



a Hewlett Packard
Enterprise company

ClearPass VIP 和 Server-Group 的认证切换对比测试

2021.03.26

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1 测试环境描述

测试版本：7005：AOS 8.6.0.6，standalone 10.1.10.100

ClearPass：6.8.5，10.254.5.101/102，VIP 10.254.5.110

终端：Win10

2 测试记录

2.1 Server-Group 的认证切换

SSID: aruba-test2

portal 认证

server group 未开启 fail through/load balance

server group 中配置了 cppm1 (10.254.5.101) 和 cppm2 (10.254.5.102)，采

用默认参数

```
(AC7005) [mynode] #show aaa authentication-server radius cppm
RADIUS Server "cppm"
-----
Parameter                               Value
-----
Enable IPv6                             Disabled
Host                                     10.254.5.101
Key                                       *****
CPPM credentials                         N/A
Auth Port                                1812
Acct Port                                1813
RadSec Port                              2083
Retransmits                              3
Timeout                                  5 sec
```

2.1.1 cppm1 网络不通

断开 cppm1 的网络连接

win10 尝试 portal 认证

No.	Time	Source	Destination	Protocol	Length	Info
6802	2021-03-26 17:30:12.485095	10.1.10.100	10.254.5.101	RADIUS	229	Access-Request id=3
6947	2021-03-26 17:30:17.380054	10.1.10.100	10.254.5.101	RADIUS	229	Access-Request id=3, Duplicate Request
7854	2021-03-26 17:30:22.404334	10.1.10.100	10.254.5.101	RADIUS	229	Access-Request id=3, Duplicate Request
8670	2021-03-26 17:30:27.427456	10.1.10.100	10.254.5.101	RADIUS	229	Access-Request id=3, Duplicate Request
8793	2021-03-26 17:30:32.454525	10.1.10.100	10.254.5.102	RADIUS	229	Access-Request id=1
8805	2021-03-26 17:30:32.788630	10.254.5.102	10.1.10.100	RADIUS	145	Access-Accept id=1

终端发起认证，每 5 秒发一次认证，3 次重传，超时后切到 cppm2 认证。即终端需

要等 20 秒后才能认证成功。

将终端踢下线重新进行 portal 认证，直接到 cppm2 认证成功；第二台终端发起认证，也是直接到 cppm2 认证成功。

十多分钟后（注意是第三次重传超时之后的时间）终端再次认证，又会向 cppm1 发起认证，三次认证重传超时后切到 cppm2 认证，第二个终端再认证也是直接到 cppm2 认证。

No.	Time	Source	Destination	Protocol	Length	Info
6802	2021-03-26 17:30:12.405095	10.1.10.100	10.254.5.101	RADIUS	229	Access-Request id=3
6947	2021-03-26 17:30:17.380054	10.1.10.100	10.254.5.101	RADIUS	229	Access-Request id=3, Duplicate Request
7054	2021-03-26 17:30:22.404334	10.1.10.100	10.254.5.101	RADIUS	229	Access-Request id=3, Duplicate Request
8670	2021-03-26 17:30:27.427456	10.1.10.100	10.254.5.101	RADIUS	229	Access-Request id=3, Duplicate Request
8793	2021-03-26 17:30:32.454525	10.1.10.100	10.254.5.102	RADIUS	229	Access-Request id=1
8895	2021-03-26 17:30:32.788630	10.254.5.102	10.1.10.100	RADIUS	145	Access-Accept id=1
54961	2021-03-26 17:39:10.998814	10.1.10.100	10.254.5.102	RADIUS	229	Access-Request id=2
54964	2021-03-26 17:39:11.020579	10.254.5.102	10.1.10.100	RADIUS	145	Access-Accept id=2
65243	2021-03-26 17:40:24.927185	10.1.10.100	10.254.5.102	RADIUS	227	Access-Request id=3
65244	2021-03-26 17:40:24.944317	10.254.5.102	10.1.10.100	RADIUS	145	Access-Accept id=3
111206	2021-03-26 17:48:18.767932	10.1.10.100	10.254.5.101	RADIUS	229	Access-Request id=4
111400	2021-03-26 17:48:23.693685	10.1.10.100	10.1.10.100	ICMP	257	Destination unreachable (Host unreachable)
111502	2021-03-26 17:48:23.693685	10.1.10.100	10.254.5.101	RADIUS	229	Access-Request id=4, Duplicate Request
111576	2021-03-26 17:48:26.696860	10.1.10.1	10.1.10.100	ICMP	257	Destination unreachable (Host unreachable)
111618	2021-03-26 17:48:28.716697	10.1.10.100	10.254.5.101	RADIUS	229	Access-Request id=4, Duplicate Request
111730	2021-03-26 17:48:31.726983	10.1.10.1	10.1.10.100	ICMP	257	Destination unreachable (Host unreachable)
111815	2021-03-26 17:48:33.738672	10.1.10.100	10.254.5.101	RADIUS	229	Access-Request id=4, Duplicate Request
111944	2021-03-26 17:48:36.746875	10.1.10.1	10.1.10.100	ICMP	257	Destination unreachable (Host unreachable)
111986	2021-03-26 17:48:38.764759	10.1.10.100	10.254.5.102	RADIUS	229	Access-Request id=4
111989	2021-03-26 17:48:38.781575	10.254.5.102	10.1.10.100	RADIUS	145	Access-Accept id=4
115002	2021-03-26 17:49:07.108851	10.1.10.100	10.254.5.102	RADIUS	227	Access-Request id=5
115013	2021-03-26 17:49:07.208018	10.254.5.102	10.1.10.100	RADIUS	145	Access-Accept id=5

Table 40: Authentication Timers

Timer	Description
User Idle Timeout	Maximum period after which a client is considered idle if there is no wireless traffic from the client. The timeout period is reset if there is wireless traffic. If there is no wireless traffic in the timeout period, the client is aged out. Once the timeout period has expired, the user is removed. If the keyword seconds is not specified, the value defaults to minutes at the command line. Range: 1-255 minutes (30-15300 seconds) Default: 5 minutes (300 seconds)
Authentication Server dead Time	Maximum period, in minutes, that the managed device considers an unresponsive authentication server to be "out of service." This timer is only applicable if there are two or more authentication servers configured on a managed device. If there is only one authentication server configured, the server is never considered out of service, and all requests are sent to the server. If one or more backup servers are configured and a server is unresponsive, it is marked as out of service for the dead time; subsequent requests are sent to the next server on the priority list for the duration of the dead time. If the server is responsive after the dead time has elapsed, it can take over servicing requests from a lower-priority server; if the server continues to be unresponsive, it is marked as down for the dead time. Range: 0-50 minutes Default: 10 minutes
Logon User Lifetime	Maximum time, in minutes, unauthenticated clients are allowed to remain logged on. Range: 0-255 minutes Default: 5 minutes
User Interim stats frequency	Sets the timeout value for user stats, reporting in minutes or seconds. Range: 300-3600 seconds, or 5-60 minutes Default: 600 seconds

2.1.2 cppm1 service stopped

关闭 cppm1 的 service

14.	Policy server	Running	Stop
15.	RadSec service	Running	Stop
16.	Radius server	Stopped	Start

No.	Time	Source	Destination	Protocol	Length	Info
397	2021-03-26 22:21:58.564374	10.1.10.100	10.254.5.101	RADIUS	227	Access-Request id=167
398	2021-03-26 22:22:03.511658	10.1.10.100	10.1.10.100	ICMP	255	Destination unreachable (Port unreachable)
521	2021-03-26 22:22:03.511658	10.1.10.100	10.254.5.101	RADIUS	227	Access-Request id=167, Duplicate Request
522	2021-03-26 22:22:03.512803	10.254.5.101	10.1.10.100	ICMP	255	Destination unreachable (Port unreachable)
607	2021-03-26 22:22:08.534044	10.1.10.100	10.254.5.101	RADIUS	227	Access-Request id=167, Duplicate Request
608	2021-03-26 22:22:08.534395	10.254.5.101	10.1.10.100	ICMP	255	Destination unreachable (Port unreachable)
717	2021-03-26 22:22:13.556928	10.1.10.100	10.254.5.101	RADIUS	227	Access-Request id=167, Duplicate Request
718	2021-03-26 22:22:13.557898	10.254.5.101	10.1.10.100	ICMP	255	Destination unreachable (Port unreachable)
784	2021-03-26 22:22:18.583466	10.1.10.100	10.254.5.102	RADIUS	227	Access-Request id=1
786	2021-03-26 22:22:18.727725	10.254.5.102	10.1.10.100	RADIUS	145	Access-Accept id=1
3091	2021-03-26 22:23:21.179230	10.1.10.100	10.254.5.102	RADIUS	229	Access-Request id=2
3108	2021-03-26 22:23:21.196161	10.254.5.102	10.1.10.100	RADIUS	145	Access-Accept id=2

cppm1 网络通但是 service down 的情况下，认证超时后一样会切到 cppm2，后续认证也是直接发到 cppm2 认证，直到 authentication server dead time (默认为 10 分钟) 超时后再次到 cppm1 认证...

2.2 ClearPass VIP 故障切换时间

ClearPass VIP 的故障切换时间 (断开 cppm1 网络连接): 10 秒后切换到 cppm2

Cluster-Wide Parameters								
General	Cleanup Intervals	Notifications	Standby Publisher	Virtual IP	Mode	Database	Profiler	TACACS
Parameter Name	Parameter Value	Default Value						
Fallover Wait Time	10 seconds	10						

```
20:05:03.552351 64 bytes from 10.254.5.111: icmp_seq=77 ttl=63 time=2.286 ms
20:05:03.764143 64 bytes from 10.254.5.111: icmp_seq=78 ttl=63 time=10.766 ms
Request timeout for icmp_seq 80
Request timeout for icmp_seq 81
Request timeout for icmp_seq 82
Request timeout for icmp_seq 83
Request timeout for icmp_seq 84
Request timeout for icmp_seq 85
Request timeout for icmp_seq 86
Request timeout for icmp_seq 87
Request timeout for icmp_seq 88
Request timeout for icmp_seq 89
Request timeout for icmp_seq 90
Request timeout for icmp_seq 91
Request timeout for icmp_seq 92
Request timeout for icmp_seq 93
Request timeout for icmp_seq 94
Request timeout for icmp_seq 95
Request timeout for icmp_seq 96
Request timeout for icmp_seq 97
Request timeout for icmp_seq 98
Request timeout for icmp_seq 99
Request timeout for icmp_seq 100
Request timeout for icmp_seq 101
Request timeout for icmp_seq 102
Request timeout for icmp_seq 103
Request timeout for icmp_seq 104
Request timeout for icmp_seq 105
Request timeout for icmp_seq 106
Request timeout for icmp_seq 107
Request timeout for icmp_seq 108
Request timeout for icmp_seq 109
Request timeout for icmp_seq 110
Request timeout for icmp_seq 111
Request timeout for icmp_seq 112
Request timeout for icmp_seq 113
Request timeout for icmp_seq 114
Request timeout for icmp_seq 115
Request timeout for icmp_seq 116
Request timeout for icmp_seq 117
Request timeout for icmp_seq 118
Request timeout for icmp_seq 119
Request timeout for icmp_seq 120
Request timeout for icmp_seq 121
Request timeout for icmp_seq 122
Request timeout for icmp_seq 123
Request timeout for icmp_seq 124
Request timeout for icmp_seq 125
Request timeout for icmp_seq 126
Request timeout for icmp_seq 127
20:05:13.905124 64 bytes from 10.254.5.111: icmp_seq=127 ttl=63 time=227.480 ms
20:05:13.905177 64 bytes from 10.254.5.111: icmp_seq=128 ttl=63 time=23.990 ms
```

ClearPass VIP 的回切时间 (恢复 cppm1 网络连接): 恢复 cppm1 网络连接后 vip

立马切回 cppm1 , ping 无丢包

```
(ArubaS1500-24P) #show arp | include 10.254.5.101
Internet 10.254.5.101 00:0c:29:66:7d:14 vlan5 32

(ArubaS1500-24P) #show arp | include 10.254.5.102
Internet 10.254.5.102 00:0c:29:17:8d:4a vlan5 0

(ArubaS1500-24P) #show arp | include 10.254.5.111
Internet 10.254.5.111 00:0c:29:66:7d:14 vlan5 0
```

2.3 ClearPass VIP 的认证切换

SSID: aruba-test2

portal 认证

AC 上配置一个 server，指向 ClearPass VIP

2.3.1 断开和恢复 cppm1 网络连接

断开 cppm1 网络连接，vip 会在 10 秒后切到 cppm2，所以 nas 会重传两次认证请求后收到 cppm2 的认证成功响应。后续认证发往 vip 地址，cppm2 直接响应。

```

20:36:00.248312 64 bytes from 10.254.5.111: icmp_seq=92 ttl=63 time=2.029 ms
20:36:00.489477 64 bytes from 10.254.5.111: icmp_seq=93 ttl=63 time=38.333 ms
Request timeout for icmp_seq 94
Request timeout for icmp_seq 95
Request timeout for icmp_seq 96
Request timeout for icmp_seq 97
Request timeout for icmp_seq 98
Request timeout for icmp_seq 99
Request timeout for icmp_seq 100
Request timeout for icmp_seq 101
Request timeout for icmp_seq 102
Request timeout for icmp_seq 103
Request timeout for icmp_seq 104
Request timeout for icmp_seq 105
Request timeout for icmp_seq 106
Request timeout for icmp_seq 107
Request timeout for icmp_seq 108
Request timeout for icmp_seq 109
Request timeout for icmp_seq 110
Request timeout for icmp_seq 111
Request timeout for icmp_seq 112
Request timeout for icmp_seq 113
Request timeout for icmp_seq 114
Request timeout for icmp_seq 115
Request timeout for icmp_seq 116
Request timeout for icmp_seq 117
Request timeout for icmp_seq 118
Request timeout for icmp_seq 119
Request timeout for icmp_seq 120
Request timeout for icmp_seq 121
Request timeout for icmp_seq 122
Request timeout for icmp_seq 123
Request timeout for icmp_seq 124
Request timeout for icmp_seq 125
Request timeout for icmp_seq 126
Request timeout for icmp_seq 127
Request timeout for icmp_seq 128
Request timeout for icmp_seq 129
Request timeout for icmp_seq 130
Request timeout for icmp_seq 131
Request timeout for icmp_seq 132
Request timeout for icmp_seq 133
Request timeout for icmp_seq 134
Request timeout for icmp_seq 135
Request timeout for icmp_seq 136
Request timeout for icmp_seq 137
Request timeout for icmp_seq 138
Request timeout for icmp_seq 139
20:36:09.996305 64 bytes from 10.254.5.111: icmp_seq=140 ttl=63 time=2.162 ms
20:36:10.200921 64 bytes from 10.254.5.111: icmp_seq=141 ttl=63 time=2.742 ms

```

No.	Time	Source	Destination	Protocol	Length	Info
102	2021-03-26 20:34:10.317127	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=17
104	2021-03-26 20:34:10.332094	10.254.5.111	10.1.10.100	RADIUS	145	Access-Accept id=17
1548	2021-03-26 20:36:02.086887	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=18
1636	2021-03-26 20:36:07.105259	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=18, Duplicate Request
1711	2021-03-26 20:36:12.127259	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=18, Duplicate Request
1713	2021-03-26 20:36:12.306122	10.254.5.111	10.1.10.100	RADIUS	145	Access-Accept id=18

恢复 cppm1 网络连接, vip 会马上切回 cppm1, 认证会很快切回 cppm1, 不影响用户认证。

2.3.2 关闭和重启 cppm1

关闭 cppm1, vip 同样会在 10 秒后切到 cppm2, nas 重传 2 次认证请求后会收到

cppm2 的认证响应，后续认证发到 vip，cppm2 直接响应。

No.	Time	Source	Destination	Protocol	Length	Info
210	2021-03-26 21:00:54.518684	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=60
212	2021-03-26 21:00:54.531025	10.254.5.111	10.1.10.100	RADIUS	145	Access-Accept id=60
395	2021-03-26 21:01:16.619127	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=61
499	2021-03-26 21:01:21.632220	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=61, Duplicate Request
552	2021-03-26 21:01:26.654081	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=61, Duplicate Request
554	2021-03-26 21:01:26.669086	10.254.5.111	10.1.10.100	RADIUS	145	Access-Accept id=61
579	2021-03-26 21:01:29.154854	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=62
581	2021-03-26 21:01:29.188267	10.254.5.111	10.1.10.100	RADIUS	145	Access-Accept id=62
1588	2021-03-26 21:02:27.695874	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=63
1590	2021-03-26 21:02:27.709554	10.254.5.111	10.1.10.100	RADIUS	145	Access-Accept id=63

重新开启 cppm1，cppm1 启动完成后 vip 很快会切回 cppm1，会出现 vip 切回 cppm1 但是 service 还未启动正常，会导致此期间的认证无法响应，从 lab 环境测试看，大概 14 秒的时间无法响应，不同的环境此时间会略有差异。

No.	Time	Source	Destination	Protocol	Length	Info
2940	2021-03-26 21:03:08.798688	10.254.5.111	10.1.10.100	RADIUS	145	Access-Accept id=134
2956	2021-03-26 21:03:09.327548	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=135
2957	2021-03-26 21:03:09.343138	10.254.5.111	10.1.10.100	RADIUS	145	Access-Accept id=135
2979	2021-03-26 21:03:09.870016	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=136
2980	2021-03-26 21:03:09.885066	10.254.5.111	10.1.10.100	RADIUS	145	Access-Accept id=136
2993	2021-03-26 21:03:10.441737	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=137
2994	2021-03-26 21:03:10.443825	10.254.5.111	10.1.10.100	ICMP	183	Destination unreachable (Port unreachable)
3053	2021-03-26 21:03:15.486799	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=137, Duplicate Request
3054	2021-03-26 21:03:15.497069	10.254.5.111	10.1.10.100	ICMP	183	Destination unreachable (Port unreachable)
3200	2021-03-26 21:03:20.429157	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=137, Duplicate Request
3284	2021-03-26 21:03:24.707849	10.254.5.111	10.1.10.100	RADIUS	145	Access-Accept id=137
3289	2021-03-26 21:03:24.732920	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=138
3290	2021-03-26 21:03:24.774509	10.254.5.111	10.1.10.100	RADIUS	145	Access-Accept id=138
3297	2021-03-26 21:03:24.793808	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=139
3298	2021-03-26 21:03:24.905132	10.254.5.111	10.1.10.100	RADIUS	145	Access-Accept id=139
3328	2021-03-26 21:03:26.503741	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=140
3330	2021-03-26 21:03:26.612593	10.254.5.111	10.1.10.100	RADIUS	145	Access-Accept id=140
3371	2021-03-26 21:03:29.146620	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=141
3373	2021-03-26 21:03:29.175927	10.254.5.111	10.1.10.100	RADIUS	145	Access-Accept id=141
3390	2021-03-26 21:03:29.794900	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=142
3392	2021-03-26 21:03:29.817073	10.254.5.111	10.1.10.100	RADIUS	145	Access-Accept id=142
3407	2021-03-26 21:03:30.494575	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=143
3409	2021-03-26 21:03:30.551168	10.254.5.111	10.1.10.100	RADIUS	145	Access-Accept id=143
3431	2021-03-26 21:03:31.000885	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=144
3433	2021-03-26 21:03:31.133037	10.254.5.111	10.1.10.100	RADIUS	145	Access-Accept id=144

[All Requests] CPM1.arubatraininglab.com (10.254.5.102) Last 1 day before Today

Filter: Request ID contains [] Go Clear Filter Show 20 records

#	Server	Source	Username	Service	Login Status	Request Timestamp
1.	10.254.5.102	RADIUS	test	aruba-portal	ACCEPT	2021/03/26 21:03:09
2.	10.254.5.102	RADIUS	test	aruba-portal	ACCEPT	2021/03/26 21:03:09
3.	10.254.5.102	RADIUS	test	aruba-portal	ACCEPT	2021/03/26 21:03:08

[All Requests] CPM1.arubatraininglab.com (10.254.5.101) Last 1 day before Today

Filter: Request ID contains [] Go Clear Filter Show 20 records

#	Server	Source	Username	Service	Login Status	Request Timestamp
1.	10.254.5.101	RADIUS	test	aruba-portal	ACCEPT	2021/03/26 21:03:40
2.	10.254.5.101	RADIUS	test	aruba-portal	ACCEPT	2021/03/26 21:03:37
3.	10.254.5.101	RADIUS	test	aruba-portal	ACCEPT	2021/03/26 21:03:36
4.	10.254.5.101	RADIUS	test	aruba-portal	ACCEPT	2021/03/26 21:03:35
5.	10.254.5.101	RADIUS	test	aruba-portal	ACCEPT	2021/03/26 21:03:35
6.	10.254.5.101	RADIUS	test	aruba-portal	ACCEPT	2021/03/26 21:03:34
7.	10.254.5.101	RADIUS	test	aruba-portal	ACCEPT	2021/03/26 21:03:33
8.	10.254.5.101	RADIUS	test	aruba-portal	ACCEPT	2021/03/26 21:03:33
9.	10.254.5.101	RADIUS	test	aruba-portal	ACCEPT	2021/03/26 21:03:32
10.	10.254.5.101	RADIUS	test	aruba-portal	ACCEPT	2021/03/26 21:03:31
11.	10.254.5.101	RADIUS	test	aruba-portal	ACCEPT	2021/03/26 21:03:31
12.	10.254.5.101	RADIUS	test	aruba-portal	ACCEPT	2021/03/26 21:03:30
13.	10.254.5.101	RADIUS	test	aruba-portal	ACCEPT	2021/03/26 21:03:29
14.	10.254.5.101	RADIUS	test	aruba-portal	ACCEPT	2021/03/26 21:03:29
15.	10.254.5.101	RADIUS	test	aruba-portal	ACCEPT	2021/03/26 21:03:28
16.	10.254.5.101	RADIUS	test	aruba-portal	ACCEPT	2021/03/26 21:03:25
17.	10.254.5.101	RADIUS	test	aruba-portal	ACCEPT	2021/03/26 21:03:24
18.	10.254.5.101	RADIUS	test	aruba-portal	ACCEPT	2021/03/26 21:03:24
19.	10.254.5.101	RADIUS	test	aruba-portal	ACCEPT	2021/03/26 21:03:19
20.	10.254.5.101	RADIUS	test	aruba-portal	ACCEPT	2021/03/26 21:00:54

```

Time Message
2021-03-26 21:03:19.906 [Th 2 Req 0 Sessid R00000000-01-605ddb97] INFO RadiusServer.Radius - rm_service: Starting Service Categorization - 137.109.0.0.0.0
2021-03-26 21:03:19.906 [Th 2 Req 0 Sessid R00000000-01-605ddb97] INFO RadiusServer.Radius - The attribute 0.0.0.0 does not contain valid MAC Address
2021-03-26 21:03:23.369 [RequestHandler-1-0x7f664ace700 r=psauto-1616763803-1 h=223 r=R00000000-01-605ddb97] INFO StatsClient.StatsClient - StatsClient:UdpSrvInfo=Server = localhost, Port = 8125, Timeout = 5
2021-03-26 21:03:23.373 [RequestHandler-1-0x7f664ace700 r=psauto-1616763803-1 h=223 r=R00000000-01-605ddb97] INFO Core.ServiceReqHandler - Service classification result = aruba-portal
2021-03-26 21:03:23.374 [Th 2 Req 0 Sessid R00000000-01-605ddb97] INFO RadiusServer.Radius - Service Categorization time = 3468 ms
2021-03-26 21:03:23.375 [Th 2 Req 0 Sessid R00000000-01-605ddb97] INFO RadiusServer.Radius - rm_service: The request has been categorized into service "aruba-portal"
2021-03-26 21:03:23.376 [Th 2 Req 0 Sessid R00000000-01-605ddb97] INFO RadiusServer.Radius - rm_sgl: searching for user test in Locallocalhost
2021-03-26 21:03:24.111 [Th 2 Req 0 Sessid R00000000-01-605ddb97] INFO RadiusServer.Radius - rm_sgl: found user test in Locallocalhost
2021-03-26 21:03:24.111 [Th 2 Req 0 Sessid R00000000-01-605ddb97] INFO RadiusServer.Radius - SGL: User lookup time = 736 ms
2021-03-26 21:03:24.111 [Th 2 Req 0 Sessid R00000000-01-605ddb97] INFO RadiusServer.Radius - rm_pap: authenticating User test
2021-03-26 21:03:24.111 [Th 2 Req 0 Sessid R00000000-01-605ddb97] INFO RadiusServer.Radius - rm_pap: User test authenticated successfully
2021-03-26 21:03:24.112 [Th 2 Req 0 Sessid R00000000-01-605ddb97] INFO RadiusServer.Radius - rm_policy: Starting Policy Evaluation.
2021-03-26 21:03:24.112 [Th 2 Req 0 Sessid R00000000-01-605ddb97] INFO RadiusServer.Radius - The attribute 0.0.0.0 does not contain valid MAC Address
2021-03-26 21:03:24.116 [RequestHandler-1-0x7f664ace700 r=psauto-1616763803-2 h=239 r=R00000000-01-605ddb97] WARN Common.MacAddrAttrProvider - HostMac missing, not populating different mac representations
2021-03-26 21:03:24.116 [RequestHandler-1-0x7f664ace700 r=psauto-1616763803-2 h=239 r=R00000000-01-605ddb97] INFO TAT.TagAttrTableUtil - buildTagAttrTableInput: Connection.Client-Mac-Address is not found
2021-03-26 21:03:24.116 [RequestHandler-1-0x7f664ace700 r=psauto-1616763803-2 h=239 r=R00000000-01-605ddb97] INFO Common.AuthLocalUserTable - Returning AuthLocalUserSPtr for user id test
2021-03-26 21:03:24.116 [RequestHandler-1-0x7f664ace700 r=psauto-1616763803-2 h=239 r=R00000000-01-605ddb97] INFO Common.TagDefinitionCacheTable - No InstanceTagDefCacheMap found for instance id = 3001 entity id = 30
2021-03-26 21:03:24.116 [RequestHandler-1-0x7f664ace700 r=psauto-1616763803-2 h=239 r=R00000000-01-605ddb97] INFO Common.TagDefinitionCacheTable - Building the TagDefMapTable for AuthLocalUser instance=3001
2021-03-26 21:03:24.116 [RequestHandler-1-0x7f664ace700 r=psauto-1616763803-2 h=239 r=R00000000-01-605ddb97] INFO Common.TagDefinitionCacheTable - Built 0 tag(s) for instanceId=3001entityId=30AuthLocalUsers
2021-03-26 21:03:24.116 [RequestHandler-1-0x7f664ace700 r=psauto-1616763803-2 h=239 r=R00000000-01-605ddb97] INFO TAT.TagAttrHolderBuilder - No tags built for instanceId=3001entity=LocalUser
2021-03-26 21:03:24.116 [RequestHandler-1-0x7f664ace700 r=psauto-1616763803-2 h=239 r=R00000000-01-605ddb97] INFO TAT.TagAttrHolderBuilder - buildAttrHolder: Tags cannot be built for instanceId=0 (NULL GuestUser)
2021-03-26 21:03:24.116 [RequestHandler-1-0x7f664ace700 r=psauto-1616763803-2 h=239 r=R00000000-01-605ddb97] INFO TAT.EndpointTagAttrHolderBuilder - buildAttrHolder: Tags cannot be built for instanceId=0 (NULL Endpoint)
2021-03-26 21:03:24.116 [RequestHandler-1-0x7f664ace700 r=psauto-1616763803-2 h=239 r=R00000000-01-605ddb97] INFO TAT.OnboardTagAttrHolderBuilder - buildAttrHolder: Tags cannot be built for instanceId=0 (NULL Onboard Device User)
2021-03-26 21:03:24.116 [RequestHandler-1-0x7f664ace700 h=314 c=R00000000-01-605ddb97] INFO Core.PETaskScheduler - ** Starting PETaskAuthSourceRestriction **
2021-03-26 21:03:24.117 [RequestHandler-1-0x7f664ace700 h=314 c=R00000000-01-605ddb97] INFO Core.PETaskScheduler - ** Starting PETaskRoleMapping **
2021-03-26 21:03:24.117 [RequestHandler-1-0x7f664ace700 h=315 c=R00000000-01-605ddb97] WARN REC.EvaluatorCtx - Prerequisites set is empty, not populating the Request Map
2021-03-26 21:03:24.116 [RequestHandler-1-0x7f664ace700 r=psauto-1616763803-2 h=239 r=R00000000-01-605ddb97] INFO EF.EventRegistry - Registering type id=600 with value=PETaskCompletionEv
2021-03-26 21:03:24.117 [RequestHandler-1-0x7f664ace700 h=317 c=R00000000-01-605ddb97] INFO EF.EventRegistry - Registering type id=190 with value=AuthAttributesQueryHandlerRespEv
2021-03-26 21:03:24.117 [RequestHandler-1-0x7f664ace700 r=R00000000-01-605ddb97 h=314 c=R00000000-01-605ddb97] INFO Core.PETaskScheduler - ** Completed PETaskAuthSourceRestriction **
2021-03-26 21:03:24.117 [RequestHandler-1-0x7f664ace700 h=316 c=R00000000-01-605ddb97] INFO Common.AuthLocalUserTable - Returning AuthLocalUserSPtr for user id test
2021-03-26 21:03:24.118 [RequestHandler-1-0x7f664ace700 r=R00000000-01-605ddb97 h=314 c=R00000000-01-605ddb97] INFO Core.PETaskScheduler - ** Completed PETaskRoleMapping **
2021-03-26 21:03:24.118 [RequestHandler-1-0x7f664ace700 c=R00000000-01-605ddb97 h=314 c=R00000000-01-605ddb97] INFO Core.PETaskScheduler - ** Starting PETaskPolicyResist **

```

2.3.3 关闭和开启 cppm1 的 service

关闭 cppm1 的 service ,保持 cppm1 网络可达 ,此情况下 vip 会始终在 cppm1 ,但是认证无法响应 ,所以此情况会导致所有认证都失败。

14.	Policy server	Running	Stop
15.	RadSec service	Running	Stop
16.	Radius server	Stopped	Start

```

(AC7005) [mynode] #aaa test-server pap cppm test aruba123
AAA server timeout

```

No.	Time	Source	Destination	Protocol	Length	Info
562	2021-03-26 22:04:03.670538	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=160
568	2021-03-26 22:04:03.859489	10.254.5.111	10.1.10.100	RADIUS	145	Access-Accept id=160
1719	2021-03-26 22:05:38.482199	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=161
1720	2021-03-26 22:05:38.483472	10.254.5.111	10.1.10.100	ICMP	183	Destination unreachable (Port unreachable)
1751	2021-03-26 22:05:43.349154	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=161, Duplicate Request
1752	2021-03-26 22:05:43.350242	10.254.5.111	10.1.10.100	ICMP	183	Destination unreachable (Port unreachable)
1797	2021-03-26 22:05:48.371162	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=161, Duplicate Request
1798	2021-03-26 22:05:48.372424	10.254.5.111	10.1.10.100	ICMP	183	Destination unreachable (Port unreachable)
1910	2021-03-26 22:05:53.392429	10.1.10.100	10.254.5.111	RADIUS	155	Access-Request id=161, Duplicate Request
1911	2021-03-26 22:05:53.393983	10.254.5.111	10.1.10.100	ICMP	183	Destination unreachable (Port unreachable)

```

(AC7005) [mynode] #aaa test-server pap cppm test aruba123
AAA server timeout

```

```

(AC7005) [mynode] #aaa test-server pap cppm test aruba123
AAA server timeout

```

```

(AC7005) [mynode] #aaa test-server pap cppm test aruba123
AAA server timeout

```

```

(AC7005) [mynode] #

```

3 测试总结

3.1 采用 Server-group

主 cppm 网络不通或者网络通 service down 后 , ac 需要等 3 次重传全部超时后 ,

才把主 cppm 标记为 out-of-service ,所以在这 20 秒内所有发起的认证都会发送到主 cppm , 都会一直等到 3 次重传超时后才会切到备 cppm。在这 20 秒之后发起的认证都会直接发给 备 cppm。十分钟后, 认证又开始发送到主 cppm , 如果主 cppm 仍然处于网络不通或者 服务不可用状态, 同样 20 秒内所有发起的认证都会发送到主 cppm , 同样都会一直等到 3 次重传超时后才会切到备 cppm。在这 20 秒之后发起的认证都会直接发给备 cppm。如此 重复。一旦主 cppm 有认证成功, 所有认证都会发送到主 cppm。

3.2 采用 ClearPass VIP

1. 主 cppm 网络不通过后, 会在 10 秒后将 vip 切换到备 cppm , 所以在这 10 秒 内所有发起的认证都会发到主 cppm , 然后 5s 超时后 ac 重传, 如果重传时 vip 已经切到备 cppm , 认证将会收到响应。之后的所有认证发到 vip , 备 cppm 会直接响应。
2. 主 cppm 恢复后, vip 立刻切回主 cppm , 如果主 cppm 是因为网络故障导致 的问题, 网络恢复后, 所有认证很快切回主 cppm , 认证不会受影响; 如果主 cppm 是重新启动 (例如掉电, 或者网络和服务同时挂掉) , cppm 启动完成 后 vip 很快会切回主 cppm , 会出现 vip 切回主 cppm 但是 service 还未启动 正常, 会导致此期间的认证无法响应, 从 lab 环境测试看, 大概 14 秒的时间 无法响应。
3. 主 cppm 网络通但是服务不可用, vip 会保持在主 cppm , 所有认证都会发到 主 cppm , 直到三次重传超时, 认证失败, 这样会导致所有认证都失败。

综上所述, 建议采用 Server-Group , Server-Group 是检测服务 , ClearPass VIP 只是检测网络, 当出现网络通服务 down 的情况时, 会导致所有认证都失败。