGEN0/3作为IRF物理端口时，FGEN0/2和FGEN0/4就要配置成业务口。
 - 使用IRF+FSIM快转组网，添加IRF物理口时，type类型必不更指定，直接使用缺省类型即可。
- (5) 开启无线的用户隔离功能，不能在相对应的三层接口下同时开启ARP代理，否则用户隔离不生效。
- (6) 从06400293P11之前的版本升级到06400293P11后，AC上超瘦本体的模式命令（WT version）虽然保留但不再有效，本体会自动进行处理。
- (7) WT1024-U-Q不支持与WTU420、WTU420H混用。

解决方法

按要求修改聚合口组合解决