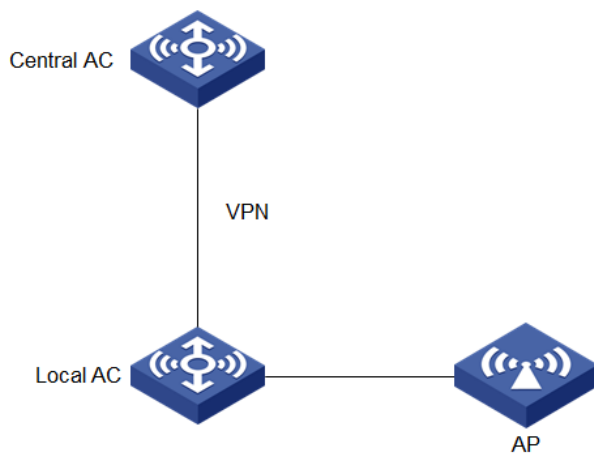


知 某局点分层AC部署AP无法注册到local AC问题处理经验案例

分层AC 俞璐 2017-06-14 发表

客户来电反馈，现场使用分层AC的组网部署，central AC和local AC之间通过vpn打通，其中local AC已经正常注册到central AC上，但是AP也注册到了central AC，无法注册到local AC。在了解了现场的组网和问题后，我们迅速投入力量进行分析。
现场组网如下：



1.首先我们查看central ac的配置：

```
#
interface Vlan-interface1
ip address 192.168.2.4 255.255.255.0
#
#
wlan local-ac name localac1 model WX2560H
serial-id 219801A0WF916CQ00017
#
#
wlan ap dqzap2 model WA5320
serial-id 219801A0YD816CE07520
control-address enable
control-address ip 192.168.4.3 (指定AP到local AC IP 192.168.4.3上线)
vlan 1
radio 1
service-template 1
radio 2
service-template 1
gigabitethernet 1
gigabitethernet 2
#
```

central AC的相关配置没有问题

2.查看local AC配置

```
#
interface Vlan-interface4
ip address 192.168.4.3 255.255.252.0
#
#
wlan local-ac enable
wlan local-ac capwap source-vlan 4
#
wlan central-ac ip 192.168.2.4
#
```

看local AC上的配置也没有什么问题

3.在central AC上查看local AC和AP的注册状态

```
<CentralAC>dis wlan local-ac all
```

```
Total number of local ACs: 1
```

```
Total number of connected local ACs: 1
```

```
Local AC Information
```

```
State : I = Idle, J = Join, JA = JoinAck, IL = ImageLoad
```

```
C = Config, DC = DataCheck, R = Run
```

AC name	ACID	State	Model	Serial ID
localac1	2	R/M	WX2560H	219801A0WF916CQ00017

local AC WX2560H已经成功注册上。

```
<CentralAC> dis wlan ap all
```

```
Total number of APs: 3
```

```
Total number of connected APs: 1
```

```
Total number of connected manual APs: 1
```

```
Total number of connected auto APs: 0
```

```
Total number of connected common APs: 1
```

```
Total number of connected WTUs: 0
```

```
Total number of inside APs: 0
```

```
Maximum supported APs: 6144
```

```
Remaining APs: 6143
```

```
Total AP licenses: 32
```

```
Remaining AP licenses: 31
```

```
AP information
```

```
State : I = Idle, J = Join, JA = JoinAck, IL = ImageLoad
```

```
C = Config, DC = DataCheck, R = Run, M = Master, B = Backup
```

AP name	APID	State	Model	Serial ID
dqzap1	5	R/M	WA5320	219801A0YD816CE06220

ap也注册在central AC上。

4.在local AC上查看AC和AP的注册信息

```
[LocalAC1]dis wlan local-ac
```

```
Local AC Information:
```

```
Model : WX2560H
```

```
Serial ID : 219801A0WF916CQ00017
```

```
MAC address : d461-fe91-b850
```

```
Local AC address : 192.168.4.3
```

```
H/W version : Ver.A
```

```
S/W version : E5204P02
```

```
Boot version : 1.05
```

```
Static central AC IPv4 address : 192.168.2.4
```

```
Static central AC IPv6 address : Not configured
```

```
Central AC Information:
```

```
Central AC address : 192.168.2.4
```

```
State : Run
```

```
Sent control packets : 7703
```

```
Received control packets : 7699
```

local AC已经成功注册上，能够找到central AC的信息。

```
[LocalAC1]probe
```

```
[LocalAC1-probe]dis system internal wlan ctrl-ap
```

local AC上看不到AP的注册信息。

5.从以上信息看，AP没有注册到local AC上而是注册到了central AC上，那么为什么会出现这个现象呢？

为了进一步定位，我们在两个AC上debugging capwap all进行分析：

local AC debugging信息：

```
[LocalAC1-GigabitEthernet1/0/3]%Mar 24 14:53:41:075 2017 LocalAC1 IFNET/3/PHY_UPDOWN: Physical state on the interface GigabitEthernet1/0/3 changed to up.
```

```
%Mar 24 14:53:41:079 2017 LocalAC1 IFNET/5/LINK_UPDOWN: Line protocol state on the interface GigabitEthernet1/0/3 changed to up.
```

```
%Mar 24 14:54:11:337 2017 LocalAC1 STP/6/STP_DETECTED_TC: Instance 0 & # 39;s port Gigabit Ethernet1/0/3 detected a topology change.
```

```
*Mar 24 14:54:26:002 2017 LocalAC1 CWS/7/RCV_PKT: Received discovery request with SeqNum 0 from AP at 192.168.4.108:40642.
```

```
*Mar 24 14:54:26:003 2017 LocalAC1 CWS/7/RCV_PKT: Received discovery request from AP at 192.168.4.108:40642, Length=157.
```

```
00 10 02 00 00 00 00 00 00 00 01 00 00 90 00
```

```
00 14 00 01 02 00 26 00 39 00 00 63 A2 00 00 00
```

06 57 41 35 33 32 30 00 01 00 14 32 31 39 38 30
31 41 30 59 44 38 31 36 43 45 30 36 32 32 30 00
03 00 05 56 65 72 2E 41 00 04 00 06 D4 61 FE 9D
17 E0 00 27 00 2B 04 04 01 01 00 00 00 00 63 A2
00 00 00 01 42 00 00 63 A2 00 01 00 08 45 32 32
30 34 50 30 32 00 00 63 A2 00 02 00 04 37 2E 30
34 00 29 00 01 0E 00 2C 00 01 02 04 18 00 05 01
00 00 00 0A 04 18 00 05 02 00 00 00 6D

*Mar 24 14:54:26:003 2017 LocalAC1 CWS/7/RCV_PKT: Received discovery request from AP: IP address=192.168.4.108, MAC address=d461-fe9d-17e0, serial ID=219801A0YD816CE06220.

%Mar 24 14:54:26:003 2017 LocalAC1 APMGR/6/APMGR_LOG_NOLICENSE: AP failed to come on line, Reason: No license for the Common AP.

%Mar 24 14:54:26:003 2017 LocalAC1 APMGR/6/APMGR_LOG_NOLICENSE: AP failed to come on line in discovery, Reason: No license.

*Mar 24 14:54:26:003 2017 LocalAC1 CWS/7/ERROR: Failed to process discovery request from AP with serial ID 219801A0YD816CE06220: The feature apmgr has no available license.. (提示AP上线失败,local AC上没有可用的license)

*Mar 24 14:54:26:004 2017 LocalAC1 CWS/7/ERROR: Failed to proc pkt msg from AP at 192.168.4.108:40642. MsgType = 1.
central AC的debugging信息:

*Mar 24 14:54:24:788 2017 CentralAC CWS/7/RCV_PKT: Received discovery request from AP: IP address=192.168.4.108, MAC address=d461-fe9d-17e0, serial ID=219801A0YD816CE06220, AP name=dqzap1, model=WA5320, last IP=192.168.4.108. (收到发现请求报文)

*Mar 24 14:54:24:789 2017 CentralAC CWS/7/EVENT: Filling AC Descriptor TLV. LicenseType[1] MaxSupportNum[6144] JoinCount[0].

*Mar 24 14:54:24:789 2017 CentralAC CWS/7/SND_PKT: Sent discovery response with SeqNum 0 to AP at 192.168.4.108:40642.

*Mar 24 14:54:24:789 2017 CentralAC CWS/7/SND_PKT: Sent discovery response to AP at 192.168.4.108:40642, Length=138. (响应发现请求报文)

*Mar 24 14:54:29:816 2017 CentralAC CWS/7/RCV_PKT: Received join request with SeqNum 1 from AP at 192.168.4.108:40642.

*Mar 24 14:54:29:816 2017 CentralAC CWS/7/RCV_PKT: Received join request from AP at 192.168.4.108:40642, Length=213. (收到加入请求报文)

*Mar 24 14:54:29:817 2017 CentralAC CWS/7/EVENT: Filling AC Descriptor TLV. LicenseType[1] MaxSupportNum[6144] JoinCount[0].

*Mar 24 14:54:29:818 2017 CentralAC CWS/7/SND_PKT: Sent join response with SeqNum 1 to AP at 192.168.4.108:40642.

*Mar 24 14:54:29:818 2017 CentralAC CWS/7/SND_PKT: Sent join response to AP at 192.168.4.108:40642, Length=145. (响应加入请求报文)

*Mar 24 14:54:29:818 2017 CentralAC CWS/7/FSM: Enter Join state. (AP进入加入状态)

*Mar 24 14:54:29:844 2017 CentralAC CWS/7/RCV_PKT: Received configuration request with SeqNum 2 from AP at 192.168.4.108:40642.

*Mar 24 14:54:29:844 2017 CentralAC CWS/7/RCV_PKT: Received configuration request from AP at 192.168.4.108:40642, Length=506. (收到注册请求报文)

*Mar 24 14:54:29:845 2017 CentralAC CWS/7/SND_PKT: Sent fragment1 of configuration response with SeqNum 2 to AP at 192.168.4.108:40642.

*Mar 24 14:54:29:845 2017 CentralAC CWS/7/SND_PKT: Sent fragment1 of configuration response to AP at 192.168.4.108:40642, Length=1448.

*Mar 24 14:54:29:846 2017 CentralAC CWS/7/SND_PKT: Sent fragment2 of configuration response with SeqNum 2 to AP at 192.168.4.108:40642.

*Mar 24 14:54:29:846 2017 CentralAC CWS/7/SND_PKT: Sent fragment2 of configuration response to AP at 192.168.4.108:40642, Length=1448.

*Mar 24 14:54:29:847 2017 CentralAC CWS/7/SND_PKT: Sent fragment3 of configuration response with SeqNum 2 to AP at 192.168.4.108:40642.

*Mar 24 14:54:29:847 2017 CentralAC CWS/7/SND_PKT: Sent fragment3 of configuration response to AP at 192.168.4.108:40642, Length=700.

*Mar 24 14:54:29:847 2017 CentralAC CWS/7/SND_PKT: Sent all fragments of configuration response with SeqNum 2 to AP at 192.168.4.108:40642. (响应注册请求报文)

*Mar 24 14:54:29:847 2017 CentralAC CWS/7/FSM: Enter Config state. (进入注册状态)

*Mar 24 14:54:30:636 2017 CentralAC CWS/7/RCV_PKT: Received change state event request with SeqNum 3 from AP at 192.168.4.108:40642.

*Mar 24 14:54:30:636 2017 CentralAC CWS/7/RCV_PKT: Received change state event request from AP at 192.168.4.108:40642, Length=38. (收到AP状态改变报文)

*Mar 24 14:54:30:636 2017 CentralAC CWS/7/SND_PKT: Sent change state event response with SeqNum 3 to AP at 192.168.4.108:40642.

*Mar 24 14:54:30:636 2017 CentralAC CWS/7/SND_PKT: Sent change state event response to AP at 192.168.4.108:40642, Length=16. (响应AP状态改变报文)

*Mar 24 14:54:30:636 2017 CentralAC CWS/7/FSM: Enter Data Check state. (AP进入数据校验状态)

*Mar 24 14:54:30:660 2017 CentralAC CWS/7/DATA: Received data channel keep-alive message from AP at 192.168.4.108:40642. (收到数据信道保活报文)

*Mar 24 14:54:30:661 2017 CentralAC CWS/7/DATA: Sent data channel keep-alive message to AP at 192.168.4.108:40642. (响应数据信道保活报文)

%Mar 24 14:54:30:662 2017 CentralAC APMGR/6/APMGR_AP_ONLINE: AP dqzap1 came online. State changed to Run. (AP正常上线)

从debugging信息分析，因为local AC上没有license，AP在local AC上注册失败所以注册到了central AC上，但是我们分层AC的部署模式下，central AC的license信息和local AC是共享的，也就是说local AC上是不需要license的，AP先向central AC发送discover Request报文，central AC根据 control-address enable control-address ip 192.168.4.3响应discover Request，将local AC的地址反馈给AP,AP再向local AC发送discover Request开始注册。根据debugging信息我们猜想，是否是local AC上的某些配置影响了AP注册的过程导致AP无法在local AC上上线。

我们仔细检查local AC的配置，发现上面有这样一条命令：wlan auto-ap enable。local AC上开启了AP自动注册的功能，这种情况下AP连接后会直接向local AC上注册而由于local AC上没有license，AP无法上线，AP认为在local AC上不可上线的情况下就会注册到central AC上，这与之前的故障现象相符，也印证了我们之前的猜想。

让现场删除wlan auto-ap enable这条命令后，AP就可以正常在local AC上线。

- 1.在分层AC的部署情况下，local AC不需要license，由central AC共享license进行AP的注册管理。
- 2.在配置local AC时，我们不要配置任何AP注册的相关命令，完全由central AC上指定AP注册的local AC即可。