Entender o fluxo de tráfego na configuração de âncora externa entre a WLC 9800

Contents

Introdução

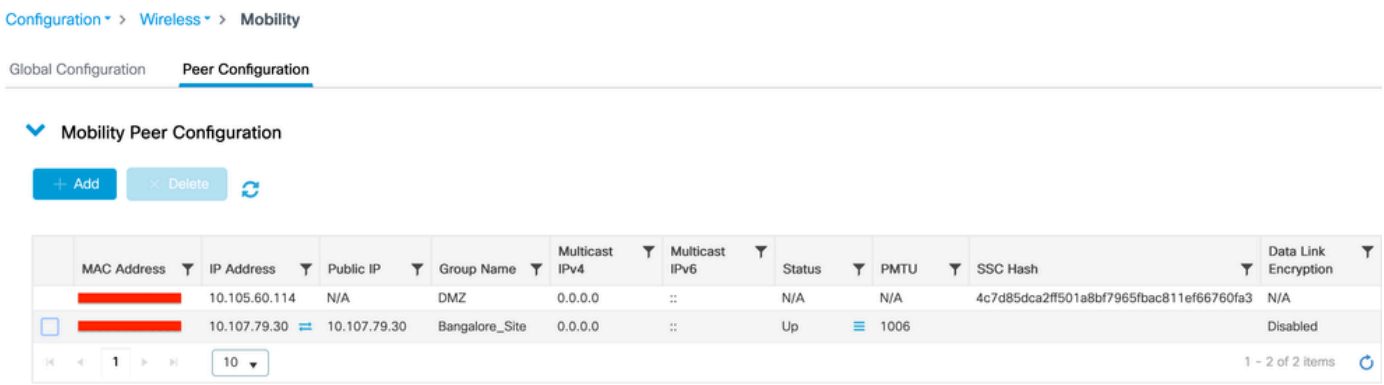
Este documento descreve o fluxo de tráfego na configuração Foreign-Anchor entre WLCs Cisco 9800, cobrindo a integração e a solução de problemas do cliente L2/L3.

Pré-requisitos

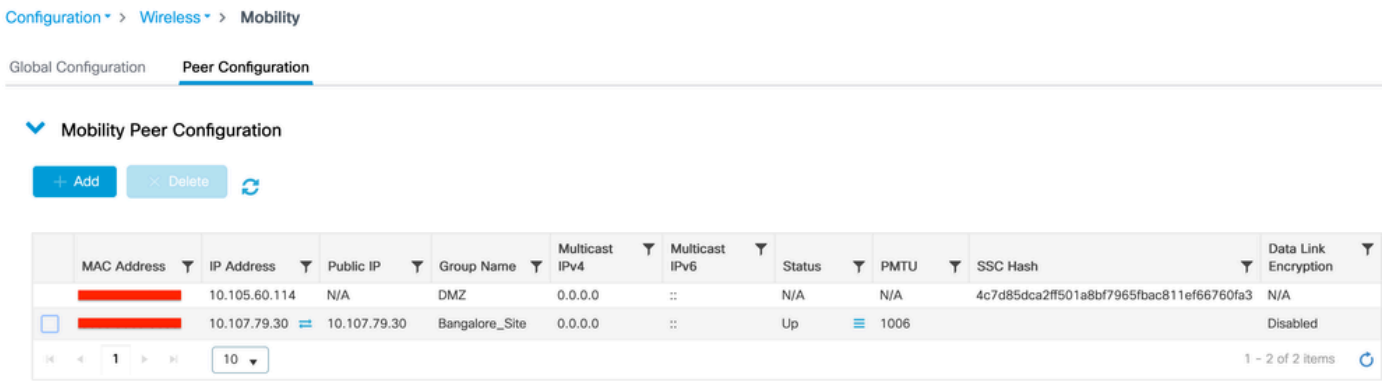
Túnel de mobilidade entre controlador externo e âncora.

A porta UDP 16666 e 16667 permitida entre as duas WLCs.

Perfil de política configurado para Central Switching.



Status do túnel de mobilidade em WLC externa



Status do túnel de mobilidade na WLC âncora

Requisitos

A Cisco recomenda que você tenha o conhecimento destes tópicos:

- Acesso à interface de linha de comando (CLI) ou à interface gráfica de usuário (GUI) dos controladores sem fio
- Mobilidade nas controladoras Cisco Wireless LAN (WLCs)
- Controladores sem fio 9800
- Rastreamentos radioativos e captura de pacotes no 9800 WLC

Componentes Utilizados

As informações neste documento são baseadas nestas versões de software e hardware:

- WLC Modelo 9800
- Cisco IOS XE versão 17.15.5
- Modelo de AP série 9100

As informações neste documento foram criadas a partir de dispositivos em um ambiente de laboratório específico. Todos os dispositivos utilizados neste documento foram iniciados com uma configuração (padrão) inicial. Se a rede estiver ativa, certifique-se de que você entenda o impacto potencial de qualquer comando.

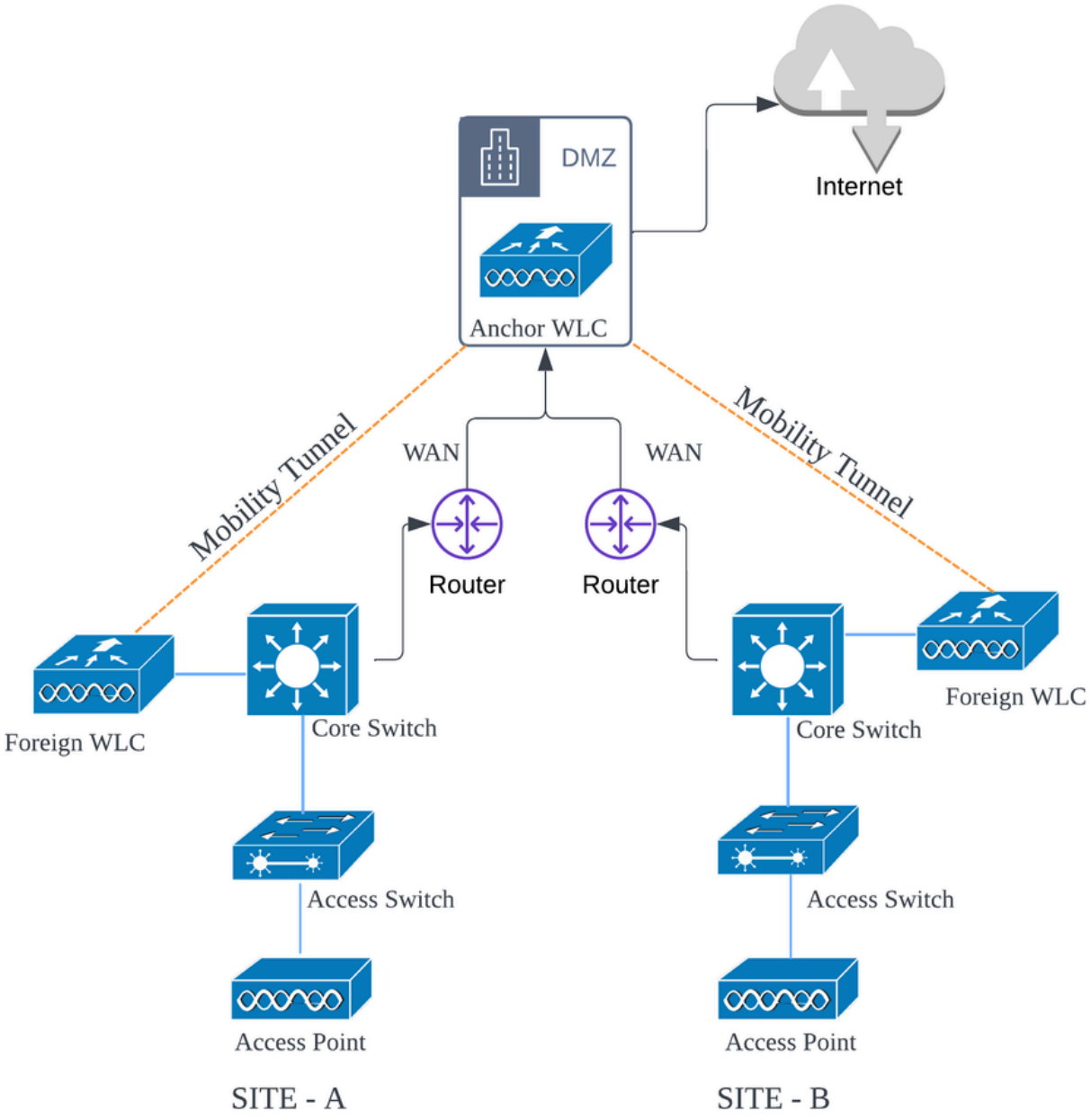
Visão Geral do Cenário de Âncora Estrangeira

- Controlador externo: Essa WLC gerencia a camada 2 ou o lado sem fio da rede. Ele tem pontos de acesso conectados a ele, e todo o tráfego do cliente para as WLANs ancoradas é encapsulado no túnel de mobilidade e enviado para o Controlador de âncora. O tráfego não sai localmente no controlador externo.
- Controlador de âncora: Isso serve como o ponto de saída da Camada 3. Ele recebe o tráfego do cliente através do túnel de mobilidade dos controladores externos e desencapsula ou encerra o tráfego do cliente no ponto de saída (VLAN). É aqui que os clientes são vistos na rede.

Os pontos de acesso na WLC externa transmitem os SSIDs da WLAN e têm uma marca de política atribuída que vincula o perfil da WLAN ao perfil de política apropriado. Quando um cliente sem fio se conecta a esse SSID, o controlador externo envia o nome do SSID e o perfil de política como parte das informações do cliente para a WLC âncora. Após o recebimento, a WLC de âncora verifica sua própria configuração para corresponder ao nome SSID, bem como ao nome do perfil de política. Quando a WLC Anchor encontrar uma correspondência, ela aplicará a

configuração correspondente e fornecerá um ponto de saída para o cliente sem fio. Portanto, é obrigatório que os nomes e as configurações da WLAN e do perfil de política correspondam nas WLCs Foreign e Anchor 9800, com exceção da VLAN no perfil de política.

Topologia



Configuração de âncora externa entre a WLC 9800

WLAN com Autenticação de Camada 2

Requisito de configuração

1. Certifique-se de que o nome e a configuração da WLAN sejam idênticos nas WLCs Foreign e Anchor e estejam configurados para a autenticação da camada 2 (PSK ou 802.1x).
2. Crie um Perfil de Política com o mesmo nome nas WLCs Externa e de Ancoragem com a mesma configuração.
3. Na WLC Externa, configure o mapeamento da WLC Âncora no respectivo Perfil de política.
4. Na WLC Anchor, configure o Policy Profile para designar o controlador como uma âncora de exportação.
5. Na WLC externa, mapeie a WLAN para o Perfil de política apropriado usando uma Tag de política.

Fluxo para SSID baseado em âncora externa da camada 2

1. O cliente inicia uma conexão com o SSID transmitido pela WLC Externa. A WLC externa executa a autenticação da camada 2, validando credenciais localmente ou por meio de um servidor AAA externo, dependendo da política de segurança configurada.
2. Após a autenticação bem-sucedida, a sessão do cliente é Ancorada na WLC Ancorada. O cliente recebe um endereço IP e faz a transição para o estado RUN na WLC Âncora.
3. Uma vez estabelecida a sessão, todo o tráfego de dados do cliente é encapsulado da WLC Externa para a WLC Âncora, de onde sai para a rede.

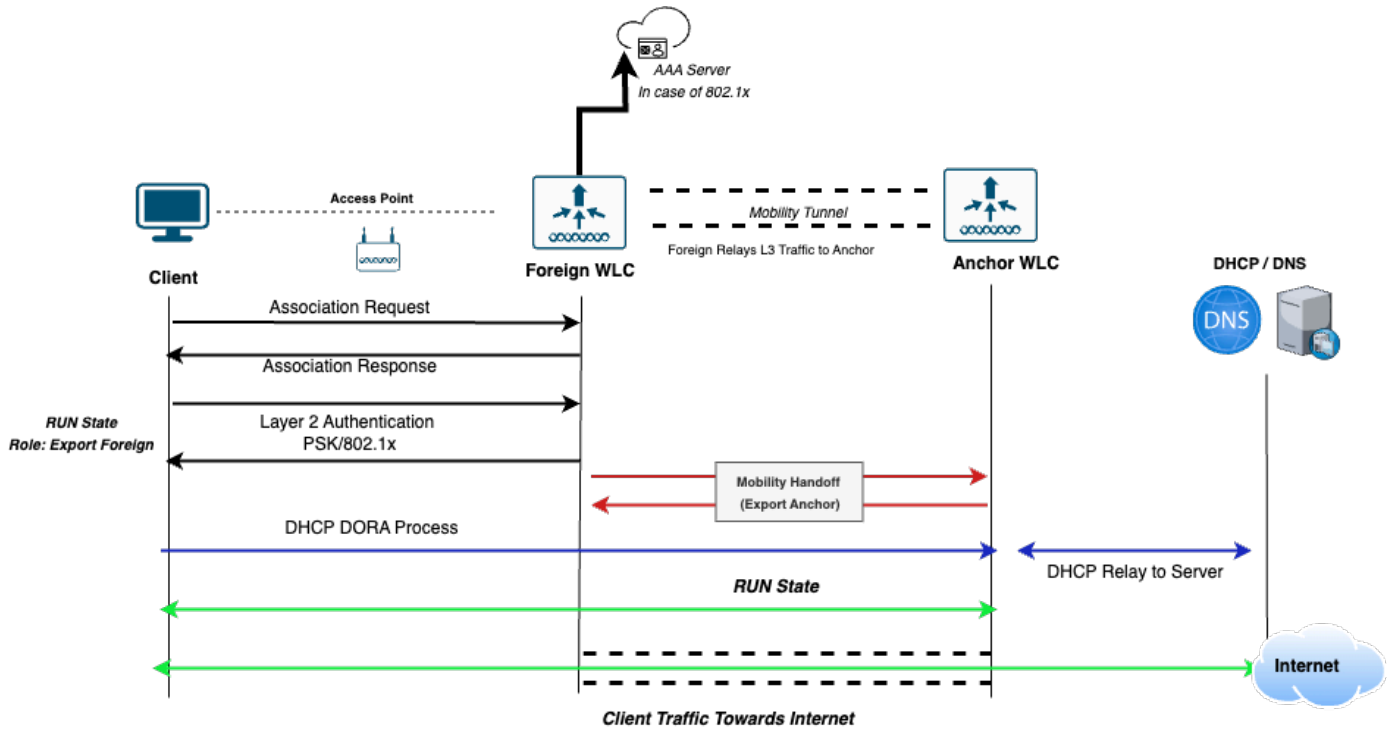


Diagrama de Fluxo da WLAN Baseado em Âncora Externa da Camada 2

Analisando o fluxo de SSID da camada 2 na configuração de âncora externa através de registros

Esta seção explica o fluxo da conectividade do cliente de Camada 2 usando Rastreamento Radioativo (Rastreamento RA), Capturas de Pacotes Incorporadas (EPC) e o status do cliente nas controladoras Externa e de Âncora.

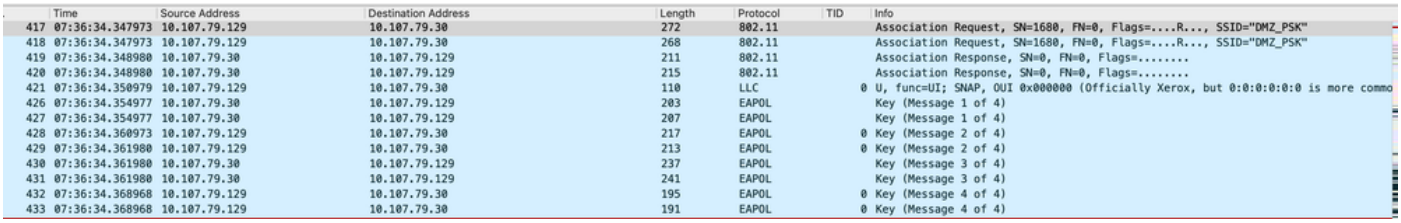
Logs de Controlador Externo

Traços radioativos

```
!! Client Association started !!
[client-orch-sm] Association received. BSSID BSSID-addr, WLAN DMZ_PSK, Slot 1 AP AP_MAC, AP_NAME, Site
[dot11] [17047] (info) MAC Client-MAC dot11 send association response. Sending assoc response of length
[dot11] [17047] (info) MAC Client-MAC DOT11 state transition S_DOT11_INIT -> S_DOT11_ASSOCIATED□

!! Layer 2 Authentication started !!
[client-orch-state] Client state transition S_CO_ASSOCIATING -> S_CO_L2_AUTH_IN_PROGRESS
[client-auth] L2 Authentication initiated. method PSK, Policy VLAN 31, AAA override = 0, NAC = 0
[client-keymgmt] EAP key M1 Sent successfully
[client-keymgmt] M2 Status EAP key M2 validation success
[client-keymgmt]EAP key M3 Sent successfully
[client-keymgmt] M4 Status EAP key M4 validation is successful□
[client-keymgmt] EAP Key management successful. AKMPSK CipherCCMP WPA Version WPA2 >> !! client succesf

!! Mobility Handoff !!
□{mobilityd_R0-0}{1} [mm-dgram-io] [18401] (debug) MAC Client-MAC Sending message mobile_announce to gr
{mobilityd_R0-0}{1} [mm-pmtu] [18401] (debug) Peer IP Anchor-WLC-IP □{mobilityd_R0-0}{1} [mm-client] [1
{mobilityd_R0-0}{1} [mm-transition] MMFSM transition S_MC_WAIT_ANNOUNCE_RSP -> S_MC_ANNOUNCE_TIMEDOUT_P
□{wncd_x_R0-0}{1} [mm-client] [17047] (debug) MAC Client-MAC Received mobile_announce_nak, sub type 2 o
□{wncd_x_R0-0}{1} [mm-transition] [17047] (info) MAC Client-MAC MMIF FSM transition S_MA_INIT_WAIT_ANNO
{wncd_x_R0-0}{1} [mm-client] [17047] (debug) MAC Client-MAC Sending export_Anchor_req of XID (XID) to (
{mobilityd_R0-0}{1} [mm-client] [18401] (debug) MAC Client-MAC Received export_Anchor_req, sub type 0 o
{mobilityd_R0-0}{1} [mm-transition] [18401] (info) MAC Client-MAC MMFSM transition S_MC_WAIT_EXP_ANC_RE
{mobilityd_R0-0}{1} [mm-client] [18401] (debug) MAC Client-MAC Export Anchor Request successfully proce
{mobilityd_R0-0}{1} [mm-client] [18401] (debug) MAC Client-MAC Sending export_Anchor_req of XID (176282
{mobilityd_R0-0}{1} [mm-client] [18401] (debug) MAC Client-MAC Received export_Anchor_rsp, sub type 0 o
{mobilityd_R0-0}{1} [mm-transition] [18401] (info) MAC Client-MAC MMFSM transition S_MC_WAIT_EXP_ANC_RS
{mobilityd_R0-0}{1} [mm-client] [18401] (debug) MAC Client-MAC Export Anchor Response successfully proc
□{wncd_x_R0-0}{1} [epm-misc] [17047] (info) Anchor Vlan-id 31 processed□[mm-client] [17047] (info) MAC
[mm-client] Mobility Successful. Roam Type L3 Requested, Sub Roam Type MM_SUB_ROAM_TYPE_NONE, Client IF
{wncd_x_R0-0}{1} [client-orch-state] Client state transition S_CO_MOBILITY_DISCOVERY_IN_PROGRESS -> S_C

{wncd_x_R0-0}{1} [client-orch-state] Client state transition S_CO_DPATH_PLUMB_IN_PROGRESS -> S_CO_IP_LE
□{wncd_x_R0-0}{1} [client-orch-sm] [17047] (debug) MAC Client-MAC Received ip learn response. method IP

{wncd_x_R0-0}{1} [client-orch-state] Client state transition S_CO_IP_LEARN_IN_PROGRESS -> S_CO_RUN >> C
```

Captura do pacote

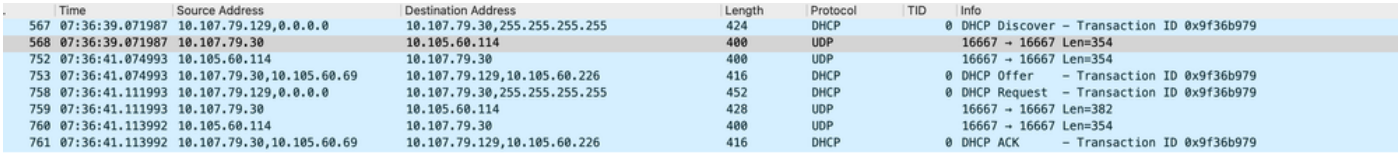
O cliente envia uma solicitação de associação e executa a autenticação da Camada 2, tratada pelo Foreign Controller.



	Time	Source Address	Destination Address	Length	Protocol	TID	Info
417	07:36:34.347973	10.107.79.129	10.107.79.30	272	802.11		Association Request, SN=1680, FN=0, Flags=....R..., SSID="DMZ_PSK"
418	07:36:34.347973	10.107.79.129	10.107.79.30	268	802.11		Association Request, SN=1680, FN=0, Flags=....R..., SSID="DMZ_PSK"
419	07:36:34.348980	10.107.79.30	10.107.79.129	211	802.11		Association Response, SN=0, FN=0, Flags=........
420	07:36:34.348980	10.107.79.30	10.107.79.129	215	802.11		Association Response, SN=0, FN=0, Flags=........
421	07:36:34.350979	10.107.79.129	10.107.79.30	110	LLC	0	U, func=UI; SNAP, OUI 0x000000 (Officially Xerox, but 0:0:0:0:0:0 is more commo
426	07:36:34.354977	10.107.79.30	10.107.79.129	203	EAPOL		Key (Message 1 of 4)
427	07:36:34.354977	10.107.79.30	10.107.79.129	207	EAPOL		Key (Message 1 of 4)
428	07:36:34.360973	10.107.79.129	10.107.79.30	217	EAPOL	0	Key (Message 2 of 4)
429	07:36:34.361980	10.107.79.129	10.107.79.30	213	EAPOL	0	Key (Message 2 of 4)
430	07:36:34.361980	10.107.79.30	10.107.79.129	237	EAPOL		Key (Message 3 of 4)
431	07:36:34.361980	10.107.79.30	10.107.79.129	241	EAPOL		Key (Message 3 of 4)
432	07:36:34.368968	10.107.79.129	10.107.79.30	195	EAPOL	0	Key (Message 4 of 4)
433	07:36:34.368968	10.107.79.129	10.107.79.30	191	EAPOL	0	Key (Message 4 of 4)

Associação de Cliente + Tráfego de Autenticação de Camada 2

Uma entrega de mobilidade dispara entre os Controladores Externo e de Ancoragem por meio da porta UDP 16667. Após um evento de mobilidade bem-sucedido, o estado do cliente faz a transição para EXECUTAR com uma função Exportar Externo.
O controlador externo recebe o tráfego DHCP do cliente através do túnel CAPWAP e o encaminha para o controlador âncora para processamento posterior.



	Time	Source Address	Destination Address	Length	Protocol	TID	Info
567	07:36:39.071987	10.107.79.129,0.0.0.0	10.107.79.30,255.255.255.255	424	DHCP	0	DHCP Discover - Transaction ID 0x9f36b979
568	07:36:39.071987	10.107.79.30	10.105.60.114	400	UDP		16667 → 16667 Len=354
752	07:36:41.074993	10.105.60.114	10.107.79.30	400	UDP		16667 → 16667 Len=354
753	07:36:41.074993	10.107.79.30,10.105.60.69	10.107.79.129,10.105.60.226	416	DHCP	0	DHCP Offer - Transaction ID 0x9f36b979
758	07:36:41.111993	10.107.79.129,0.0.0.0	10.107.79.30,255.255.255.255	452	DHCP	0	DHCP Request - Transaction ID 0x9f36b979
759	07:36:41.111993	10.107.79.30	10.105.60.114	428	UDP		16667 → 16667 Len=382
760	07:36:41.113992	10.105.60.114	10.107.79.30	400	UDP		16667 → 16667 Len=354
761	07:36:41.113992	10.107.79.30,10.105.60.69	10.107.79.129,10.105.60.226	416	DHCP	0	DHCP ACK - Transaction ID 0x9f36b979

O tráfego DHCP do cliente recebido no controlador externo é encaminhado para o controlador âncora usando o túnel de mobilidade

Registros do controlador Anchor 9800

Traços radioativos de âncora

```
!! Mobility Handoff !!
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Received mobile_announce, sub type 0 of
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Received mobile_announce, sub type 0 of
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Received export_Anchor_req, sub type 0 o
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Number of client is BELOW wlan limit
{mobilityd_R0-0}{1} [mm-transition] [26021] (info) MAC Client-MAC MMFSM transition S_MC_INIT -> S_MC_An
□{wncd_x_R0-0}{1} [mm-client] [24229] (info) MAC Client-MAC Roam type changed - None -> L3 Requested
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Export Anchor Response successfully proc
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Forwarding Anchor Response to Foreign.
{mobilityd_R0-0}{1} [mm-client] [26021] (info) MAC Client-MAC Forwarding export_Anchor_rsp, sub type 0
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Client is AnchorED.
{□wncd_x_R0-0}{1} [mm-client] [24229] (info) MAC Client-MAC Mobility role changed - Unassoc -> Export A
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Client is AnchorED.>> Client is successf

!! Client DHCP Traffic !!
{wncd_x_R0-0}{1} [client-orch-state] [24229] (note) MAC Client-MAC Client state transition S_CO_MOBILIT
{wncd_x_R0-0}{1} [client-orch-state] [24229] (note) MAC Client-MAC Client state transition S_CO_DPATH_P
{wncd_x_R0-0}{1} [sisf-packet] RX DHCPv4 from interface mobility_a0000001 on vlan 31 Src MAC Client-MAC
{wncd_x_R0-0}{1} [sisf-packet] RX DHCPv4 from interface Tw0/0/1 on vlan 31 Src MAC DHCP-Reply-Source-MA
{wncd_x_R0-0}{1} [sisf-packet] TX DHCPv4 from interface Tw0/0/1 on vlan 31 Src MAC DHCP-Reply-Source-MA
```

```
{wncd_x_R0-0}{1} [sisf-packet] RX DHCPv4 from interface mobility_a0000001 on vlan 31 Src MAC Client-MAC
{wncd_x_R0-0}{1} [sisf-packet] TX DHCPv4 from interface mobility_a0000001 on vlan 31 Src MAC Client-MAC
{wncd_x_R0-0}{1} [sisf-packet] RX DHCPv4 from interface Tw0/0/1 on vlan 31 Src MAC DHCP-Reply-Source-MA
{wncd_x_R0-0}{1} [sisf-packet] TX DHCPv4 from interface Tw0/0/1 on vlan 31 Src MAC DHCP-Reply-Source-MA
{wncd_x_R0-0}{1} [client-iplearn] [24229] (note) MAC Client-MAC Client IP learn successful. Method DHCP
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Sending ipv4_address_update of XID (XID)
{wncd_x_R0-0}{1} [client-iplearn] [24229] (info) MAC Client-MAC IP-learn state transition S_IPLEARN_IN_
Complete

{wncd_x_R0-0}{1} [avc-afc] [24229] (info) ReAnchor [client MAC Client-MAC] Client has Anchor role {wncd
```

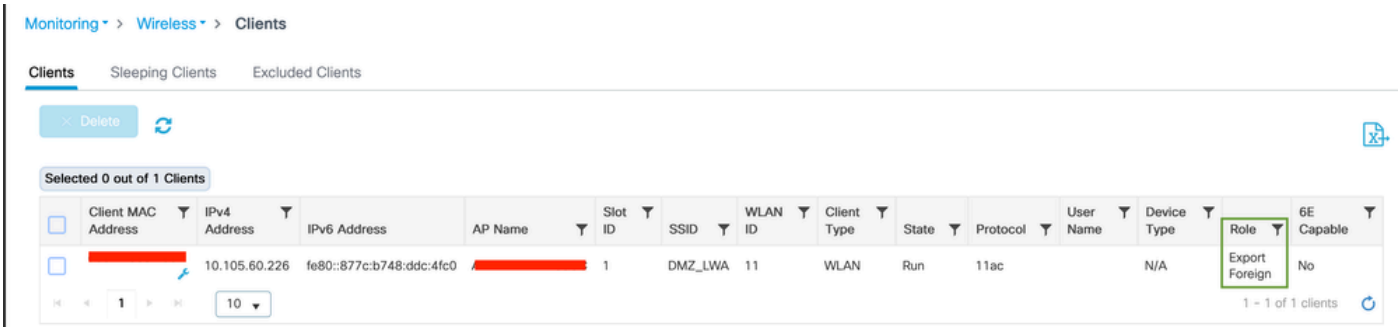
Captura de pacotes em âncora

Após a transferência de mobilidade, o controlador de âncora recebe tráfego DHCP do controlador externo através do túnel de mobilidade.
Após a conclusão do processo DORA, o cliente entra no estado EXECUTAR com uma função Âncora de exportação. Desse ponto em diante, o Controlador de âncora serve como ponto de saída para o tráfego de dados do cliente.

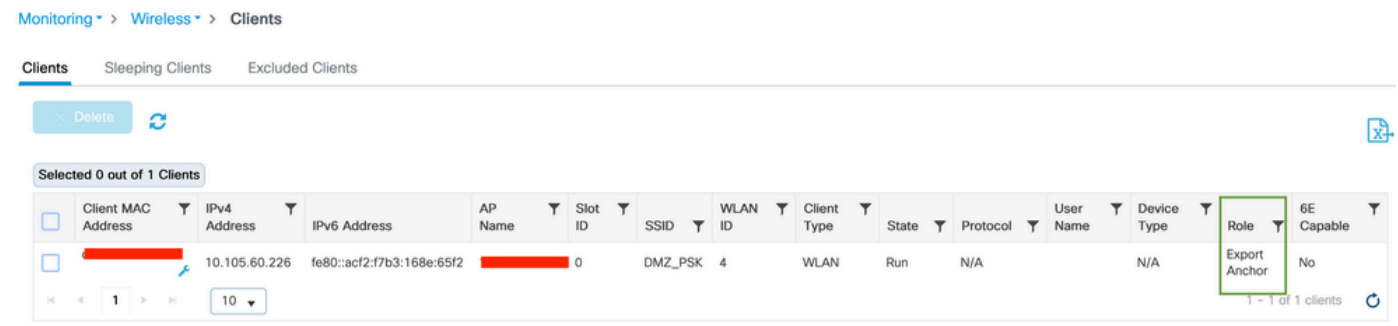
UTC Arrival Time	Source Address	Destination Address	Length	Protocol	TID	Info
Jan 3, 2025 07:36:39…	10.107.79.30	10.105.60.114	400	UDP		16667 → 16667 Len=354
Jan 3, 2025 07:36:39…	0.0.0.0	255.255.255.255	346	DHCP		DHCP Discover - Transaction ID 0x9f36b979
Jan 3, 2025 07:36:41…	10.105.60.69	10.105.60.226	346	DHCP		DHCP Offer - Transaction ID 0x9f36b979
Jan 3, 2025 07:36:41…	10.105.60.114	10.107.79.30	396	UDP		16667 → 16667 Len=354
Jan 3, 2025 07:36:41…	10.107.79.30	10.105.60.114	428	UDP		16667 → 16667 Len=382
Jan 3, 2025 07:36:41…	0.0.0.0	255.255.255.255	374	DHCP		DHCP Request - Transaction ID 0x9f36b979
Jan 3, 2025 07:36:41…	10.105.60.69	10.105.60.226	346	DHCP		DHCP ACK - Transaction ID 0x9f36b979
Jan 3, 2025 07:36:41…	10.105.60.114	10.107.79.30	396	UDP		16667 → 16667 Len=354

Tráfego DHCP do cliente no controlador de âncora recebido do controlador externo

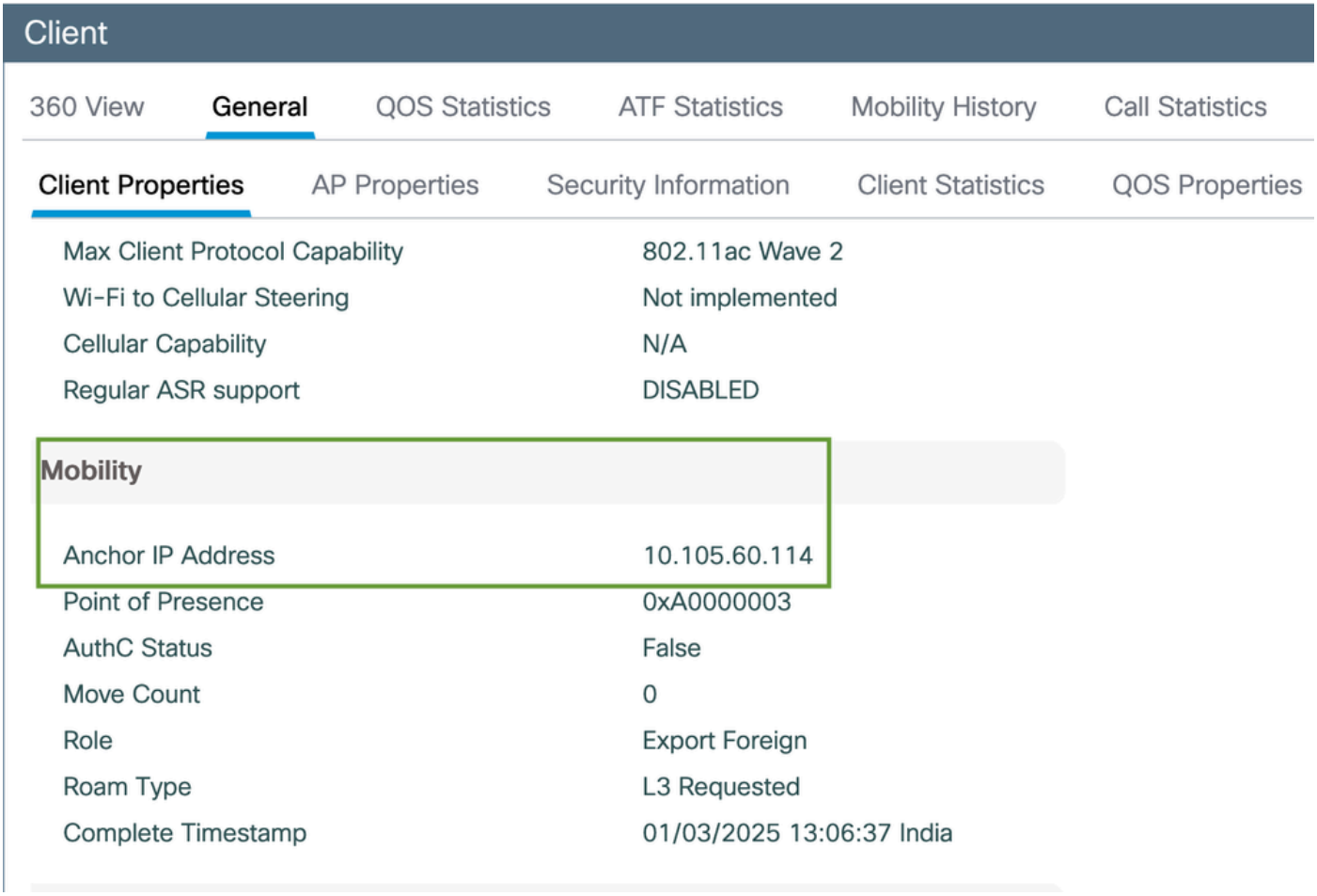
Estado do Cliente no Controlador Externo e de Âncora



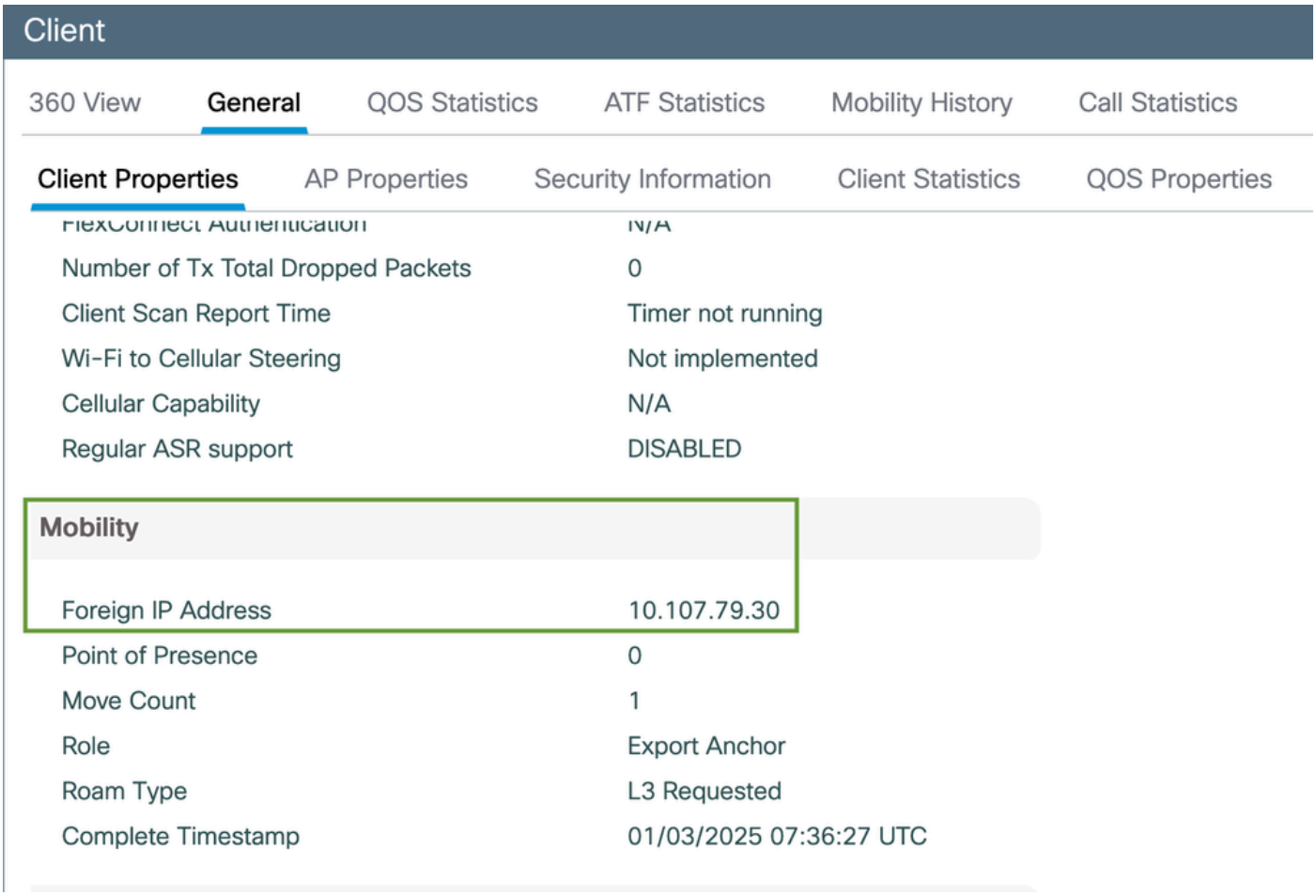
Estado do Cliente no Estrangeiro



Estado do Cliente em Âncora



Propriedades do Cliente em Externo



Propriedades do Cliente em Âncora

WLAN com autenticação de camada 3

Autenticação da Web Local

Fluxo para SSID de Webauth Local na Configuração de Âncora Estrangeira

1. O cliente inicia uma conexão com o SSID anunciado pela WLC Externa.
2. Como nenhuma autenticação da Camada 2 é executada, o cliente é imediatamente Ancorado à WLC âncora. O cliente entra no estado RUN na WLC externa, com sua função de mobilidade designada como Export Foreign.
3. O cliente obtém um endereço IP e é redirecionado para uma página da Web. Esse tráfego é manipulado pelo Controlador de âncora.
4. Após a autenticação bem-sucedida no portal, o cliente faz a transição para o estado RUN na WLC Âncora, com a função Export Anchor (Exportar âncora).

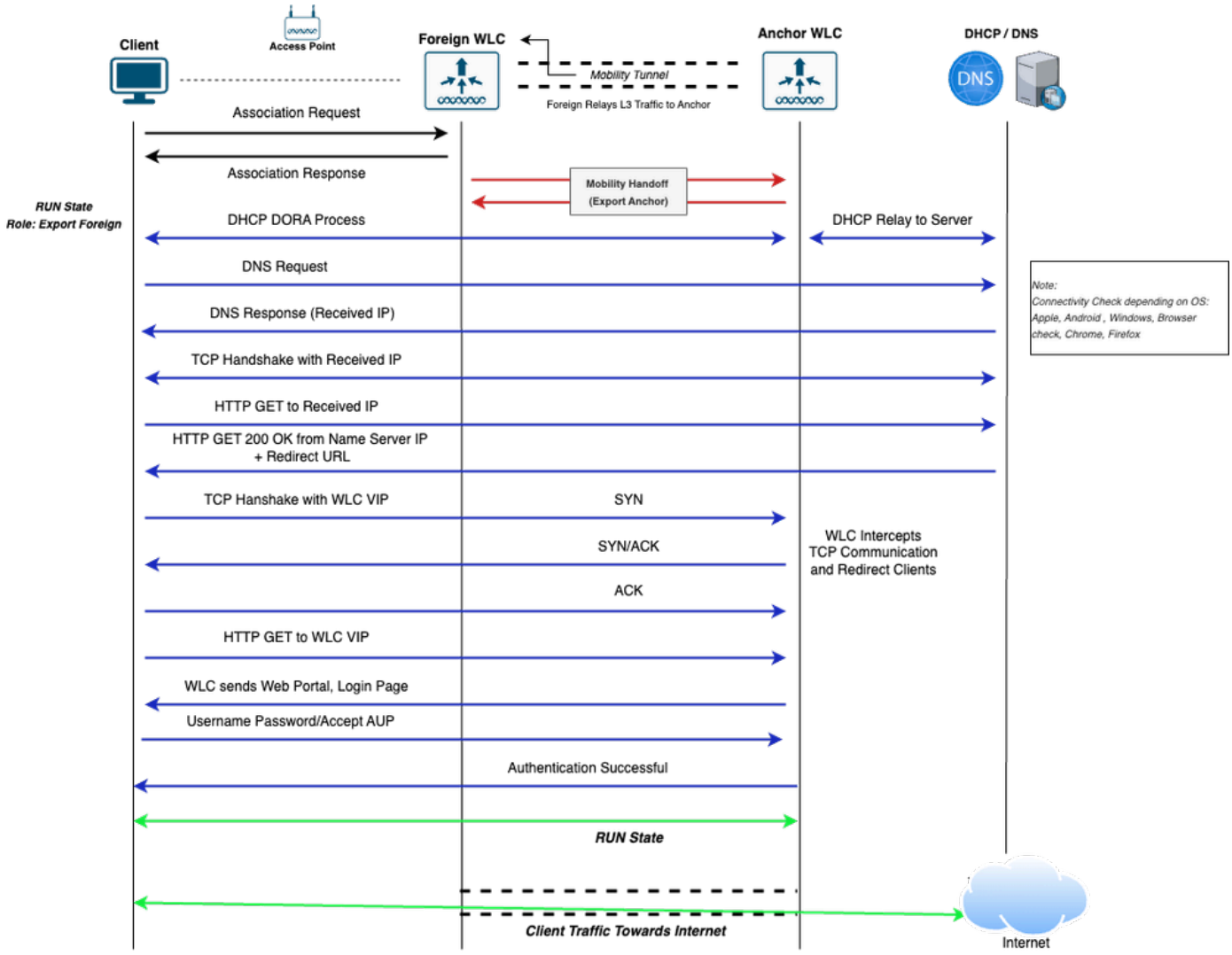


Diagrama de Fluxo de Conectividade de Cliente para SSID de Webauth Local na Instalação de Âncora Externa

Analisando o Fluxo de SSID de Webauth Local na Configuração de Âncora Estrangeira através de Logs

Esta seção explica o fluxo de conectividade do cliente para SSID de Autenticação Web Local usando Rastreamento Radioativo (Rastreamento RA), Capturas de Pacotes Incorporadas (EPC) e status do cliente em controladores Externos e de Âncora.

Logs de Controlador Externo

Traços radioativos

```
!! Client Association Phase !!
{wncd_x_R0-0}{1}: [client-orch-sm] [17047]: (note): MAC: Client_MAC Association received. BSSID BSSID_MA
{wncd_x_R0-0}{1}: [client-orch-state] [17047]: (note): MAC: Client_MAC Client state transition: S_CO_INI
{wncd_x_R0-0}{1}: [dot11] [17047]: (info): MAC: Client_MAC dot11 send association response. Sending asso
```

```
!! L2 Auth : None !!
{wncd_x_R0-0}{1}: [client-orch-state] [17047]: (note): MAC: Client_MAC Client state transition: S_CO_AS
{wncd_x_R0-0}{1}: [client-auth] [17047]: (info): MAC: Client_MAC Client auth-interface state transition
{wncd_x_R0-0}{1}: [client-orch-state] [17047]: (note): MAC: Client_MAC Client state transition: S_CO_L2

!! Mobility Handoff Phase !!
□{mobilityd_R0-0}{1} [mm-dgram-io] [18401] (debug) MAC Client-MAC Sending message mobile_announce to gr
{mobilityd_R0-0}{1} [mm-pmtu] [18401] (debug) Peer IP Anchor-WLC-IP □{mobilityd_R0-0}{1} [mm-client] [1
{mobilityd_R0-0}{1} [mm-transition] MMFSM transition S_MC_WAIT_ANNOUNCE_RSP -> S_MC_ANNOUNCE_TIMEDOUT_P
□{wncd_x_R0-0}{1} [mm-client] [17047] (debug) MAC Client-MAC Received mobile_announce_nak, sub type 2 o
□{wncd_x_R0-0}{1} [mm-transition] [17047] (info) MAC Client-MAC MMIF FSM transition S_MA_INIT_WAIT_ANNO
{wncd_x_R0-0}{1} [mm-client] [17047] (debug) MAC Client-MAC Sending export_Anchor_req of XID (XID) to (
{mobilityd_R0-0}{1} [mm-client] [18401] (debug) MAC Client-MAC Received export_Anchor_req, sub type 0 o
{mobilityd_R0-0}{1} [mm-transition] [18401] (info) MAC Client-MAC MMFSM transition S_MC_WAIT_EXP_ANC_RE
{mobilityd_R0-0}{1} [mm-client] [18401] (debug) MAC Client-MAC Export Anchor Request successfully proce
{mobilityd_R0-0}{1} [mm-client] [18401] (debug) MAC Client-MAC Sending export_Anchor_req of XID (176282
{mobilityd_R0-0}{1} [mm-client] [18401] (debug) MAC Client-MAC Received export_Anchor_rsp, sub type 0 o
{mobilityd_R0-0}{1} [mm-transition] [18401] (info) MAC Client-MAC MMFSM transition S_MC_WAIT_EXP_ANC_RS
{mobilityd_R0-0}{1} [mm-client] [18401] (debug) MAC Client-MAC Export Anchor Response successfully proc
□{wncd_x_R0-0}{1} [epm-misc] [17047] (info) Anchor Vlan-id 31 processed□[mm-client] [17047] (info) MAC
[mm-client] Mobility Successful. Roam Type L3 Requested, Sub Roam Type MM_SUB_ROAM_TYPE_NONE, Client IF
{wncd_x_R0-0}{1} [client-orch-state] Client state transition S_CO_MOBILITY_DISCOVERY_IN_PROGRESS -> S_C
{wncd_x_R0-0}{1} [client-orch-state] Client state transition S_CO_DPATH_PLUMB_IN_PROGRESS -> S_CO_IP_LE
{wncd_x_R0-0}{1}: [client-orch-state] [17047]: (note): MAC: Client_MAC Client state transition: S_CO_IP

!! Client AAA Traffic handling !!
{mobilityd_R0-0}{1}: [mm-transition] [18401]: (info): MAC: Client_MAC MMFSM transition: S_MC_RUN -> S_M
{mobilityd_R0-0}{1}: [mm-client] [18401]: (info): MAC: Client_MAC Forwarding aaa_handoff, sub type: 0 o
{mobilityd_R0-0}{1}: [mm-client] [18401]: (debug): MAC: Client_MAC Sending aaa_handoff of XID (10452) t
{mobilityd_R0-0}{1}: [mm-client] [18401]: (debug): MAC: Client_MAC AAA Handoff successfully forwarded.
{wncd_x_R0-0}{1}: [mm-client] [17047]: (debug): MAC: Client_MAC Received aaa_handoff, sub type: 0 of XI
{wncd_x_R0-0}{1}: [mm-transition] [17047]: (info): MAC: Client_MAC MMIF FSM transition: S_MA_Foreign ->
{wncd_x_R0-0}{1}: [mm-client] [17047]: (debug): MAC: Client_MAC Mobile AAA Handoff update received.
{wncd_x_R0-0}{1}: [sanet-shim-miscellaneous] [17047]: (info): MAC: Client_MAC Received username=Guest1
{wncd_x_R0-0}{1}: [sanet-shim-miscellaneous] [17047]: (info): MAC: Client_MAC IPv6 Client payload is re
{wncd_x_R0-0}{1}: [mm-client] [17047]: (debug): MAC: Client_MAC Sending aaa_handoff_ack of XID (10452)
{mobilityd_R0-0}{1}: [mm-client] [18401]: (debug): MAC: Client_MAC Received aaa_handoff_ack, sub type:
{mobilityd_R0-0}{1}: [mm-client] [18401]: (debug): MAC: Client_MAC AAA Handoff Ack successfully handled
{mobilityd_R0-0}{1}: [mm-client] [18401]: (debug): MAC: Client_MAC aaa_handoff_ack base check is VALID
{mobilityd_R0-0}{1}: [mm-client] [18401]: (debug): MAC: Client_MAC aaa_handoff_ack is VALID
{mobilityd_R0-0}{1}: [mm-transition] [18401]: (info): MAC: Client_MAC MMFSM transition: S_MC_RUN -> S_M
{mobilityd_R0-0}{1}: [mm-client] [18401]: (info): MAC: Client_MAC Forwarding aaa_handoff_ack, sub type:
{mobilityd_R0-0}{1}: [mm-pmtu] [18401]: (debug): Peer IP: Anchor-WLC-IP PMTU size is 1006 and calculate
{mobilityd_R0-0}{1}: [mm-client] [18401]: (debug): MAC: Client_MAC Sending aaa_handoff_ack of XID (1045
{wncd_x_R0-0}{1}: [auth-mgr] [17047]: (info): [Client_MAC:capwap_90000003] auth mgr attr add/change not
{wncd_x_R0-0}{1}: [auth-mgr-feat_acct] [17047]: (info): [Client_MAC:capwap_90000003] SM Notified attrib
{mobilityd_R0-0}{1}: [mm-client] [18401]: (debug): MAC: Client_MAC aaa handoff ack successfully forward
```

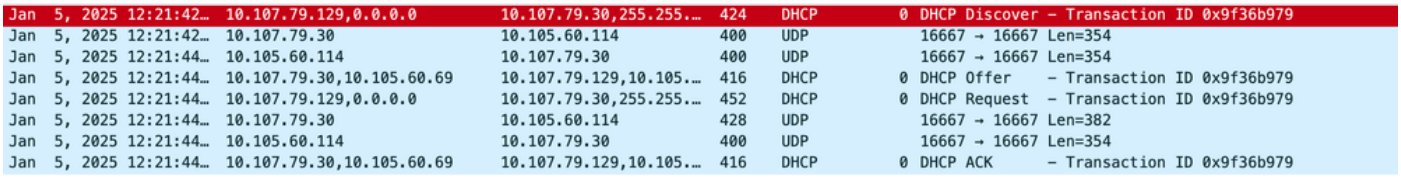
Captura do pacote

O cliente envia uma solicitação de associação, que o Foreign Controller trata.

UTC Arrival Time	Source Address	Destination Address	Length	Protocol	TID	Info
Jan 5, 2025 12:21:41…	10.107.79.129	10.107.79.30	250	802.11		Association Request, SN=1705, FN=0, Flags=........, SSID="DMZ_LWA"
Jan 5, 2025 12:21:41…	10.107.79.129	10.107.79.30	246	802.11		Association Request, SN=1705, FN=0, Flags=........, SSID="DMZ_LWA"
Jan 5, 2025 12:21:41…	10.107.79.30	10.107.79.129	211	802.11		Association Response, SN=0, FN=0, Flags=........
Jan 5, 2025 12:21:41…	10.107.79.30	10.107.79.129	215	802.11		Association Response, SN=0, FN=0, Flags=........

Fase de Associação do Cliente com Controlador Externo

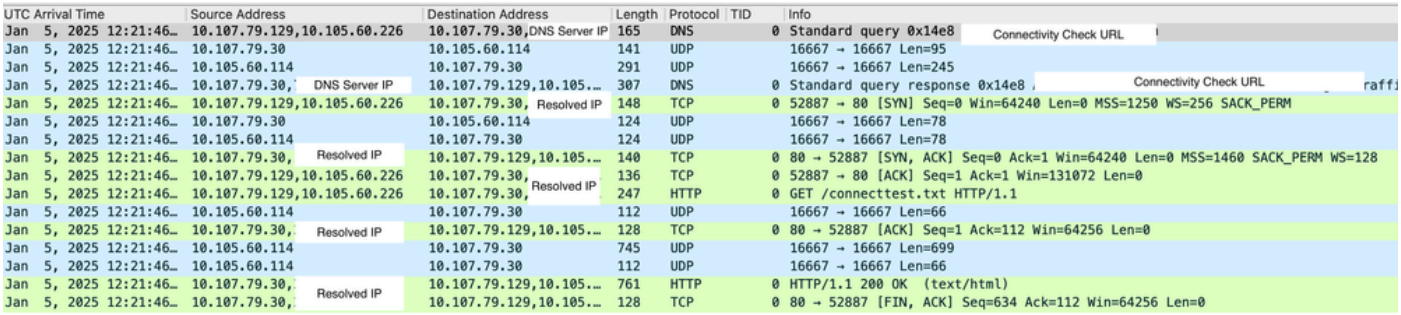
Uma entrega de mobilidade dispara entre os Controladores Externo e de Ancoragem por meio da porta UDP 16667. Após um evento de mobilidade bem-sucedido, o estado do cliente faz a transição para EXECUTAR com uma função Exportar Externo.
O controlador externo recebe o tráfego DHCP do cliente através do túnel CAPWAP e o encaminha para o controlador âncora para processamento posterior.



Jan 5, 2025 12:21:42…	10.107.79.129,0.0.0.0	10.107.79.30,255.255.…	424	DHCP	0	DHCP Discover - Transaction ID 0x9f36b979
Jan 5, 2025 12:21:42…	10.107.79.30	10.105.60.114	400	UDP		16667 → 16667 Len=354
Jan 5, 2025 12:21:44…	10.105.60.114	10.107.79.30	400	UDP		16667 → 16667 Len=354
Jan 5, 2025 12:21:44…	10.107.79.30,10.105.60.69	10.107.79.129,10.105.…	416	DHCP	0	DHCP Offer - Transaction ID 0x9f36b979
Jan 5, 2025 12:21:44…	10.107.79.129,0.0.0.0	10.107.79.30,255.255.…	452	DHCP	0	DHCP Request - Transaction ID 0x9f36b979
Jan 5, 2025 12:21:44…	10.107.79.30	10.105.60.114	428	UDP		16667 → 16667 Len=382
Jan 5, 2025 12:21:44…	10.105.60.114	10.107.79.30	400	UDP		16667 → 16667 Len=354
Jan 5, 2025 12:21:44…	10.107.79.30,10.105.60.69	10.107.79.129,10.105.…	416	DHCP	0	DHCP ACK - Transaction ID 0x9f36b979

O tráfego DHCP do cliente recebido no controlador externo é encaminhado para o controlador âncora usando o túnel de mobilidade

Da mesma forma, o cliente envia o status de conectividade da rede e o tráfego de verificação de acesso à página da Web para a WLC externa através do túnel CAPWAP; a WLC externa encaminha isso para a WLC âncora usando o túnel de mobilidade, onde o controlador âncora intercepta ou processa o tráfego.



Verificação de Status de Conectividade de Rede em Controlador Externo

```
> Frame 2176: 761 bytes on wire (6088 bits), 761 bytes captured (6088 bits)
> Ethernet II, Src: Cisco_63:8b:8b (9[redacted], Dst: C[redacted])
> 802.1Q Virtual LAN, PRI: 0, DEI: 0, ID: 1415
> Internet Protocol Version 4, Src: 10.107.79.30, Dst: 10.107.79.129
> User Datagram Protocol, Src Port: 5247, Dst Port: 5264
> Control And Provisioning of Wireless Access Points - Data
> IEEE 802.11 QoS Data, Flags: ......F.
> Logical-Link Control
> Internet Protocol Version 4, Src: [redacted], Dst: 10.105.60.226
> Transmission Control Protocol, Src Port: 80, Dst Port: 52887, Seq: 1, Ack: 112, Len: 633
v Hypertext Transfer Protocol
  > HTTP/1.1 200 OK\r\n
    Location: https://192.0.2.1/login.html?redirect=h[redacted]r\n
    Content-Type: text/html\r\n
  > Content-Length: 472\r\n
    \r\n
    [Request in frame: 2169]
    [Time since request: 0.001007000 seconds]
    [Request URI: /connecttest.txt]
    [Full request URI: H[redacted]]
    File Data: 472 bytes
> Line-based text data: text/html (9 lines)
```

Redirecionar URL enviada ao cliente

UTC Arrival Time	Source Address	Destination Address	Length	Protocol	TID	Info
Jan 5, 2025 12:22:25…	10.107.79.129,10.105.60.226	10.107.79.30,192.0.2.1	148	TCP	0	53024 → 443 [SYN] Seq=0 Win=64240 Len=0 MSS=1250 WS=256 SACK_PERM
Jan 5, 2025 12:22:25…	10.107.79.30	10.105.60.114	124	UDP		16667 → 16667 Len=78
Jan 5, 2025 12:22:25…	10.105.60.114	10.107.79.30	124	UDP		16667 → 16667 Len=78
Jan 5, 2025 12:22:25…	10.107.79.30,192.0.2.1	10.107.79.129,10.105…	140	TCP	0	443 → 53024 [SYN, ACK] Seq=0 Ack=1 Win=64240 Len=0 MSS=1460 SACK_PERM WS=128
Jan 5, 2025 12:22:25…	10.107.79.129,10.105.60.226	10.107.79.30,192.0.2.1	136	TCP	0	53024 → 443 [ACK] Seq=1 Ack=1 Win=131072 Len=0
Jan 5, 2025 12:22:25…	10.107.79.129,10.105.60.226	10.107.79.30,192.0.2.1	1386	TCP	0	53024 → 443 [ACK] Seq=1 Ack=1 Win=131072 Len=1250 [TCP PDU reassembled in 4991]
Jan 5, 2025 12:22:25…	10.107.79.30	10.105.60.114	112	UDP		16667 → 16667 Len=66
Jan 5, 2025 12:22:25…	10.105.60.114	10.107.79.30	112	UDP		16667 → 16667 Len=66
Jan 5, 2025 12:22:25…	10.107.79.30,192.0.2.1	10.107.79.129,10.105…	128	TCP	0	443 → 53024 [ACK] Seq=1 Ack=1251 Win=64128 Len=0
Jan 5, 2025 12:22:25…	10.107.79.129,10.105.60.226	10.107.79.30,192.0.2.1	747	TLSv1…	0	Client Hello
Jan 5, 2025 12:22:25…	10.107.79.129,10.105.60.226	10.107.79.30,142.250…	148	TCP	0	53025 → 443 [SYN] Seq=0 Win=64240 Len=0 MSS=1250 WS=256 SACK_PERM
Jan 5, 2025 12:22:25…	10.107.79.30,192.0.2.1	10.107.79.129,10.105…	128	TCP	0	443 → 53024 [ACK] Seq=1 Ack=1862 Win=64128 Len=0
Jan 5, 2025 12:22:25…	10.105.60.114	10.107.79.30	277	UDP		16667 → 16667 Len=231
Jan 5, 2025 12:22:25…	10.107.79.30,192.0.2.1	10.107.79.129,10.105…	293	TLSv1…	0	Server Hello, Change Cipher Spec, Encrypted Handshake Message
Jan 5, 2025 12:22:25…	10.107.79.129,10.105.60.226	10.107.79.30,192.0.2.1	143	TLSv1…	0	Alert (Level: Fatal, Description: Certificate Unknown)
Jan 5, 2025 12:22:25…	10.107.79.129,10.105.60.226	10.107.79.30,192.0.2.1	148	TCP	0	53027 → 443 [SYN] Seq=0 Win=64240 Len=0 MSS=1250 WS=256 SACK_PERM
Jan 5, 2025 12:22:25…	10.107.79.129,10.105.60.226	10.107.79.30,192.0.2.1	211	TLSv1…	0	Change Cipher Spec, Encrypted Handshake Message
Jan 5, 2025 12:22:25…	10.107.79.30	10.105.60.114	187	UDP		16667 → 16667 Len=141
Jan 5, 2025 12:22:25…	10.107.79.129,10.105.60.226	10.107.79.30,192.0.2.1	781	TLSv1…	0	Application Data
Jan 5, 2025 12:22:25…	10.107.79.30	10.105.60.114	757	UDP		16667 → 16667 Len=711
Jan 5, 2025 12:22:25…	10.105.60.114	10.107.79.30	112	UDP		16667 → 16667 Len=66
Jan 5, 2025 12:22:25…	10.107.79.30,192.0.2.1	10.107.79.129,10.105…	181	TLSv1…	0	Encrypted Alert

Certificate Verification for HTTPS Connection

Post HTTPS session details(client authentication)will be encrypted

Acesso do cliente à página Webauth local para fornecer detalhes de autenticação

Registros do controlador de âncora

Traços radioativos

```
!! Mobility Handoff !!
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Received mobile_announce, sub type 0 of
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Received mobile_announce, sub type 0 of
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Received export_Anchor_req, sub type 0 o
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Number of client is BELOW wlan limit
{mobilityd_R0-0}{1} [mm-transition] [26021] (info) MAC Client-MAC MMFSM transition S_MC_INIT -> S_MC_An
□{wncd_x_R0-0}{1} [mm-client] [24229] (info) MAC Client-MAC Roam type changed - None -> L3 Requested

!! Session Created for Client !!
{wncd_x_R0-0}{1}: [client-orch-state] [24229]: (note): MAC: Client_MAC Client state transition: S_CO_AS
{wncd_x_R0-0}{1}: [client-auth] [24229]: (info): MAC: Client_MAC Client auth-interface state transition
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): [Client_MAC][ 0.0.0.0]Param-map used: global
```

```
{wncd_x_R0-0}{1}: [webauth-acl] [24229]: (info): mobility_a0000001[Client_MAC][ 0.0.0.0]Applying IPv4 i
{wncd_x_R0-0}{1}: [client-auth] [24229]: (info): MAC: Client_MAC Client auth-interface state transition
{wncd_x_R0-0}{1}: [client-orch-state] [24229]: (note): MAC: Client_MAC Client state transition: S_CO_CR
{wncd_x_R0-0}{1}: [mm-transition] [24229]: (info): MAC: Client_MAC MMIF FSM transition: S_MA_INIT -> S_
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Export Anchor Response successfully proc
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Forwarding Anchor Response to Foreign.
{mobilityd_R0-0}{1} [mm-client] [26021] (info) MAC Client-MAC Forwarding export_Anchor_rsp, sub type 0
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Client is AnchorED.
{□wncd_x_R0-0}{1} [mm-client] [24229] (info) MAC Client-MAC Mobility role changed - Unassoc -> Export A
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Client is AnchorED.>> Client is successf


!! Client DHCP Traffic !!
{wncd_x_R0-0}{1} [client-orch-state] [24229] (note) MAC Client-MAC Client state transition S_CO_MOBILIT
{wncd_x_R0-0}{1} [client-orch-state] [24229] (note) MAC Client-MAC Client state transition S_CO_DPATH_P
{wncd_x_R0-0}{1} [sisf-packet] RX DHCPv4 from interface mobility_a0000001 on vlan 31 Src MAC Client-MAC
{wncd_x_R0-0}{1} [sisf-packet] RX DHCPv4 from interface Tw0/0/1 on vlan 31 Src MAC DHCP-Reply-Source-MA
{wncd_x_R0-0}{1} [sisf-packet] TX DHCPv4 from interface Tw0/0/1 on vlan 31 Src MAC DHCP-Reply-Source-MA
{wncd_x_R0-0}{1} [sisf-packet] RX DHCPv4 from interface mobility_a0000001 on vlan 31 Src MAC Client-MAC
{wncd_x_R0-0}{1} [sisf-packet] TX DHCPv4 from interface mobility_a0000001 on vlan 31 Src MAC Client-MAC
{wncd_x_R0-0}{1} [sisf-packet] RX DHCPv4 from interface Tw0/0/1 on vlan 31 Src MAC DHCP-Reply-Source-MA
{wncd_x_R0-0}{1} [sisf-packet] TX DHCPv4 from interface Tw0/0/1 on vlan 31 Src MAC DHCP-Reply-Source-MA
{wncd_x_R0-0}{1} [client-iplearn] [24229] (note) MAC Client-MAC Client IP learn successful. Method DHCP
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Sending ipv4_address_update of XID (XID)
{wncd_x_R0-0}{1} [client-iplearn] [24229] (info) MAC Client-MAC IP-learn state transition S_IPLEARN_IN_
Complete
{wncd_x_R0-0}{1}: [client-orch-sm] [24229]: (debug): MAC: Client_MAC Received ip learn response. method

!! Local Web Athentication !!
{wncd_x_R0-0}{1}: [client-orch-state] [24229]: (note): MAC: Client_MAC Client state transition: S_CO_IP
{wncd_x_R0-0}{1}: [client-auth] [24229]: (note): MAC: Client_MAC L3 Authentication initiated. LWA
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]52910/195
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]52911/235
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]52911/235
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]GET rcv
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]HTTP GE
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Parse G
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Read co
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Param-m
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]State G
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]52911/235
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]52911/235
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]52911/2
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]52910/195
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]GET rcv
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]HTTP GE
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Parse G
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Read co
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Param-m
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]State G
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]52910/195
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]52910/195
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]52910/1
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]52919/195
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]52919/1
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]52923/195
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]52924/195
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]52924/195
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]GET rcv
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]HTTP GE
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Parse G
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Read co
```

```
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Param-ma
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]State GE
{wncd_x_R0-0}{1}: [webauth-page] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Sending W
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]53007/195 I
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]53007/195 I
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]53007/195 I
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]GET rcvd
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]HTTP GET
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Parse GE
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Read com
{wncd_x_R0-0}{1}: [webauth-error] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Parse le
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]53007/195 I
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]53007/19
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]53008/195 I
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]53009/195 I
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]53009/195 I
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]GET rcvd
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]HTTP GET
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Parse GE
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Read com
{wncd_x_R0-0}{1}: [webauth-error] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Parse le
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]53009/195 I
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]53009/19
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]53011/195 I
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]53011/19
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]53020/195 I
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]53022/235 I
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]53023/195 I
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]53023/195 I
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]POST rcv
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]get url
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Read com
{wncd_x_R0-0}{1}: [sadb-attr] [24229]: (info): Removing ipv6 addresses from the attr list -1526718499,sm
{wncd_x_R0-0}{1}: [caaa-authen] [24229]: (info): [CAAA:AUTHEN:4000544] NULL ATTR LIST
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Param-ma
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]State LO
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]53023/195 I
{wncd_x_R0-0}{1}: [sadb-attr] [24229]: (info): Removing ipv6 addresses from the attr list 1761615853,sm
{wncd_x_R0-0}{1}: [caaa-author] [24229]: (info): [CAAA:AUTHOR:4000544] NULL ATTR LIST
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Param-ma
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]State AU
{wncd_x_R0-0}{1}: [webauth-acl] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Unapply IP
{wncd_x_R0-0}{1}: [auth-mgr] [24229]: (info): [Client_MAC:mobility_a0000001] Raising ext evt Template De
{wncd_x_R0-0}{1}: [webauth-acl] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Unapply IP
{wncd_x_R0-0}{1}: [auth-mgr] [24229]: (info): [Client_MAC:mobility_a0000001] Raising ext evt Template De
{wncd_x_R0-0}{1}: [llbridge-main] [24229]: (debug): MAC: Client_MAC Link-local bridging not enabled for
{wncd_x_R0-0}{1}: [auth-mgr] [24229]: (info): [Client_MAC:mobility_a0000001] Authc success from WebAuth
{wncd_x_R0-0}{1}: [auth-mgr] [24229]: (info): [Client_MAC:mobility_a0000001] Raised event APPLY_USER_PRO
{wncd_x_R0-0}{1}: [auth-mgr] [24229]: (info): [Client_MAC:mobility_a0000001] Raised event RX_METHOD_AUTH

{wncd_x_R0-0}{1}: [client-auth] [24229]: (info): MAC: Client_MAC Client auth-interface state transition
{wncd_x_R0-0}{1}: [aaa-attr-inf] [24229]: (info): Applying Attribute : username 0 Guest1
{wncd_x_R0-0}{1}: [aaa-attr-inf] [24229]: (info): Applying Attribute : aaa-author-type 0 1 (0x1)
{wncd_x_R0-0}{1}: [aaa-attr-inf] [24229]: (info): Applying Attribute : aaa-author-service 0 16 (0x10)
{wncd_x_R0-0}{1}: [aaa-attr-inf] [24229]: (info): Applying Attribute : clid-MAC-addr 0 Client_MAC
{wncd_x_R0-0}{1}: [aaa-attr-inf] [24229]: (info): Applying Attribute : addr 0 0xa693ce2
{wncd_x_R0-0}{1}: [aaa-attr-inf] [24229]: (info): Applying Attribute : method 0 1 [webauth]
{wncd_x_R0-0}{1}: [aaa-attr-inf] [24229]: (info): Applying Attribute : clid-MAC-addr 0 Client_MAC
{wncd_x_R0-0}{1}: [aaa-attr-inf] [24229]: (info): Applying Attribute : intf-id 0 2684354561 (0xa0000001)
{wncd_x_R0-0}{1}: [auth-mgr] [24229]: (info): [Client_MAC:mobility_a0000001] auth mgr attr add/change no
{wncd_x_R0-0}{1}: [auth-mgr-feat_acct] [24229]: (info): [Client_MAC:mobility_a0000001] SM Notified attr
{wncd_x_R0-0}{1}: [auth-mgr] [24229]: (info): [Client_MAC:mobility_a0000001] Received User-Name Guest1
```

```
{wncd_x_R0-0}{1}: [auth-mgr] [24229]: (info): [Client_MAC:mobility_a0000001] auth mgr attr add/change n
{wncd_x_R0-0}{1}: [auth-mgr] [24229]: (info): [Client_MAC:mobility_a0000001] Method webauth changing st
{wncd_x_R0-0}{1}: [auth-mgr] [24229]: (info): [Client_MAC:mobility_a0000001] Context changing state fro
{wncd_x_R0-0}{1}: [auth-mgr] [24229]: (info): [Client_MAC:mobility_a0000001] auth mgr attr add/change n
{wncd_x_R0-0}{1}: [auth-mgr] [24229]: (info): [Client_MAC:mobility_a0000001] Raised event AUTHZ_SUCCESS
{wncd_x_R0-0}{1}: [auth-mgr] [24229]: (info): [Client_MAC:mobility_a0000001] Context changing state fro
{wncd_x_R0-0}{1}: [webauth-acl] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Applying
{wncd_x_R0-0}{1}: [svm] [24229]: (info): SVM_INFO: Applying Svc Templ IP-Adm-V4-LOGOUT-ACL (ML:NONE)
{wncd_x_R0-0}{1}: [epm] [24229]: (info): [Client_MAC:mobility_a0000001] Feature (EPM URL PLUG-IN) has b
{wncd_x_R0-0}{1}: [svm] [24229]: (info): SVM_INFO: Response of epm is SYNC with return code Success
{wncd_x_R0-0}{1}: [auth-mgr] [24229]: (info): [Client_MAC:mobility_a0000001] Raising ext evt Template A
{wncd_x_R0-0}{1}: [sanet-shim-miscellaneous] [24229]: (ERR): authc policy update from SANet vlan 31
{wncd_x_R0-0}{1}: [llbridge-main] [24229]: (debug): MAC: Client_MAC Link-local bridging not enabled for
{wncd_x_R0-0}{1}: [webauth-sess] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Param-ma
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Param-m
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]State A
{wncd_x_R0-0}{1}: [webauth-page] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]Sending
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]53023/195
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]53023/195
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.226]53023/1
{wncd_x_R0-0}{1}: [auth-mgr] [24229]: (info): [Client_MAC:mobility_a0000001] SM will not send event Tem
{wncd_x_R0-0}{1}: [client-auth] [24229]: (note): MAC: Client_MAC L3 Authentication Successful. ACL:[]
{wncd_x_R0-0}{1}: [client-auth] [24229]: (info): MAC: Client_MAC Client auth-interface state transition
{wncd_x_R0-0}{1}: [rog-proxy-capwap] [24229]: (debug): Managed client RUN state notification: Client_MA
{wncd_x_R0-0}{1}: [avc-afc] [24229]: (info): ReAnchor [client MAC: Client_MAC] Client has Anchor role
{wncd_x_R0-0}{1}: [avc-afc] [24229]: (info): ReAnchor [client MAC: Client_MAC] Guest client detected. S
{wncd_x_R0-0}{1}: [client-orch-state] [24229]: (note): MAC: Client_MAC Client state transition: S_CO_L3
```

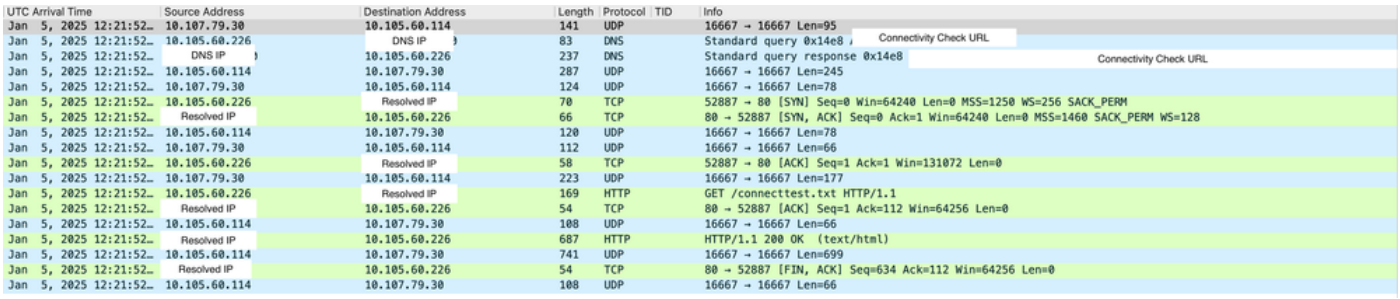
Captura do pacote

Após a transferência de mobilidade, o controlador de âncora recebe tráfego DHCP do controlador externo através do túnel de mobilidade.

UTC Arrival Time	Source Address	Destination Address	Length	Protocol	TID	Info
Jan 5, 2025 07:21:49…	10.107.79.30	10.105.60.114	400	UDP		16667 → 16667 Len=354
Jan 5, 2025 07:21:49…	0.0.0.0	255.255.255.255	346	DHCP		DHCP Discover - Transaction ID 0x9f36b979
Jan 5, 2025 07:21:51…	10.105.60.69	10.105.60.226	346	DHCP		DHCP Offer - Transaction ID 0x9f36b979
Jan 5, 2025 07:21:51…	10.105.60.114	10.107.79.30	396	UDP		16667 → 16667 Len=354
Jan 5, 2025 07:21:51…	10.107.79.30	10.105.60.114	428	UDP		16667 → 16667 Len=382
Jan 5, 2025 07:21:51…	0.0.0.0	255.255.255.255	374	DHCP		DHCP Request - Transaction ID 0x9f36b979
Jan 5, 2025 07:21:51…	10.105.60.69	10.105.60.226	346	DHCP		DHCP ACK - Transaction ID 0x9f36b979
Jan 5, 2025 07:21:51…	10.105.60.114	10.107.79.30	396	UDP		16667 → 16667 Len=354

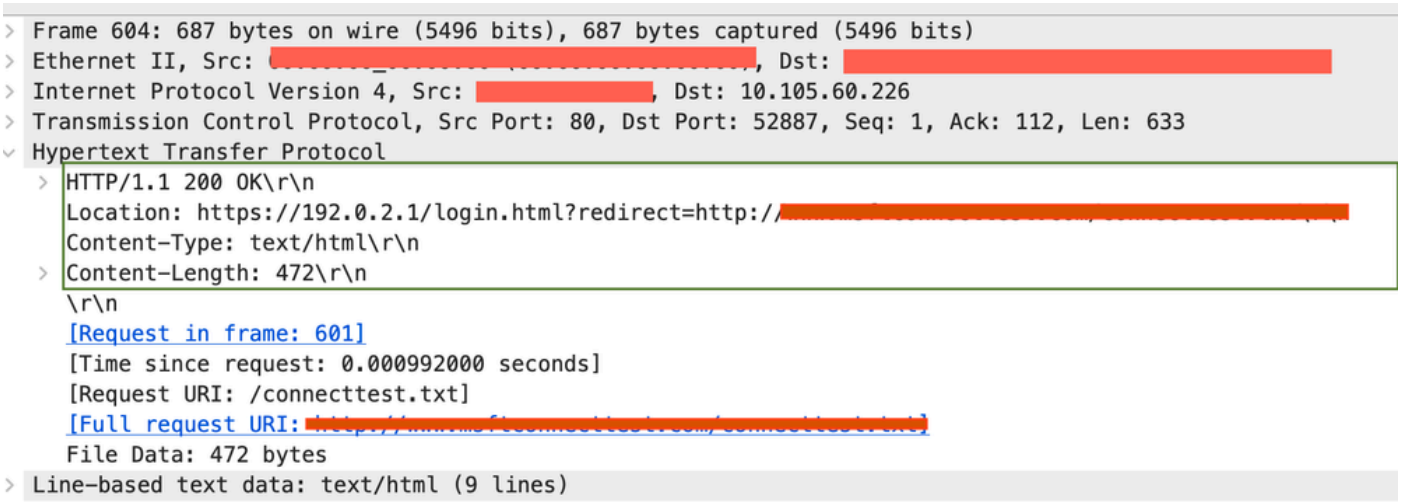
Tráfego DHCP do cliente no controlador de âncora recebido do controlador externo

O Controlador de âncora recebe verificações de conectividade, solicitações de acesso a páginas da Web e detalhes de autenticação para processamento posterior.



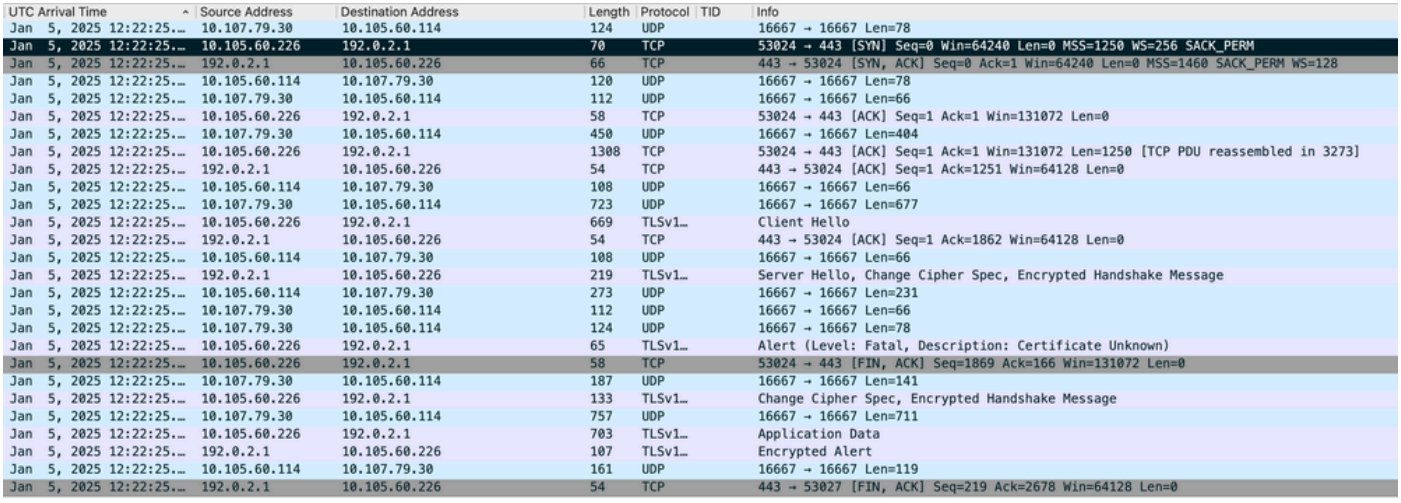
UTC Arrival Time	Source Address	Destination Address	Length	Protocol	TID	Info
Jan 5, 2025 12:21:52…	10.107.79.30	10.105.60.114	141	UDP		16667 → 16667 Len=95
Jan 5, 2025 12:21:52…	10.105.60.226	DNS IP	83	DNS		Standard query 0x14e8 Connectivity Check URL
Jan 5, 2025 12:21:52…	DNS IP	10.105.60.226	237	DNS		Standard query response 0x14e8 Connectivity Check URL
Jan 5, 2025 12:21:52…	10.105.60.114	10.107.79.30	287	UDP		16667 → 16667 Len=245
Jan 5, 2025 12:21:52…	10.107.79.30	10.105.60.114	124	UDP		16667 → 16667 Len=78
Jan 5, 2025 12:21:52…	10.105.60.226	Resolved IP	70	TCP		52887 → 80 [SYN] Seq=0 Win=64240 Len=0 MSS=1250 WS=256 SACK_PERM
Jan 5, 2025 12:21:52…	Resolved IP	10.105.60.226	66	TCP		80 → 52887 [SYN, ACK] Seq=0 Ack=1 Win=64240 Len=0 MSS=1460 SACK_PERM WS=128
Jan 5, 2025 12:21:52…	10.105.60.114	10.107.79.30	120	UDP		16667 → 16667 Len=78
Jan 5, 2025 12:21:52…	10.107.79.30	10.105.60.114	112	UDP		16667 → 16667 Len=66
Jan 5, 2025 12:21:52…	10.105.60.226	Resolved IP	58	TCP		52887 → 80 [ACK] Seq=1 Ack=1 Win=131072 Len=0
Jan 5, 2025 12:21:52…	10.107.79.30	10.105.60.114	223	UDP		16667 → 16667 Len=177
Jan 5, 2025 12:21:52…	10.105.60.226	Resolved IP	169	HTTP		GET /connecttest.txt HTTP/1.1
Jan 5, 2025 12:21:52…	Resolved IP	10.105.60.226	54	TCP		80 → 52887 [ACK] Seq=1 Ack=112 Win=64256 Len=0
Jan 5, 2025 12:21:52…	10.105.60.114	10.107.79.30	108	UDP		16667 → 16667 Len=66
Jan 5, 2025 12:21:52…	Resolved IP	10.105.60.226	687	HTTP		HTTP/1.1 200 OK (text/html)
Jan 5, 2025 12:21:52…	10.105.60.114	10.107.79.30	741	UDP		16667 → 16667 Len=699
Jan 5, 2025 12:21:52…	Resolved IP	10.105.60.226	54	TCP		80 → 52887 [FIN, ACK] Seq=634 Ack=112 Win=64256 Len=0
Jan 5, 2025 12:21:52…	10.105.60.114	10.107.79.30	108	UDP		16667 → 16667 Len=66

Verificação de Status da Conectividade de Rede no Controlador de Âncora



```
> Frame 604: 687 bytes on wire (5496 bits), 687 bytes captured (5496 bits)
> Ethernet II, Src: [redacted], Dst: [redacted]
> Internet Protocol Version 4, Src: [redacted], Dst: 10.105.60.226
> Transmission Control Protocol, Src Port: 80, Dst Port: 52887, Seq: 1, Ack: 112, Len: 633
v Hypertext Transfer Protocol
  > HTTP/1.1 200 OK\r\n
    Location: https://192.0.2.1/login.html?redirect=http://[redacted]
    Content-Type: text/html\r\n
  > Content-Length: 472\r\n
    \r\n
    [Request in frame: 601]
    [Time since request: 0.000992000 seconds]
    [Request URI: /connecttest.txt]
    [Full request URI: [redacted]]
    File Data: 472 bytes
> Line-based text data: text/html (9 lines)
```

Redirecionar URL enviada ao cliente

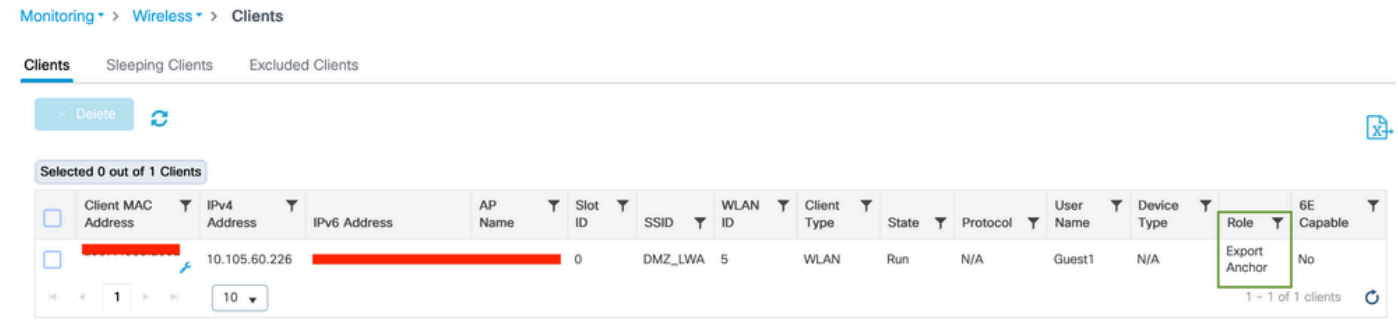


UTC Arrival Time	Source Address	Destination Address	Length	Protocol	TID	Info
Jan 5, 2025 12:22:25…	10.107.79.30	10.105.60.114	124	UDP		16667 → 16667 Len=78
Jan 5, 2025 12:22:25…	10.105.60.226	192.0.2.1	70	TCP		53024 → 443 [SYN] Seq=0 Win=64240 Len=0 MSS=1250 WS=256 SACK_PERM
Jan 5, 2025 12:22:25…	192.0.2.1	10.105.60.226	66	TCP		443 → 53024 [SYN, ACK] Seq=0 Ack=1 Win=64240 Len=0 MSS=1460 SACK_PERM WS=128
Jan 5, 2025 12:22:25…	10.105.60.114	10.107.79.30	120	UDP		16667 → 16667 Len=78
Jan 5, 2025 12:22:25…	10.107.79.30	10.105.60.114	112	UDP		16667 → 16667 Len=66
Jan 5, 2025 12:22:25…	10.105.60.226	192.0.2.1	58	TCP		53024 → 443 [ACK] Seq=1 Ack=1 Win=131072 Len=0
Jan 5, 2025 12:22:25…	10.107.79.30	10.105.60.114	450	UDP		16667 → 16667 Len=404
Jan 5, 2025 12:22:25…	10.105.60.226	192.0.2.1	1308	TCP		53024 → 443 [ACK] Seq=1 Ack=1 Win=131072 Len=1250 [TCP PDU reassembled in 3273]
Jan 5, 2025 12:22:25…	192.0.2.1	10.105.60.226	54	TCP		443 → 53024 [ACK] Seq=1 Ack=1251 Win=64128 Len=0
Jan 5, 2025 12:22:25…	10.105.60.114	10.107.79.30	108	UDP		16667 → 16667 Len=66
Jan 5, 2025 12:22:25…	10.107.79.30	10.105.60.114	723	UDP		16667 → 16667 Len=677
Jan 5, 2025 12:22:25…	10.105.60.226	192.0.2.1	669	TLSv1…		Client Hello
Jan 5, 2025 12:22:25…	192.0.2.1	10.105.60.226	54	TCP		443 → 53024 [ACK] Seq=1 Ack=1862 Win=64128 Len=0
Jan 5, 2025 12:22:25…	10.105.60.114	10.107.79.30	108	UDP		16667 → 16667 Len=66
Jan 5, 2025 12:22:25…	192.0.2.1	10.105.60.226	219	TLSv1…		Server Hello, Change Cipher Spec, Encrypted Handshake Message
Jan 5, 2025 12:22:25…	10.105.60.114	10.107.79.30	273	UDP		16667 → 16667 Len=231
Jan 5, 2025 12:22:25…	10.107.79.30	10.105.60.114	112	UDP		16667 → 16667 Len=66
Jan 5, 2025 12:22:25…	10.107.79.30	10.105.60.114	124	UDP		16667 → 16667 Len=78
Jan 5, 2025 12:22:25…	10.105.60.226	192.0.2.1	65	TLSv1…		Alert (Level: Fatal, Description: Certificate Unknown)
Jan 5, 2025 12:22:25…	10.105.60.226	192.0.2.1	58	TCP		53024 → 443 [FIN, ACK] Seq=1869 Ack=166 Win=131072 Len=0
Jan 5, 2025 12:22:25…	10.107.79.30	10.105.60.114	187	UDP		16667 → 16667 Len=141
Jan 5, 2025 12:22:25…	10.105.60.226	192.0.2.1	133	TLSv1…		Change Cipher Spec, Encrypted Handshake Message
Jan 5, 2025 12:22:25…	10.107.79.30	10.105.60.114	757	UDP		16667 → 16667 Len=711
Jan 5, 2025 12:22:25…	10.105.60.226	192.0.2.1	703	TLSv1…		Application Data
Jan 5, 2025 12:22:25…	192.0.2.1	10.105.60.226	107	TLSv1…		Encrypted Alert
Jan 5, 2025 12:22:25…	10.105.60.114	10.107.79.30	161	UDP		16667 → 16667 Len=119
Jan 5, 2025 12:22:25…	192.0.2.1	10.105.60.226	54	TCP		443 → 53027 [FIN, ACK] Seq=219 Ack=2678 Win=64128 Len=0

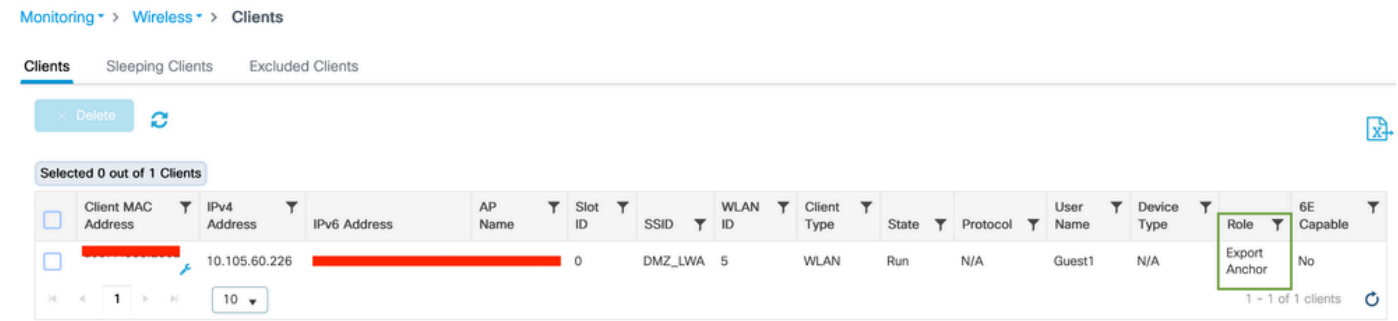
Acesso do cliente à página Webauth local para fornecer detalhes de autenticação

Após a autenticação da Web local bem-sucedida, o cliente entra no estado EXECUTAR com uma função Âncora de exportação. Desse ponto em diante, o Controlador de âncora serve como ponto de saída para o tráfego de dados do cliente.

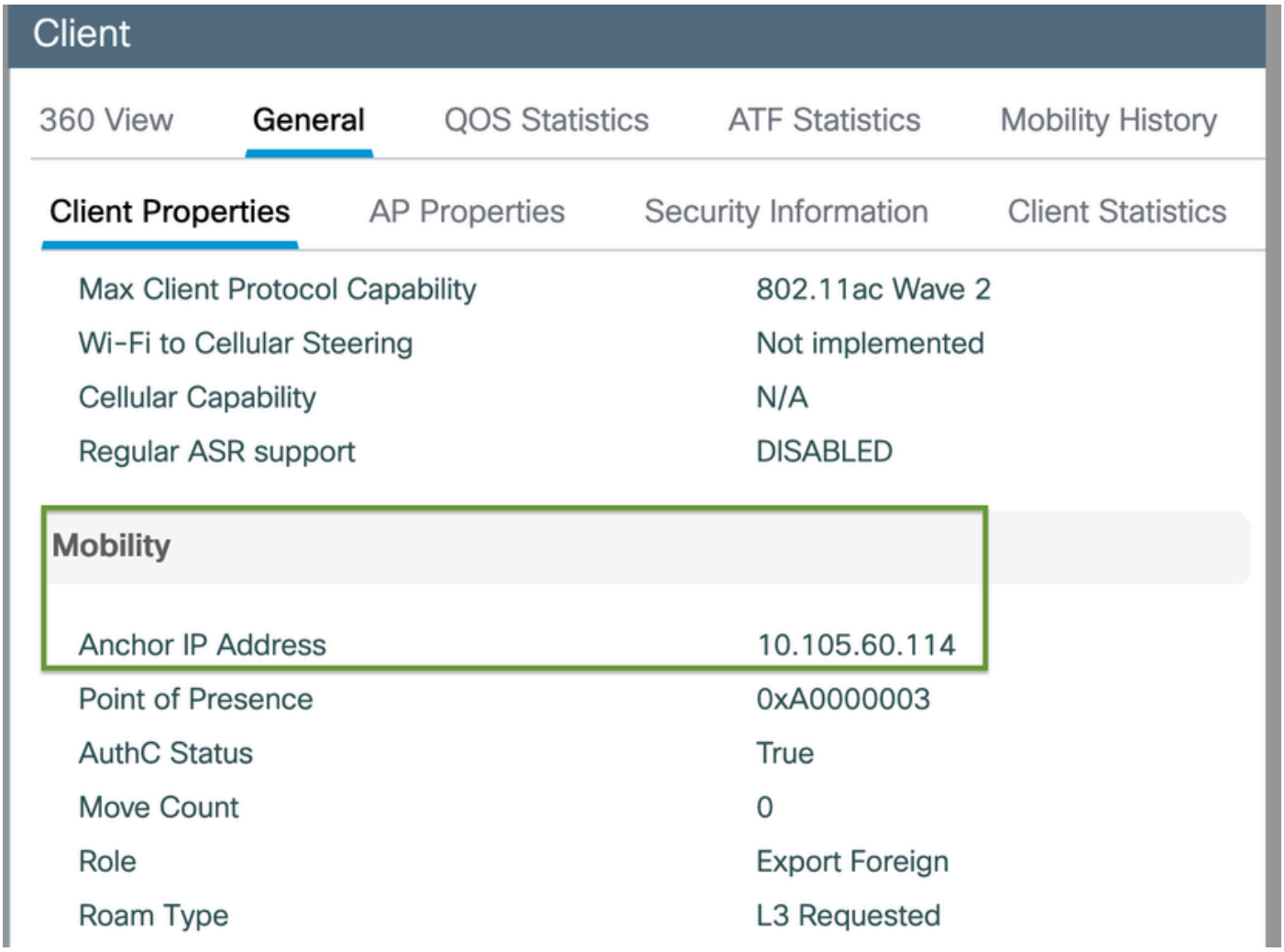
Estado do Cliente no Controlador Externo e de Âncora



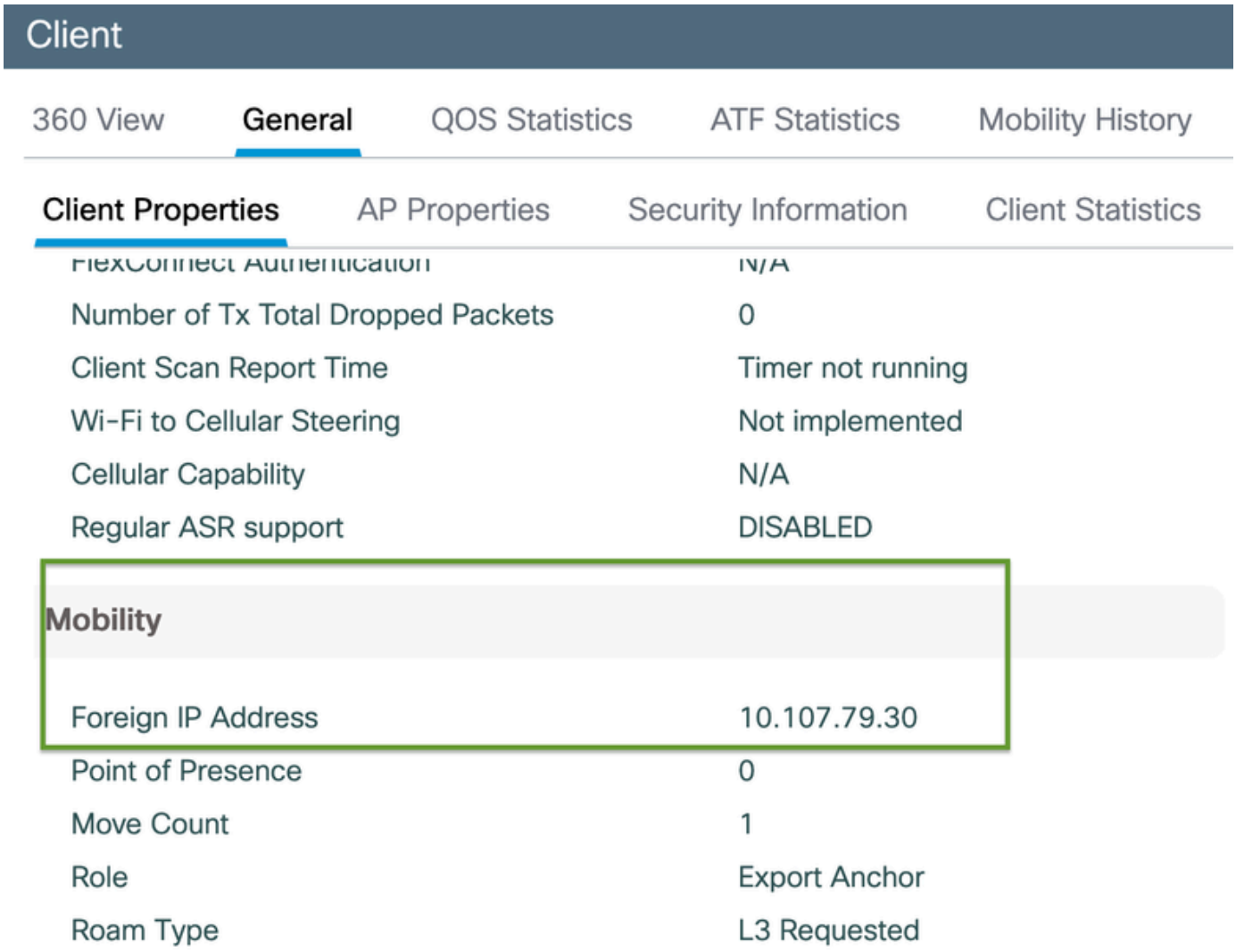
Estado do Cliente no Estrangeiro



Estado do Cliente em Âncora



Propriedades do Cliente em Externo



Propriedades do Cliente em Âncora

Autenticação da Web Central

Fluxo para SSID de Webauth Central na Configuração de Âncora Estrangeira

1. O cliente envia uma solicitação de associação para o SSID transmitido pela WLC (Foreign Wireless LAN Controller).
2. A WLC Externa executa a Filtragem MAC enviando uma Solicitação de Acesso ao servidor RADIUS. O servidor RADIUS responde com um Access-Accept, que inclui o URL de Redirecionamento e a Lista de Controle de Acesso (ACL) necessários.
3. A WLC Externa envia a resposta da associação ao cliente.
4. O cliente está Ancorado na WLC Anchor. O cliente entra no estado RUN na WLC externa, com a função de mobilidade definida como Export Foreign.
5. O cliente obtém um endereço IP. Nesse estágio, a WLC de âncora trata do tráfego de redirecionamento, direcionando o cliente para o portal de autenticação.
6. Uma vez redirecionado, o cliente se comunica diretamente com o servidor RADIUS. Esse tráfego é encapsulado através da WLC Anchor em direção ao servidor RADIUS.

7. O cliente informa credenciais de autenticação para o servidor RADIUS. Após a autenticação bem-sucedida, o servidor RADIUS envia uma solicitação de alteração de autorização (CoA) à WLC externa.
8. A WLC externa envia uma resposta de CoA ao servidor RADIUS. O cliente faz a transição para o estado EXECUTAR na WLC Âncora, com a função definida como Exportar Âncora.
9. Todo o tráfego subsequente do cliente é enviado por túnel da WLC Externa para a WLC Âncora, de onde ela sai da rede.

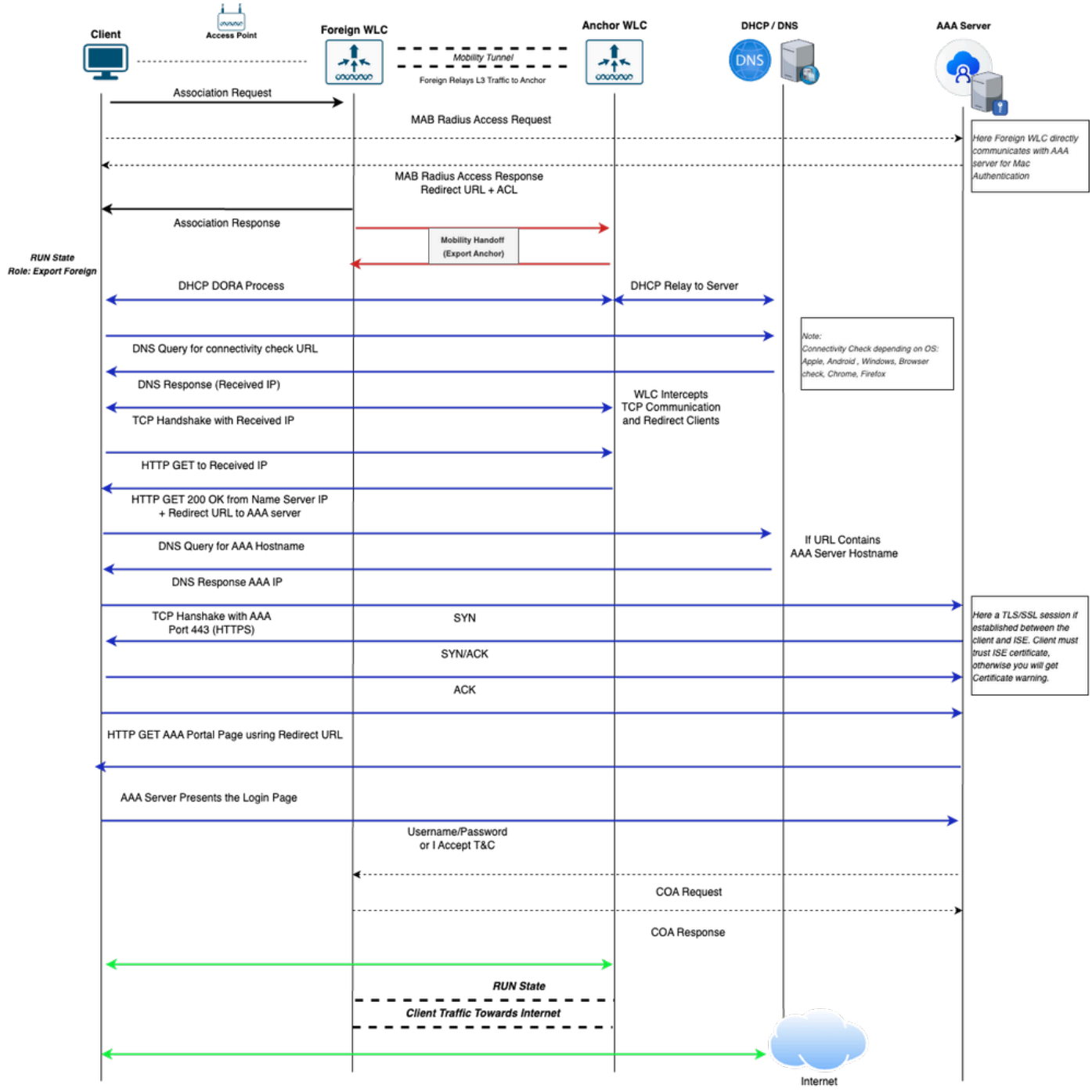


Diagrama de Fluxo de Conectividade de Cliente para SSID Webauth Central na Instalação de Âncora Externa

Analisando o Fluxo de SSID do Webauth Central na Configuração de Âncora Estrangeira por

meio de Logs

Esta seção explica o fluxo de conectividade do cliente para o SSID de Autenticação Central da Web usando o Rastreamento Radioativo (Rastreamento RA), as Capturas de Pacotes Incorporadas (EPC) e o status do cliente nos controladores Externo e de Âncora.

Logs de Controlador Externo

Traços radioativos

```
!! Client Association Phase !!
{wncd_x_R0-0}{1}: [client-orch-sm] [17047]: (note): MAC: Client_MAC Association received. BSSID BSSID_MA
{wncd_x_R0-0}{1}: [client-orch-state] [17047]: (note): MAC: Client_MAC Client state transition: S_CO_INI

!! MAC Authentication !!
{wncd_x_R0-0}{1}: [dot11] [17047]: (info): MAC: Client_MAC DOT11 state transition: S_DOT11_INIT -> S_DOT
{wncd_x_R0-0}{1}: [client-orch-state] [17047]: (note): MAC: Client_MAC Client state transition: S_CO_ASS
{wncd_x_R0-0}{1}: [client-auth] [17047]: (note): MAC: Client_MAC MAB Authentication initiated. Policy VI
{wncd_x_R0-0}{1}: [auth-mgr-feat_wireless] [17047]: (info): [Client_MAC:capwap_90000003] - authc_list: I
{wncd_x_R0-0}{1}: [auth-mgr-feat_wireless] [17047]: (info): [Client_MAC:capwap_90000003] - authz_list: I
{wncd_x_R0-0}{1}: [client-auth] [17047]: (info): MAC: Client_MAC Client auth-interface state transition
{wncd_x_R0-0}{1}: [client-auth] [17047]: (info): MAC: Client_MAC Client auth-interface state transition
{wncd_x_R0-0}{1}: [client-auth] [17047]: (info): MAC: Client_MAC Client auth-interface state transition
{wncd_x_R0-0}{1}: [mab] [17047]: (info): [Client_MAC:capwap_90000003] Received event 'MAB_CONTINUE' on
{wncd_x_R0-0}{1}: [caaa-author] [17047]: (info): [CAAA:AUTHOR:a30003a6] NULL ATTR LIST

{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Send Access-Request to 10.106.32.130:1812 id 0/245,
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: authenticator
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: User-Name [1] 14 user-MAC
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: User-Password [2] 18 *
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Service-Type [6] 6 Call Check [10]
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Vendor, Cisco [26] 31
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Cisco AVpair [1] 25 service-type=Call Check
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Framed-MTU [12] 6 1485
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Message-Authenticator[80] 18 ...
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: EAP-Key-Name [102] 2 *
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Vendor, Cisco [26] 49
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Cisco AVpair [1] 43 audit-session-id=1E4F6B0A000003E
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Vendor, Cisco [26] 18
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Cisco AVpair [1] 12 method=mab
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Vendor, Cisco [26] 32
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Cisco AVpair [1] 26 client-iif-id=3556776730
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: NAS-IP-Address [4] 6 10.107.79.30
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: NAS-Port-Type [61] 6 802.11 wireless [19]
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: NAS-Port [5] 6 141522
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Vendor, Cisco [26] 31
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Cisco AVpair [1] 25 cisco-wlan-ssid=DMZ_CWA
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Vendor, Cisco [26] 33
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Cisco AVpair [1] 27 wlan-profile-name=DMZ_CWA
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Called-Station-Id [30] 27 called-station-id
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Calling-Station-Id [31] 19 client-MAC
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Vendor, Airespace [26] 12
```

```
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Airespace-WLAN-ID [1] 6 12
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Nas-Identifier [32] 16 ForeignSiteWLC
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Started 5 sec timeout
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Received from id 1812/245 10.106.32.130:0, Access-A
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: authenticator
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: User-Name [1] 19 Client_MAC
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Class [25] 56 ...
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Message-Authenticator[80] 18 ...
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Vendor, Cisco [26] 37
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Cisco AVpair [1] 31 url-redirect-acl=REDIRECT_ACL
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Vendor, Cisco [26] 191
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Cisco AVpair [1] 185 url-redirect=https://10.106.32
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Vendor, Cisco [26] 42
{wncd_x_R0-0}{1}: [radius] [17047]: (info): RADIUS: Cisco AVpair [1] 36 profile-name=Windows10-Workstat

{wncd_x_R0-0}{1}: [mab] [17047]: (info): [Client_MAC:capwap_90000003] MAB received an Access-Accept for
{wncd_x_R0-0}{1}: [client-auth] [17047]: (info): MAC: Client_MAC Client auth-interface state transition
{wncd_x_R0-0}{1}: [client-orch-sm] [17047]: (debug): MAC: Client_MAC Processing MAB authentication resu
{wncd_x_R0-0}{1}: [client-orch-state] [17047]: (note): MAC: Client_MAC Client state transition: S_CO_MA
{wncd_x_R0-0}{1}: [dot11] [17047]: (info): MAC: Client_MAC dot11 send association response. Sending ass
{wncd_x_R0-0}{1}: [dot11] [17047]: (info): MAC: Client_MAC DOT11 state transition: S_DOT11_MAB_PENDING
{wncd_x_R0-0}{1}: [client-orch-state] [17047]: (note): MAC: Client_MAC Client state transition: S_CO_AS
{wncd_x_R0-0}{1}: [client-auth] [17047]: (info): MAC: Client_MAC Client auth-interface state transition
{wncd_x_R0-0}{1}: [client-orch-sm] [17047]: (debug): MAC: Client_MAC L2 Authentication of station is su
{wncd_x_R0-0}{1}: [client-orch-sm] [17047]: (note): MAC: Client_MAC Mobility discovery triggered. Client
{wncd_x_R0-0}{1}: [client-orch-state] [17047]: (note): MAC: Client_MAC Client state transition: S_CO_L2

!! Mobility Handoff !!
□{mobilityd_R0-0}{1} [mm-dgram-io] [18401] (debug) MAC Client-MAC Sending message mobile_announce to gr
{mobilityd_R0-0}{1} [mm-pmtu] [18401] (debug) Peer IP Anchor-WLC-IP □{mobilityd_R0-0}{1} [mm-client] [1
{mobilityd_R0-0}{1} [mm-transition] MMFSM transition S_MC_WAIT_ANNOUNCE_RSP -> S_MC_ANNOUNCE_TIMEDOUT_P
□{wncd_x_R0-0}{1} [mm-client] [17047] (debug) MAC Client-MAC Received mobile_announce_nak, sub type 2 o
□{wncd_x_R0-0}{1} [mm-transition] [17047] (info) MAC Client-MAC MMIF FSM transition S_MA_INIT_WAIT_ANNO
{wncd_x_R0-0}{1} [mm-client] [17047] (debug) MAC Client-MAC Sending export_Anchor_req of XID (XID) to (
{mobilityd_R0-0}{1} [mm-client] [18401] (debug) MAC Client-MAC Received export_Anchor_req, sub type 0 o
{mobilityd_R0-0}{1} [mm-transition] [18401] (info) MAC Client-MAC MMFSM transition S_MC_WAIT_EXP_ANC_RE
{mobilityd_R0-0}{1} [mm-client] [18401] (debug) MAC Client-MAC Export Anchor Request successfully proce
{mobilityd_R0-0}{1} [mm-client] [18401] (debug) MAC Client-MAC Sending export_Anchor_req of XID (176282
{mobilityd_R0-0}{1} [mm-client] [18401] (debug) MAC Client-MAC Received export_Anchor_rsp, sub type 0 o
{mobilityd_R0-0}{1} [mm-transition] [18401] (info) MAC Client-MAC MMFSM transition S_MC_WAIT_EXP_ANC_RS
{mobilityd_R0-0}{1} [mm-client] [18401] (debug) MAC Client-MAC Export Anchor Response successfully proc
□{wncd_x_R0-0}{1} [epm-misc] [17047] (info) Anchor Vlan-id 31 processed□[mm-client] [17047] (info) MAC
[mm-client] Mobility Successful. Roam Type L3 Requested, Sub Roam Type MM_SUB_ROAM_TYPE_NONE, Client IF
{wncd_x_R0-0}{1} [client-orch-state] Client state transition S_CO_MOBILITY_DISCOVERY_IN_PROGRESS -> S_C
{wncd_x_R0-0}{1} [client-orch-state] Client state transition S_CO_DPATH_PLUMB_IN_PROGRESS -> S_CO_IP_LE
□{wncd_x_R0-0}{1} [client-orch-sm] [17047] (debug) MAC Client-MAC Received ip learn response. method IP
{wncd_x_R0-0}{1} [client-orch-state] Client state transition S_CO_IP_LEARN_IN_PROGRESS -> S_CO_RUN >> !

!! Post Succesful Web authentication, Change of Authorization !!
{wncd_x_R0-0}{1}: [client-auth] [17047]: (info): MAC: Client_MAC Client auth-interface state transition
{wncd_x_R0-0}{1}: [caaa-ch] [17047]: (info): [CAAA:COMMAND HANDLER:a30003a6] Processing CoA request und
{wncd_x_R0-0}{1}: [caaa-ch] [17047]: (info): [CAAA:COMMAND HANDLER:a30003a6] Reauthenticate request (0x
{wncd_x_R0-0}{1}: [sadb-attr] [17047]: (info): Removing ipv6 addresses from the attr list -50323943,sm_
{wncd_x_R0-0}{1}: [mab] [17047]: (info): [Client_MAC:capwap_90000003] MAB re-authentication started for
{wncd_x_R0-0}{1}: [auth-mgr] [17047]: (info): [Client_MAC:capwap_90000003] Context changing state from
{wncd_x_R0-0}{1}: [auth-mgr] [17047]: (info): [Client_MAC:capwap_90000003] Method mab changing state fr
{wncd_x_R0-0}{1}: [aaa-coa] [17047]: (info): radius coa proxy relay coa resp(wncd)
{wncd_x_R0-0}{1}: [aaa-coa] [17047]: (info): CoA Response Details
{wncd_x_R0-0}{1}: [aaa-attr-inf] [17047]: (info): << ssg-command-code 0 32 >>
{wncd_x_R0-0}{1}: [aaa-attr-inf] [17047]: (info): << formatted-clid 0 Client_MAC>>
{wncd_x_R0-0}{1}: [aaa-attr-inf] [17047]: (info): << error-cause 0 1 [Success]>>
{wncd_x_R0-0}{1}: [aaa-coa] [17047]: (info): server:10.107.79.30 cfg_saddr:10.107.79.30 udpport:51304 s
```

```
{wncd_x_R0-0}{1}: [caaa-ch] [17047]: (info): [CAAA:COMMAND HANDLER] CoA response sent
{wncd_x_R0-0}{1}: [caaa-ch] [17047]: (info): [CAAA:COMMAND HANDLER:a30003a6] Identity preserved: MAC (C
{wncd_x_R0-0}{1}: [mab] [17047]: (info): [Client_MAC:capwap_90000003] Received event 'MAB_REAUTHENTICAT
{smd_R0-0}{1}: [aaa-coa] [18867]: (info): ++++++ Received CoA response Attribute List ++++++
{smd_R0-0}{1}: [radius] [18867]: (info): RADIUS(00000000): Send CoA Ack Response to 10.106.32.130:51304
{smd_R0-0}{1}: [radius] [18867]: (info): RADIUS: authenticator
{smd_R0-0}{1}: [radius] [18867]: (info): RADIUS: Vendor, Cisco [26] 9
{smd_R0-0}{1}: [radius] [18867]: (info): RADIUS: ssg-command-code [252] 3 ...
{smd_R0-0}{1}: [radius] [18867]: (info): RADIUS: Calling-Station-Id [31] 16 Client_MAC
{smd_R0-0}{1}: [radius] [18867]: (info): RADIUS: Dynamic-Author-Error-Cause[101] 6 Success [200]
{smd_R0-0}{1}: [radius] [18867]: (info): RADIUS: Message-Authenticator[80] 18 ...
{smd_R0-0}{1}: [aaa-pod] [18867]: (info): CoA response source port = 0, udpport = 51304,
{wncd_x_R0-0}{1}: [sadb-attr] [17047]: (info): Removing ipv6 addresses from the attr list 1627397682,sm
```

Captura do pacote

O cliente envia uma solicitação de associação e executa a autenticação MAC; esse tráfego é tratado pelo controlador externo.

UTC Arrival Time	Source Address	Destination Address	Length	Protocol	TID	Info
Jan 8, 2025 13:09:11…	10.107.79.129	10.107.79.30	250	802.11		Association Request, SN=695, FN=0, Flags=........, SSID="DMZ_CWA"
Jan 8, 2025 13:09:11…	10.107.79.129	10.107.79.30	246	802.11		Association Request, SN=695, FN=0, Flags=........, SSID="DMZ_CWA"
Jan 8, 2025 13:09:11…	10.107.79.30	10.106.32.130	412	RADIUS		Access-Request id=245
Jan 8, 2025 13:09:11…	10.107.79.30	10.106.32.130	416	RADIUS		Access-Request id=245, Duplicate Request
Jan 8, 2025 13:09:11…	10.106.32.130	10.107.79.30	429	RADIUS		Access-Accept id=245
Jan 8, 2025 13:09:11…	10.106.32.130	10.107.79.30	425	RADIUS		Access-Accept id=245, Duplicate Response
Jan 8, 2025 13:09:11…	10.107.79.30	10.107.79.129	211	802.11		Association Response, SN=0, FN=0, Flags=........
Jan 8, 2025 13:09:11…	10.107.79.30	10.107.79.129	215	802.11		Association Response, SN=0, FN=0, Flags=........

Fase de associação do cliente em controlador externo com MAB sem fio

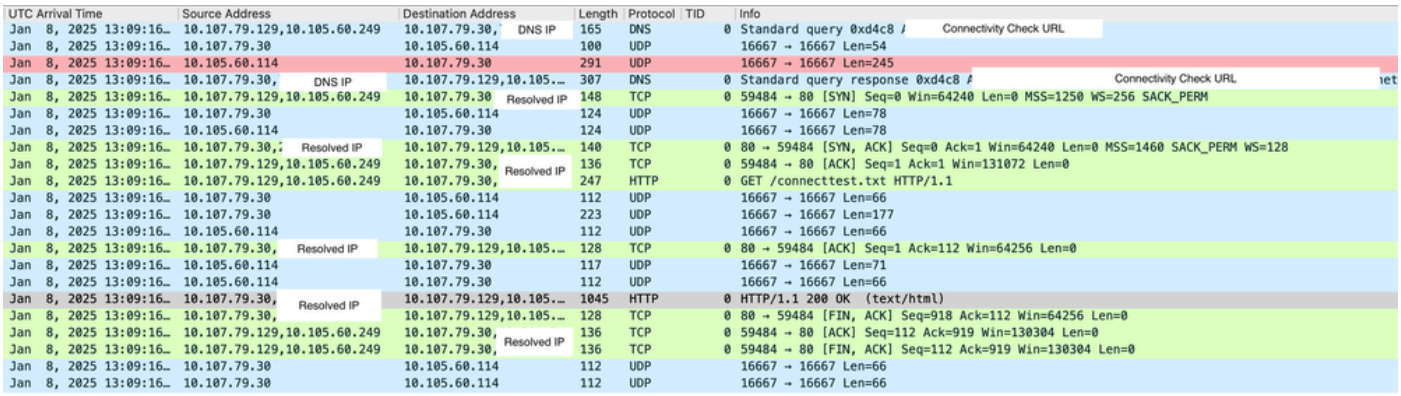
Uma entrega de mobilidade dispara entre os Controladores Externo e de Ancoragem por meio da porta UDP 16667. Após um evento de mobilidade bem-sucedido, o estado do cliente faz a transição para EXECUTAR com uma função Exportar Externo.

O controlador externo recebe o tráfego DHCP do cliente através do túnel CAPWAP e o encaminha para o controlador âncora para processamento posterior.

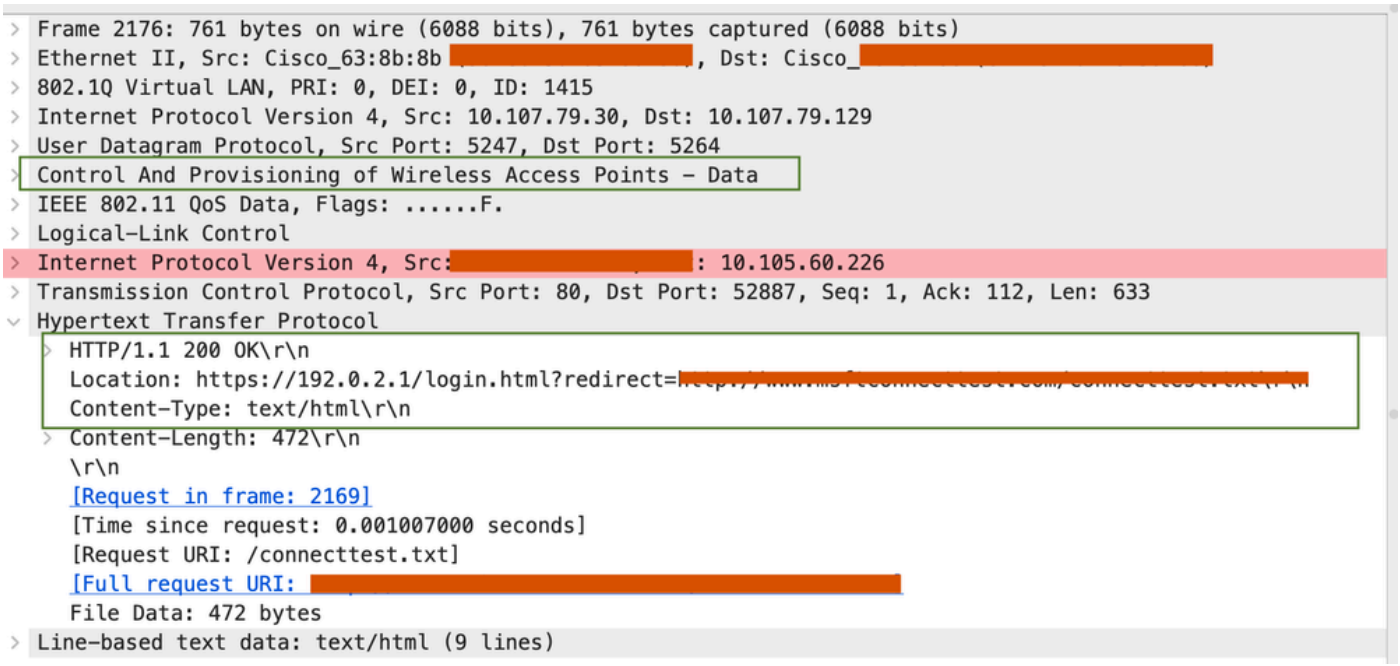
UTC Arrival Time	Source Address	Destination Address	Length	Protocol	TID	Info
Jan 8, 2025 13:09:12…	10.107.79.129,0.0.0.0	10.107.79.30,255.255.…	424	DHCP	0	DHCP Discover - Transaction ID 0x9f36b979
Jan 8, 2025 13:09:12…	10.107.79.30	10.105.60.114	400	UDP		16667 → 16667 Len=354
Jan 8, 2025 13:09:14…	10.105.60.114	10.107.79.30	400	UDP		16667 → 16667 Len=354
Jan 8, 2025 13:09:14…	10.107.79.30,10.105.60.69	10.107.79.129,10.105.…	416	DHCP	0	DHCP Offer - Transaction ID 0x9f36b979
Jan 8, 2025 13:09:14…	10.107.79.129,0.0.0.0	10.107.79.30,255.255.…	452	DHCP	0	DHCP Request - Transaction ID 0x9f36b979
Jan 8, 2025 13:09:14…	10.107.79.30	10.105.60.114	428	UDP		16667 → 16667 Len=382
Jan 8, 2025 13:09:14…	10.105.60.114	10.107.79.30	400	UDP		16667 → 16667 Len=354
Jan 8, 2025 13:09:14…	10.107.79.30,10.105.60.69	10.107.79.129,10.105.…	416	DHCP	0	DHCP ACK - Transaction ID 0x9f36b979

O tráfego DHCP do cliente recebido no controlador externo é encaminhado para o controlador âncora usando o túnel de mobilidade

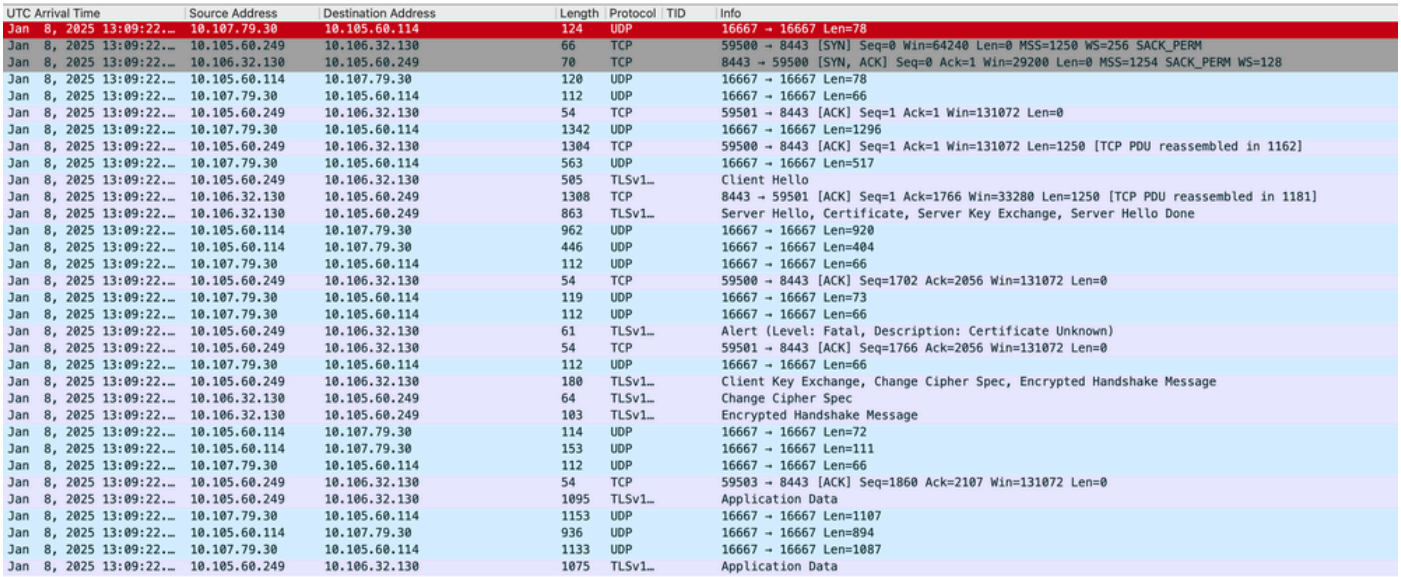
Da mesma forma, o cliente envia o status de conectividade da rede e o tráfego de verificação de acesso à página da Web para a WLC externa através do túnel CAPWAP; a WLC externa encaminha isso para a WLC âncora usando o túnel de mobilidade, onde o controlador âncora intercepta ou processa o tráfego.



Verificação de Status de Conectividade de Rede em Controlador Externo



Redirecionar URL enviada ao cliente



Acesso do cliente à página Webauth central para fornecer detalhes de autenticação

O controlador externo processa a solicitação de CoA após a autenticação da Web central bem-sucedida.

UTC Arrival Time	Source Address	Destination Address	Length	Protocol	TID	Info
Jan 8, 2025 13:09:33.…	10.106.32.130	10.107.79.30	248	RADIUS		CoA-Request id=2
Jan 8, 2025 13:09:33.…	10.106.32.130	10.107.79.30	244	RADIUS		CoA-Request id=2, Duplicate Request
Jan 8, 2025 13:09:33.…	10.107.79.30	10.106.32.130	111	RADIUS		CoA-ACK id=2
Jan 8, 2025 13:09:33.…	10.107.79.30	10.106.32.130	115	RADIUS		CoA-ACK id=2, Duplicate Response

Alteração de Autorização (COA) com Controlador Estrangeiro

Registros do controlador de âncora

Traços radioativos

```
!! Mobility Handoff !!
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Received mobile_announce, sub type 0 of
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Received mobile_announce, sub type 0 of
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Received export_Anchor_req, sub type 0 o
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Number of client is BELOW wlan limit
{mobilityd_R0-0}{1} [mm-transition] [26021] (info) MAC Client-MAC MMFSM transition S_MC_INIT -> S_MC_An
□{wncd_x_R0-0}{1} [mm-client] [24229] (info) MAC Client-MAC Roam type changed - None -> L3 Requested

!! Session Created for Client !!
{wncd_x_R0-0}{1}: [client-orch-state] [24229]: (note): MAC: Client_MAC Client state transition: S_CO_AS
{wncd_x_R0-0}{1}: [client-auth] [24229]: (info): MAC: Client_MAC Client auth-interface state transition
{wncd_x_R0-0}{1}: [client-auth] [24229]: (info): MAC: Client_MAC Client auth-interface state transition
{wncd_x_R0-0}{1}: [client-orch-sm] [24229]: (debug): MAC: Client_MAC L2 Authentication of station is su
{wncd_x_R0-0}{1}: [client-orch-state] [24229]: (note): MAC: Client_MAC Client state transition: S_CO_CR
{wncd_x_R0-0}{1}: [mm-transition] [24229]: (info): MAC: Client_MACMMIF FSM transition: S_MA_INIT -> S_M
{wncd_x_R0-0}{1}: [mm-client] [24229]: (info): MAC: Client_MACRoam type changed - None -> L3 Requested
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Export Anchor Response successfully proc
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Forwarding Anchor Response to Foreign.
{mobilityd_R0-0}{1} [mm-client] [26021] (info) MAC Client-MAC Forwarding export_Anchor_rsp, sub type 0
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Client is AnchorED.
{□wncd_x_R0-0}{1} [mm-client] [24229] (info) MAC Client-MAC Mobility role changed - Unassoc -> Export A
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Client is AnchorED.>> Client is successf

!! Central Web Authentication Applied !!

{wncd_x_R0-0}{1}: [webauth-dev] [24229]: (info): Central Webauth URL Redirect, Received a request to cr
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): [Client_MAC][ 0.0.0.0]Param-map used: global
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): [Client_MAC][ 0.0.0.0]State Invalid State -> INIT
{wncd_x_R0-0}{1}: [epm-redirect] [24229]: (info): [0000.0000.0000:unknown] URL-Redirect = https://10.10
{wncd_x_R0-0}{1}: [aaa-attr-inf] [24229]: (info): Applied User Profile: method 0 2 [mab]
{wncd_x_R0-0}{1}: [aaa-attr-inf] [24229]: (info): Applied User Profile: clid-MAC-addr 0 Client_MAC
{wncd_x_R0-0}{1}: [aaa-attr-inf] [24229]: (info): Applied User Profile: intf-id 0 2415919107 (0x9000000
{wncd_x_R0-0}{1}: [aaa-attr-inf] [24229]: (info): Applied User Profile: username 0 D0-37-45-88-25-52
{wncd_x_R0-0}{1}: [aaa-attr-inf] [24229]: (info): Applied User Profile: class 0 43 41 43 53 3a 31 45 34
{wncd_x_R0-0}{1}: [aaa-attr-inf] [24229]: (info): Applied User Profile: url-redirect-acl 0 REDIRECT_ACL
{wncd_x_R0-0}{1}: [aaa-attr-inf] [24229]: (info): Applied User Profile: url-redirect 0 https://10.106.3

!! Client DHCP Traffic !!
{wncd_x_R0-0}{1} [client-orch-state] [24229] (note) MAC Client-MAC Client state transition S_CO_MOBILIT
{wncd_x_R0-0}{1} [client-orch-state] [24229] (note) MAC Client-MAC Client state transition S_CO_DPATH_P
```

```
{wncd_x_R0-0}{1} [sisf-packet] RX DHCPv4 from interface mobility_a0000001 on vlan 31 Src MAC Client-MAC
{wncd_x_R0-0}{1} [sisf-packet] RX DHCPv4 from interface Tw0/0/1 on vlan 31 Src MAC DHCP-Reply-Source-MA
{wncd_x_R0-0}{1} [sisf-packet] TX DHCPv4 from interface Tw0/0/1 on vlan 31 Src MAC DHCP-Reply-Source-MA
{wncd_x_R0-0}{1} [sisf-packet] RX DHCPv4 from interface mobility_a0000001 on vlan 31 Src MAC Client-MAC
{wncd_x_R0-0}{1} [sisf-packet] TX DHCPv4 from interface mobility_a0000001 on vlan 31 Src MAC Client-MAC
{wncd_x_R0-0}{1} [sisf-packet] RX DHCPv4 from interface Tw0/0/1 on vlan 31 Src MAC DHCP-Reply-Source-MA
{wncd_x_R0-0}{1} [sisf-packet] TX DHCPv4 from interface Tw0/0/1 on vlan 31 Src MAC DHCP-Reply-Source-MA
{wncd_x_R0-0}{1} [client-iplearn] [24229] (note) MAC Client-MAC Client IP learn successful. Method DHCP
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Sending ipv4_address_update of XID (XID)
{wncd_x_R0-0}{1} [client-iplearn] [24229] (info) MAC Client-MAC IP-learn state transition S_IPLEARN_IN_
Complete
{wncd_x_R0-0}{1}: [client-orch-sm] [24229]: (debug): MAC: Client_MAC Received ip learn response. method


!! Central Web Authentication !!

{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): [Client_MAC][ 10.105.60.249]59494/233 IO state NEW -> R
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): [Client_MAC][ 10.105.60.249]59495/235 IO state NEW -> R
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): [Client_MAC][ 10.105.60.249]59494/233 Read event, Messa
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): Captive bypass: No parameter map associated. Falling
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): [Client_MAC][ 10.105.60.249]Param-map used: global
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): [Client_MAC][ 10.105.60.249]State GET_REDIRECT -> GE
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): [Client_MAC][ 10.105.60.249]59494/233 IO state READING
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): [Client_MAC][ 10.105.60.249]59494/233 IO state WRITING
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): [Client_MAC][ 10.105.60.249]59494/233 Remove IO ctx
{wncd_x_R0-0}{1}: [client-auth] [24229]: (info): MAC: Client_MAC Client auth-interface state transition
{mobilityd_R0-0}{1}: [mm-client] [26021]: (debug): MAC: Client_MAC Sending export_anchor_rsp of XID (18
{wncd_x_R0-0}{1}: [client-auth] [24229]: (note): MAC: Client_MAC L3 Authentication Successful. ACL:[]
{wncd_x_R0-0}{1}: [client-auth] [24229]: (info): MAC: Client_MAC Client auth-interface state transition
{wncd_x_R0-0}{1}: [client-orch-state] [24229]: (note): MAC: Client_MAC Client state transition: S_CO_L3
```

Captura do pacote

Após a transferência de mobilidade, o controlador de âncora recebe tráfego DHCP do controlador externo através do túnel de mobilidade.

UTC Arrival Time	Source Address	Destination Address	Length	Protocol	TID	Info
Jan 8, 2025 13:09:42…	10.107.79.30	10.105.60.114	396	UDP		16667 → 16667 Len=354
Jan 8, 2025 13:09:42…	0.0.0.0	255.255.255.255	286	DHCP		DHCP Discover - Transaction ID 0x9f36b979
Jan 8, 2025 13:09:44…	10.105.60.69	10.105.60.249	286	DHCP		DHCP Offer - Transaction ID 0x9f36b979
Jan 8, 2025 13:09:44…	10.105.60.114	10.107.79.30	396	UDP		16667 → 16667 Len=354
Jan 8, 2025 13:09:44…	10.107.79.30	10.105.60.114	424	UDP		16667 → 16667 Len=382
Jan 8, 2025 13:09:44…	0.0.0.0	255.255.255.255	286	DHCP		DHCP Request - Transaction ID 0x9f36b979
Jan 8, 2025 13:09:44…	10.105.60.69	10.105.60.249	286	DHCP		DHCP ACK - Transaction ID 0x9f36b979
Jan 8, 2025 13:09:44…	10.105.60.114	10.107.79.30	396	UDP		16667 → 16667 Len=354

Tráfego DHCP do cliente no Controlador de âncora recebido do Controlador externo

O Controlador de âncora recebe verificações de conectividade, solicitações de acesso a páginas da Web e detalhes de autenticação para processamento posterior.

UTC Arrival Time	Source Address	Destination Address	Length	Protocol	TID	Info
Jan 8, 2025 13:09:44…	10.105.60.114	10.107.79.30	114	UDP		16667 → 16667 Len=72
Jan 8, 2025 13:09:44…	10.105.60.249	DNS IP	83	DNS		Standard query 0xd4c8
Jan 8, 2025 13:09:44…	DNS IP	10.105.60.249	237	DNS		Standard query response 0xd4c8 A
Jan 8, 2025 13:09:44…	10.105.60.114	10.107.79.30	287	UDP		16667 → 16667 Len=245
Jan 8, 2025 13:09:44…	10.107.79.30	10.105.60.114	124	UDP		16667 → 16667 Len=78
Jan 8, 2025 13:09:44…	10.105.60.249	Resolved IP	70	TCP		59484 → 80 [SYN] Seq=0 Win=64240 Len=0 MSS=1250 WS=256 SACK_PERM
Jan 8, 2025 13:09:44…	Resolved IP	10.105.60.249	66	TCP		80 → 59484 [SYN, ACK] Seq=0 Ack=1 Win=64240 Len=0 MSS=1460 SACK_PERM WS=128
Jan 8, 2025 13:09:44…	10.105.60.114	10.107.79.30	120	UDP		16667 → 16667 Len=78
Jan 8, 2025 13:09:44…	10.107.79.30	10.105.60.114	112	UDP		16667 → 16667 Len=66
Jan 8, 2025 13:09:44…	10.107.79.30	10.105.60.114	223	UDP		16667 → 16667 Len=177
Jan 8, 2025 13:09:44…	10.105.60.249	Resolved IP	58	TCP		59484 → 80 [ACK] Seq=1 Ack=1 Win=131072 Len=0
Jan 8, 2025 13:09:44…	10.105.60.249		169	HTTP		GET /connecttest.txt HTTP/1.1
Jan 8, 2025 13:09:44…	Resolved IP	10.105.60.249	54	TCP		80 → 59484 [ACK] Seq=1 Ack=112 Win=64256 Len=0
Jan 8, 2025 13:09:44…	10.105.60.114	10.107.79.30	108	UDP		16667 → 16667 Len=66
Jan 8, 2025 13:09:44…	Resolved IP	10.105.60.249	971	HTTP		HTTP/1.1 200 OK (text/html)
Jan 8, 2025 13:09:44…		10.105.60.249	54	TCP		80 → 59484 [FIN, ACK] Seq=918 Ack=112 Win=64256 Len=0
Jan 8, 2025 13:09:44…	10.105.60.114	10.107.79.30	108	UDP		16667 → 16667 Len=66
Jan 8, 2025 13:09:44…	10.107.79.30	10.105.60.114	112	UDP		16667 → 16667 Len=66
Jan 8, 2025 13:09:44…	10.107.79.30	10.105.60.114	112	UDP		16667 → 16667 Len=66
Jan 8, 2025 13:09:44…	10.105.60.249	Resolved IP	58	TCP		59484 → 80 [ACK] Seq=112 Ack=919 Win=130304 Len=0
Jan 8, 2025 13:09:44…	10.105.60.249		58	TCP		59484 → 80 [FIN, ACK] Seq=112 Ack=919 Win=130304 Len=0
Jan 8, 2025 13:09:44…	Resolved IP	10.105.60.249	54	TCP		80 → 59484 [ACK] Seq=919 Ack=113 Win=64256 Len=0
Jan 8, 2025 13:09:44…	10.105.60.114	10.107.79.30	108	UDP		16667 → 16667 Len=66

Verificação de Status da Conectividade de Rede no Controlador de Âncora

```
> Frame 864: 971 bytes on wire (7768 bits), 971 bytes captured (7768 bits)
> Ethernet II, Src: [redacted], Dst: [redacted]
> Internet Protocol Version 4, Src: [redacted] Dst: 10.105.60.249
> Transmission Control Protocol, Src Port: 80, Dst Port: 59484, Seq: 1, Ack: 112, Len: 917
v Hypertext Transfer Protocol
  > HTTP/1.1 200 OK\r\n
    […]Location: https://10.106.32.130:8443/portal/gateway?sessionId=1E4F6B0A000003D247203276&portal=d06bc2
    Content-Type: text/html\r\n
  > Content-Length: 614\r\n
    \r\n
    [Request in frame: 861]
    [Time since request: 0.001007000 seconds]
    [Request URI: /connecttest.txt]
    [Full request URI: [redacted]
    File Data: 614 bytes
> Line-based text data: text/html (9 lines)
```

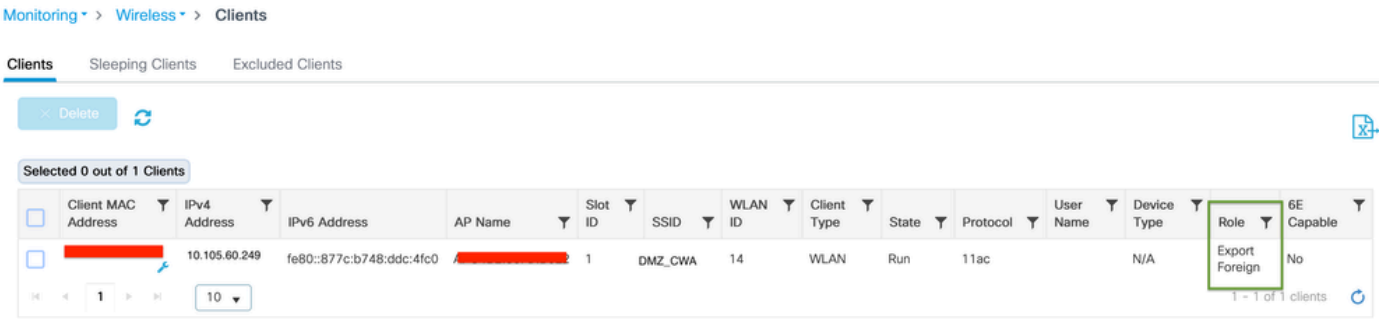
Redirecionar URL enviada ao cliente

UTC Arrival Time	Source Address	Destination Address	Length	Protocol	TID	Info
Jan 8, 2025 13:09:21…	10.107.79.129,10.105.60.249	10.107.79.30,10.106.3…	148	TCP	0	59501 → 8443 [SYN] Seq=0 Win=64240 Len=0 MSS=1250 WS=256 SACK_PERM
Jan 8, 2025 13:09:21…	10.107.79.30	10.105.60.114	124	UDP		16667 → 16667 Len=78
Jan 8, 2025 13:09:21…	10.105.60.114	10.107.79.30	124	UDP		16667 → 16667 Len=78
Jan 8, 2025 13:09:21…	10.107.79.30,10.106.32.130	10.107.79.129,10.105.…	140	TCP	1	8443 → 59501 [SYN, ACK] Seq=0 Ack=1 Win=29200 Len=0 MSS=1254 SACK_PERM WS=128
Jan 8, 2025 13:09:21…	10.107.79.129,10.105.60.249	10.107.79.30,10.106.3…	136	TCP	0	59501 → 8443 [ACK] Seq=1 Ack=1 Win=131072 Len=0
Jan 8, 2025 13:09:21…	10.107.79.30	10.105.60.114	112	UDP		16667 → 16667 Len=66
Jan 8, 2025 13:09:21…	10.107.79.129,10.105.60.249	10.107.79.30,10.106.3…	1386	TCP	0	59501 → 8443 [ACK] Seq=1 Ack=1 Win=131072 Len=1250 [TCP PDU reassembled in 1420]
Jan 8, 2025 13:09:21…	10.107.79.129,10.105.60.249	10.107.79.30,10.106.3…	651	TLSv1…	0	Client Hello
Jan 8, 2025 13:09:21…	10.107.79.30	10.105.60.114	627	UDP		16667 → 16667 Len=581
Jan 8, 2025 13:09:21…	10.107.79.30	10.105.60.114	1342	UDP		16667 → 16667 Len=1296
Jan 8, 2025 13:09:21…	10.105.60.114	10.107.79.30	450	UDP		16667 → 16667 Len=404
Jan 8, 2025 13:09:21…	10.105.60.114	10.107.79.30	917	UDP		16667 → 16667 Len=871
Jan 8, 2025 13:09:21…	10.107.79.30,10.106.32.130	10.107.79.129,10.105.…	1378	TCP	0	8443 → 59500 [ACK] Seq=1 Ack=1702 Win=34688 Len=1250 [TCP PDU reassembled in 1432]
Jan 8, 2025 13:09:21…	10.107.79.30,10.106.32.130	10.107.79.129,10.105.…	933	TLSv1…	0	Server Hello, Certificate, Server Key Exchange, Server Hello Done
Jan 8, 2025 13:09:21…	10.105.60.114	10.107.79.30	917	UDP		16667 → 16667 Len=871
Jan 8, 2025 13:09:21…	10.107.79.30,10.106.32.130	10.107.79.129,10.105.…	1378	TCP	0	8443 → 59501 [ACK] Seq=1 Ack=1766 Win=33280 Len=1250 [TCP PDU reassembled in 1437]
Jan 8, 2025 13:09:21…	10.107.79.129,10.105.60.249	10.107.79.30,10.106.3…	143	TLSv1…	0	Alert (Level: Fatal, Description: Certificate Unknown)
Jan 8, 2025 13:09:21…	10.107.79.129,10.105.60.249	10.107.79.30,10.106.3…	136	TCP	0	59501 → 8443 [ACK] Seq=1766 Ack=2056 Win=131072 Len=0
Jan 8, 2025 13:09:21…	10.107.79.30	10.105.60.114	119	UDP		16667 → 16667 Len=73
Jan 8, 2025 13:09:21…	10.107.79.30	10.105.60.114	112	UDP		16667 → 16667 Len=66
Jan 8, 2025 13:09:21…	10.107.79.30	10.105.60.114	112	UDP		16667 → 16667 Len=66
Jan 8, 2025 13:09:21…	10.107.79.129,10.105.60.249	10.107.79.30,10.106.3…	262	TLSv1…	0	Client Key Exchange, Change Cipher Spec, Encrypted Handshake Message
Jan 8, 2025 13:09:21…	10.105.60.114	10.107.79.30	118	UDP		16667 → 16667 Len=72
Jan 8, 2025 13:09:21…	10.105.60.114	10.107.79.30	157	UDP		16667 → 16667 Len=111
Jan 8, 2025 13:09:21…	10.107.79.30,10.106.32.130	10.107.79.129,10.105.…	134	TLSv1…	0	Change Cipher Spec
Jan 8, 2025 13:09:21…	10.107.79.30,10.106.32.130	10.107.79.129,10.105.…	173	TLSv1…	0	Encrypted Handshake Message
Jan 8, 2025 13:09:21…	10.107.79.129,10.105.60.249	10.107.79.30,10.106.3…	1177	TLSv1…	0	Application Data
Jan 8, 2025 13:09:21…	10.107.79.30	10.105.60.114	1153	UDP		16667 → 16667 Len=1107
Jan 8, 2025 13:09:21…	10.105.60.114	10.107.79.30	940	UDP		16667 → 16667 Len=894
Jan 8, 2025 13:09:21…	10.107.79.30,10.106.32.130	10.107.79.129,10.105.…	956	TLSv1…	0	Application Data
Jan 8, 2025 13:09:21…	10.107.79.129,10.105.60.249	10.107.79.30,10.106.3…	1157	TLSv1…	0	Application Data
Jan 8, 2025 13:09:21…	10.107.79.30	10.105.60.114	1133	UDP		16667 → 16667 Len=1087

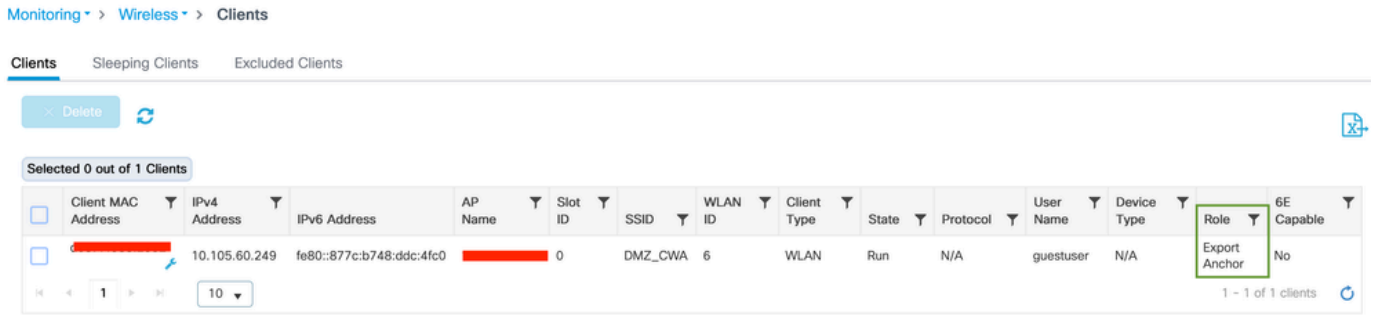
Acesso do cliente à página Webauth local para fornecer detalhes de autenticação

Quando a autenticação da Web central é bem-sucedida, uma alteração de autorização (CoA) é acionada. Após um CoA bem-sucedido, o cliente passa para o estado RUN com uma função Export Anchor.

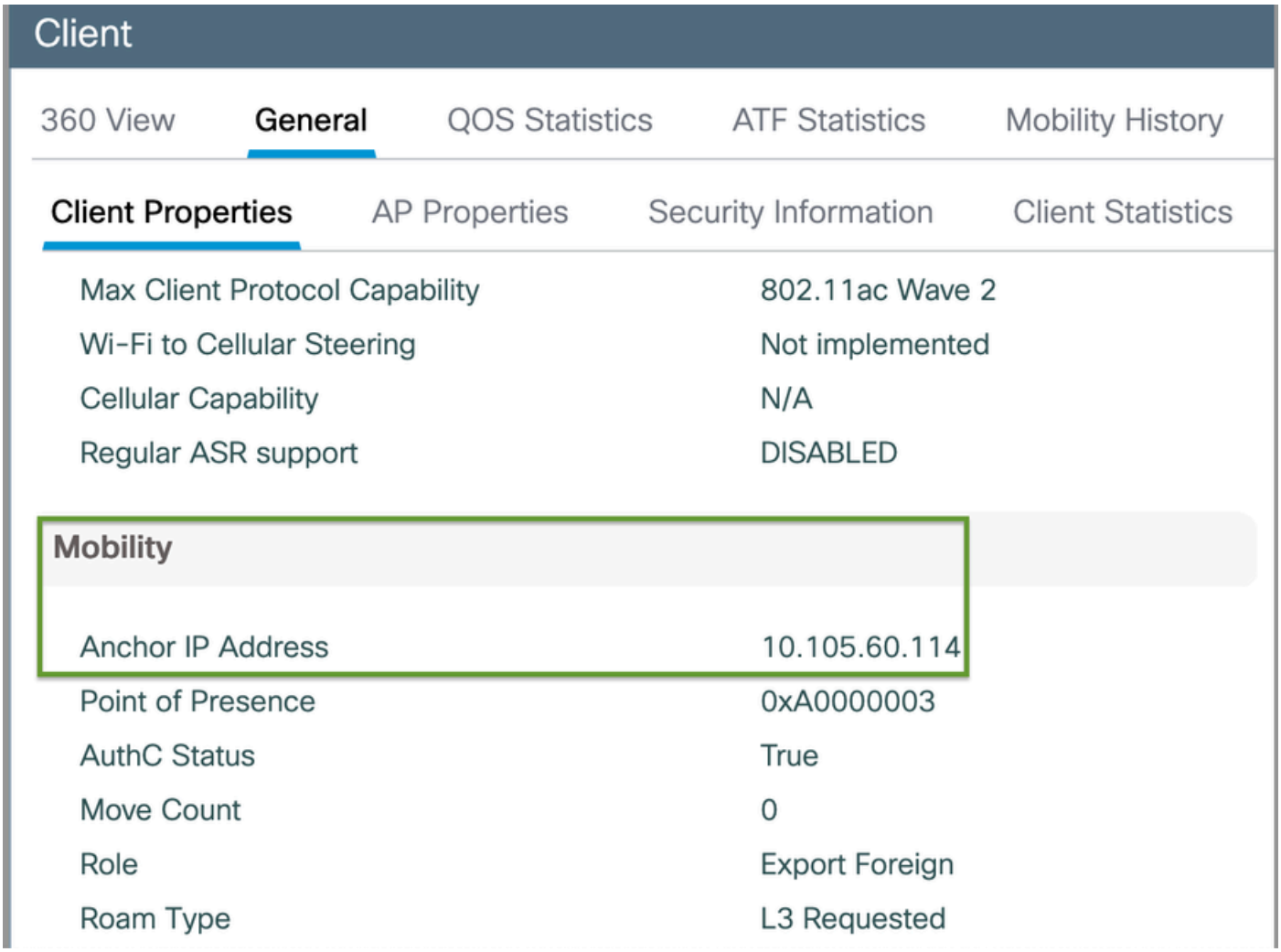
Estado do Cliente no Controlador Externo e de Âncora



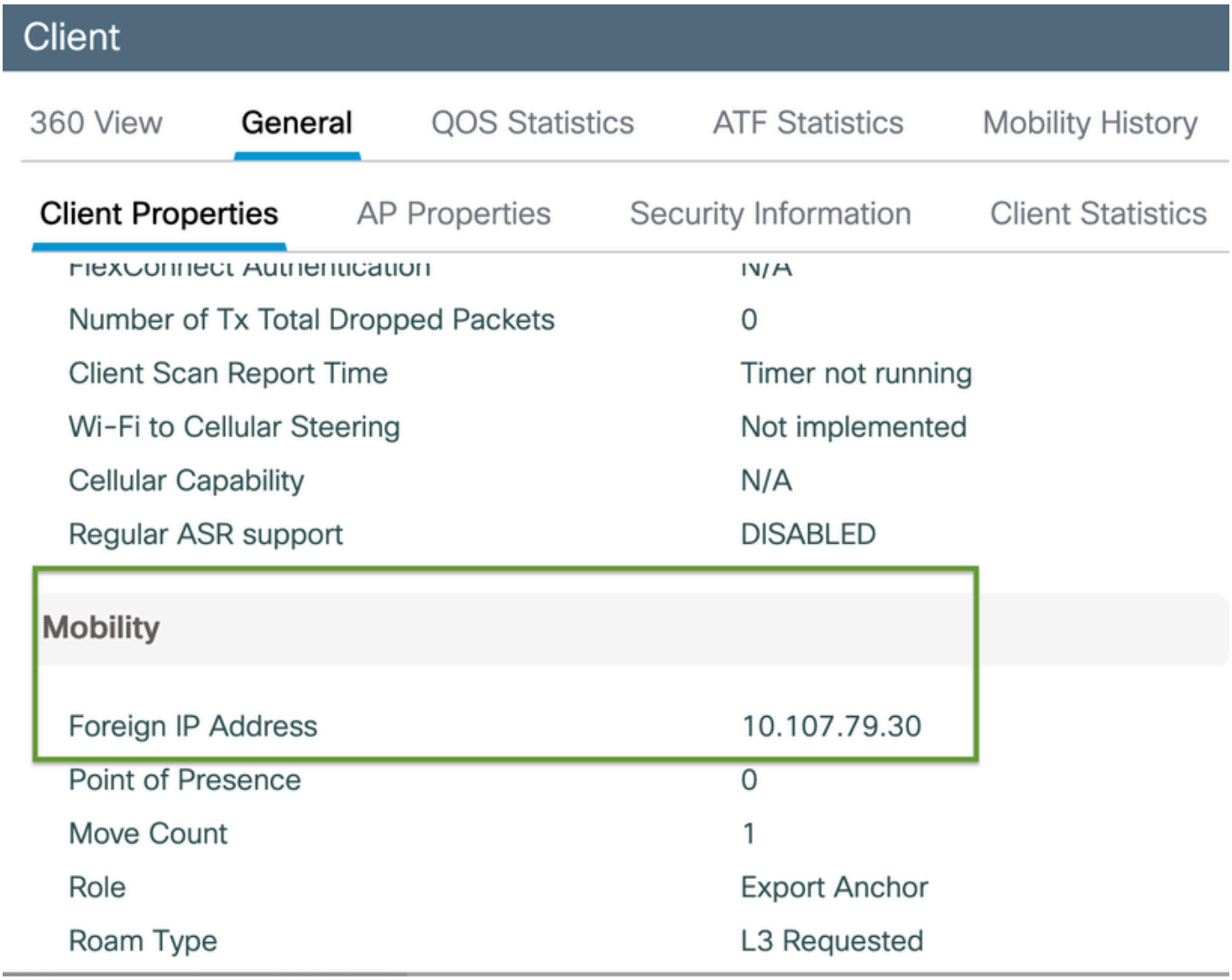
Estado do Cliente no Estrangeiro



Estado do Cliente em Âncora



Propriedades do Cliente em Externo



Propriedades do Cliente em Âncora

Autenticação da Web externa

Fluxo para SSID de Webauth Externo na Configuração de Âncora Estrangeira

1. O cliente inicia uma conexão com o SSID transmitido pela WLC externa.
2. Como nenhuma autenticação da Camada 2 é necessária, o cliente está Ancorado na WLC Âncora. O cliente faz a transição para o estado RUN na WLC externa, com a função de mobilidade designada como Export Foreign.
3. O cliente adquire um endereço IP. A WLC Anchor intercepta o tráfego e redireciona o cliente para o portal do servidor Web externo, conforme definido nos parâmetros de autenticação da Web.
4. O cliente envia credenciais de autenticação através do portal. Essas credenciais são validadas localmente na WLC ou por meio de um servidor de autenticação externo, dependendo da política de segurança configurada.
5. Após a autenticação bem-sucedida, o cliente faz a transição para o estado EXECUTAR na

WLC Âncora, assumindo a função Exportar âncora.
6. Após a autenticação bem-sucedida, todo o tráfego subsequente do cliente é enviado por túnel da WLC Externa para a WLC Âncora, de onde ela sai da rede.

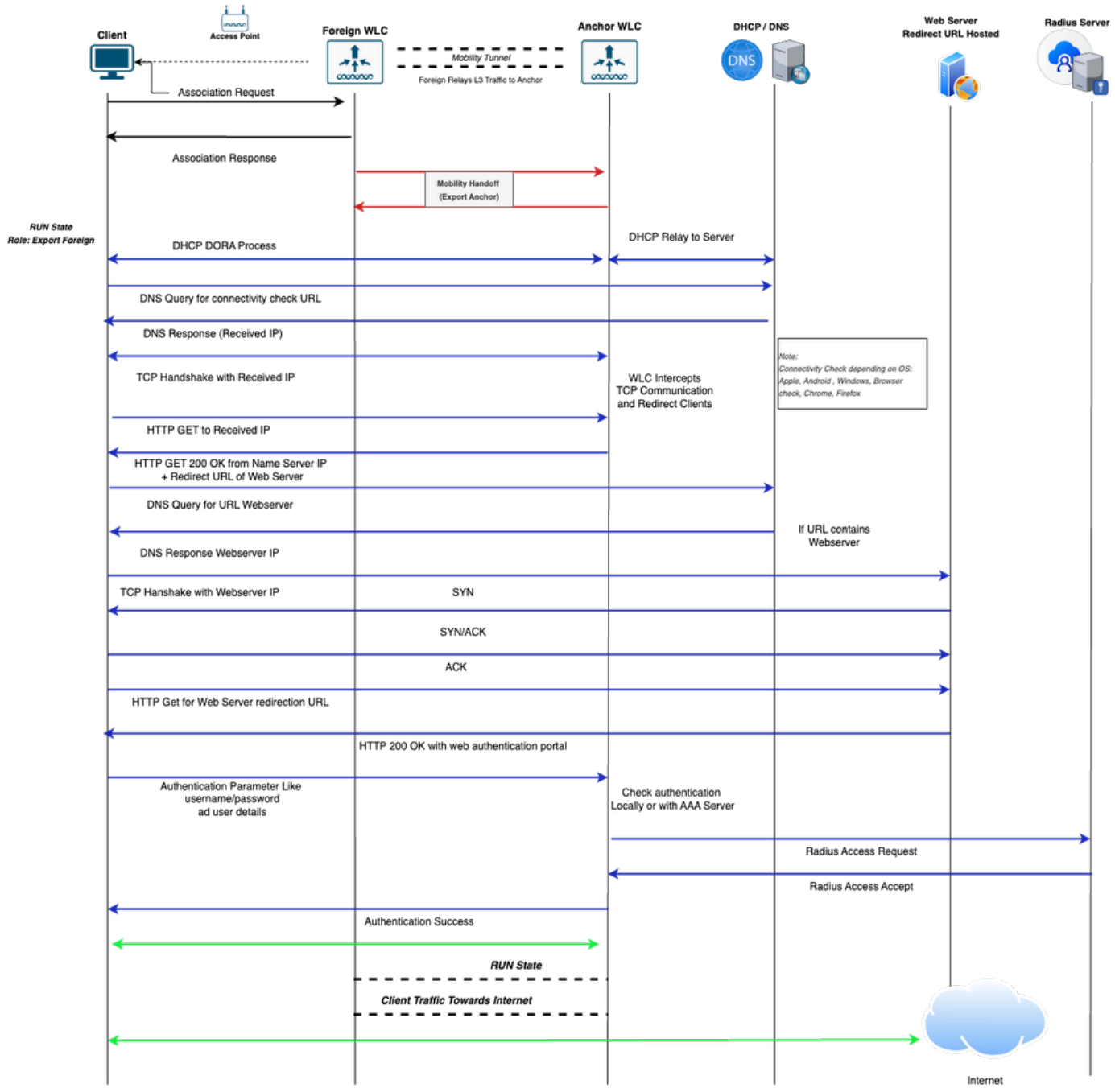


Diagrama de Fluxo de Conectividade de Cliente para SSID de Webauth Externo na Configuração de Âncora Externa

Analisando o Fluxo de SSID de Webauth Externo na Configuração de Âncora Estrangeira por meio de Logs

Esta seção explica o fluxo de conectividade do cliente para SSID de Autenticação Externa da Web usando Rastreamento Radioativo (Rastreamento RA), Capturas de Pacotes Incorporadas (EPC) e o status do cliente nas controladoras Externa e de Âncora.

Logs de Controlador Externo

Traços radioativos

```
!! Client Association Phase !!
{wncd_x_R0-1}{1}: [client-orch-sm] [17162]: (note): MAC: Client_MAC Association received. BSSID BSSID_MA
{wncd_x_R0-1}{1}: [client-orch-state] [17162]: (note): MAC: Client_MAC Client state transition: S_CO_IN
{wncd_x_R0-1}{1}: [dot11] [17162]: (info): MAC: Client_MAC dot11 send association response. Sending ass
{wncd_x_R0-1}{1}: [dot11] [17162]: (note): MAC: Client_MAC Association success. AID 1, Roaming = False,
{wncd_x_R0-1}{1}: [dot11] [17162]: (info): MAC: Client_MAC DOT11 state transition: S_DOT11_INIT -> S_DO

!! Layer 2 Authentication None !!
{wncd_x_R0-1}{1}: [client-orch-state] [17162]: (note): MAC: Client_MAC Client state transition: S_CO_AS
{wncd_x_R0-1}{1}: [client-auth] [17162]: (note): MAC: Client_MAC L2 Authentication initiated. method WE
{wncd_x_R0-1}{1}: [client-auth] [17162]: (info): MAC: Client_MAC Client auth-interface state transition
{wncd_x_R0-1}{1}: [client-auth] [17162]: (info): MAC: Client_MAC Client auth-interface state transition
{wncd_x_R0-1}{1}: [client-auth] [17162]: (info): MAC: Client_MAC Client auth-interface state transition
{wncd_x_R0-1}{1}: [client-orch-sm] [17162]: (debug): MAC: Client_MAC L2 Authentication of station is su
{wncd_x_R0-1}{1}: [client-orch-sm] [17162]: (note): MAC: Client_MAC Mobility discovery triggered. Client
{wncd_x_R0-1}{1}: [client-orch-state] [17162]: (note): MAC: Client_MAC Client state transition: S_CO_L2
{wncd_x_R0-1}{1}: [client-orch-state] [17162]: (note): MAC: Client_MAC Client state transition: S_CO_MO

!! Mobility Handoff !!
{mobilityd_R0-0}{1} [mm-dgram-io] [18401] (debug) MAC Client-MAC Sending message mobile_announce to gro
{mobilityd_R0-0}{1} [mm-pmtu] [18401] (debug) Peer IP Anchor-WLC-IP □{mobilityd_R0-0}{1} [mm-client] [1
{mobilityd_R0-0}{1} [mm-transition] MMFSM transition S_MC_WAIT_ANNOUNCE_RSP -> S_MC_ANNOUNCE_TIMEDOUT_P
□{wncd_x_R0-0}{1} [mm-client] [17047] (debug) MAC Client-MAC Received mobile_announce_nak, sub type 2 o
□{wncd_x_R0-0}{1} [mm-transition] [17047] (info) MAC Client-MAC MMIF FSM transition S_MA_INIT_WAIT_ANNO
{wncd_x_R0-0}{1} [mm-client] [17047] (debug) MAC Client-MAC Sending export_Anchor_req of XID (XID) to (
{mobilityd_R0-0}{1} [mm-client] [18401] (debug) MAC Client-MAC Received export_Anchor_req, sub type 0 o
{mobilityd_R0-0}{1} [mm-transition] [18401] (info) MAC Client-MAC MMFSM transition S_MC_WAIT_EXP_ANC_RE
{mobilityd_R0-0}{1} [mm-client] [18401] (debug) MAC Client-MAC Export Anchor Request successfully proce
{mobilityd_R0-0}{1} [mm-client] [18401] (debug) MAC Client-MAC Sending export_Anchor_req of XID (176282
{mobilityd_R0-0}{1} [mm-client] [18401] (debug) MAC Client-MAC Received export_Anchor_rsp, sub type 0 o
{mobilityd_R0-0}{1} [mm-transition] [18401] (info) MAC Client-MAC MMFSM transition S_MC_WAIT_EXP_ANC_RS
{mobilityd_R0-0}{1} [mm-client] [18401] (debug) MAC Client-MAC Export Anchor Response successfully proc
□{wncd_x_R0-0}{1} [epm-misc] [17047] (info) Anchor Vlan-id 31 processed□[mm-client] [17047] (info) MAC
[mm-client] Mobility Successful. Roam Type L3 Requested, Sub Roam Type MM_SUB_ROAM_TYPE_NONE, Client IF
{wncd_x_R0-0}{1} [client-orch-state] Client state transition S_CO_MOBILITY_DISCOVERY_IN_PROGRESS -> S_C
{wncd_x_R0-0}{1} [client-orch-state] Client state transition S_CO_DPATH_PLUMB_IN_PROGRESS -> S_CO_IP_LE
{wncd_x_R0-0}{1}: [client-orch-state] [17047]: (note): MAC: Client_MAC Client state transition: S_CO_IP

!! Client AAAA Traffic !!
{mobilityd_R0-0}{1}: [mm-client] [18401]: (debug): MAC: Client_MAC Received aaa_handoff, sub type: 0 of
{mobilityd_R0-0}{1}: [mm-client] [18401]: (debug): MAC: Client_MAC aaa_handoff base check is VALID
{mobilityd_R0-0}{1}: [mm-transition] [18401]: (info): MAC: Client_MAC MMFSM transition: S_MC_RUN -> S_M
{mobilityd_R0-0}{1}: [mm-client] [18401]: (info): MAC: Client_MAC Forwarding aaa_handoff, sub type: 0 o
{mobilityd_R0-0}{1}: [mm-client] [18401]: (debug): MAC: Client_MAC Sending aaa_handoff of XID (38840) t
{mobilityd_R0-0}{1}: [mm-client] [18401]: (debug): MAC: Client_MAC AAA Handoff successfully forwarded.
{wncd_x_R0-0}{1}: [mm-client] [17047]: (debug): MAC: Client_MAC Received aaa_handoff, sub type: 0 of XI
{wncd_x_R0-0}{1}: [mm-transition] [17047]: (info): MAC: Client_MAC MMIF FSM transition: S_MA_FOREIGN ->
{wncd_x_R0-0}{1}: [mm-client] [17047]: (debug): MAC: Client_MAC Mobile AAA Handoff update received.
{wncd_x_R0-0}{1}: [sanet-shim-miscellaneous] [17047]: (info): MAC: Client_MAC Received username=Test321
{wncd_x_R0-0}{1}: [sanet-shim-miscellaneous] [17047]: (info): MAC: Client_MAC IPv6 Client payload is re
```

```
{wncd_x_R0-0}{1}: [mm-client] [17047]: (debug): MAC: Client_MAC Sending aaa_handoff_ack of XID (38840)
{mobilityd_R0-0}{1}: [mm-client] [18401]: (debug): MAC: Client_MAC Received aaa_handoff_ack, sub type:
{mobilityd_R0-0}{1}: [mm-client] [18401]: (debug): MAC: Client_MAC AAA Handoff Ack successfully handled
{mobilityd_R0-0}{1}: [mm-client] [18401]: (debug): MAC: Client_MAC aaa_handoff_ack base check is VALID
{mobilityd_R0-0}{1}: [mm-client] [18401]: (debug): MAC: Client_MAC aaa_handoff_ack is VALID
{mobilityd_R0-0}{1}: [mm-transition] [18401]: (info): MAC: Client_MAC MMFSM transition: S_MC_RUN -> S_M
{mobilityd_R0-0}{1}: [mm-client] [18401]: (info): MAC: Client_MAC Forwarding aaa_handoff_ack, sub type:
```

Captura do pacote

O cliente envia uma solicitação de associação, que o Foreign Controller trata.

UTC Arrival Time	Source Address	Destination Address	Length	Protocol	TID	Info
Jan 14, 2025 16:18:59…	10.107.79.236	10.107.79.30	250	802.11		Association Request, SN=209, FN=0, Flags=........, SSID="DMZ_EWA"
Jan 14, 2025 16:18:59…	10.107.79.236	10.107.79.30	246	802.11		Association Request, SN=209, FN=0, Flags=........, SSID="DMZ_EWA"
Jan 14, 2025 16:18:59…	10.107.79.30	10.107.79.236	211	802.11		Association Response, SN=0, FN=0, Flags=........
Jan 14, 2025 16:18:59…	10.107.79.30	10.107.79.236	215	802.11		Association Response, SN=0, FN=0, Flags=........

Fase de Associação do Cliente com Controlador Externo

Uma entrega de mobilidade dispara entre os Controladores Externo e de Ancoragem por meio da porta UDP 16667. Após um evento de mobilidade bem-sucedido, o estado do cliente faz a transição para EXECUTAR com uma função Exportar Externo.
O controlador externo recebe o tráfego DHCP do cliente através do túnel CAPWAP e o encaminha para o controlador âncora para processamento posterior.

UTC Arrival Time	Source Address	Destination Address	Length	Protocol	TID	Info
Jan 14, 2025 16:19:01…	10.107.79.129,0.0.0.0	10.107.79.30,255.255.…	424	DHCP	0	DHCP Discover - Transaction ID 0x9f36b979
Jan 14, 2025 16:19:01…	10.107.79.30	10.105.60.114	400	UDP		16667 → 16667 Len=354
Jan 14, 2025 16:19:03…	10.105.60.114	10.107.79.30	400	UDP		16667 → 16667 Len=354
Jan 14, 2025 16:19:03…	10.107.79.30,10.105.60.69	10.107.79.129,10.105.…	416	DHCP	0	DHCP Offer - Transaction ID 0x9f36b979
Jan 14, 2025 16:19:03…	10.107.79.129,0.0.0.0	10.107.79.30,255.255.…	452	DHCP	0	DHCP Request - Transaction ID 0x9f36b979
Jan 14, 2025 16:19:03…	10.107.79.30	10.105.60.114	428	UDP		16667 → 16667 Len=382
Jan 14, 2025 16:19:03…	10.105.60.114	10.107.79.30	400	UDP		16667 → 16667 Len=354
Jan 14, 2025 16:19:03…	10.107.79.30,10.105.60.69	10.107.79.129,10.105.…	416	DHCP	0	DHCP ACK - Transaction ID 0x9f36b979

O tráfego DHCP do cliente recebido no controlador externo é encaminhado para o controlador âncora usando o túnel de mobilidade

Da mesma forma, o cliente envia o status de conectividade da rede e o tráfego de verificação de acesso à página da Web para a WLC externa através do túnel CAPWAP; a WLC externa encaminha isso para a WLC âncora usando o túnel de mobilidade, onde o controlador âncora intercepta ou processa o tráfego.

UTC Arrival Time	Source Address	Destination Address	Length	Protocol	TID	Info
Jan 14, 2025 16:19:05…	10.107.79.129,10.105.60.254	10.107.79.30, DNS IP	165	DNS	0	Standard query 0x389b Connectivity Check URL
Jan 14, 2025 16:19:05…	10.107.79.30	10.105.60.114	149	UDP		16667 → 16667 Len=103
Jan 14, 2025 16:19:05…	10.105.60.114	10.107.79.30	291	UDP		16667 → 16667 Len=245
Jan 14, 2025 16:19:05…	10.107.79.30, DNS IP	10.107.79.129,10.105.60.254	307	DNS	0	Standard query response 0x389b A Connectivity Check URL
Jan 14, 2025 16:19:05…	10.107.79.129,10.105.60.254	10.107.79.30,1 Resolved IP	148	TCP	0	62437 → 80 [SYN] Seq=0 Win=64240 Len=0 MSS=1250 WS=256 SACK_PERM
Jan 14, 2025 16:19:05…	10.107.79.30	10.105.60.114	124	UDP		16667 → 16667 Len=78
Jan 14, 2025 16:19:05…	10.105.60.114	10.107.79.30	124	UDP		16667 → 16667 Len=78
Jan 14, 2025 16:19:05…	10.107.79.30,1 Resolved IP	10.107.79.129,10.105.60.254	140	TCP	0	80 → 62437 [SYN, ACK] Seq=0 Ack=1 Win=64240 Len=0 MSS=1460 SACK_PERM WS=128
Jan 14, 2025 16:19:05…	10.107.79.129,10.105.60.254	10.107.79.30, Resolved IP	136	TCP	0	62437 → 80 [ACK] Seq=1 Ack=1 Win=131072 Len=0
Jan 14, 2025 16:19:05…	10.107.79.129,10.105.60.254	10.107.79.30,	247	HTTP	0	GET /connecttest.txt HTTP/1.1
Jan 14, 2025 16:19:05…	10.105.60.114	10.107.79.30	112	UDP		16667 → 16667 Len=66
Jan 14, 2025 16:19:05…	10.107.79.30, Resolved IP	10.107.79.129,10.105.60.254	128	TCP	0	80 → 62437 [ACK] Seq=1 Ack=112 Win=64256 Len=0
Jan 14, 2025 16:19:05…	10.105.60.114	10.107.79.30	961	UDP		16667 → 16667 Len=915
Jan 14, 2025 16:19:05…	10.107.79.30,1 Resolved IP	10.107.79.129,10.105.60.254	977	HTTP	0	HTTP/1.1 200 OK (text/html)
Jan 14, 2025 16:19:05…	10.107.79.129,10.105.60.254	10.107.79.30, Resolved IP	136	TCP	0	62437 → 80 [FIN, ACK] Seq=112 Ack=850 Win=130304 Len=0
Jan 14, 2025 16:19:05…	10.107.79.30	10.105.60.114	112	UDP		16667 → 16667 Len=66
Jan 14, 2025 16:19:05…	10.105.60.114	10.107.79.30	112	UDP		16667 → 16667 Len=66
Jan 14, 2025 16:19:05…	10.107.79.30, Resolved IP	10.107.79.129,10.105.60.254	128	TCP	0	80 → 62437 [FIN, ACK] Seq=850 Ack=113 Win=64256 Len=0
Jan 14, 2025 16:19:05…	10.107.79.129,10.105.60.254	10.107.79.30,1 Resolved IP	136	TCP	0	62437 → 80 [ACK] Seq=113 Ack=851 Win=130304 Len=0
Jan 14, 2025 16:19:05…	10.107.79.30	10.105.60.114	112	UDP		16667 → 16667 Len=66

Verificação de Status de Conectividade de Rede em Controlador Externo

```
> Frame 794: 977 bytes on wire (7816 bits), 977 bytes captured (7816 bits)
> Ethernet II, Src: Cisco_[redacted], Dst: Cisco_[redacted]
> 802.1Q Virtual LAN, PRI: 0, DEI: 0, ID: 1415
> Internet Protocol Version 4, Src: 10.107.79.30, Dst: 10.107.79.129
> User Datagram Protocol, Src Port: 5247, Dst Port: 5264
> Control And Provisioning of Wireless Access Points - Data
> IEEE 802.11 QoS Data, Flags: ......F.
> Logical-Link Control
> Internet Protocol Version 4, Src: [redacted], Dst: 10.105.60.254
> Transmission Control Protocol, Src Port: 80, Dst Port: 62437, Seq: 1, Ack: 112, Len: 849
v Hypertext Transfer Protocol
  > HTTP/1.1 200 OK\r\n
    Location: https://10.106.32.130:8443/portal/PortalSetup.action?portal=d06bc251-f644-4fc3-b09f-dae9bd8a86
    Content-Type: text/html\r\n
  > Content-Length: 580\r\n
    \r\n
    [Request in frame: 788]
    [Time since request: 0.000991000 seconds]
    [Request URI: /connecttest.txt]
    [Full request URI: [redacted]
    File Data: 580 bytes
> Line-based text data: text/html (9 lines)
```

Redirecionar URL enviada ao cliente

UTC Arrival Time	Source Address	Destination Address	Length	Protocol	TID	Info
Jan 14, 2025 16:19:11…	10.107.79.129,10.105.60.254	10.107.79.30,10.106.32.130	148	TCP	0	62448 → 8443 [SYN] Seq=0 Win=64240 Len=0 MSS=1250 WS=256 SACK_PERM
Jan 14, 2025 16:19:11…	10.107.79.30	10.105.60.114	124	UDP		16667 → 16667 Len=78
Jan 14, 2025 16:19:11…	10.105.60.114	10.107.79.30	124	UDP		16667 → 16667 Len=78
Jan 14, 2025 16:19:11…	10.107.79.30,10.106.32.130	10.107.79.129,10.105.60.254	140	TCP	1	8443 → 62448 [SYN, ACK] Seq=0 Ack=1 Win=29200 Len=0 MSS=1254 SACK_PERM WS=128
Jan 14, 2025 16:19:11…	10.107.79.129,10.105.60.254	10.107.79.30,10.106.32.130	136	TCP	0	62448 → 8443 [ACK] Seq=1 Ack=1 Win=131072 Len=0
Jan 14, 2025 16:19:11…	10.107.79.30	10.105.60.114	112	UDP		16667 → 16667 Len=66
Jan 14, 2025 16:19:11…	10.107.79.129,10.105.60.254	10.107.79.30,10.106.32.130	1386	TCP	0	62448 → 8443 [ACK] Seq=1 Ack=1 Win=131072 Len=1250 [TCP PDU reassembled in 1180]
Jan 14, 2025 16:19:11…	10.107.79.129,10.105.60.254	10.107.79.30,10.106.32.130	683	TLSv1…	0	Client Hello
Jan 14, 2025 16:19:11…	10.107.79.30	10.105.60.114	659	UDP		16667 → 16667 Len=613
Jan 14, 2025 16:19:11…	10.107.79.30	10.105.60.114	1342	UDP		16667 → 16667 Len=1296
Jan 14, 2025 16:19:11…	10.105.60.114	10.107.79.30	450	UDP		16667 → 16667 Len=404
Jan 14, 2025 16:19:11…	10.105.60.114	10.107.79.30	917	UDP		16667 → 16667 Len=871
Jan 14, 2025 16:19:11…	10.107.79.30,10.106.32.130	10.107.79.129,10.105.60.254	1378	TCP	0	8443 → 62448 [ACK] Seq=1 Ack=1798 Win=33280 Len=1250 [TCP PDU reassembled in 1192]
Jan 14, 2025 16:19:11…	10.107.79.30,10.106.32.130	10.107.79.129,10.105.60.254	933	TLSv1…	0	Server Hello, Certificate, Server Key Exchange, Server Hello Done
Jan 14, 2025 16:19:11…	10.107.79.129,10.105.60.254	10.107.79.30,10.106.32.130	136	TCP	0	62448 → 8443 [ACK] Seq=1798 Ack=2056 Win=131072 Len=0
Jan 14, 2025 16:19:11…	10.107.79.129,10.105.60.254	10.107.79.30,10.106.32.130	143	TLSv1…	0	Alert (Level: Fatal, Description: Certificate Unknown)
Jan 14, 2025 16:19:11…	10.107.79.129,10.105.60.254	10.107.79.30,10.106.32.130	136	TCP	0	62448 → 8443 [FIN, ACK] Seq=1805 Ack=2056 Win=131072 Len=0
Jan 14, 2025 16:19:11…	10.107.79.30	10.105.60.114	112	UDP		16667 → 16667 Len=66
Jan 14, 2025 16:19:11…	10.107.79.129,10.105.60.254	10.107.79.30,10.106.32.130	262	TLSv1…	0	Client Key Exchange, Change Cipher Spec, Encrypted Handshake Message
Jan 14, 2025 16:19:11…	10.107.79.30	10.105.60.114	112	UDP		16667 → 16667 Len=66
Jan 14, 2025 16:19:11…	10.105.60.114	10.107.79.30	118	UDP		16667 → 16667 Len=72
Jan 14, 2025 16:19:11…	10.105.60.114	10.107.79.30	157	UDP		16667 → 16667 Len=111
Jan 14, 2025 16:19:11…	10.107.79.129,10.105.60.254	10.107.79.30,10.106.32.130	136	TCP	0	62449 → 8443 [ACK] Seq=1860 Ack=2107 Win=131072 Len=0
Jan 14, 2025 16:19:11…	10.107.79.129,10.105.60.254	10.107.79.30,10.106.32.130	1143	TLSv1…	0	Application Data
Jan 14, 2025 16:19:11…	10.107.79.30	10.105.60.114	112	UDP		16667 → 16667 Len=66
Jan 14, 2025 16:19:11…	10.107.79.30	10.105.60.114	1119	UDP		16667 → 16667 Len=1073
Jan 14, 2025 16:19:11…	10.107.79.30,10.106.32.130	10.107.79.129,10.105.60.254	1378	TCP	0	8443 → 62449 [ACK] Seq=8357 Ack=2867 Win=37120 Len=1250 [TCP PDU reassembled in 1267]
Jan 14, 2025 16:19:11…	10.107.79.129,10.105.60.254	10.107.79.30,10.106.32.130	136	TCP	0	62449 → 8443 [ACK] Seq=2867 Ack=10564 Win=131072 Len=0
Jan 14, 2025 16:19:11…	10.107.79.129,10.105.60.254	10.107.79.30,10.106.32.130	1168	TLSv1…	0	Application Data
Jan 14, 2025 16:19:11…	10.107.79.30	10.105.60.114	1144	UDP		16667 → 16667 Len=1098

Página Acesso do Cliente a Webauth Externa para Fornecer Detalhes de Autenticação

Registros do controlador de âncora

Traços radioativos

```
!! Mobility Handoff !!
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Received mobile_announce, sub type 0 of
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Received mobile_announce, sub type 0 of
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Received export_Anchor_req, sub type 0 o
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Number of client is BELOW wlan limit
{mobilityd_R0-0}{1} [mm-transition] [26021] (info) MAC Client-MAC MMFSM transition S_MC_INIT -> S_MC_An

!! Session Created for Client !!
{wncd_x_R0-0}{1}: [client-orch-state] [24229]: (note): MAC: Client_MAC Client state transition: S_CO_AS
{wncd_x_R0-0}{1}: [client-auth] [24229]: (info): MAC: Client_MAC Client auth-interface state transition
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): [Client_MAC][ 0.0.0.0]Param-map used: global
{wncd_x_R0-0}{1}: [webauth-acl] [24229]: (info): mobility_a0000001[Client_MAC][ 0.0.0.0]Applying IPv4 i
{wncd_x_R0-0}{1}: [client-auth] [24229]: (info): MAC: Client_MAC Client auth-interface state transition
{wncd_x_R0-0}{1}: [client-orch-state] [24229]: (note): MAC: Client_MAC Client state transition: S_CO_CR
{wncd_x_R0-0}{1}: [mm-transition] [24229]: (info): MAC: Client_MAC MMIF FSM transition: S_MA_INIT -> S_
□{wncd_x_R0-0}{1} [mm-client] [24229] (info) MAC Client-MAC Roam type changed - None -> L3 Requested
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Export Anchor Response successfully proc
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Forwarding Anchor Response to Foreign.
{mobilityd_R0-0}{1} [mm-client] [26021] (info) MAC Client-MAC Forwarding export_Anchor_rsp, sub type 0
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Client is AnchorED.
{□wncd_x_R0-0}{1} [mm-client] [24229] (info) MAC Client-MAC Mobility role changed - Unassoc -> Export A
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Client is AnchorED.>> Client is successf


!! Client DHCP Traffic !!
{wncd_x_R0-0}{1} [client-orch-state] [24229] (note) MAC Client-MAC Client state transition S_CO_MOBILIT
{wncd_x_R0-0}{1} [client-orch-state] [24229] (note) MAC Client-MAC Client state transition S_CO_DPATH_P
{wncd_x_R0-0}{1} [sisf-packet] RX DHCPv4 from interface mobility_a0000001 on vlan 31 Src MAC Client-MAC
{wncd_x_R0-0}{1} [sisf-packet] RX DHCPv4 from interface Tw0/0/1 on vlan 31 Src MAC DHCP-Reply-Source-MA
{wncd_x_R0-0}{1} [sisf-packet] TX DHCPv4 from interface Tw0/0/1 on vlan 31 Src MAC DHCP-Reply-Source-MA
{wncd_x_R0-0}{1} [sisf-packet] RX DHCPv4 from interface mobility_a0000001 on vlan 31 Src MAC Client-MAC
{wncd_x_R0-0}{1} [sisf-packet] TX DHCPv4 from interface mobility_a0000001 on vlan 31 Src MAC Client-MAC
{wncd_x_R0-0}{1} [sisf-packet] RX DHCPv4 from interface Tw0/0/1 on vlan 31 Src MAC DHCP-Reply-Source-MA
{wncd_x_R0-0}{1} [sisf-packet] TX DHCPv4 from interface Tw0/0/1 on vlan 31 Src MAC DHCP-Reply-Source-MA
{wncd_x_R0-0}{1} [client-iplearn] [24229] (note) MAC Client-MAC Client IP learn successful. Method DHCP
{mobilityd_R0-0}{1} [mm-client] [26021] (debug) MAC Client-MAC Sending ipv4_address_update of XID (XID)
{wncd_x_R0-0}{1} [client-iplearn] [24229] (info) MAC Client-MAC IP-learn state transition S_IPLEARN_IN_
Complete
{wncd_x_R0-0}{1}: [client-orch-sm] [24229]: (debug): MAC: Client_MAC Received ip learn response. method

!! External Web Authentication !!
{wncd_x_R0-0}{1}: [client-orch-state] [24229]: (note): MAC: Client_MAC Client state transition: S_CO_IP
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]62440/233
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]62441/235
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]62440/233
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]GET rcv
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]HTTP GE
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]Parse G
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]Read co
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]Param-m
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]State L
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]62440/233
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]62440/233
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]62440/233
```

```
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]GET rcv
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]HTTP GE
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]Parse G
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]Read co
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]Param-m
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]State L
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]62440/233
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]62440/233
{wncd_x_R0-0}{1}: [sisf-packet] [24229]: (info): RX: IPv6 DHCP from intf mobility_a0000001 on vlan 31 S
{wncd_x_R0-0}{1}: [sisf-packet] [24229]: (info): TX: IPv6 DHCP from intf mobility_a0000001 on vlan 31 S
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]62480/238
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]62481/239
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]62482/238
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]62482/238
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]GET rcv
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]HTTP GE
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]Parse G
{wncd_x_R0-0}{1}: [sadb-attr] [24229]: (info): Removing ipv6 addresses from the attr list -654303708,sm
{wncd_x_R0-0}{1}: [caaa-authen] [24229]: (info): [CAAA:AUTHEN:910007e3] NULL ATTR LIST
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]Param-m
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]State L
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]62482/238
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: Send Access-Request to 10.106.32.130:1812 id 0/3, l
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: authenticator
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: Calling-Station-Id [31] 19 Client_MAC
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: User-Name [1] 9 Test321
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: Vendor, Cisco [26] 49
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: Cisco AVpair [1] 43 audit-session-id=723C690A000007
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: Framed-IP-Address [8] 6 10.105.60.254
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: Cisco AVpair [1] 12 vlan-id=31
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: NAS-IP-Address [4] 6 10.105.60.114
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: NAS-Port-Type [61] 6 Virtual [5]
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: NAS-Port [5] 6 0
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: Vendor, Cisco [26] 31
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: Cisco AVpair [1] 25 cisco-wlan-ssid=DMZ_EWA
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: Vendor, Cisco [26] 33
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: Cisco AVpair [1] 27 wlan-profile-name=DMZ_EWA
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: Called-Station-Id [30] 27 Called-Station-ID
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: Vendor, Airespace [26] 12
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: Airespace-WLAN-ID [1] 6 7
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: Nas-Identifier [32] 12 DMZSiteWLC
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: Started 5 sec timeout
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: Received from id 1812/3 10.106.32.130:0, Access-Acc
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: authenticator
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: User-Name [1] 9 Test321
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: Class [25] 56 ...
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: Message-Authenticator[80] 18 ...
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: Vendor, Cisco [26] 42
{wncd_x_R0-0}{1}: [radius] [24229]: (info): RADIUS: Cisco AVpair [1] 36 profile-name=Windows10-Workstat
{wncd_x_R0-0}{1}: [radius] [24229]: (info): Valid Response Packet, Free the identifier
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]Param-m
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]State A
{wncd_x_R0-0}{1}: [webauth-acl] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]Unapply I
{wncd_x_R0-0}{1}: [webauth-acl] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]Unapply I
{wncd_x_R0-0}{1}: [client-auth] [24229]: (info): MAC: Client_MAC Client auth-interface state transition
{wncd_x_R0-0}{1}: [aaa-attr-inf] [24229]: (info): Applying Attribute : username 0 Test321
{wncd_x_R0-0}{1}: [aaa-attr-inf] [24229]: (info): Applying Attribute : class 0 43 41 43 53 3a 37 32 33
{wncd_x_R0-0}{1}: [aaa-attr-inf] [24229]: (info): Applying Attribute : Message-Authenticator 0 <hidden>
{wncd_x_R0-0}{1}: [aaa-attr-inf] [24229]: (info): Applying Attribute : method 0 1 [webauth]
{wncd_x_R0-0}{1}: [aaa-attr-inf] [24229]: (info): Applying Attribute : clid-MAC-addr 0 d0 37 45 88 25 5
{wncd_x_R0-0}{1}: [aaa-attr-inf] [24229]: (info): Applying Attribute : intf-id 0 2684354561 (0xa0000001
{wncd_x_R0-0}{1}: [auth-mgr] [24229]: (info): [Client_MAC:mobility_a0000001] auth mgr attr add/change n
```

```
{wncd_x_R0-0}{1}: [auth-mgr-feat_acct] [24229]: (info): [Client_MAC:mobility_a0000001] SM Notified attr
{wncd_x_R0-0}{1}: [auth-mgr] [24229]: (info): [Client_MAC:mobility_a0000001] Received User-Name Test321
{wncd_x_R0-0}{1}: [auth-mgr] [24229]: (info): [Client_MAC:mobility_a0000001] auth mgr attr add/change n
{wncd_x_R0-0}{1}: [auth-mgr] [24229]: (info): [Client_MAC:mobility_a0000001] Method webauth changing st
{wncd_x_R0-0}{1}: [auth-mgr] [24229]: (info): [Client_MAC:mobility_a0000001] Context changing state fro
{wncd_x_R0-0}{1}: [auth-mgr] [24229]: (info): [Client_MAC:mobility_a0000001] auth mgr attr add/change n
{wncd_x_R0-0}{1}: [auth-mgr] [24229]: (info): [Client_MAC:mobility_a0000001] Raised event AUTHZ_SUCCESS
{wncd_x_R0-0}{1}: [auth-mgr] [24229]: (info): [Client_MAC:mobility_a0000001] Context changing state fro
{wncd_x_R0-0}{1}: [webauth-sess] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]Param-ma
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]Param-m
{wncd_x_R0-0}{1}: [webauth-state] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]State A
{wncd_x_R0-0}{1}: [webauth-page] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]Sending
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]62482/238
{wncd_x_R0-0}{1}: [webauth-io] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]62482/238
{wncd_x_R0-0}{1}: [webauth-httpd] [24229]: (info): mobility_a0000001[Client_MAC][ 10.105.60.254]62482/2
{wncd_x_R0-0}{1}: [client-auth] [24229]: (note): MAC: Client_MAC L3 Authentication Successful. ACL:[]
{wncd_x_R0-0}{1}: [client-auth] [24229]: (info): MAC: Client_MAC Client auth-interface state transition
{wncd_x_R0-0}{1}: [client-orch-state] [24229]: (note): MAC: Client_MAC Client state transition: S_CO_L3

{wncd_x_R0-0}{1}: [mm-transition] [24229]: (info): MAC: Client_MAC MMIF FSM transition: S_MA_ANCHOR ->
{mobilityd_R0-0}{1}: [mm-client] [26021]: (debug): MAC: Client_MAC Received aaa_handoff, sub type: 0 of
{mobilityd_R0-0}{1}: [mm-client] [26021]: (debug): MAC: Client_MAC aaa_handoff base check is VALID
{mobilityd_R0-0}{1}: [mm-transition] [26021]: (info): MAC: Client_MAC MMFSM transition: S_MC_RUN -> S_M
{mobilityd_R0-0}{1}: [mm-client] [26021]: (info): MAC: Client_MAC Forwarding aaa_handoff, sub type: 0 o
{mobilityd_R0-0}{1}: [mm-client] [26021]: (debug): MAC: Client_MAC Sending aaa_handoff of XID (38840) t
{mobilityd_R0-0}{1}: [mm-client] [26021]: (debug): MAC: Client_MAC AAA Handoff successfully forwarded.
{mobilityd_R0-0}{1}: [mm-client] [26021]: (debug): MAC: Client_MAC Received aaa_handoff_ack, sub type:
{mobilityd_R0-0}{1}: [mm-client] [26021]: (debug): MAC: Client_MAC AAA Handoff Ack successfully handled
{mobilityd_R0-0}{1}: [mm-client] [26021]: (debug): MAC: Client_MAC aaa_handoff_ack base check is VALID
{mobilityd_R0-0}{1}: [mm-client] [26021]: (debug): MAC: Client_MAC aaa_handoff_ack is VALID
{mobilityd_R0-0}{1}: [mm-transition] [26021]: (info): MAC: Client_MAC MMFSM transition: S_MC_ANCHOR_WAI
```

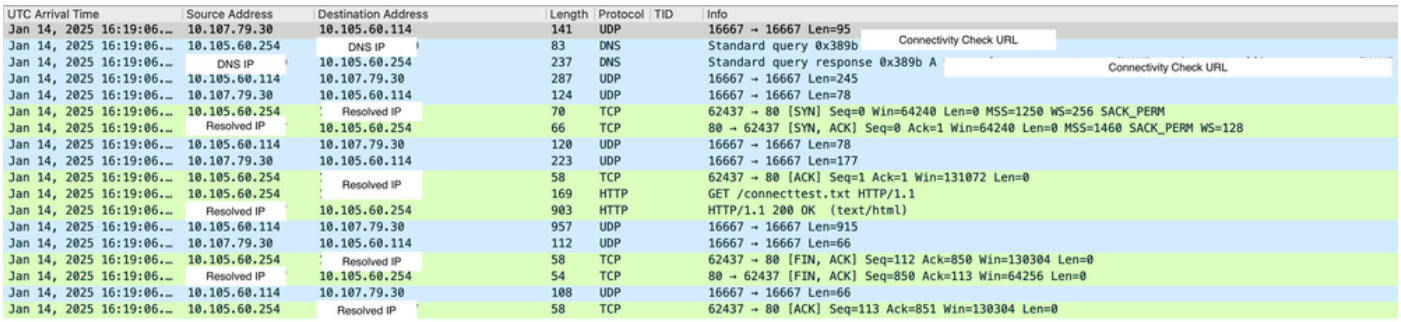
Captura do pacote

Após a transferência de mobilidade, o controlador de âncora recebe tráfego DHCP do controlador externo através do túnel de mobilidade.

UTC Arrival Time	Source Address	Destination Address	Length	Protocol	TID	Info
Jan 14, 2025 15:59:04…	10.107.79.30	10.105.60.114	396	UDP		16667 → 16667 Len=354
Jan 14, 2025 15:59:04…	0.0.0.0	255.255.255.255	286	DHCP		DHCP Discover - Transaction ID 0x9f36b979
Jan 14, 2025 15:59:06…	10.105.60.69	10.105.60.254	286	DHCP		DHCP Offer - Transaction ID 0x9f36b979
Jan 14, 2025 15:59:06…	10.105.60.114	10.107.79.30	396	UDP		16667 → 16667 Len=354
Jan 14, 2025 15:59:06…	10.107.79.30	10.105.60.114	424	UDP		16667 → 16667 Len=382
Jan 14, 2025 15:59:06…	0.0.0.0	255.255.255.255	286	DHCP		DHCP Request - Transaction ID 0x9f36b979
Jan 14, 2025 15:59:06…	10.105.60.69	10.105.60.254	286	DHCP		DHCP ACK - Transaction ID 0x9f36b979
Jan 14, 2025 15:59:06…	10.105.60.114	10.107.79.30	396	UDP		16667 → 16667 Len=354

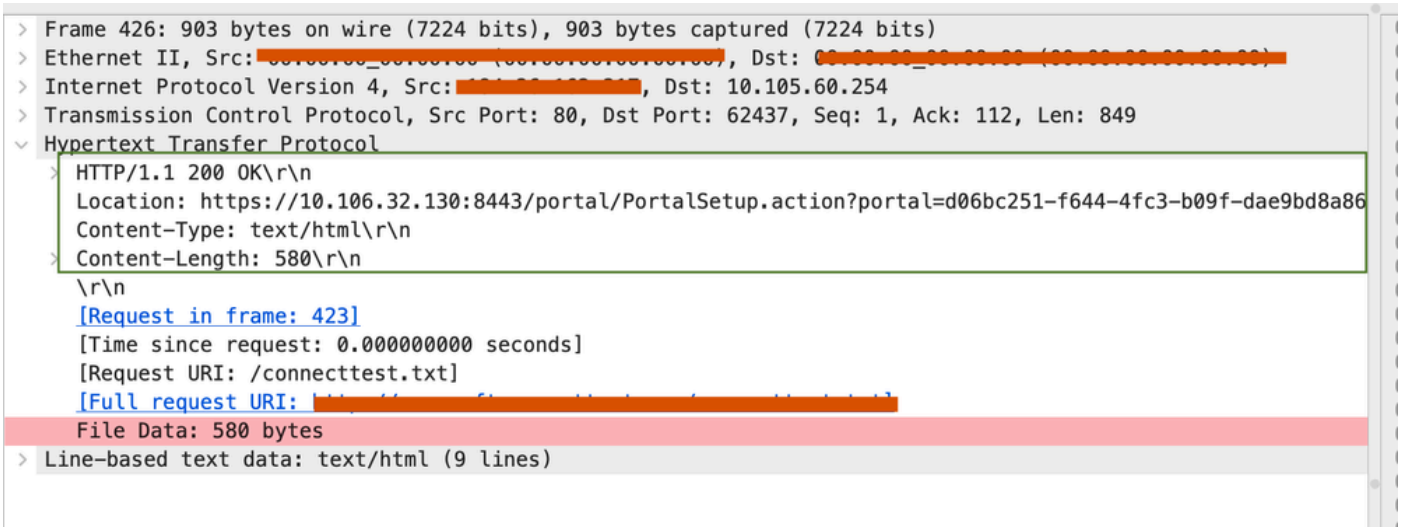
Tráfego DHCP do cliente no controlador de âncora recebido do controlador externo

O Controlador de âncora recebe verificações de conectividade, solicitações de acesso a páginas da Web e detalhes de autenticação para processamento posterior.



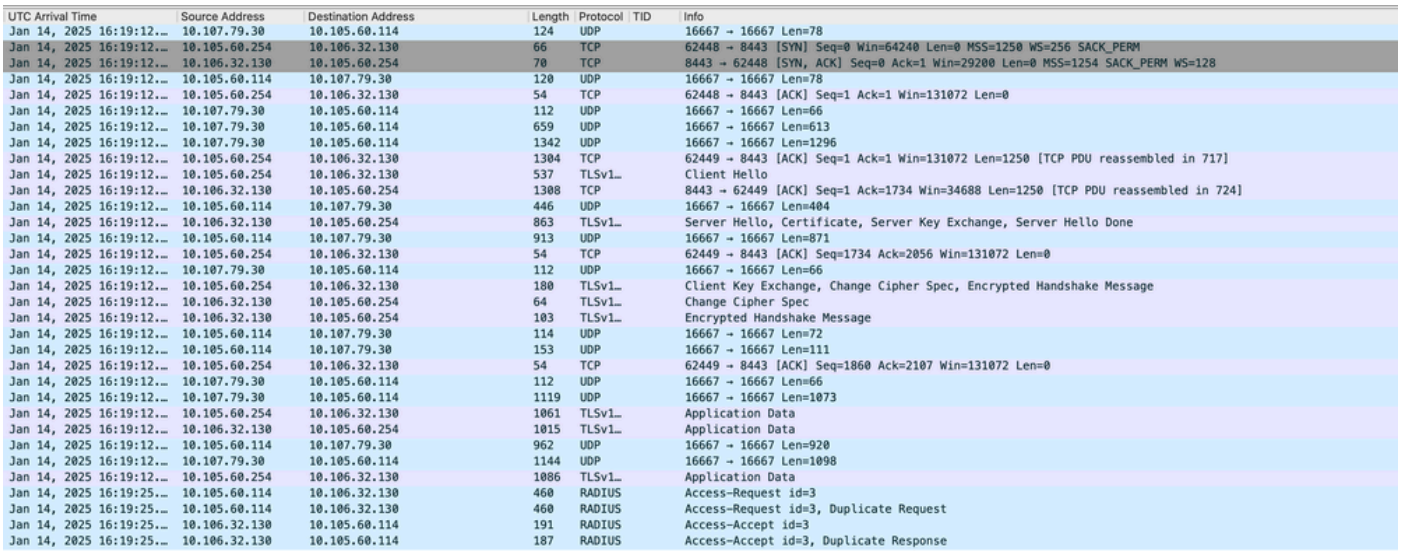
UTC Arrival Time	Source Address	Destination Address	Length	Protocol	TID	Info
Jan 14, 2025 16:19:06.…	10.107.79.30	10.105.60.114	141	UDP		16667 → 16667 Len=95
Jan 14, 2025 16:19:06.…	10.105.60.254	DNS IP	83	DNS		Standard query 0x389b
Jan 14, 2025 16:19:06.…	DNS IP	10.105.60.254	237	DNS		Standard query response 0x389b A
Jan 14, 2025 16:19:06.…	10.105.60.114	10.107.79.30	287	UDP		16667 → 16667 Len=245
Jan 14, 2025 16:19:06.…	10.107.79.30	10.105.60.114	124	UDP		16667 → 16667 Len=78
Jan 14, 2025 16:19:06.…	10.105.60.254	Resolved IP	70	TCP		62437 → 80 [SYN] Seq=0 Win=64240 Len=0 MSS=1250 WS=256 SACK_PERM
Jan 14, 2025 16:19:06.…	Resolved IP	10.105.60.254	66	TCP		80 → 62437 [SYN, ACK] Seq=0 Ack=1 Win=64240 Len=0 MSS=1460 SACK_PERM WS=128
Jan 14, 2025 16:19:06.…	10.105.60.114	10.107.79.30	120	UDP		16667 → 16667 Len=78
Jan 14, 2025 16:19:06.…	10.107.79.30	10.105.60.114	223	UDP		16667 → 16667 Len=177
Jan 14, 2025 16:19:06.…	10.105.60.254	Resolved IP	58	TCP		62437 → 80 [ACK] Seq=1 Ack=1 Win=131072 Len=0
Jan 14, 2025 16:19:06.…	10.105.60.254	Resolved IP	169	HTTP		GET /connecttest.txt HTTP/1.1
Jan 14, 2025 16:19:06.…	Resolved IP	10.105.60.254	903	HTTP		HTTP/1.1 200 OK (text/html)
Jan 14, 2025 16:19:06.…	10.105.60.114	10.107.79.30	957	UDP		16667 → 16667 Len=915
Jan 14, 2025 16:19:06.…	10.107.79.30	10.105.60.114	112	UDP		16667 → 16667 Len=66
Jan 14, 2025 16:19:06.…	10.105.60.254	Resolved IP	58	TCP		62437 → 80 [FIN, ACK] Seq=112 Ack=850 Win=130304 Len=0
Jan 14, 2025 16:19:06.…	Resolved IP	10.105.60.254	54	TCP		80 → 62437 [FIN, ACK] Seq=850 Ack=113 Win=64256 Len=0
Jan 14, 2025 16:19:06.…	10.105.60.114	10.107.79.30	108	UDP		16667 → 16667 Len=66
Jan 14, 2025 16:19:06.…	10.105.60.254	Resolved IP	58	TCP		62437 → 80 [ACK] Seq=113 Ack=851 Win=130304 Len=0

Verificação de Status da Conectividade de Rede no Controlador de Âncora



Redirecionar URL enviada ao cliente

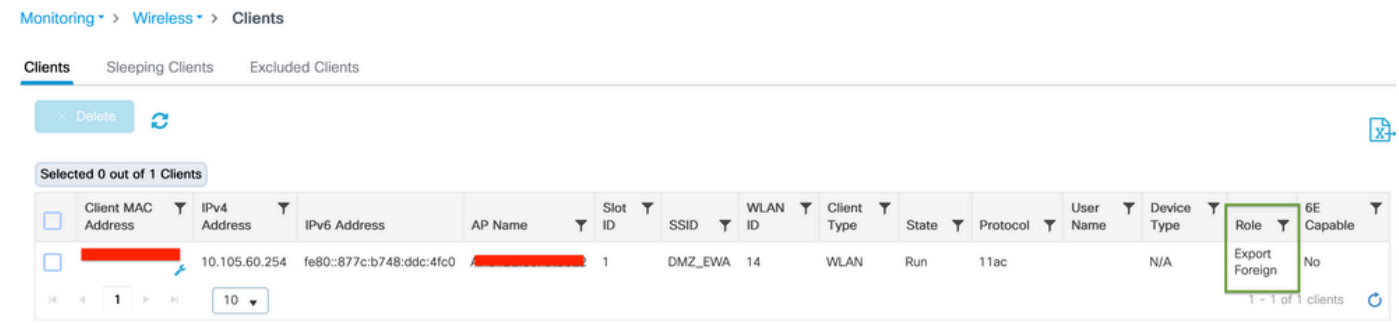
O cliente envia credenciais de autenticação através do portal. Essas credenciais são validadas localmente na WLC ou por meio de um servidor de autenticação externo, dependendo da política de segurança configurada.



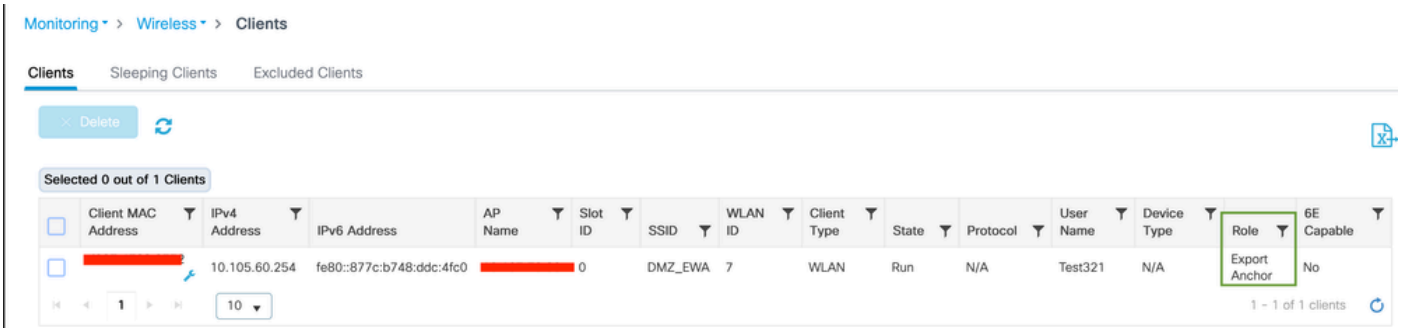
UTC Arrival Time	Source Address	Destination Address	Length	Protocol	TID	Info
Jan 14, 2025 16:19:12.…	10.107.79.30	10.105.60.114	124	UDP		16667 → 16667 Len=78
Jan 14, 2025 16:19:12.…	10.105.60.254	10.106.32.130	66	TCP		62448 → 8443 [SYN] Seq=0 Win=64240 Len=0 MSS=1250 WS=256 SACK_PERM
Jan 14, 2025 16:19:12.…	10.106.32.130	10.105.60.254	70	TCP		8443 → 62448 [SYN, ACK] Seq=0 Ack=1 Win=29200 Len=0 MSS=1254 SACK_PERM WS=128
Jan 14, 2025 16:19:12.…	10.105.60.114	10.107.79.30	120	UDP		16667 → 16667 Len=78
Jan 14, 2025 16:19:12.…	10.105.60.254	10.106.32.130	54	TCP		62448 → 8443 [ACK] Seq=1 Ack=1 Win=131072 Len=0
Jan 14, 2025 16:19:12.…	10.107.79.30	10.105.60.114	112	UDP		16667 → 16667 Len=66
Jan 14, 2025 16:19:12.…	10.107.79.30	10.105.60.114	659	UDP		16667 → 16667 Len=613
Jan 14, 2025 16:19:12.…	10.107.79.30	10.105.60.114	1342	UDP		16667 → 16667 Len=1296
Jan 14, 2025 16:19:12.…	10.105.60.254	10.106.32.130	1304	TCP		62449 → 8443 [ACK] Seq=1 Ack=1 Win=131072 Len=1250 [TCP PDU reassembled in 717]
Jan 14, 2025 16:19:12.…	10.105.60.254	10.106.32.130	537	TLSv1…		Client Hello
Jan 14, 2025 16:19:12.…	10.106.32.130	10.105.60.254	1308	TCP		8443 → 62449 [ACK] Seq=1 Ack=1734 Win=34688 Len=1250 [TCP PDU reassembled in 724]
Jan 14, 2025 16:19:12.…	10.105.60.114	10.107.79.30	446	UDP		16667 → 16667 Len=404
Jan 14, 2025 16:19:12.…	10.106.32.130	10.105.60.254	863	TLSv1…		Server Hello, Certificate, Server Key Exchange, Server Hello Done
Jan 14, 2025 16:19:12.…	10.105.60.114	10.107.79.30	913	UDP		16667 → 16667 Len=871
Jan 14, 2025 16:19:12.…	10.105.60.254	10.106.32.130	54	TCP		62449 → 8443 [ACK] Seq=1734 Ack=2056 Win=131072 Len=0
Jan 14, 2025 16:19:12.…	10.107.79.30	10.105.60.114	112	UDP		16667 → 16667 Len=66
Jan 14, 2025 16:19:12.…	10.105.60.254	10.106.32.130	180	TLSv1…		Client Key Exchange, Change Cipher Spec, Encrypted Handshake Message
Jan 14, 2025 16:19:12.…	10.106.32.130	10.105.60.254	64	TLSv1…		Change Cipher Spec
Jan 14, 2025 16:19:12.…	10.106.32.130	10.105.60.254	103	TLSv1…		Encrypted Handshake Message
Jan 14, 2025 16:19:12.…	10.105.60.114	10.107.79.30	114	UDP		16667 → 16667 Len=72
Jan 14, 2025 16:19:12.…	10.105.60.114	10.107.79.30	153	UDP		16667 → 16667 Len=111
Jan 14, 2025 16:19:12.…	10.105.60.254	10.106.32.130	54	TCP		62449 → 8443 [ACK] Seq=1860 Ack=2107 Win=131072 Len=0
Jan 14, 2025 16:19:12.…	10.107.79.30	10.105.60.114	112	UDP		16667 → 16667 Len=66
Jan 14, 2025 16:19:12.…	10.107.79.30	10.105.60.114	1119	UDP		16667 → 16667 Len=1073
Jan 14, 2025 16:19:12.…	10.105.60.254	10.106.32.130	1061	TLSv1…		Application Data
Jan 14, 2025 16:19:12.…	10.106.32.130	10.105.60.254	1015	TLSv1…		Application Data
Jan 14, 2025 16:19:12.…	10.105.60.114	10.107.79.30	962	UDP		16667 → 16667 Len=920
Jan 14, 2025 16:19:12.…	10.107.79.30	10.105.60.114	1144	UDP		16667 → 16667 Len=1098
Jan 14, 2025 16:19:12.…	10.105.60.254	10.106.32.130	1086	TLSv1…		Application Data
Jan 14, 2025 16:19:25.…	10.105.60.114	10.106.32.130	460	RADIUS		Access-Request id=3
Jan 14, 2025 16:19:25.…	10.105.60.114	10.106.32.130	460	RADIUS		Access-Request id=3, Duplicate Request
Jan 14, 2025 16:19:25.…	10.106.32.130	10.105.60.114	191	RADIUS		Access-Accept id=3
Jan 14, 2025 16:19:25.…	10.106.32.130	10.105.60.114	187	RADIUS		Access-Accept id=3, Duplicate Response

Página Acesso do Cliente a Webauth Externa para Fornecer Detalhes de Autenticação

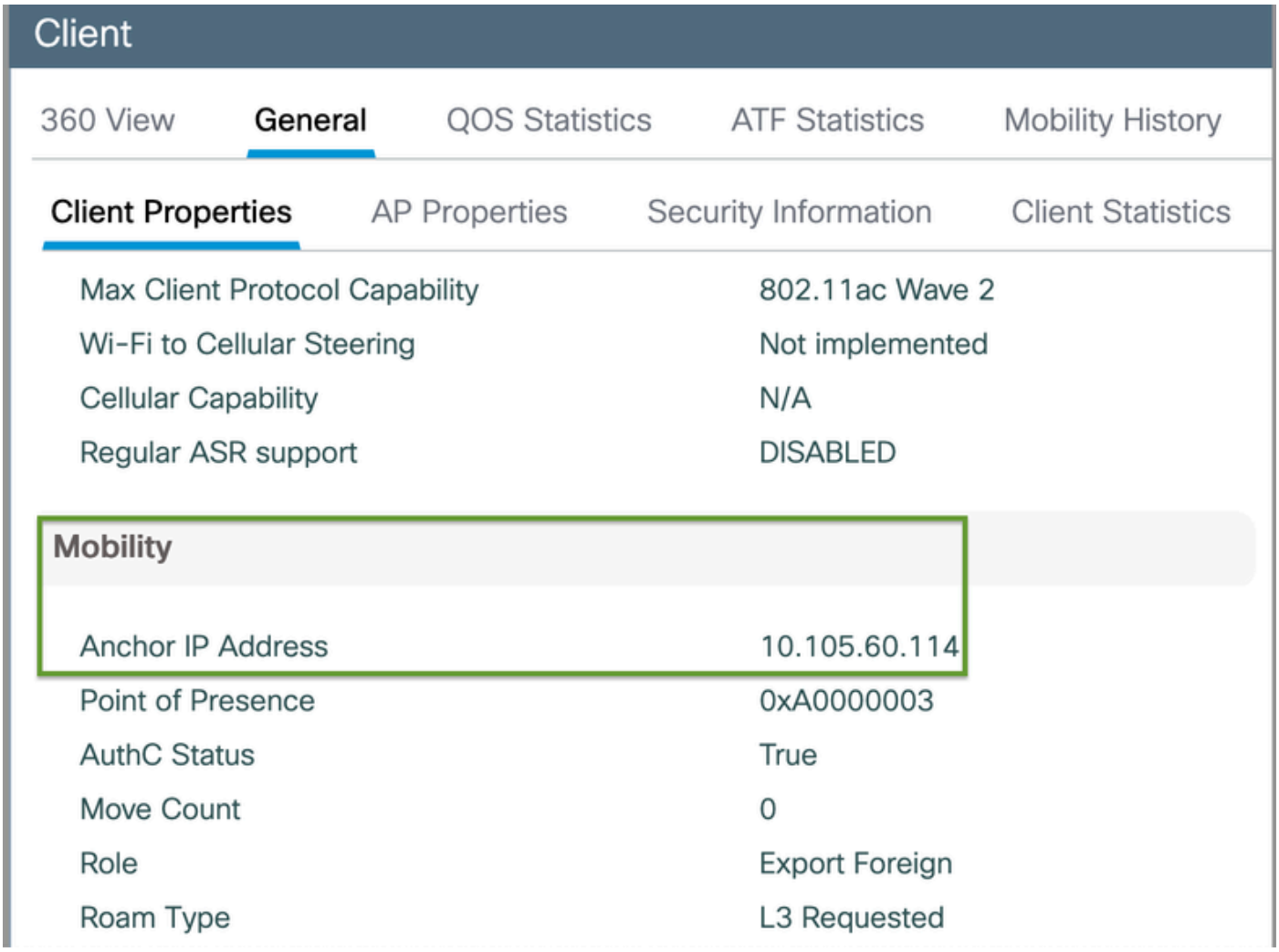
Estado do Cliente no Controlador Externo e de Âncora



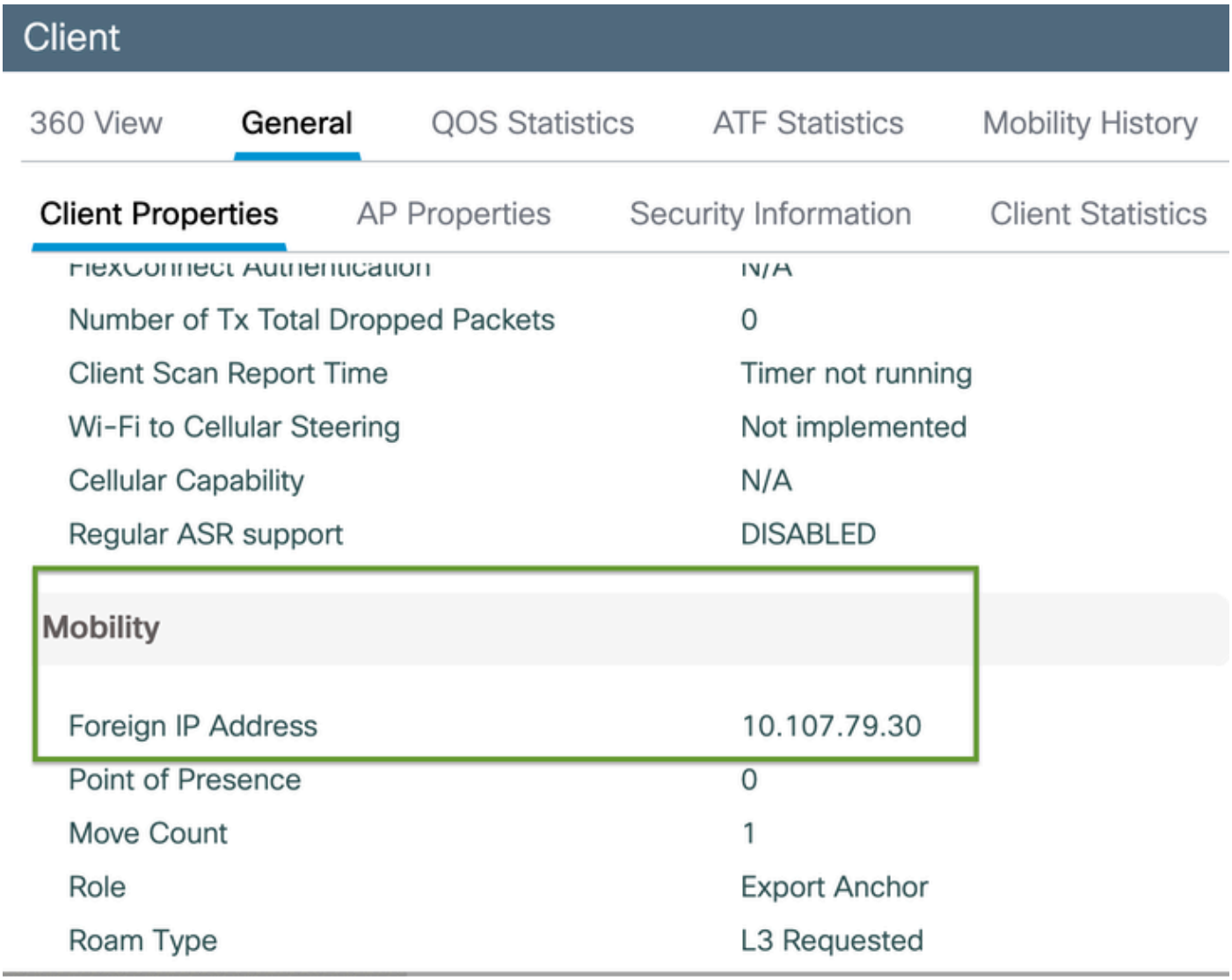
Estado do Cliente no Estrangeiro



Estado do Cliente em Âncora



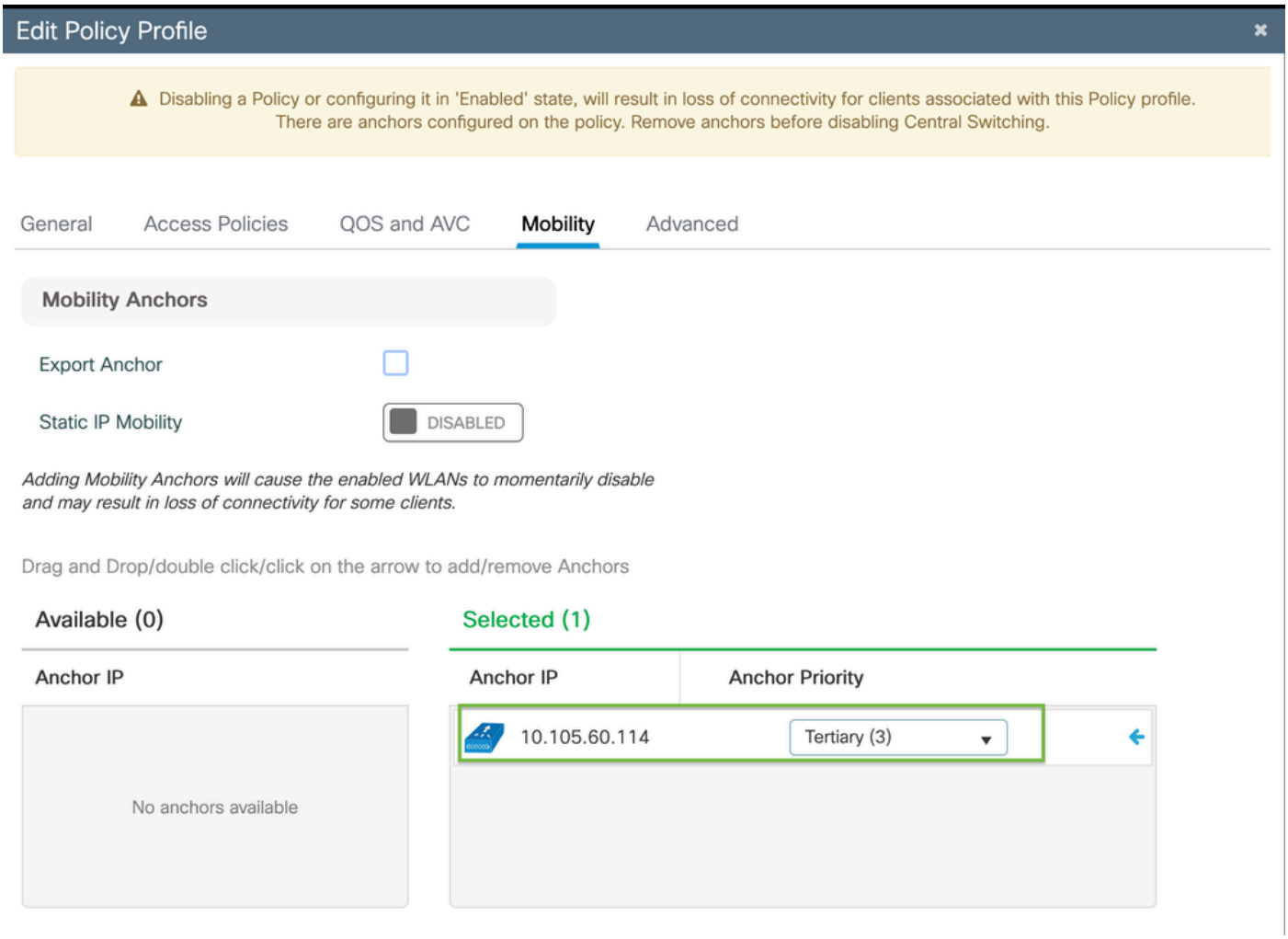
Propriedades do Cliente em Externo



Propriedades do Cliente em Âncora

Balanceamento de carga entre controlador de âncora múltipla

Quando mais de um controlador de âncora é mapeado para uma única WLAN, a distribuição do tráfego depende da prioridade. Três níveis de prioridade podem ser configurados: Principal, Secundário e Terciário. O recurso de prioridade de âncora de convidado fornece um mecanismo para distribuição de carga ativa/standby entre os controladores de âncora. Isso é obtido atribuindo-se uma prioridade fixa a cada controlador de âncora: a carga é distribuída para o controlador de prioridade mais alta e de forma alternada entre controladores que compartilham o mesmo valor de prioridade.



Mapeando Prioridade de Âncora

Note: Por padrão, o terciário de prioridade é configurado durante o mapeamento do Controlador de âncora no Controlador externo.

Troubleshooting de Conectividade de Cliente em Cenário de Âncora Externa

1. Problemas de integração do cliente
   i. Status do túnel: Verifique se o túnel de mobilidade entre os controladores externo e de âncora permanece ativo.
   ii. Incompatibilidade de configuração: Assegure a paridade da configuração entre os dois controladores. Discrepâncias em nomes de WLAN, nomes de perfil de política ou configurações avançadas, como substituição de AAA, requisitos de DHCP IPv4 e NAC, levam a erros de incompatibilidade de perfil ou de negação de âncora.
   iii. Outro: Se o Túnel estiver ativo sem nenhum problema de configuração, a abordagem de identificação e solução de problemas é semelhante ao problema normal de conectividade do cliente, garantindo a verificação no respectivo controlador que lida com o tráfego afetado.

2. Conectividade intermitente
    i. Flaps de túnel: Se os pacotes de keepalive entre os dois controladores não chegarem, o túnel oscilará, impedindo que o cliente mantenha uma conexão com o SSID.
    ii. Largura de banda baixa: Se o MTU de caminho (PMTU) entre os peers de mobilidade cair para um valor menor (576), os clientes sofrerão degradação de desempenho. Isso geralmente acontece quando mensagens de manutenção de atividade de mtu de caminho são perdidas entre ambos os pares de mobilidade

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Note: O controlador com o endereço MAC de mobilidade mais baixa inicia as mensagens keepalive padrão e de MTU de caminho.

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3. Problemas específicos de acesso ao site
    i. Os cabeçalhos de tráfego de mobilidade incluem identificadores de grupo de mobilidade, endereços MAC, endereços IP e pacotes CAPWAP DTLS criptografados trocados por portas UDP 16666 e 16667. Essa sobrecarga é adicionada ao cabeçalho CAPWAP existente. Para o tráfego TCP, pós-ajuste TCP MSS configurado para AP, se o tamanho do pacote exceder o Mobility PMTU (máximo de 1385 bytes) devido a esta sobrecarga adicional, ocorre a fragmentação.Enquanto a fragmentação é geralmente tratada pela rede, surgem problemas se os pacotes chegam fora de ordem ou atrasados. Essas condições impactam a remontagem de pacotes e resultam em falhas de acessibilidade de dados para sites específicos.

Coleta de logs do controlador externo e de âncora

1. Habilite term exec prompt timestamp para ter referência de tempo para todos os comandos.
2. Use show tech-support wireless !! para examinar a configuração.
3. Você pode verificar o status do túnel de mobilidade !! show wireless mobility summary
4. Estatísticas para o peer de mobilidade que incluem status do link, dados e eventos do cliente, estatísticas de manutenção de atividade mostram o peer de mobilidade sem fio <IP>
5. Ative o rastreamento radioativo para o endereço IP/MAC do peer de mobilidade e o endereço MAC do cliente.

    Usando a CLI:

    debug wireless {MAC | ip} {aaaa.bbbb.cccc | x.x.x.x } {monitor-time} {N segundos} !! O tempo de configuração nos permite habilitar rastreamentos por até 24 dias .

    no debug wireless {MAC | ip} {aaaa.bbbb.cccc | x.x.x.x !! Para desativar a depuração

    A WLC gera um arquivo de rastreamento de depuração com Client_info, comando para verificar o arquivo de rastreamento de depuração gerado pelo dir bootflash: | i !! de depuração

aviso: A depuração condicional habilita o registro em nível de depuração que, por sua vez, aumenta o volume dos logs gerados. Deixar esse item em execução reduz a distância no tempo em que você pode exibir logs. Portanto, é recomendável sempre desabilitar a depuração no final da sessão de solução de problemas.

6. Para desabilitar toda a depuração, execute estes comandos:

   # clear platform condition all !!

   # undebug all !!
   Via GUI:

   Etapa 1. Navegue até Troubleshooting > Radioative Trace.

   Etapa 2. Clique em Add e insira um endereço MAC/IP do peer de mobilidade ou endereço MAC do cliente que você deseja solucionar.
   Etapa 3. Quando estiver pronto para iniciar o rastreamento radioativo, clique em Start. Uma vez iniciado, o registro de depuração é gravado no disco sobre qualquer processamento de plano de controle relacionado aos endereços MAC rastreados.
   Etapa 4. Quando você reproduzir o problema que deseja solucionar, clique em Stop.
   Etapa 5. Para cada endereço MAC depurado, você pode gerar um arquivo de log que agrupa todos os logs referentes a esse endereço MAC clicando em Generate.
   Etapa 6. Escolha quanto tempo você deseja que o arquivo de log agrupado volte e clique em Aplicar ao dispositivo.
   Etapa 7. Agora você pode baixar o arquivo clicando no ícone pequeno ao lado do nome do arquivo. Esse arquivo está presente na unidade flash de inicialização do controlador e também pode ser copiado fora da caixa através da CLI.

7. Capturas incorporadas

Usando a CLI:
monitor capture MYCAP clear !!
monitor capture MYCAP interface Po1 ambos !!
monitor capture MYCAP buffer size 100 !!
monitor capture MYCAP match access-list name !! (se estiver rastreando o tráfego do túnel de mobilidade entre WLC)
monitor capture MYCAP match any/ipv4/ipv6.MAC !!
!! de início de MYCAP de captura de monitor
!!Reproduzir
interrupção de MYCAP de captura de monitor
flash de exportação MYCAP de captura de monitor:|tftp:|http:.../filename.pcap

Via GUI:

Etapa 1. Navegue até Solução de problemas > Captura de pacotes > +Adicionar.
Etapa 2. Definir o nome da captura do pacote. É permitido um máximo de 8 caracteres.
Etapa 3. Definir filtros, se houver.
Etapa 4. Marque a caixa para Monitorar o tráfego de controle se quiser ver o tráfego apontado para a CPU do sistema e injetado de volta no plano de dados.
Etapa 5. Definir o tamanho do buffer. É permitido um máximo de 100 MB.
Etapa 6. Defina o limite, seja pela duração, que permite um intervalo de 1 a 1000000 segundos, ou pelo número de pacotes, que permite um intervalo de 1 a 100000 pacotes, conforme desejado.
Etapa 7. Escolha a interface na lista de interfaces na coluna esquerda e selecione a seta para movê-la para a coluna direita.
Etapa 8. Clique em Save and Apply to Device.
Etapa 9. Para iniciar a captura, selecione Start.
Etapa 10. Você pode permitir que a captura seja executada até o limite definido. Para interromper manualmente a captura, selecione Stop.
Etapa 11. Uma vez parado, um botão Exportar torna-se disponível para clicar com a opção de baixar o arquivo de captura (.pcap) na área de trabalho local através de servidor HTTP ou TFTP ou servidor FTP ou disco rígido ou flash do sistema local.

Informações Relacionadas

Configurar as topologias de mobilidade nas WLCs do Catalyst 9800

Configurar o recurso de mobilidade de âncora de WLAN no Catalyst 9800

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