

# ARUBA AIRWAVE CLARITY

## Technical Climb Webinar

10:00 GMT | 11:00 CET | 13:00 GST

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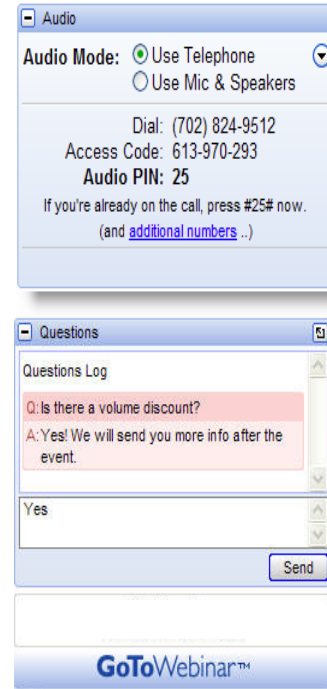


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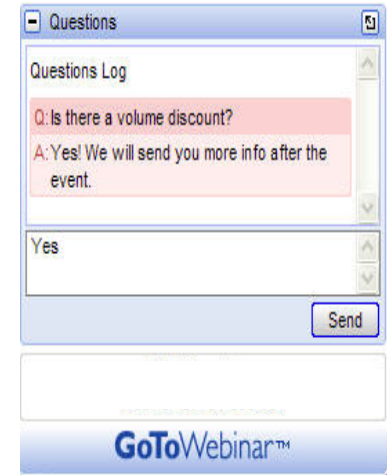
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# Identify problems before they impact users

Introducing Aruba Clarity, a new module in AirWave

**Complete visibility into end-user  
experience... beyond RF.**

## **LIVE**

real-time user  
experience

## **SYNTHETIC**

proactive testing using  
existing, deployed APs

# Agenda

- **Clarity Live**
  - Introduction to Clarity-Live
  - Topology
  - Configuration
  - Feature Description
  - Trigger for AMON messages
  - Clarity-Live in Airwave

# Agenda Cont.

- **Clarity Synthetic**
  - Introduction to Clarity Synthetic
  - Clarity Synthetic Deployment and Transactions.
  - Running Test from AirWave UI
- **Questions and Answers**

# CLARITY - LIVE

# Clarity Live Prerequisite

- Airwave running version 8.2.x or greater
- AOS running 6.4.3.x or greater – advisable to run 6.4.3.7 or greater
- Instant OS version 6.5.1.0 – 4.3.1.0



# The Problem

- Limited visibility into how the end users experience the network
- For the end users “network does not work”
- For the IT admins “ it’s a complex problem”
- Manual, cost prohibitive & reactive solutions to troubleshoot
- IT admins have to find the needle in a haystack

# The Aruba Solution : Aruba Airwave Clarity

- **IT'S ALL ABOUT THE USER**
  - Real time monitoring of metrics beyond RF
  - Predict issues before users start complaining
  - Pro-active Insight into patterns and trends
  - Recommended actions and alerts
  - User empowerment and remediation
  - End-to-end visibility

# Why we need Clarity “Live” ?

Client can't connect

- AP is bogged down, or has hit the max association limit

Wireless doesn't work

- Client is not getting an IP since DHCP server has run out of leases

Radius server load issues

- one server goes unusable slow and requests fall to second server

NAS issue

- Controller was not added as a NAS on server 3

'Radius auth is Slow'

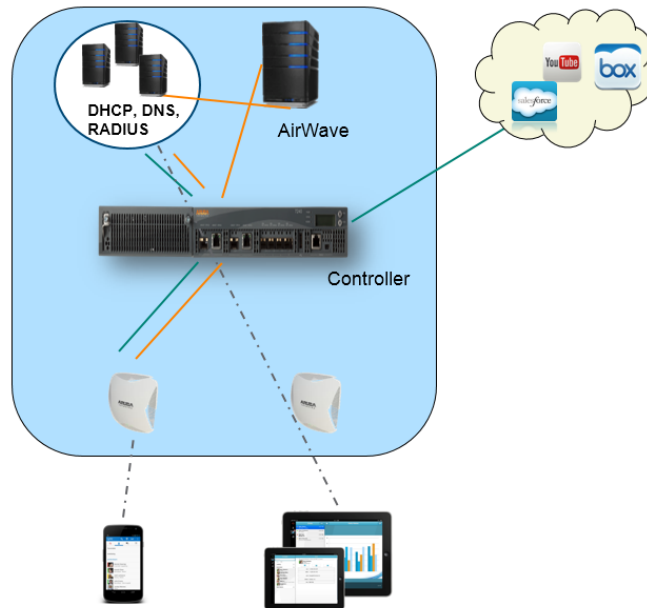
- IT admins cannot determine if it is a network or client issue

MacBook started taking 20 seconds to accept the server cert

- caused network connection issues and complaints of broken wireless

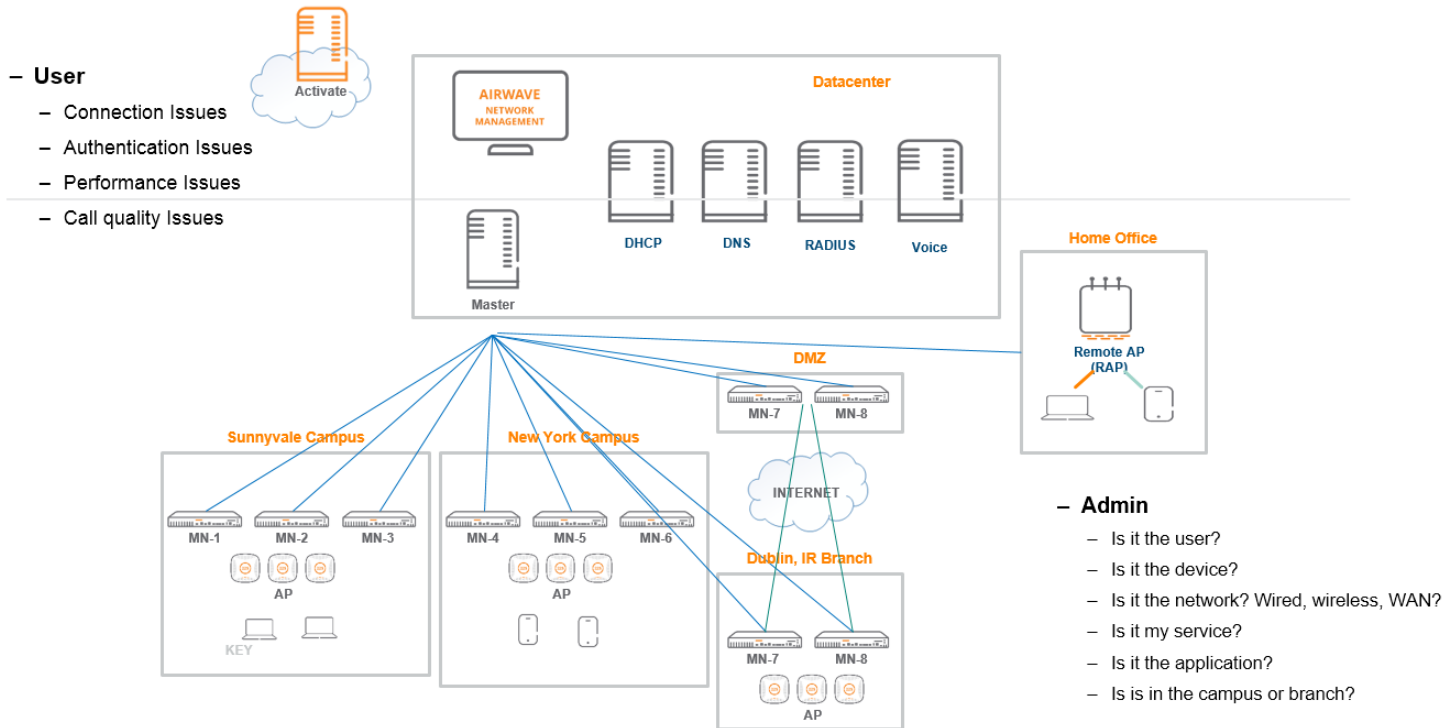
# Clarity Live How it helps

- **Inline Monitoring for associated clients**
- **Ability to monitor**
  - Association time
  - Authentication time
  - DHCP time
  - DNS time
- **New dashboards for Live**
  - Network and Client level Live views
  - Trends and patterns based on KPI/SLAs



# Clarity Live - Topology

## Typical Large Distributed Network



# Clarity-Live- Configuration

- Create a mgmt. profile and enable the interested logs based on the requirement
- Configure a management server and link it to the Profile created

```
(Aruba7005-Ouzo-10.15.60.34) (config) #mgmt-server profile Test
(Aruba7005-Ouzo-10.15.60.34) (Mgmt Config profile "Test") #!

(Aruba7005-Ouzo-10.15.60.34) (config) #show mgmt-server profile Test

Mgmt Config profile "Test"
-----
Parameter          Value
-----
Stats              Disabled
Tag                Disabled
Sessions           Disabled
Monitored Info     Disabled
Misc               Disabled
Location           Disabled
UCC Monitoring     Disabled
AirGroup Info      Disabled
Inline DHCP stats  Enabled
Inline AP stats    Enabled
Inline Auth stats  Enabled
Inline DNS stats   Enabled
(Aruba7005-Ouzo-10.15.60.34) (config) #

(Aruba7005-Ouzo-10.15.60.34) (config) #mgmt-server type amp primary-server 10.15.60.204 profile Test
(Aruba7005-Ouzo-10.15.60.34) (config) #
```

# Clarity Live- Configuration From UI

- **Create Management Profile:**

- Navigate to Configuration ->Advanced Services -> All Profile ->Controller ->Mgmt Config
- Provide a profile name and save the config
- All inline stats are enabled by default

**Advanced Services > All Profile Management**

Profile Details	
Mgmt Config profile > Clarity-Live <span>Show Reference</span> <span>Save As</span> <span>Reset</span>	
Stats	<input type="checkbox"/>
Tag	<input type="checkbox"/>
Sessions	<input type="checkbox"/>
Monitored Info	<input type="checkbox"/>
Misc	<input type="checkbox"/>
Location	<input type="checkbox"/>
UCC Monitoring	<input type="checkbox"/>
AirGroup Info	<input type="checkbox"/>
Inline DHCP stats	<input checked="" type="checkbox"/>
Inline AP stats	<input checked="" type="checkbox"/>
Inline Auth stats	<input checked="" type="checkbox"/>
Inline DNS stats	<input checked="" type="checkbox"/>

All Inline options enabled by default



# Clarity Live- Configuration From UI Cont...

- Configure the ip address of the Airwave as Management Server
  - Navigate to Configuration ->Management ->General
  - Scroll down to Airwave Servers
  - Configure the Airwave server ip and specify the mgmt profile created

**Management > General**

AirWave Servers		
Primary Server	Profile	Action
10.15.60.103	TestPatchDNS	Delete
10.15.60.106	default-amp	Delete
10.15.60.136	blk_sessions	Delete
New		



# Clarity Live- Sample Use Case Scenarios

- To know how long the client takes to associate with Wlan and reason for disassociation.
- To know the time taken for the client to get the IPaddress
- Client not able to resolve the DNS due to invalid DNS configured or due to delay in network
- To diagnose user Authentication failures which are triggered due to wrong password input from user or Server rejected request

# Clarity Live- Feature Description

- The Association, Authentication, DHCP and DNS info is being sent to Airwave from Controller/AP using below AMON messages.
- The Airwave accumulates the data from AMON messages, processes the data, store the data to the database and display in the Clarity-Dashboard
- The Inline AMON messages are:
  - AMON\_DHCP\_STATION\_INFO\_MESSAGE
  - AMON\_MACAUTH\_MESSAGE
  - AMON\_DOT1X\_MESSAGE
  - AMON\_WPA\_KEY\_HANDSHAKE\_MESSAGE
  - AMON\_CP\_MESSAGE
  - AMON\_PASSIVE\_AP\_STATION\_STATS\_MESSAGE
  - AMON\_DNS\_SERVER\_INFO\_MESSAGE

# Clarity Live- Trigger for each of the inline Messages

## Association

- AP STM Messages gets generated destined to Controller. Controllers SoS will have Airwave server configuration and relay to Airwave

AMON\_PASSIVE\_AP\_STATION\_STATS\_MESSAGE

Client Completes  
Authentication

## Authentication

- Once the Client Completes Authentication, based on the Auth Type Dot1x, MacAuth or CP AMON messages are sent

AMON\_DOT1X\_MESSAGE or  
AMON\_MACAUTH\_MESSAGE or  
AMON\_CP\_MESSAGE

- AMON\_WPA\_KEY\_HANDSHAKE\_MESSAGE sent wherever 4-way handshake is involved

Client gets IP

## DHCP and DNS

- DHCPDWRAP process in control plane receives all the DHCP packets and send info pertaining to client DHCP transactions directly to Airwave

AMON\_DHCP\_STATION\_INFO\_MESSAGE

- Per DNS server data collected in controller datapath  
AMON\_DNS\_SERVER\_INFO\_MESSAGE

# Clarity Live- Trigger for each of the inline Messages

## AMON\_PASSIVE\_AP\_STATION\_STATS\_MESSAGE

```
msg_type => 'AMON_PASSIVE_AP_STATION_STATS_MESSAGE',
rows => [
  {
    CL_P_AP_STA_ASSOC_RESP_DURATION => 4,
    CL_P_AP_STA_ASSOC_RX_TIME => '1462856621035',
    CL_P_AP_STA_BSSID => '04:BD:88:5F:31:50',
    CL_P_AP_STA_CTRL_STA_UP_ACK_DURATION => 5,
    CL_P_AP_STA_DEAUTH_ARUBA_REASON => 0,
    CL_P_AP_STA_DEAUTH_REASON_CODE => 0,
    CL_P_AP_STA_DEAUTH_RX_REASON_CODE => 0,
    CL_P_AP_STA_DOT11_KEY_EXCH_FAILED => 0,
    CL_P_AP_STA_EVENT_REPEAT_COUNT => 0,
    CL_P_AP_STA_FT_AUTH_RESP_DURATION => 0,
    CL_P_AP_STA_FT_AUTH_STATUS_CODE => 0,
    CL_P_AP_STA_FT_RIDATA_MISS_ON_AP => 0,
    CL_P_AP_STA_FT_RIDATA_RX_DURATION => 0,
    CL_P_AP_STA_FT_RIDATA_RX_STATUS_CODE => 0,
    CL_P_AP_STA_MAC => 'C8:F7:33:A4:5A:33',
    CL_P_AP_S_MAC => '04:BD:88:CD:F3:14'
  }
]
```

The highlighted fields are only considered in Clarity-Live currently

ECL\_P\_STA\_DEAUTH\_REASON\_CODE: Standard de-auth Reason-code send to client according 802.11 standard

Eg: Deauth Leaving (Reason Code 3)

Disassoc Sta Has Left (Reason Code 8)

CL\_P\_STA\_DEAUTH\_ARUBA\_REASON: Internal error code generated by AP-STM

Eg: AAA Deauth (35), AP Going Down (27)

# Clarity Live- Sample AMON AUTH Message

## AMON\_DOT1X\_MESSAGE:

Sent by AUTH for Failed DOT1X Authentication Attempt

```
msg_type => 'AMON_DOT1X_MESSAGE',  
rows => [  
  {  
    CL_DOT1X_BSSID => '6C:F3:7F:7C:64:50',  
    CL_DOT1X_CLIENT_ELAPSED_TIME => 38,  
    CL_DOT1X_CLIENT_RETRY_COUNT => 1,  
    CL_DOT1X_FINISH_TIMESTAMP => '1462370775268',  
    CL_DOT1X_REASON => 1,  
    CL_DOT1X_RESULT => 0,  
    CL_DOT1X_SERVERIP => '10.15.60.101',  
    CL_DOT1X_SERVER_ELAPSED_TIME => 1003,  
    CL_DOT1X_SERVER_RETRY_COUNT => 0,  
    CL_DOT1X_START_TIMESTAMP => '1462370774229',  
    CL_DOT1X_STATION_MAC => 'C8:F7:33:A4:5A:33',  
    CL_DOT1X_USERNAME => 'Student'  
  }  
]
```

## AMON AUTH Result:

AMON\_AUTH\_FAILURE = 0,  
AMON\_AUTH\_SUCCESS = 1

AMON\_UNKNOWN\_FAILURE\_REASON, = 0  
AMON\_AUTHSERVER\_REJECT, = 1  
AMON\_AUTHSERVER\_TIMEOUT, = 2  
AMON\_DOT1X\_CLIENT\_TIMEOUT, = 3  
AMON\_EAP\_FAILURE, = 4

- Here CL\_DOT1X\_RESULT=0, stands for AUTH Failure and CL\_DOT1X\_REASON =1 stands for Auth Server Reject
- Similar AUTH Result and Reason codes are present in MACAUTH and CP AMON messages

# Clarity Live- Sample AMON DHCP Message

## AMON\_DHCP\_STATION\_INFO\_MESSAGE:

Tracks total of 9 DHCP packets to/from client

This message is sent

- When there are 5 DHCP sequence packets to Server from client
- When there is complete DHCP transaction which includes DHCP REQUEST followed by DHCP ACK
- Each DHCP packets are identified with decimal number

```
msg_type => 'AMON_DHCP_STATION_INFO_MESSAGE',  
rows => [  
  {  
    CL_CLIENT_ADDRESS => '00:50:56:A7:4D:01',  
    CL_DHCP_SERVER_IP => '198.168.0.1',  
    CL_EVENT_SEQUENCE => 1235,  
    CL_TIMESTAMP => '1462862869525',  
    CL_TIME_DIFF1 => 801,  
    CL_TIME_DIFF2 => 10,  
    CL_TIME_DIFF3 => 26,  
    CL_TIME_DIFF4 => 0  
  }  
]
```

DHCPDISCOVER	1
DHCPOFFER	2
DHCPREQUEST	3
DHCPDECLINE	4
DHCPACK	5
DHCPNAK	6
DHCPRELEASE	7
DHCPINFORM	8

# Clarity Live- Sample AMON DNS Message

## AMON\_DNS\_SERVER\_INFO\_MESSAGE :

Controller Sps will measure minimum, maximum and average response time of each DNS server up to 15 DNS Server

```
msg_type => 'AMON_DNS_SERVER_INFO_MESSAGE',
rows => [
  {
    CL_ANOMALY_CNTR => 0,
    CL_AVG_RESP_DELAY => 535,
    CL_LAST_ANOMALY_IP => '0.0.0.0',
    CL_MAX_RESP_DELAY => 8724,
    CL_MIN_RESP_DELAY => 230,
    CL_RCODE0_CNTR => 2 ,
    CL_RCODE1_CNTR => 0,
    CL_RCODE2_CNTR => 6,
    CL_RCODE3_CNTR => 4,
    CL_RCODE4_CNTR => 0,
    CL_RCODE5_CNTR => 0,
    CL_RCODE_HISTORY => '^E',
    CL_SAMPLES_MEASURED => 12,
    CL_SVR_IP => '10.42.10.10'
```

Rcode 0: No Error

Rcode 2: Server Failure

Rcode 3: Non-Existent Domain

# Clarity Live Dashboard in Airwave

Summary			
AP NAME	ASSOCIATION	AUTHENTICATION	DHCP
AP_274_K2			
Tomatin30-7020			
Ardmore-225			
Tomatin23-30			
Springbank-1/18			
Tomatin29-7019		-	
AP105cage-1/7			
Springbank-7003			-
Tomatin-27		-	-
Total Records: 10			

DHCP	
SERVICES	DHCP TIME (MS)
10.15.85.20	2600
198.168.0.1	315
193.168.10.253	3
194.168.10.1	2
Total Records: 4	

Association		
APS	ASSOC. FAILURES(%)	ASSOC. TIME(MS)
Tomatin30-7020	0% (0/4)	5
Tomatin29-7019	0% (0/2)	4
AP105cage-1/7	0% (0/8)	3
Tomatin-27	0% (0/1)	2
Springbank-1/18	0% (0/5)	2
Ardmore-225	0% (0/8)	2

Authentication			
SERVICES	TYPE	AUTH. FAILURES(%)	AUTH. TIME(MS)
10.15.60.101	Captive Portal	100% Rejected: 2	-
10.15.80.103	Dot1x	0% (0/8)	9815
10.15.60.101	Dot1x	10% (1/10)	1586
10.15.60.115	WPA 4-Way Handshake	5% (1/18)	196
Total Records: 4			

DNS		
SERVICES	DNS FAILURES(%)	DNS TIME(MS)
10.3.5.200	100% (1/1)	-
10.13.6.110	100% (4/4)	-
10.42.10.10	0% (23/4135)	357
10.13.5.200	0% (11/1911)	105
Total Records: 4		



# Clarity Live Airwave Dashboard Events

The Different Events are:

- Summary

Consists of Association, Authentication and DHCP info on per AP

Summary					
AP NAME	ASSOCIATION	AUTHENTICATION...	DHCP		
Tomatin30-7020				<div>Avg. Time(ms): <b>368</b> Failures: <b>69% (36/52)</b> Dot1x: Rejected: <b>3</b> WPA: Client Timeout: <b>14</b> WPA: Replay Counter Mismatch: <b>10</b> CP: Rejected: <b>9</b></div>	
Ardmore-225					
Tomatin-24					
Tomatin29-7019					
Tomatin-25					
AP_274_K2					
AP225-Ardmore-1...					
Tomatin23-30					
Tomatin-26					
Total Records: 21				Details	

# Clarity Live Airwave Dashboard-Authentication




## Authentication

- Shows info on Authentication Server, Type of Auth , Auth Failure Reason in % and Average Time taken in per server basis.
- The Auth Failure Reason can be
  - Server Timeout
  - Server Reject
  - Client Timeout

Authentication					
SERVERS	TYPE	AUTH. FAILURES(%...	AUTH. TIME(MS)		
10.20.21.71	Dot1x	100% (9/9) Rejected: 9	–		
110.2.13.1	Dot1x	100% (4/4) Server Timeout: 4	–		
10.15.60.101	Dot1x	0% (0/6)	742		
10.15.60.115	WPA 4-Way Hand...	25% (2/8)	208		
				Replay Counter Mismatch: 1 Client Timeout: 1	
Total Records: 4				Details	




# Clarity Live Airwave Dashboard-DHCP

- DHCP
  - DHCP server and the average Time per Server

DHCP			
SERVERS	DHCP TIME (MS)		
10.20.105.1	1474		
10.20.102.1	1199		
10.20.104.1	932		
10.20.103.1	905		
Total Records: 4		<a href="#">Details</a>	

# Clarity Live Airwave Dashboard-DNS

- DNS
  - Per DNS Server Average Response Time and the DNS Failure codes
  - Failure Codes can be :
    - Request Timed out
    - Non-Existing Domain
    - Server Failure

DNS				
SERVERS	DNS FAILURES(%)	DNS TIME(MS)		
10.42.10.10	4% (248/5007)	260		
10.15.60.101	3% (38/1018)	185		
10.13.6.110	4% (26/530)	126		
10.13.5.200	3% (	102	<div>Request Timed Out: 42 Non-Existent Domain: 4 Server Failure: 1</div>	
Total Records: 4			Details	

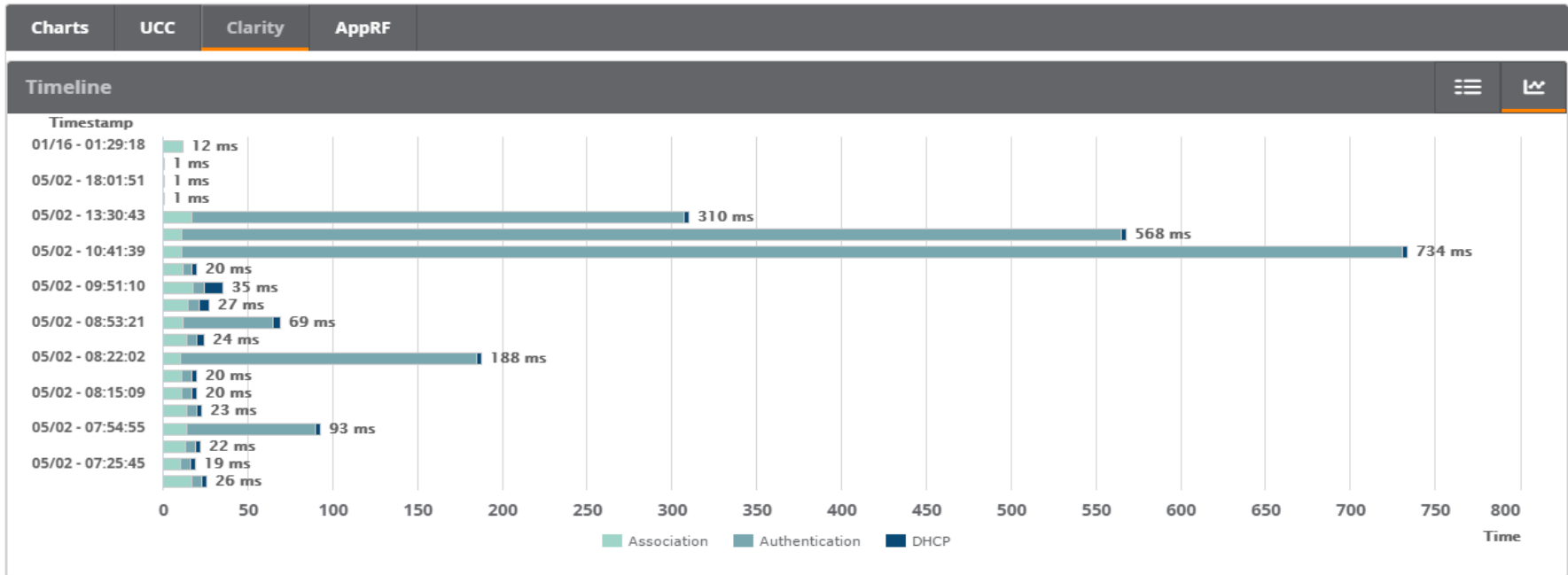
# Clarity Live Airwave Dashboard-Association

- Association
  - List of Aps and the respective Assoc. Failures and the Average Assoc. Time in millisecond
  - The Assoc. Failure reason codes are the Standard de-auth Reason-code send to client and the internal error codes generated by the AP-STM

Association			
APS	ASSOC. FAILURES(%)	ASSOC. TIME(MS)	
AP_274_K2	8% (1/12) PTK Challenge Failed: 1	15	
AP105cage-1/7	0% (0/3)	4	
Tomatin30-7020	0% (0/1)	4	
Springbank-7002	0% (0/2)	3	
Springbank-1/18	0% (0/26)	2	
Ardmore-225	22% (5/22) EAP Challenge Failed: 5	2	
AP225-Ardmore-1/19	0% (0/3)	2	
Tomatin-24	20% (1/5)	2	
Ardmore-32	0% (0/2)	2	
Total Records: 11			Details

# Clarity Live - Client specific Clarity Data

- Client Specific Data is located under Client Diagnostics Page
  - Clients ->Connected ->Click Client MAC Address ->Clarity Tab



# Clarity Live - Client specific Clarity Data Cont...

## Detailed Client data showing Association Timestamp, Association Deauth reasons, Authentication and DHCP Events.

Different Failure codes

Charts	UCC	Clarity	AppRF
Timeline			
TIMESTAMP	ASSOCIATION (MS)	AUTHENTICATION (MS)	DHCP (MS)
04/28 - 10:01:23	AP225-Ardmore-1/19 1ms VLAN: New Assignment	Aruba7210-10.15.60.115 WPA 4-Way Handshake 5926ms Client Timeout	
04/28 - 09:59:47	Ardmore-225 2ms PTK Challenge Failed	Aruba7210-10.15.60.115 WPA 4-Way Handshake 4667ms Replay Counter Mismatch	
04/28 - 09:59:36	AP225-Ardmore-1/19 2ms Disassoc STA Left		
Total Records: 20			

Successful Events

05/03 - 15:46:43	AP_274_K2 2ms Success	10.15.80.103 Dot1x 6820ms Aruba7210-10.15.60.115 WPA 4-Way Handshake 13ms Success	198.168.0.1 3ms Success
05/03 - 15:07:57	Springbank-7005 4ms Success	10.15.80.103 Dot1x 6940ms Aruba7210-10.15.60.115 WPA 4-Way Handshake 51ms Success	198.168.0.1 3ms Success

# CLARITY - SYNTHETIC



# Clarity Synthetic Prerequisite

- **Airwave running version 8.2.3 or greater**
- **AOS running 6.5.x.x or 8.x.x.x**
  - AOS 6.5.0.0 or later supports AP 2XX series.
  - AOS 6.5.1.0 or later supports AP 3XX series.
- **Aruba AP type ( at least one ) AP 2xx or 3xx**
- **Visualrf Enabled on Airwave to run Clarity test from Visualrf**
- **Clarity Engine**

# Clarity Synthetic

- **Ability to simulate network traffic using synthetic clients**
- **Run tests on-demand**
- **Pro-active alerts to boil up trends**
  - Built-in KPIs to track the health of the network
- **New Dashboard for Clarity Synthetic**
  - Ability to correlate synthetic results with other network data on AirWave
- **NBAPI to export test results to 3<sup>rd</sup> party collectors**

# Why do we need “Synthetic”?

Customer reports “wireless is slow”

- What they really mean is that the key enterprise service they need to get access to is slow. And they can't differentiate on their end. Running some kind of perf test to that application (ping?) would help solve that issue.

Validating network upgrade without IT staff during the middle of the night.

- Make sure the firmware upgrade took and that users will be able to associate and auth to the network when they show up in the morning.

Customer X wants to troubleshoot issues from central location without sending an IT guy on-site post.

- Does not want to send an IT guy to every site

University X wants to place laptops in strategic places that validate the network is up and running plus the wireless works well.

- They could decommission those if the APs can associate to each other and validate that the network is functioning

Google built Raspberry pi units to associate to their APs

- validate that certain services are performing up to par.

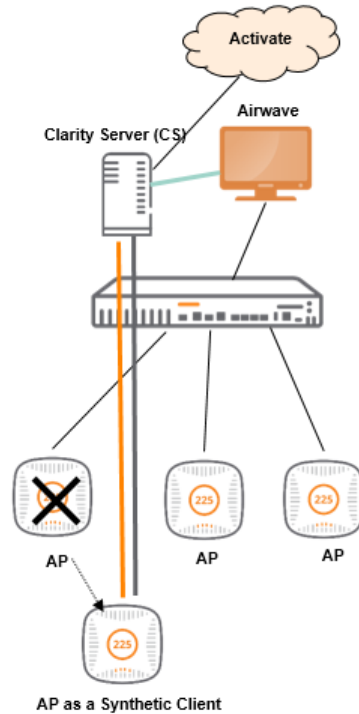
Problem occurs at 2pm only.

- Need a system that can attempt to be on the network at that time to verify that things are healthy when the problem occurs.

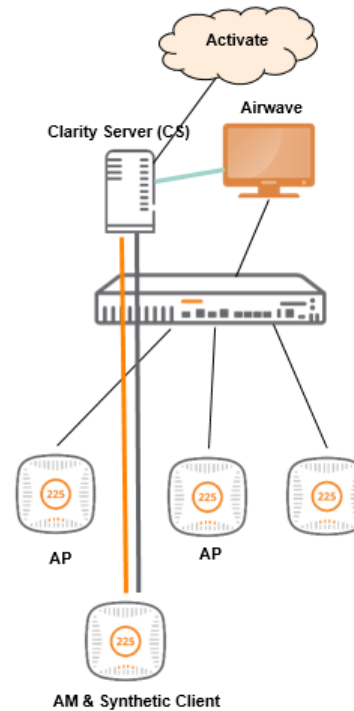
Validate the quality of the new controller image with key trends over time.

- Automate tests

# Clarity Synthetic Client - Options



**AP**



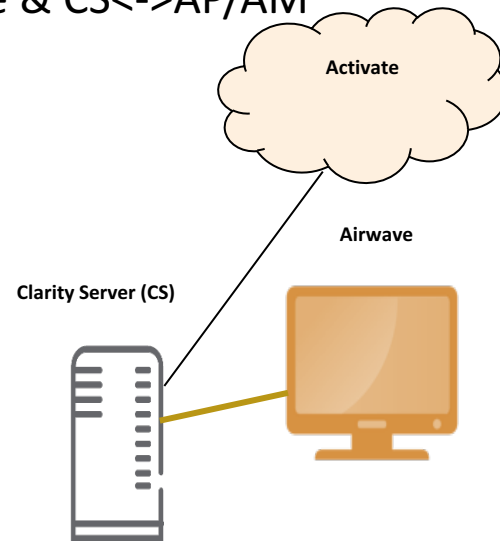
**AM**

# Clarity Synthetic server Functionality

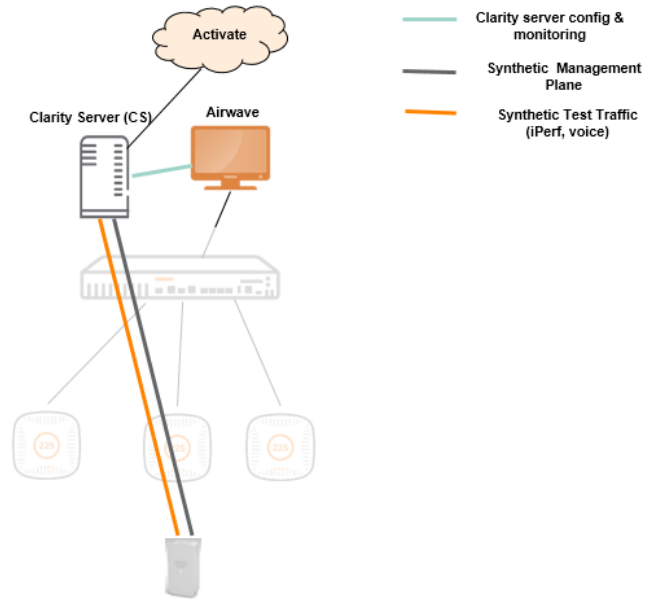
- Simulates the client stack for AP & AM based synthetic
  - It is like a laptop connected to the AP!
- Simulates network and application traffic
- Acts as an endpoint for performance tests

# Clarity Synthetic deployment

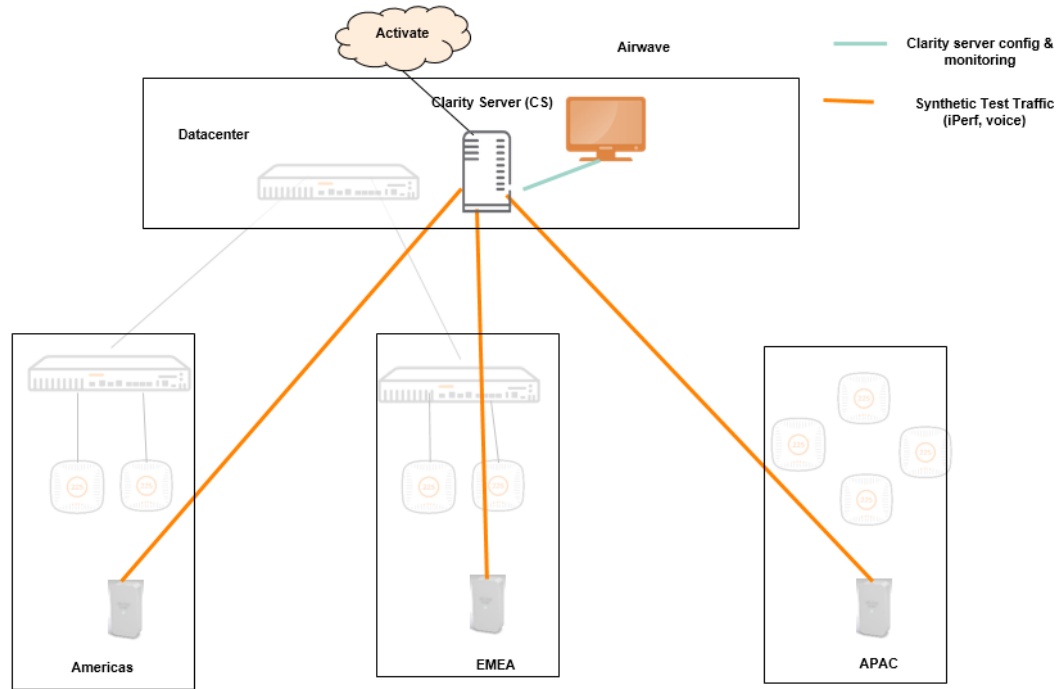
- Can be installed on a VM
- AirWave will be the front end of the Clarity server
  - No UI, only limited CLI
  - Secure web sockets are leveraged between CS<->AirWave & CS<->AP/AM
- 3<sup>rd</sup> party consumers can leverage JSON data for visualization



# Clarity Synthetic Server in a Campus Deployment



# Clarity Synthetic in a Distributed Deployment





# Clarity Synthetic Transactions

Network Traffic	Config	Result
Connectivity	SSID/BSSID	Scan response time, association response time
Authentication (Open, PSK, EAP-PEAP, EAP-TLS)	Credential/Certificate	Auth time, 4 way handshake
DHCP	None	# of servers, response times, active server
DNS	V4 or v6	IP address, response time
ICMP	Destination, packet size	Loss, success/fail, response time
Tracert	Destination, TCP/UDP/ICMP	Hop count, response time

# Clarity Synthetic Transactions cont.

Application Traffic	Config	Result
Web page load time	URL, http/https	Success/fail, response time
iPerf	Server IP, UDP (MTU, BW, duration), TCP (MTU, window size, duration)	Loss, jitter, BW, throughput

# Clarity Synthetic- Run a test

- **Two ways**
  - From Clarity dashboard
  - From VRF

# Clarity Synthetic

## Synthetic Tests

Basic Info

DNS

Ping

Page Load

Traceroute

iPerf3

Select a Profile

SSID\*

Selected Client (s)

AP-205

Selected Target(s)

AP225

Authentication

Open

Band

2.4 GHz

Cancel

Back

Next

Run

## Synthetic Tests

Basic Info

DNS

Ping

Page Load

Traceroute

iPerf3

Select a Profile

Create a Profile

SSID\*

Inventory

Selected Client (s)

AP-205

Selected Target(s)

AP225

Username\*

Profile Name (alphanumeric only)\*

Aruba-test

Authentication

EAP/PEAP

Band

2.4 GHz

Password\*

Cancel

Back

Next

Run

# Clarity Synthetic – Running Test

## Synthetic Tests

Basic Info **DNS** Ping Page Load Traceroute iPerf3

DNS

8.8.8.8

DNS

10.17.161.111

+

-

Cancel

Back

Next

Run

## Synthetic Tests

Basic Info DNS **Ping** Page Load Traceroute iPerf3

Packet Size

1024 bytes

Name

www.google.com

Packet Size

512 bytes

Name

www.arubanetworks.com

+

-

Cancel

Back

Next

Run

# Clarity Synthetic – Running Test

## Synthetic Tests

Basic InfoDNSPingPage LoadTracerouteiPerf3

URL

https://community.arubanetworks.com

URL

http://app1.central.arubanetworks.com

+

-

Cancel

Back

Next

Run

## Synthetic Tests

Basic InfoDNSPingPage LoadTracerouteiPerf3

Test Mode

ICMP

Destination

10.10.10.111

Test Mode

UDP

Destination

hpe.com

Test Mode

TCP

Destination

google.com

+

-

Cancel

Back

Next

Run

# Clarity Synthetic – Running Test

## Synthetic Tests

Basic InfoDNSPingPage LoadTraceroute**iPerf3**

IPerf3 Server

Use Clarity Engine iPerf3 Server

Test Mode

TCP

Duration

10 seconds

Bandwidth (1-850) Mbps

200Mbps

Cancel

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Next

Run

# Clarity Synthetic –Test Results

## Results

Timestamp

Selected Client(s)

1

Selected Target

WPA Test

166 ms

Ping Test

www.google.com

17.51 ms

DHCP Test

1007 ms

DNS Test

www.hpe.com

23.86 ms

Page Load Test

http://www.hpe.com

161.46 ms

Traceroute Test

[Click here for more details](#)

iPerf3 Test

71.8 Mbps

Collect Logs

Done



# Clarity Synthetic –Thresholds

<b>Analysis Module</b>	<b>Green (GOOD) Response Time</b>	<b>Green Failure Rate</b>	<b>Orange (FAIR) Response Time</b>	<b>Orange Failure Rate</b>	<b>Red (POOR) Response Time</b>	<b>Red Failure Rate</b>
Association	<10 ms	<10%	10 - 20 ms	10% - 20%	>20 ms	>20%
Authentication	<500 ms	<10%	500 - 800 ms	10% - 20%	>800 ms	>20%
DHCP	<500 ms	<10%	500 - 600 ms	10% - 20%	>600 ms	>20%
DNS	<100 ms	<10%	100 - 200 ms	10% - 20%	>200 ms	>20%
PING	<300 ms	<10%	300 - 600 ms	10% - 20%	>600 ms	>20%
Webserver Test	<500 ms		500 - 1500 ms		>1500 ms	



Questions

THANK YOU!