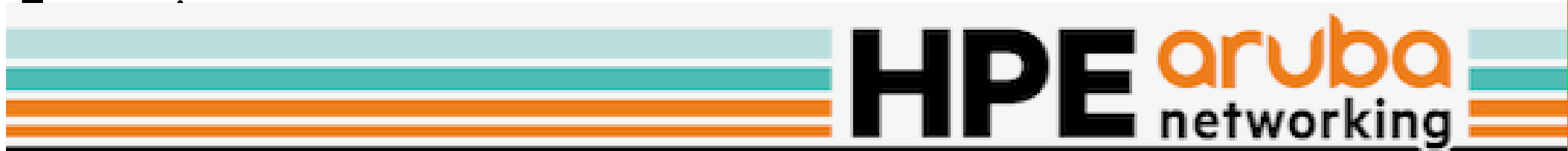




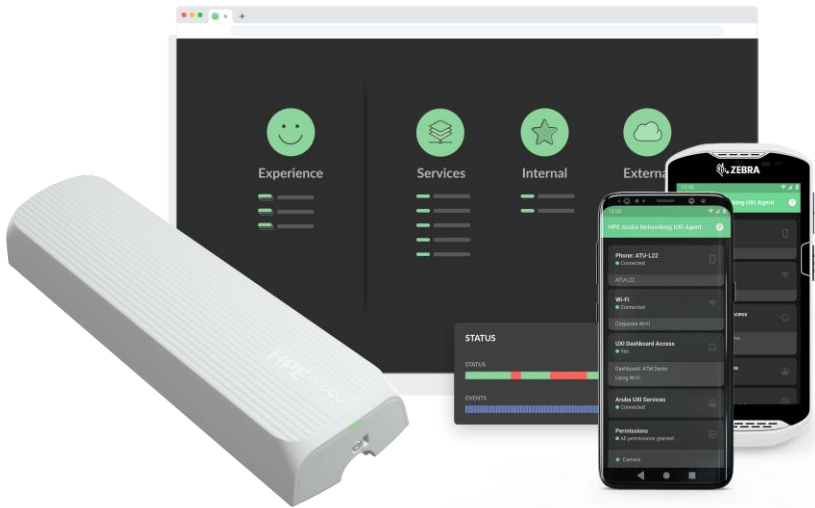
Hewlett Packard



Digital Experience Monitoring with HPE Aruba Networks UXI



Eric Moore - HPE Aruba Networks SE



CONFIDENTIAL | AUTHORIZED

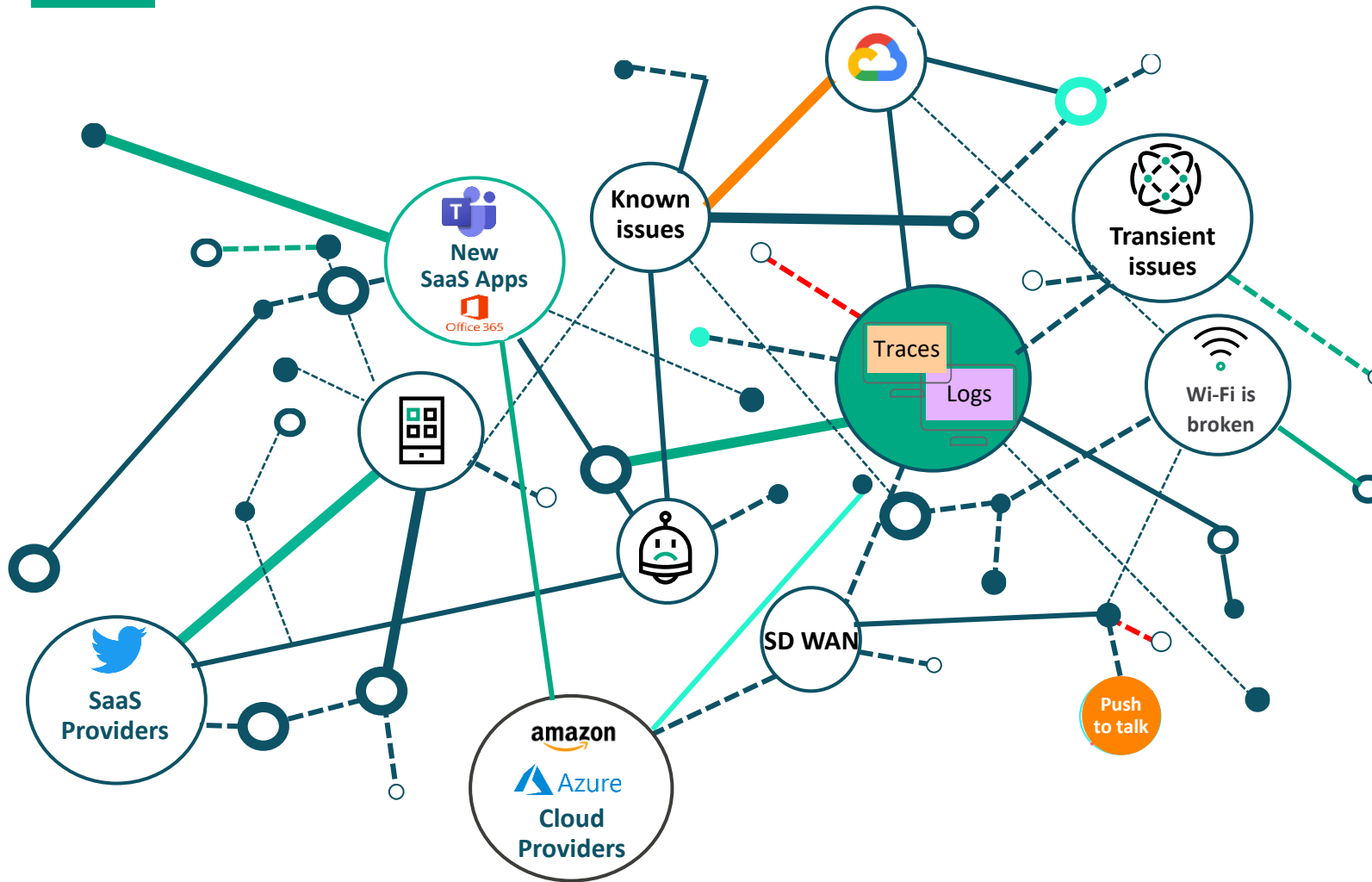


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Key challenges supporting hybrid, distributed environments



Issues go undetected until end-users complain.

Transient, anecdotal, or difficult to replicate issues.

Tools are ineffective and lack end-user awareness.

Where to start...? 

Traditional tools don't focus on mobility, user experience or SaaS applications.

The cost of not monitoring End-User Digital Experience



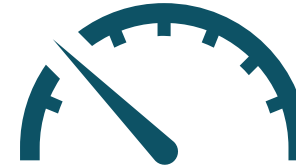
Up to 68%
of employees
experience a late start
to online meetings

Due to an unstable
network, resulting in 3
hours/week of lost
productivity



48% instore
retail customers
are dissatisfied

Due to inconsistency
with their online retail
experiences, leading to loss
of customer loyalty



\$4000/day
productivity loss*

Due to poor performance
of critical applications
like MS Office on
your network

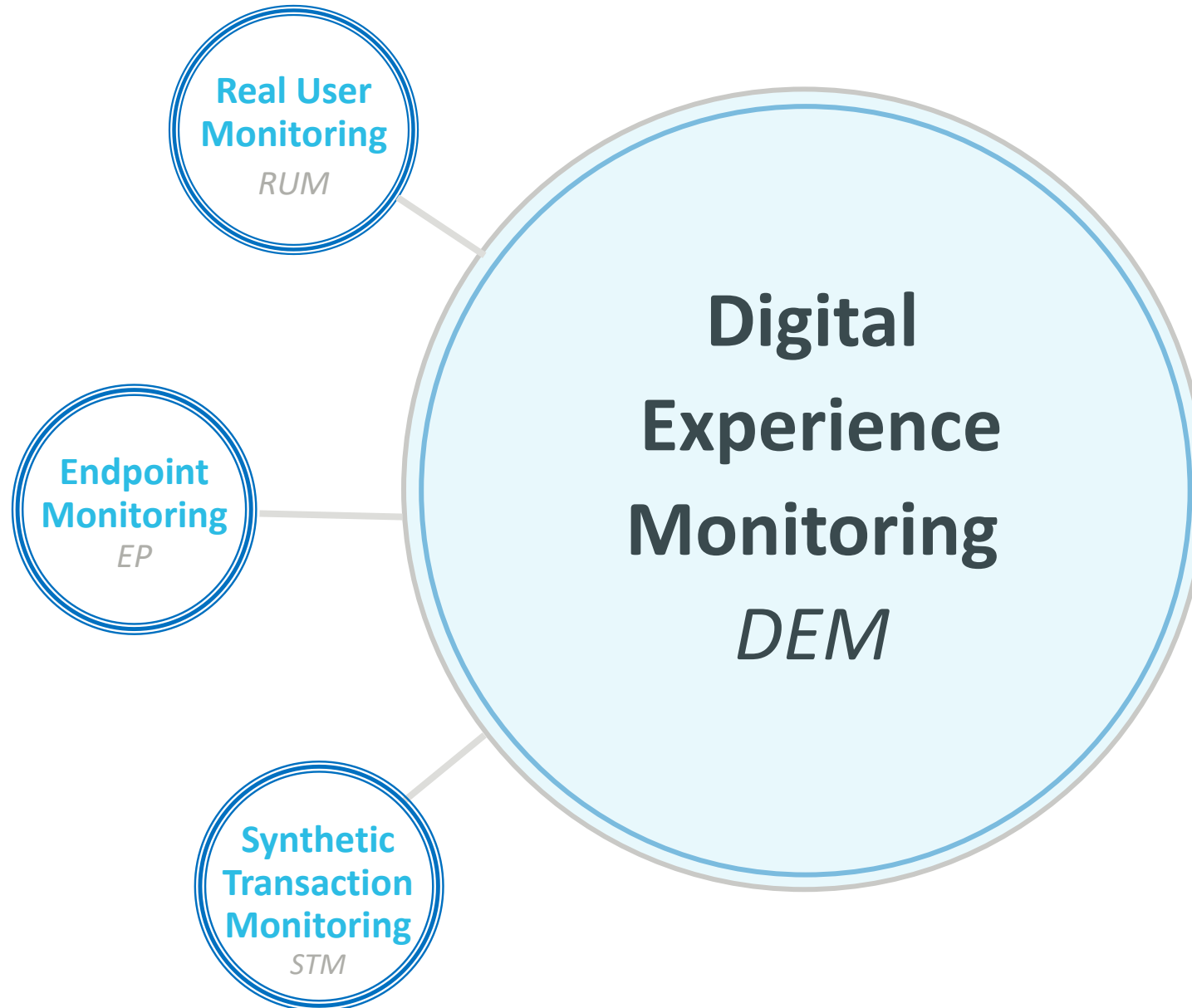


70% of
IT's time is spent
troubleshooting

Which equals less
time for strategic
projects

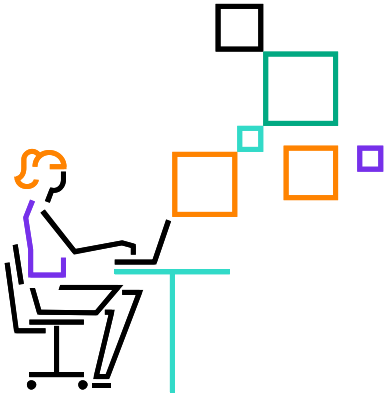


Digital Experience Monitoring: 3 Core Components



UXI is your remote technician

Problems we help solve



The network looks fine but end users open helpdesk complaints.

Intermittent issues are hard to validate because of the dependency on the end-user.

Time consuming and costly MTTI, MTTR and truck rolls.

24/7 proactive network and application testing from end-users' perspective.

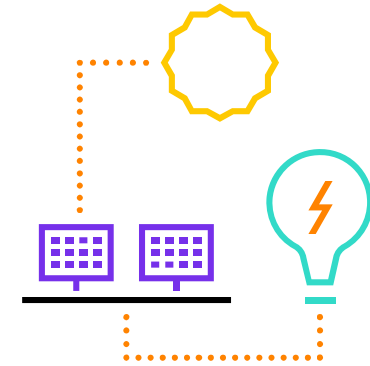
Precise insights into network & application performance.

Capture issues as and when they happen along with root-cause.



How we solve them

What does it mean for the organization?



Get a true picture of the user's digital experience

Enable IT teams to track SLAs (even in remote sites with minimal IT support).

Reduce network troubleshooting costs and save time.

Capture intermittent issues and validate network upgrades.

HPE Aruba Networking User Experience Insight

Purpose-Built UXI Sensors/ Agent
for Windows, MacOS, Android and
Zebra

Cloud-Based UI

- Non-Cellular
- Cellular



Simple to setup and deploy on any
wired and/or wireless network - no new
cable runs required!

Understandable interface for real-time
monitoring, actionable alerts, troubleshooting

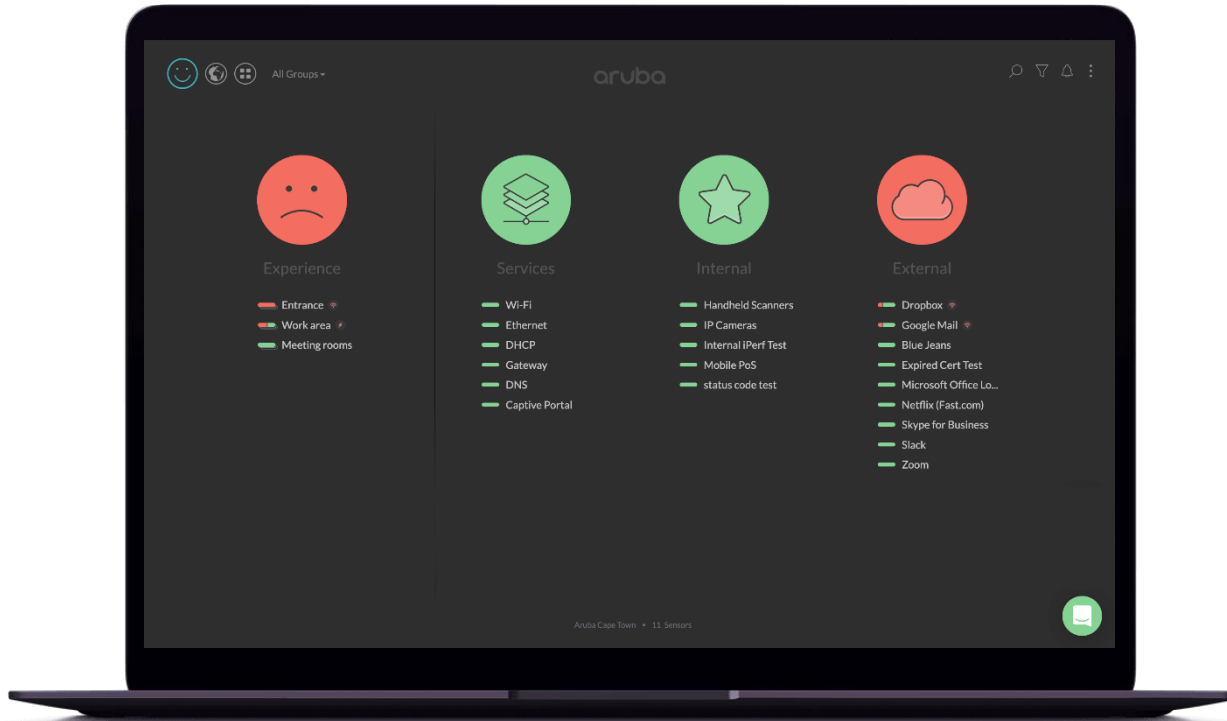
**See the real-time experience of users on your network.
Vendor Agnostic!**



UXI Dashboard

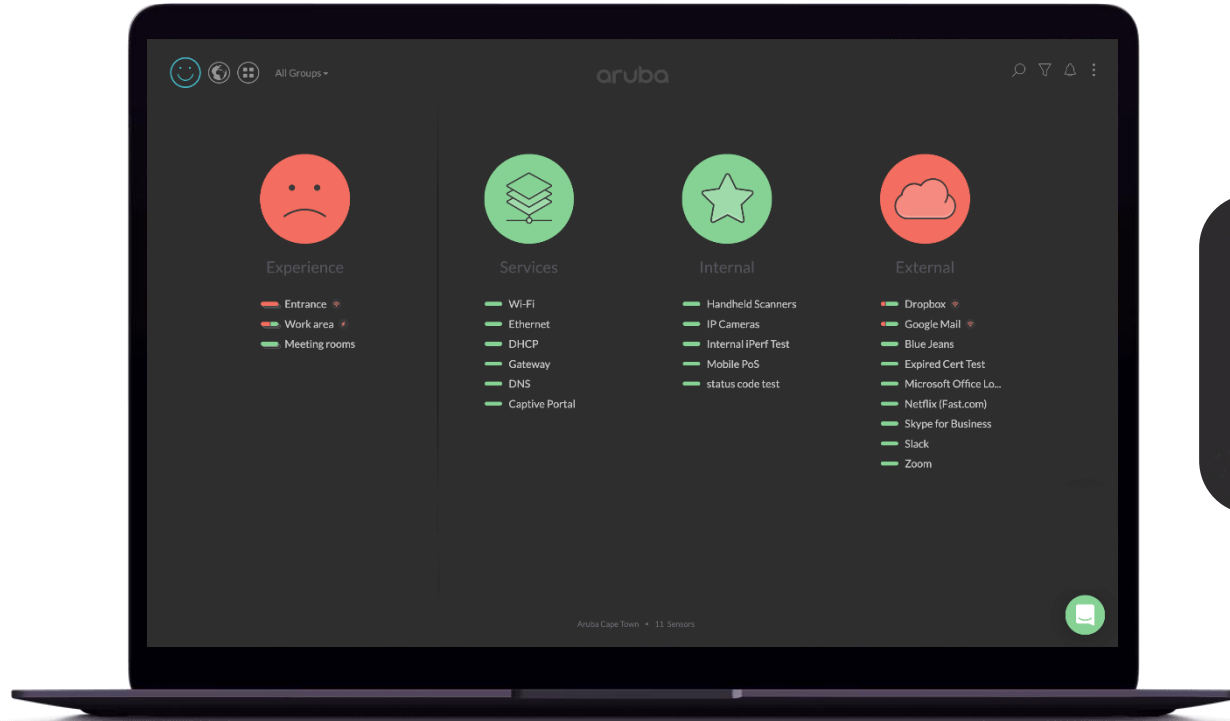


HPE Aruba Networking UXI dashboard – Brief



- UXI dashboard is an AI-powered visualization of user experience
- Easy to understand and navigate
- Automatic triage to pinpoint root cause
- AI powered alerts to keep IT proactive
- Stores 30 days data – help with validating changes
- Provides PCAP file

At-A-Glance status

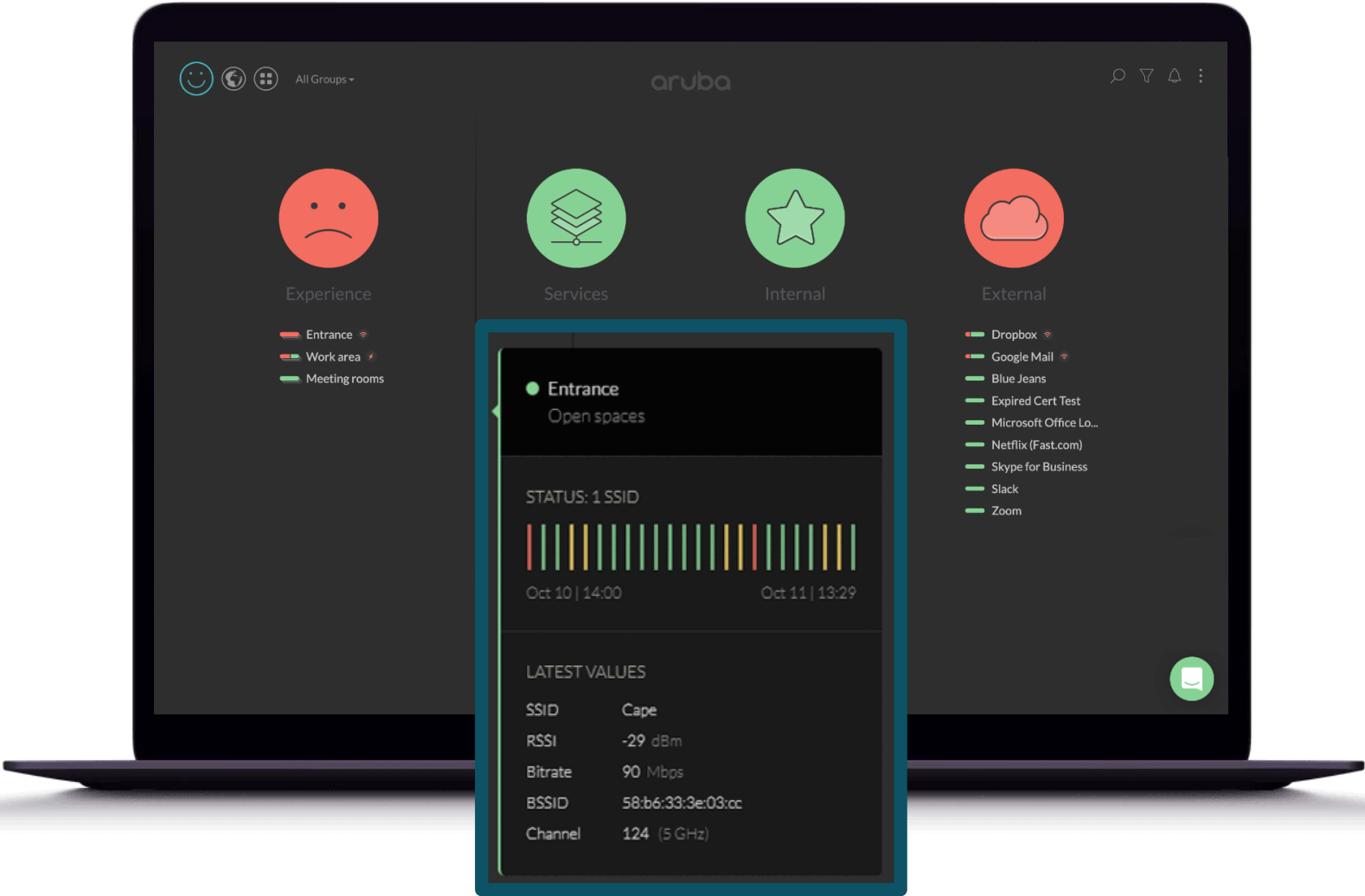


Performance is OK

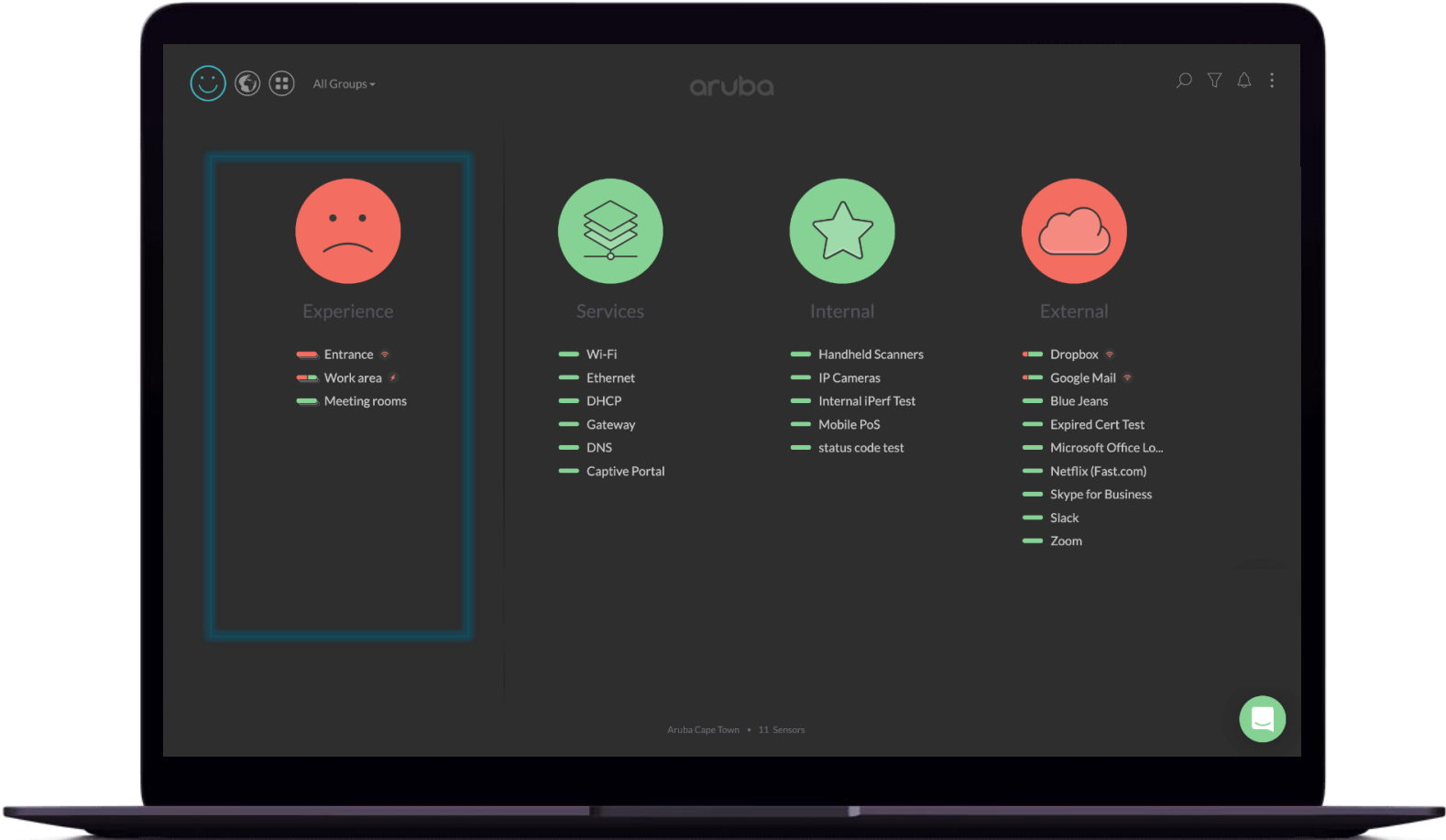
There's an issue



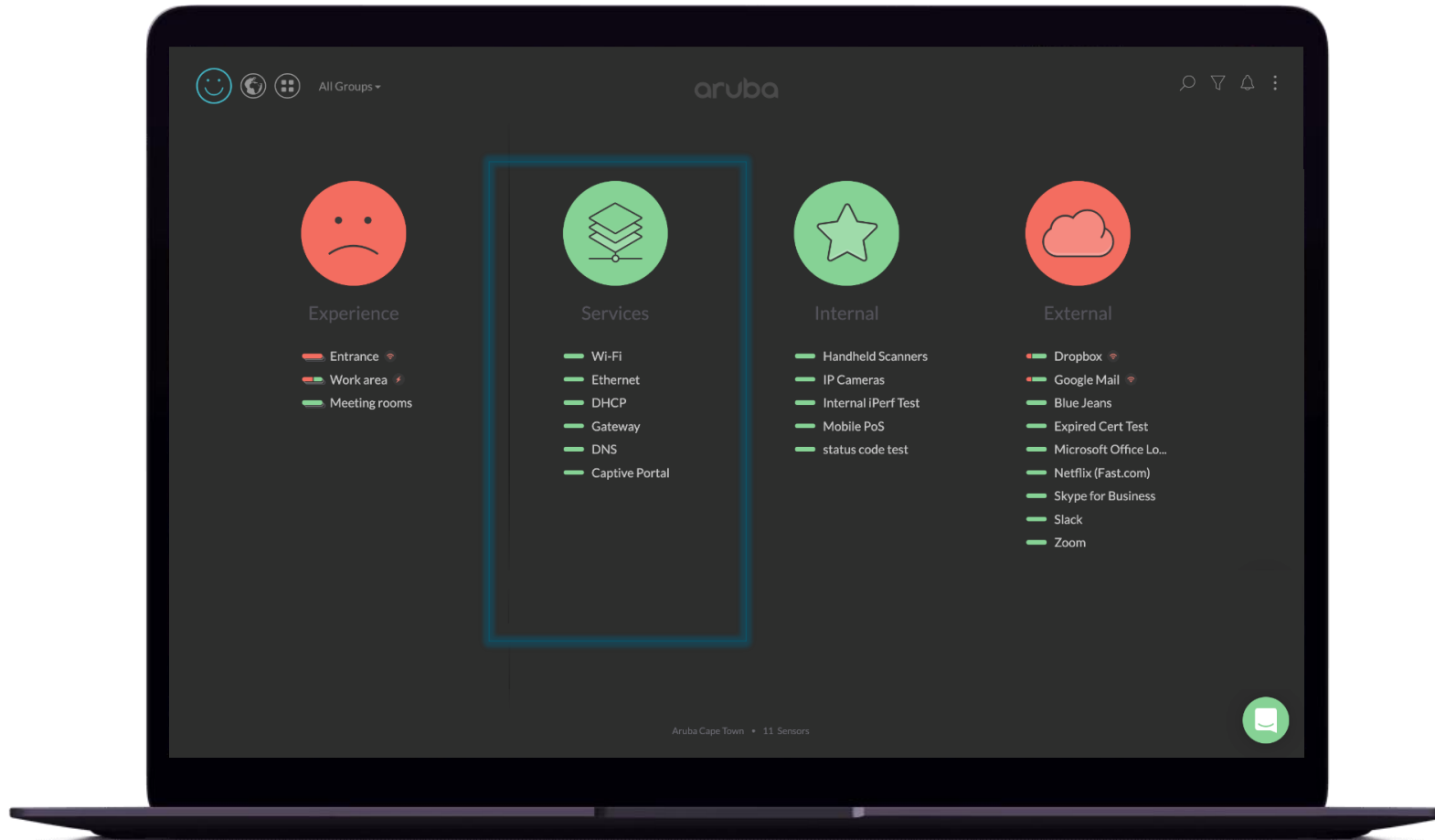
What can you test with UXI?



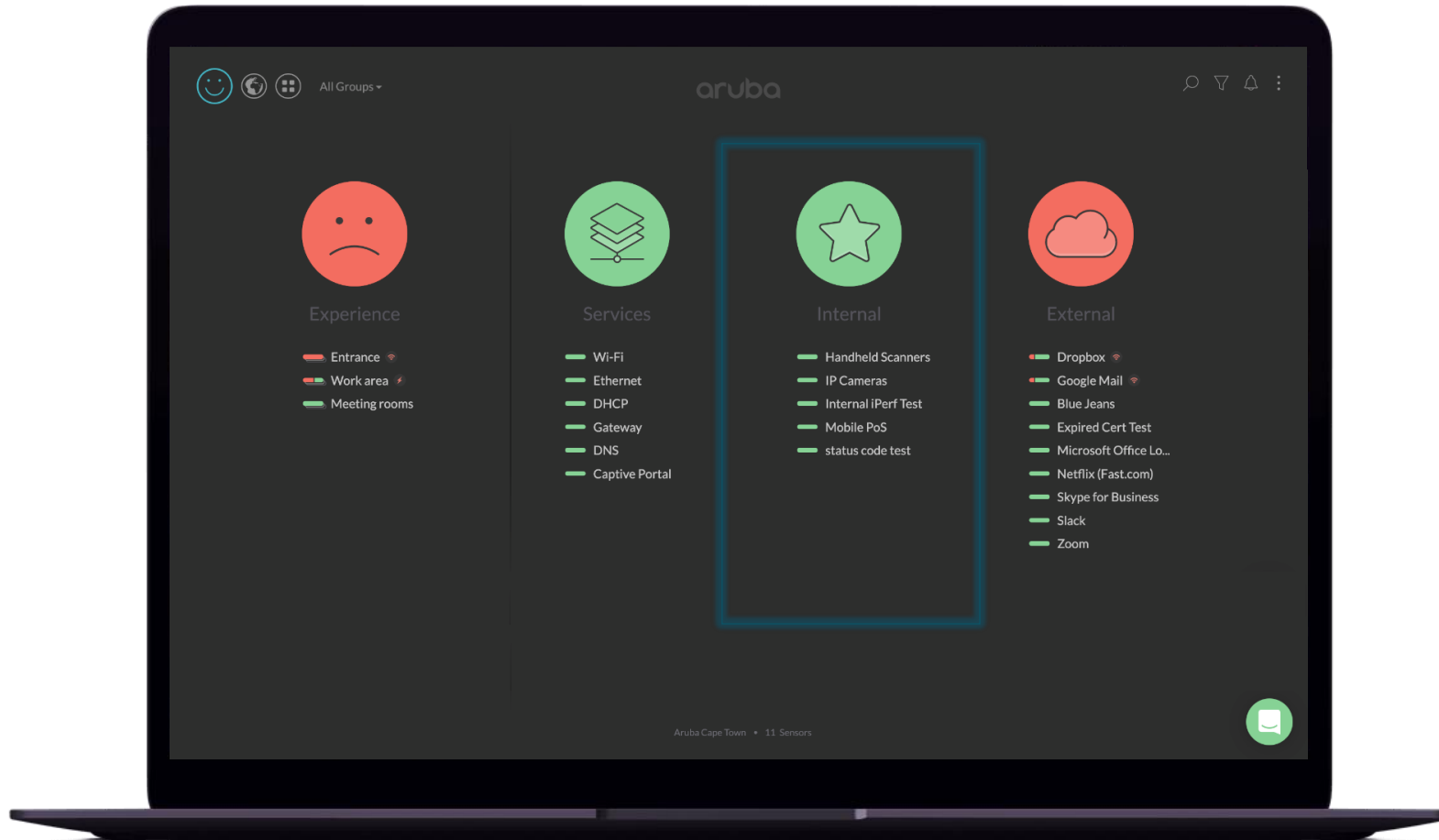
What can you test with UXI?



What can you test with UXI?



What can you test with UXI?



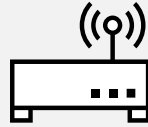
Proactive Monitoring with Synthetic Tests

Thorough testing **To and Through** your network



Wi-Fi

- ☐ Scan
- ☐ Association
- ☐ Packet capture
- ☐ Measure KPIs (RSSI, Util, etc.)
- ☐ Captive portal



Network

- ☐ Authentication
- ☐ Gateway
- ☐ DNS
- ☐ DHCP
- ☐ Iperf3
- ☐ Ping/Hping
- ☐ HTTPGet / Curl
- ☐ Telnet



Library of Apps

- ☐ Test any Web Application (easy recording/script)
- ☐ Office 365, Gmail, AWS (w customer login)
- ☐ Dropbox (w customer login)
- ☐ Slack (w customer login)
- ☐ Microsoft Teams, Blue jeans and other VoIP services
- ☐ Netflix
- ☐ YouTube



HPE Aruba Networking UXI Web Application Testing (WAT)

Mimic your user →
Configure sensors to test end to end user workflows, like logging in, adding items to cart, logging out and many such scenarios

NETWORKS

TESTING

TEST RESULTS

ALERTS

COMPANY

Add Test

Service Category

Internal

External

Template Type

Predefined

Custom

Test Template

Web Application Test

Selenium

test website function.side

Choose a file

Title

test website function

Target

www.arubanetworks.com

Frequency

6 hours

Note: Web Application Tests are a beta feature.

Learn how to create a [web app test](#)

Discard

Add

STATUS

STATUS

Good

EVENTS

30 Ongoing 4 Resolved last 24 hours

ONGOING

27

Web application test failed to complete

16 sensors & 3 networks

+

3

Unable to resolve hostname

2 sensors & 2 networks

+

RESOLVED

4

Web application test failed to complete

4 sensors & 1 network

+



Web App Testing utilizing triage

- Understand the performance of application workflows e.g., logging in, navigating and performing actions.
- Measure success, failure and time taken to complete actions.
- Every test step is understood, therefore reproducible.
- Test navigation paths are consistent, creating performance baselines.
- Change management validation testing.

9.0

⚠️

All targets failed to be run for a particular step

TIMING

Timestamp01:53:45

ARGS

Base urlhttps://www.office.com

Test nameoffice sign in and sign out

COMMANDS

9.0

✓

Command 1 - open

11.6

✓

Command 2 - setWindowSize

12.4

⚠️

Command 3 - click

TIMING

Timestamp01:53:58

SCREENSHOT



UXI Path Analysis

Get the blueprint of an application journey on the global network or internet—originating from the edge and traversing through vast geographic distance to reach an application.



Identify high latency paths to any webserver or application



Understand paths during Issue evolution – before, during and after incident



Visibility into Internet nodes and verify routing failover for multiple WAN ISP links

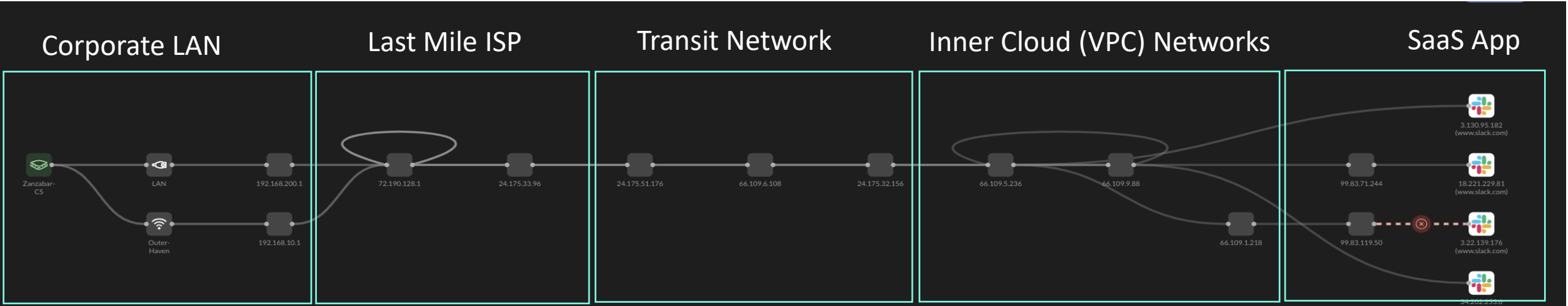


Verify network path resiliency for SD-WAN infrastructure



Provides X-ray of Internet

Enable End-to-End Network and Application Monitoring



Visibility required for end-to-end network and application observability

1 Local Network Wired LAN Wi-Fi AP/Switch	2 Last Mile ISP	3 Mid Path Transit Networks	4 Cloud Based or SaaS Infrastructure	5 Multi-cloud hybrid Cloud Inner cloud SaaS networking
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UXI Sensors



Zero-Touch deployment is as easy As 1, 2, 3

In the office, branch, or anywhere



UXI Wi-Fi 6E
Sensor



UXI Wi-Fi 6
Sensor

1

Place or mount

1 sensor for every 5-10 Aps
at end-user locations

2

Connect to power

AC adapter or PoE

3

Login to dashboard

View real-time status

HPE Aruba Networking UXI Sensors

Powerful Linux machines



**UXI Wi-Fi 6E
Sensor**



**UXI Wi-Fi 6
Sensor**

1

Continuously test and monitor end-user experience on your wired, Wi-Fi, and WAN networks

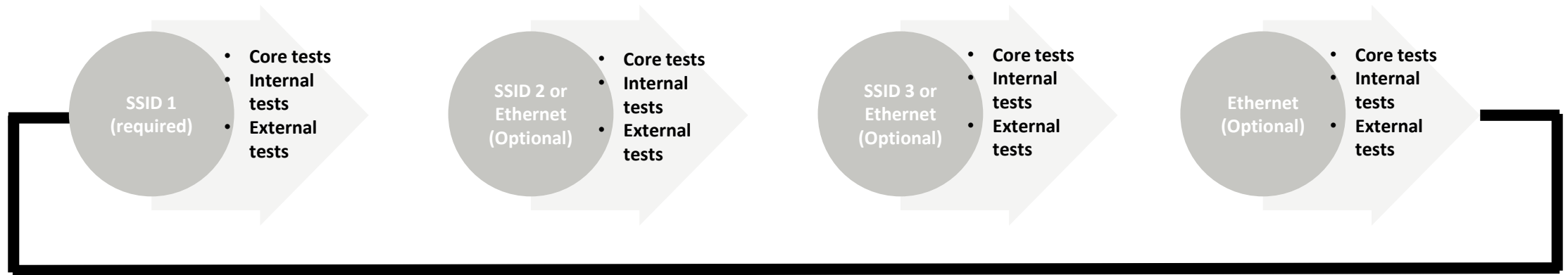
2

Zero touch deployment

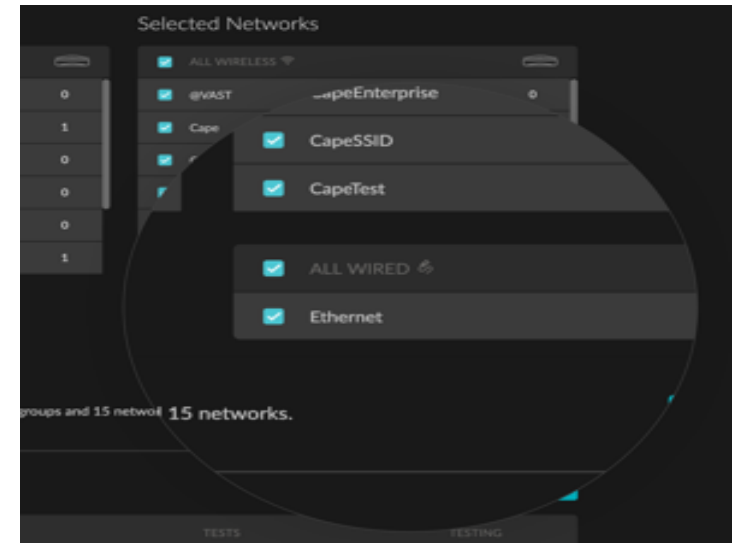
3

Looks great in all infrastructure settings

The sensor test cycle (1/2)

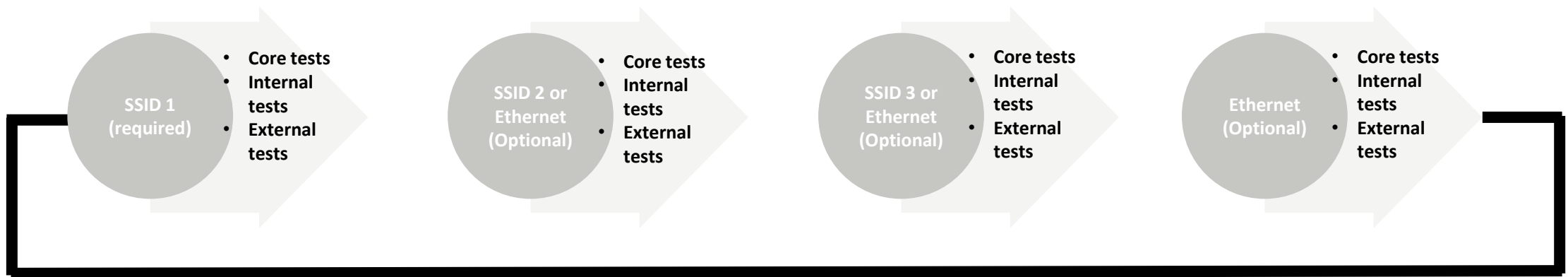


- ❑ Tests networks in round robin fashion
- ❑ The sensor tests whichever BSSID is "best", based on the perceived quality according to the wpa supplicant on the sensor not necessarily the best RSSI.
- ❑ 4 networks - 1 wireless and 3 ethernet or any mix



The sensor test cycle (2/2)

- Web application tests and iPerf tests can be configured to run at predefined frequencies. During the sensor test cycle, the sensor will determine if it needs to run these tests based on how long it has been since the last time the tests were executed.
- If an error is encountered with the core network tests, the internal and external tests will not be attempted.



Types of issues detected by Sensors

There are two types of issues observed in the dashboard:

Threshold Violations:

- When the sensor runs a test and gets a successful result
- The measured value is reported to the dashboard.
- Threshold issues are generated based on a rolling average of measured data samples crossing a defined threshold.
- These thresholds are configurable by an administrator of the dashboard.
- Example issues: High DHCP response time, High DNS lookup time.

Test Failures:

- When the sensor runs a test and does NOT get a successful result
- The sensor will attempt to diagnose why the test failed in an automated triage mode
- Triage mode will run a set of predefined troubleshooting tests to get the test failure's root cause.
- Example issues: Gateway is unreachable, Primary DNS Failing, No Response from DHCP Server





HPE Aruba Networking UXI Agent



HPE Aruba Networking UXI Agent



Value proposition

1. Improve the productivity of users/employees by monitoring their digital experience while they access various critical applications on a network.
2. Reduce network monitoring and troubleshooting cost
3. Rapidly troubleshoot helpdesk tickets with precise insights into root cause of issues.

3.1 Self service portal for end-users – for helping IT teams in rapid troubleshooting



What's New?

HPE Aruba Networking UXI Agent now supports

●
Windows

●
MacOS

●
Android

●
Zebra

These agents run synthetic tests to monitor network and application performance, provide device performance stats and capture issues along with root cause to alert IT teams for rapid troubleshooting.

HPE Aruba Networking UXI agents

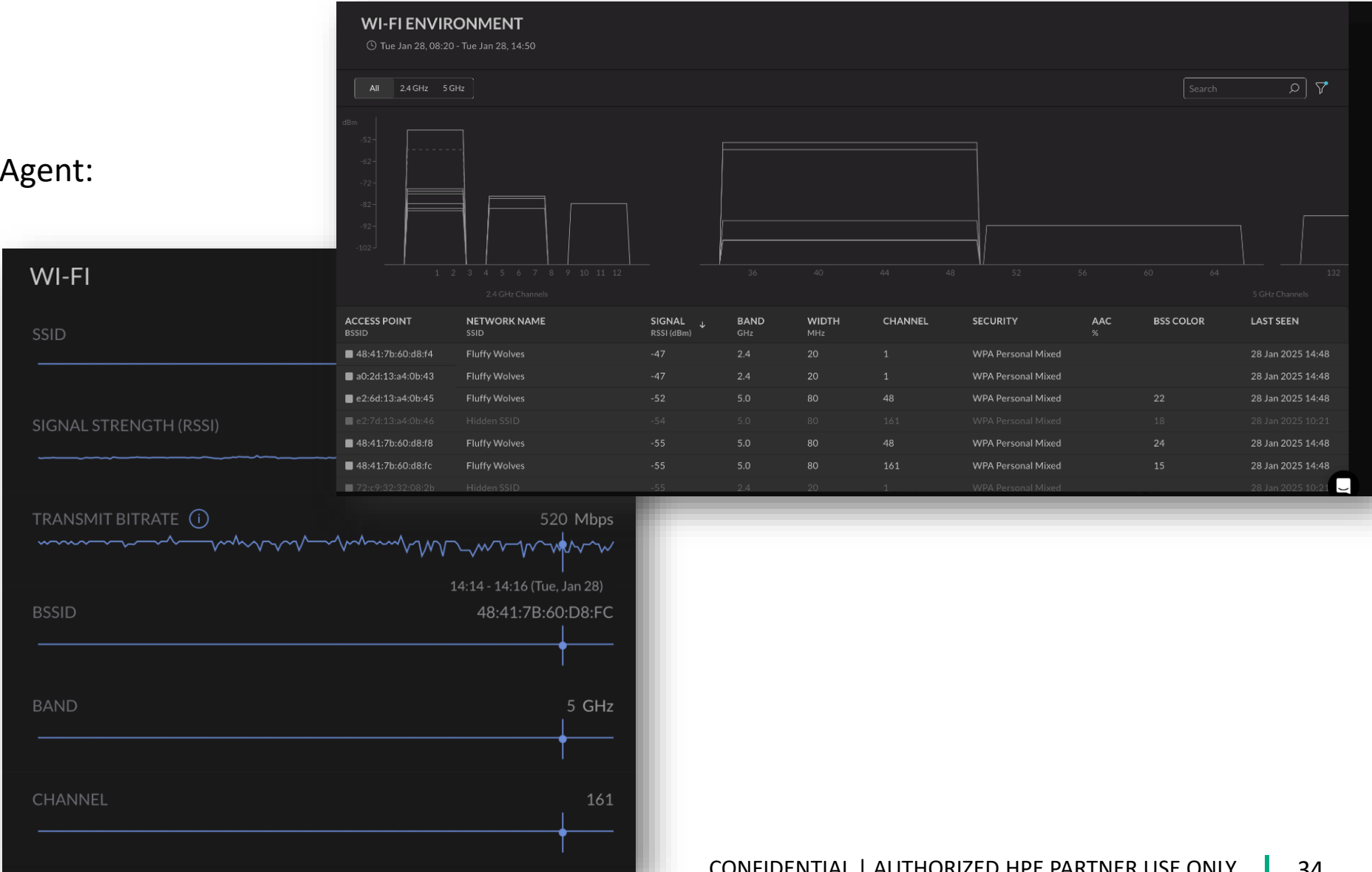
Additional Features

Metrices collected by UXI Agent:



Wi-Fi performance metrics like signal (RSSI), transmission (Tx) rate, BSSID, band, and channel.

It also shows a Wi-Fi visualization chart with information like channel overlap, SSIDs, channel width, and signal strength of nearby APs.



HPE Aruba Networking UXI agents

Additional Features

Metrics collected by UXI Agent:



App performance metrics like DNS lookup time, HTTP GET Elapsed time, packet loss, latency, jitter, gateway reachability



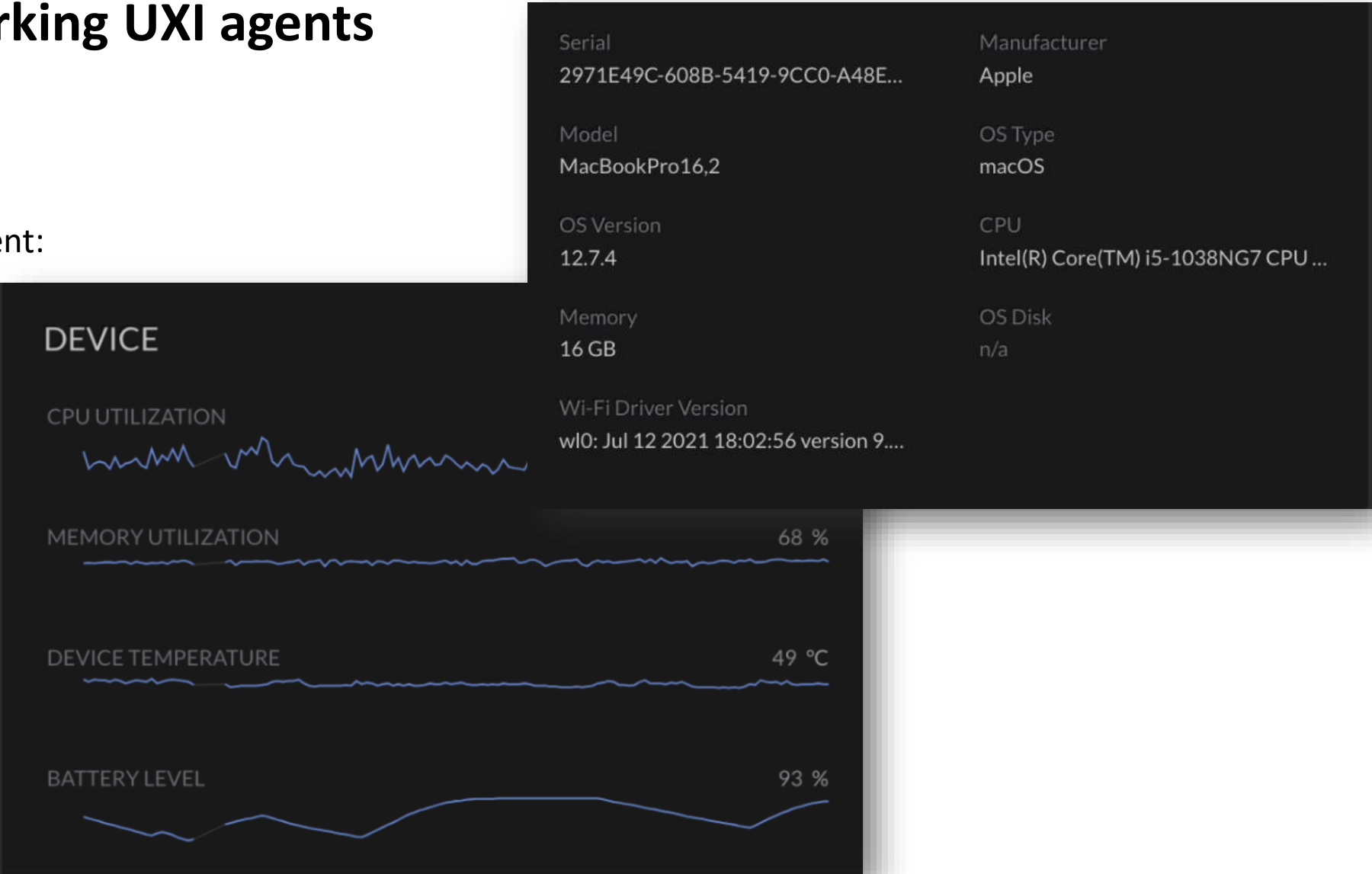
HPE Aruba Networking UXI agents

Additional Features

Metrics collected by UXI Agent:

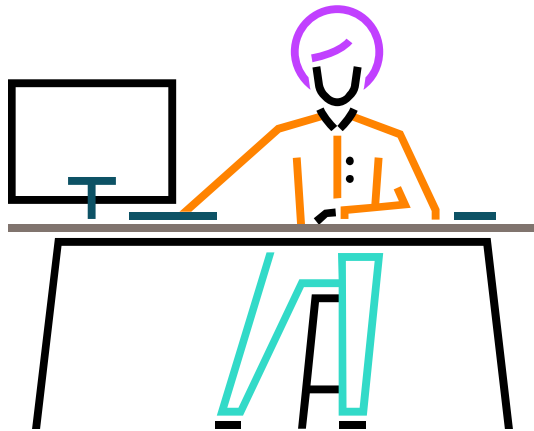


Device performance metrics like CPU, memory and battery utilization, along with device metadata like OS, model, adapter information

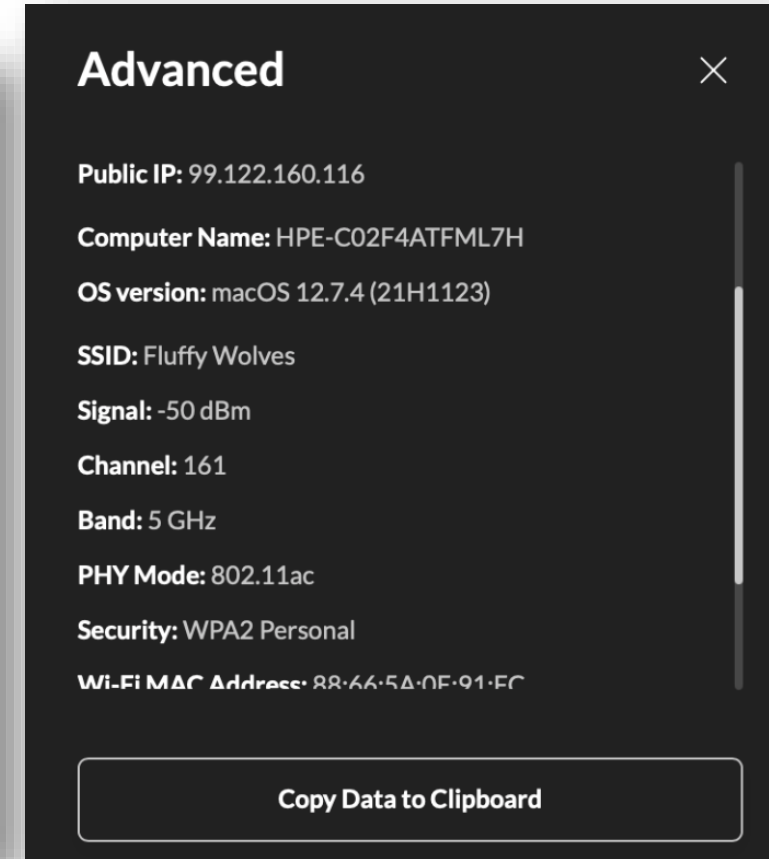
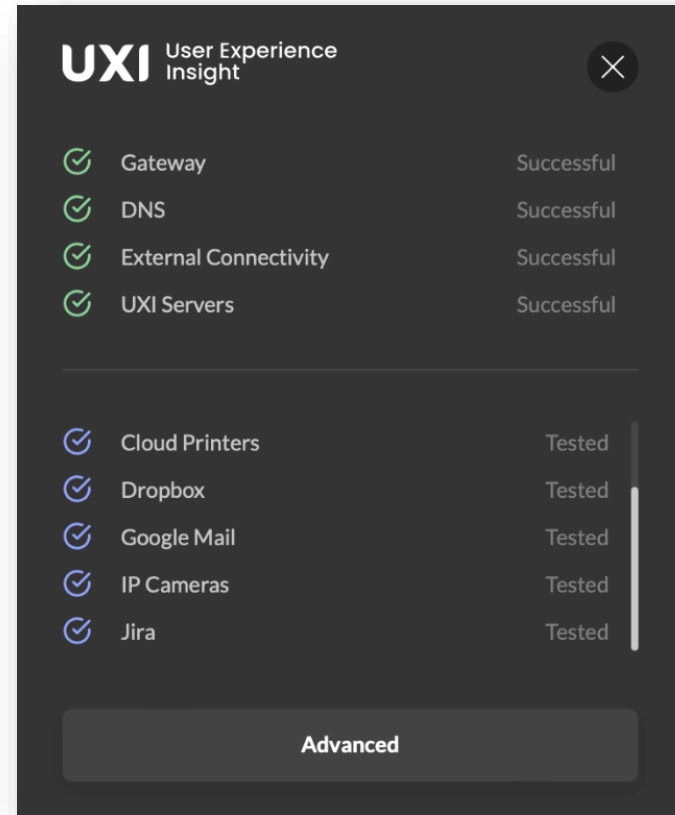


HPE Aruba Networking UXI agents

Self Service Portal



UXI Agent for Windows and macOS devices offers a self-service portal for end users that shows following stats:



i): **Current network status:** Displays issues in red and working well status in green

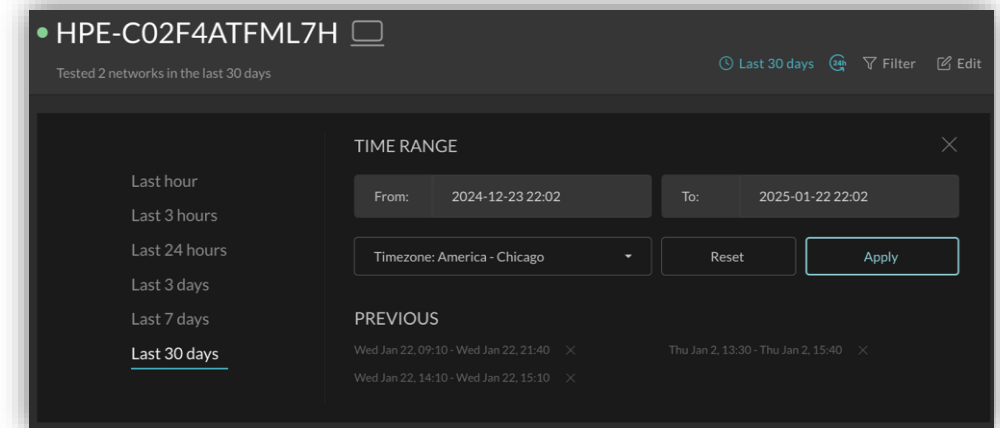
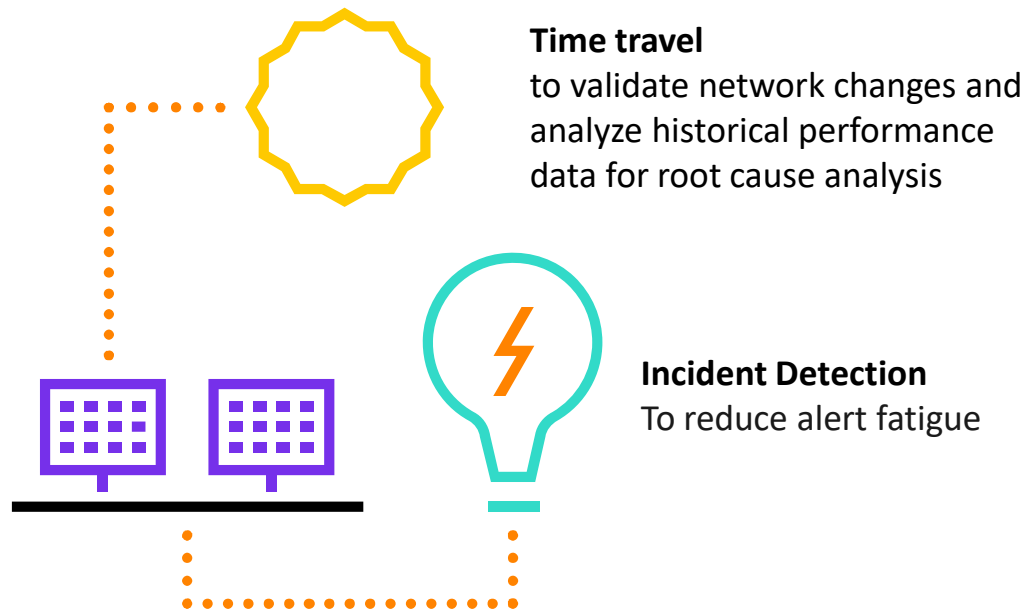
ii): **Tested Applications:** Overview of apps being monitored on the device

iii): **Essential Device and Network Information:** OS, ISP, PHY Mode, and more

HPE Aruba Networking UXI agents

Additional Features

Similar to UXI Sensors, the agents offer the following core features for quick troubleshooting

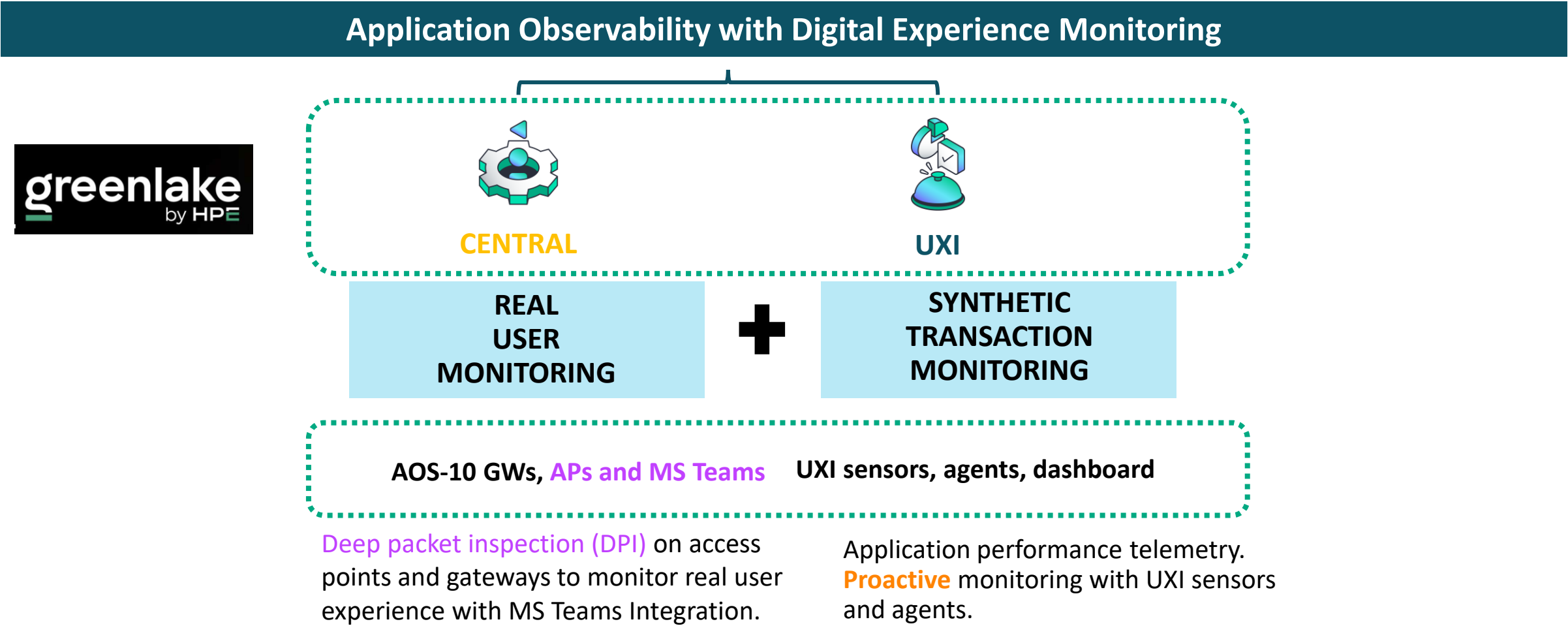


UXI + New Central

UXI network and application testing data is now available natively within the New Central dashboard



Enhanced application observability with UXI + Central



UXI telemetry in Central

Eliminate performance blind spots and enhance user experience with powerful synthetic tests

Application Analytics

For Zoom

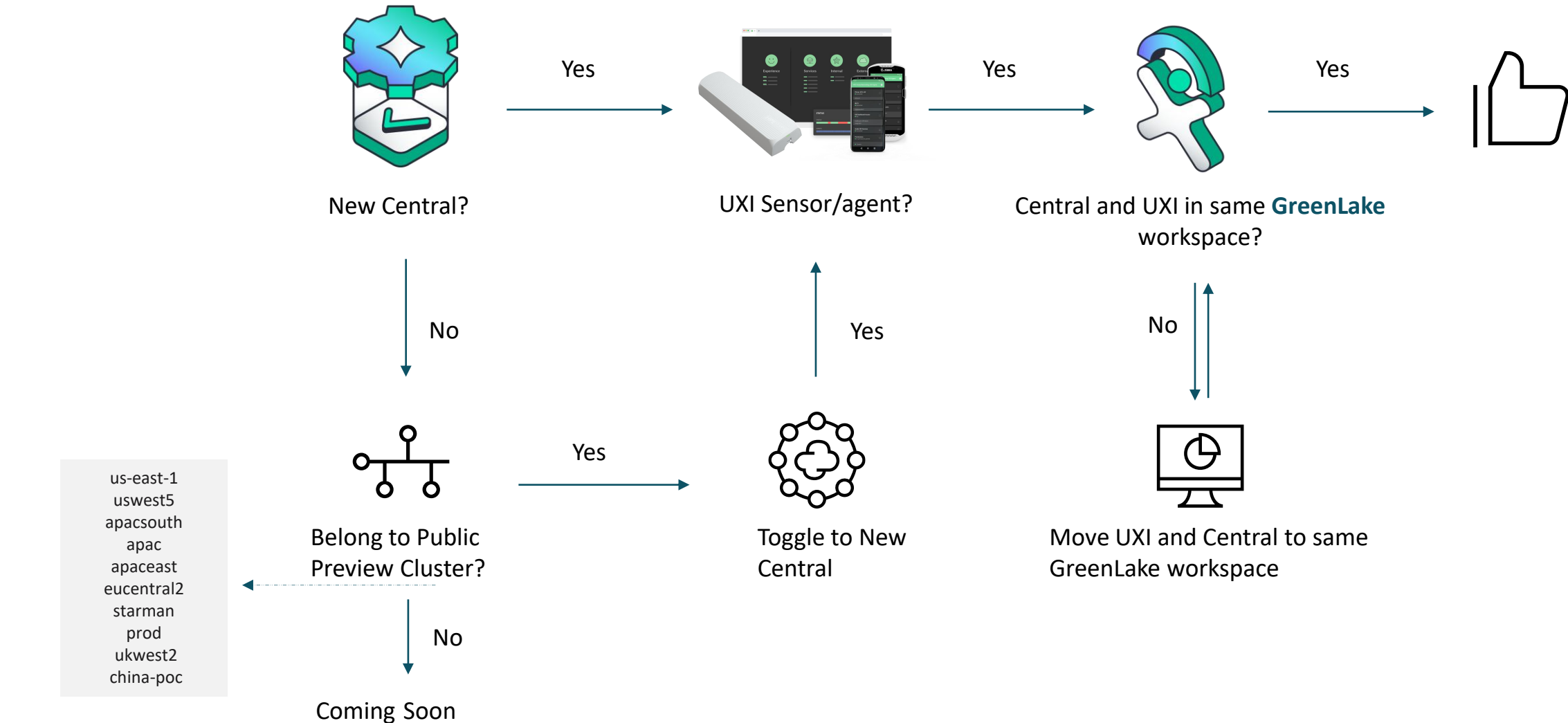
Client Details Application Performance UXI



- UXI telemetry seamlessly integrated with Central
- Proactive monitoring of app experience with synthetic tests conducted by UXI sensors and/or agents
- Going beyond application reachability, targeting performance troubleshooting
- Resolve issues before they impact end users, improving experience SLAs

- 1 Quickly correlate 'network side' and 'user side' of digital experience
- 2 Reduce MTTI and MTTR
- 3 Offer a better, seamless digital experience to end-users

Can customers use this integration today?



us-east-1
uswest5
apacsouth
apac
apaceast
eucentral2
starman
prod
ukwest2
china-poc



UXI + Central | Real life example



Insight from ML Models

1

Not all UNII-2c (5GHz) channels are enabled

2

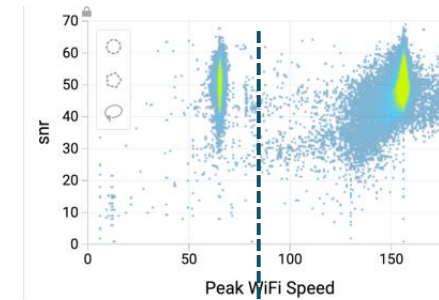
Lower Beacon Rate, More SSIDs

3

Sub-Optimal Transmit Power

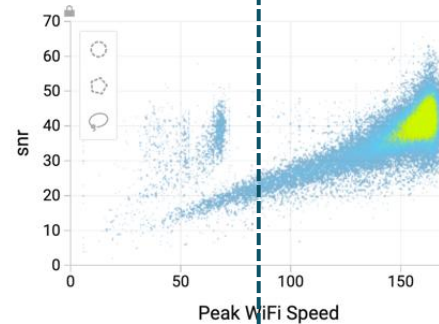
4

Clients at customer location had lower capability 11ac(1x1 vs 2x2)



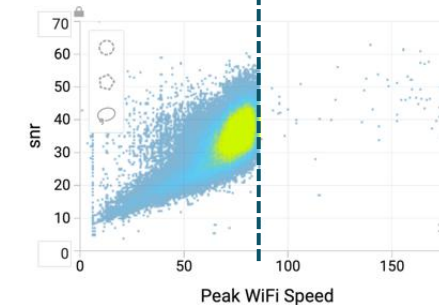
BIG-BOX RETAILER-1

85% of clients are **11ac 2x2**
(173 Mbps)



BIG-BOX RETAILER-2

99% of clients are **11ac 2x2**
(173 Mbps)

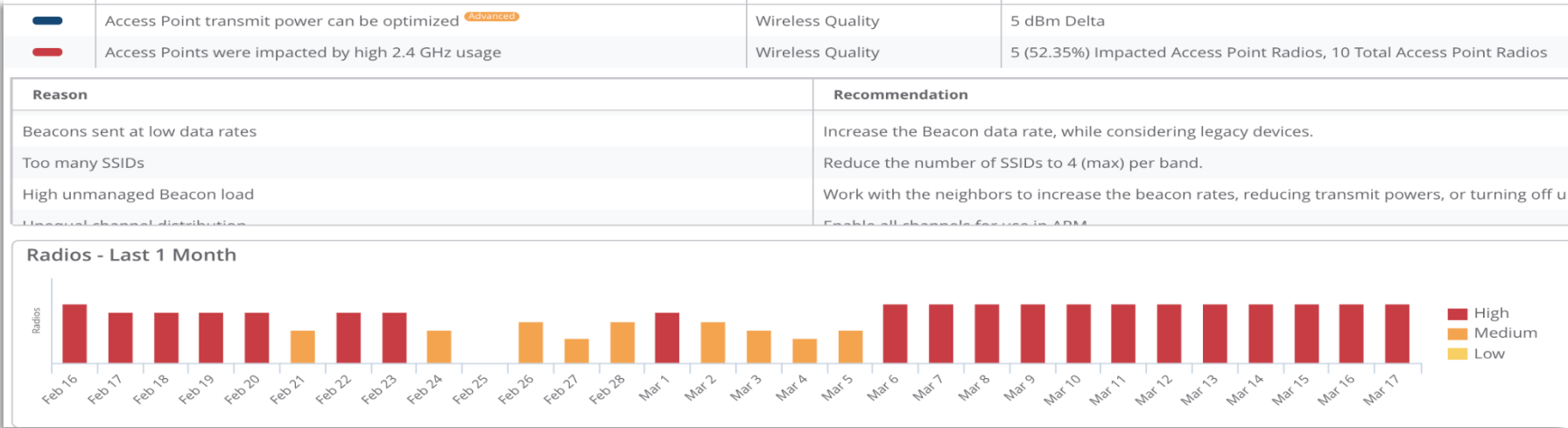


ALL STORES

99% of clients are **11ac 1x1**
(86 Mbps)

Config Recommendation from AI Insights

Recommendation Snapshot



1

Enable UNII-2 DFS Channels

Additional Channels enabled in 5GHz: 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140

2

Disable Lower Beacon Rates

Basic rate increased to 12 Mbps

3

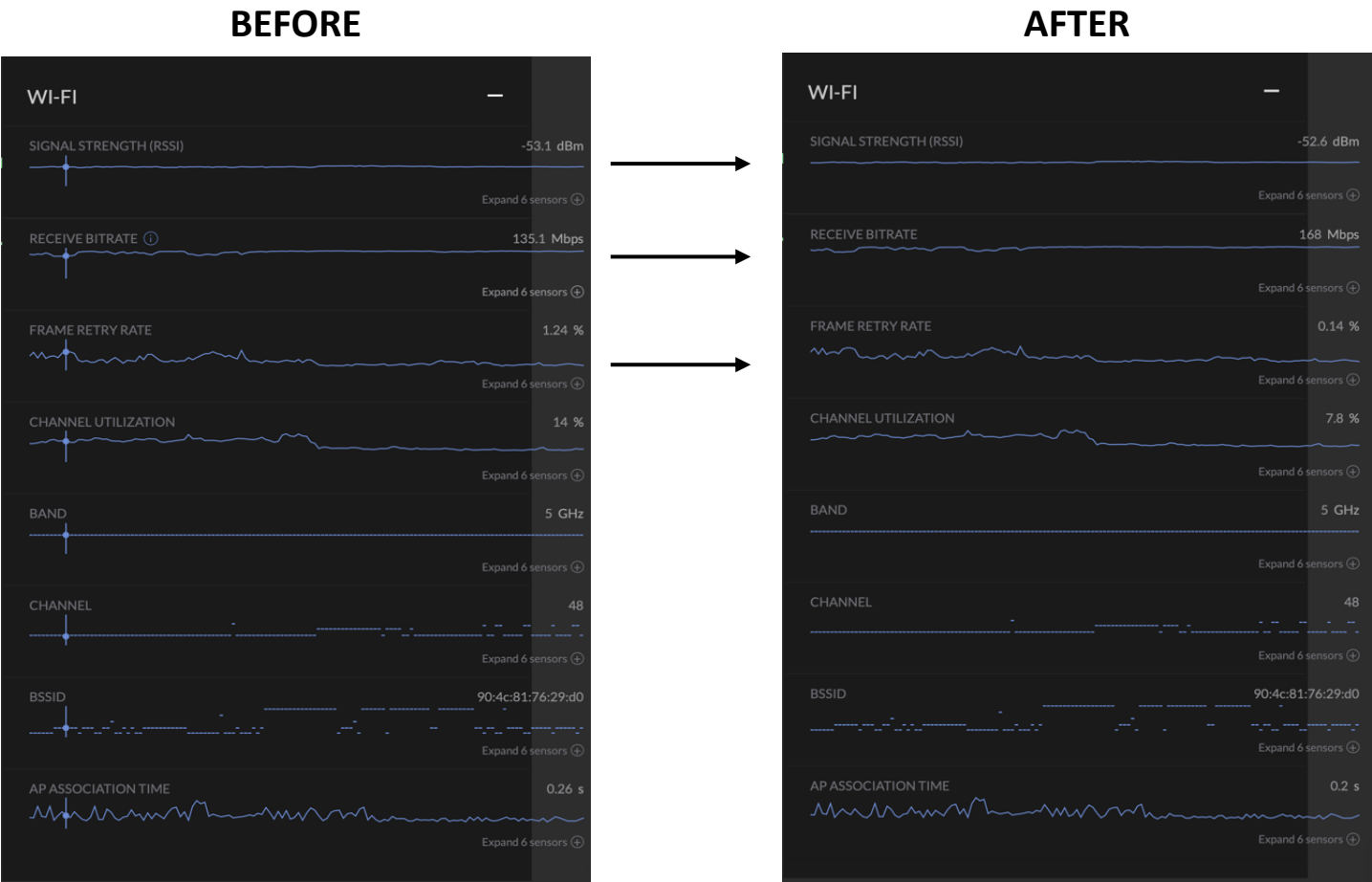
Transmit Power Change

2.4GHz – Min / Max: 9/9
5GHz – Min / Max: 15/18



Post ML Config Validation with UXI

Channel Utilization



50% Improvement in Channel Utilization

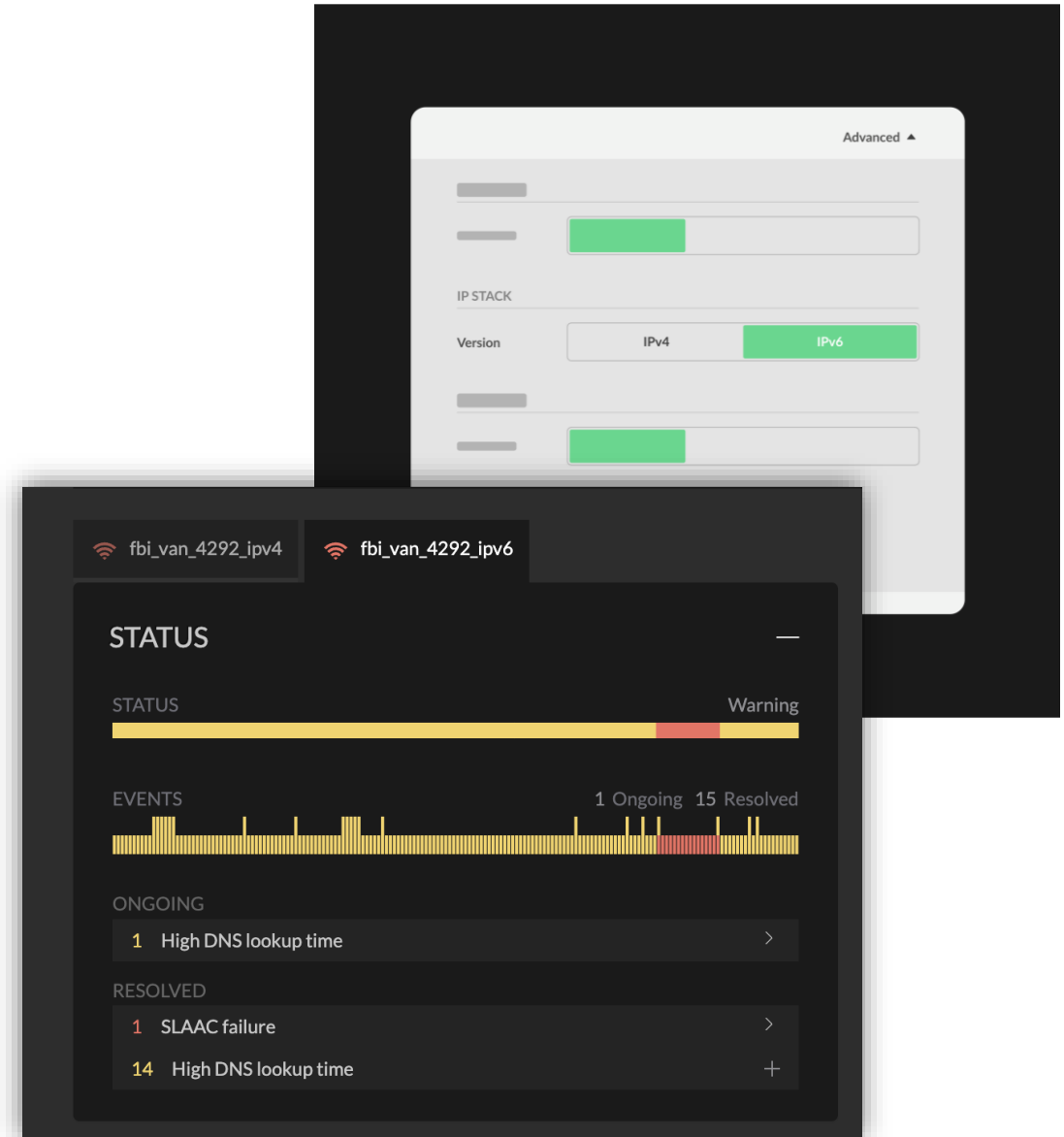
24% Increase in Rx Bitrate

88% Improvement in Frame Retry



IPv6 Testing

- Now use UXI sensors to test IPv4 and IPv6.
- Use Cases:
 - Measure and compare the performance of the network and applications
 - Identify and pinpoint issues in either IP stack
 - Ensure your network is ready for dual-stack or IPv6-only.
- Network and application testing.
- Only available on F series and G series sensors.



Enhanced UXI Reports

Customizable issue and incident reports

Pick your reporting according to

- **Sensor Groups**
- **Networks**
- **Schedule – Weekly, Monthly, Daily**
- **Date**
- **Time**

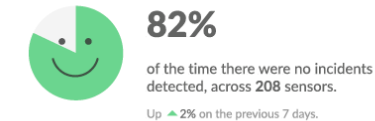
Benefits

- Create custom reports and summarize the test results over a time-range that the user can specify and control
- Allow a customizable reporting period instead of the current period of one week

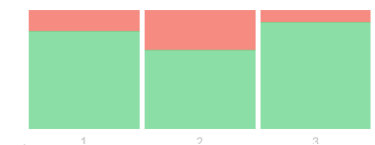
Overview (1 of 2)

Groups included: AMER EMEA APAC

Overall user experience for the last 7 days

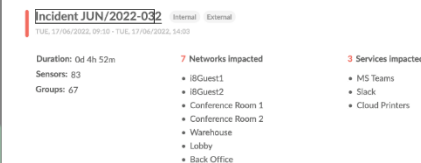


User experience per day for the last 7 days



Incidents (1 of 2)

Groups included: AMER EMEA APAC



Network: i8Guest1

Groups included: AMER EMEA APAC

Overall user experience over the last 7 days



Metrics

ISSUE TYPE	AVERAGE FOR PAST 7 DAYS	VS PREVIOUS 7 DAYS	WORST SENSOR
Retry rate	63	+ 1 %	Conference Room 1
Channel utilization	50	+ 0 %	i8Guest2
DHCP response time	28	+ 120 ms	Warehouse
DNS look			
Latency			
Throughput			

Overview (2 of 2)

Groups included: AMER EMEA APAC

Incident Incidents by type

EXTERNAL	47%
INTERNAL	37%
Wi-Fi	12%
ETHERNET	4%

Top 5 incidents by sensor count (Refer to page 4)

INCIDENT ID	TYPE	SENSORS	ISSUES	DURATION
1. Incident JUN/2022-032	External, DNS, Gateway	63	25	2d 3h 0m
2. Incident JUN/2022-024	Internal	50	19	0d 2h 12m
3. Incident JUN/2022-028	External, DHCP	28	19	0d 1h 6m
4. Incident JUN/2022-034	Internal, External, DHCP	22	37	4d 3h 0m
5. Incident JUN/2022-037	Wi-Fi	14	29	0d 6h 31m

Top 5 incidents by duration (Refer to page 4)

INCIDENT ID	TYPE	DURATION	SENSORS	ISSUES
1. Incident JUN/2022-025	External, Internal	4d 3h 13m	38	30
2. Incident JUN/2022-021	Wi-Fi	2d 3h 27m	41	12
3. Incident JUN/2022-037	External, DHCP	0d 6h 31m	41	24
4. Incident JUN/2022-022	External, DNS, Gateway	0d 2h 12m	38	32
5. Incident JUN/2022-037	Internal	0d 1h 6m	63	18

Top 5 incidents by issue count (Refer to page 4)

INCIDENT ID	TYPE	ISSUES	DURATION	SENSORS
1. Incident JUN/2022-025	External, Internal	35	4d 3h 13m	59
2. Incident JUN/2022-028	Wi-Fi	32	2d 3h 27m	38
3. Incident JUN/2022-025	External, DHCP	20	0d 6h 31m	33
4. Incident JUN/2022-026	External, DNS, Gateway	18	0d 2h 12m	31
5. Incident JUN/2022-021	Internal	13	0d 1h 6m	30



UXI Data Push Destinations

Direct stream from UXI to a customer destination is a modern approach to sharing large amounts of data.

UXI Data from UXI Cloud

- Test Results
- Issues
- Incidents
- Audit Logs



To Your Container



Google BigQuery



Amazon S3



Generic HTTP



Elasticsearch



Splunk (Beta)

Reasons To Trust HPE Aruba Networking UXI



Executes around **900 Million tests** per day



Help businesses save **20% per month**



Deployed in over **120 countries**



Highlights network issues within **2 minutes of deployment**



Constant R&D

1

Path Analysis

Shows outbound traffic path

2

Data Push

Analyze data collected by sensors on your favorite big data platform

3

Incident Overview

Provides Impact analysis of the issues happening in the network

4

Wi-Fi 6e Sensors

Test your 6GHz environment

5

Agent for Zebra & Android

Offers enhanced DEM monitoring capabilities

6

Wi-Fi environment visualization

Displays the Wi-Fi environment around the sensor from a periodic AP scan..

7

Enhanced UXI Reports

High level reporting to know week over week are things better or worst

8

Wi-Fi Easy Connect

Real zero-touch onboarding and backhaul

9

Web Application Testing (WAT)

Test end to end workflow

Helping Customers In Different Industries Solve Real Life Use Cases

Universities



Ensured availability of important education applications across campus

Events



Helped detect network coverage issues and provide a great user experience

Healthcare



Improved experience for caregivers while using critical healthcare applications

K12



Helped benchmark network capacity and performance for 1:1 digital learning rollout

Hospitality



Ensured webapps and captive portals work well for guests

Enterprise



Reduced time to detection and resolution of network issues

Financial Institute



Helped enable a glitch free instore customer experience

Retail



Reduced store downtime and service disruptions

Home Depot goes to the edge to drive seamless customer, associate experience.

- Delivering best user experience in all 2,300 of The Home Depot stores.
- UXI agent for Zebra now track roaming and voice.
- Leveraging UXI as a NaaS service offering through GreenLake.
- The need for network strength and flexibility
- *"HPE has been a strategic partner of The Home Depot since 2016. We've worked together to build a state-of-the-art in-store network to improve the customer and associate experience,"* Daniel Grider, VP of technology, told Retail Customer Experience in an email interview.



Walt Disney World® Resort can deliver the best guest experience possible

Evhen Farmiga - Director, Wireless Network Services said:

"With UXI AIOPs incident detection ML helped us to identify problems and resolves issues at faster speed. Before UXI, we would have needed to dispatch field technicians to multiple sites to make observations, gather diagnostic information and report back then information would get used to analyze and solution will be implemented. Now UXI enables us to troubleshoot issues remotely which is led to improved user experience".



Thank you

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HPE HPE Aruba Networking Networking UXI

Backup



UXI Recent Enhancements



UXI Recent Enhancements

Zebra Agent

AI Ops Incident Detection

Wi-Fi Environment

Triage Detail

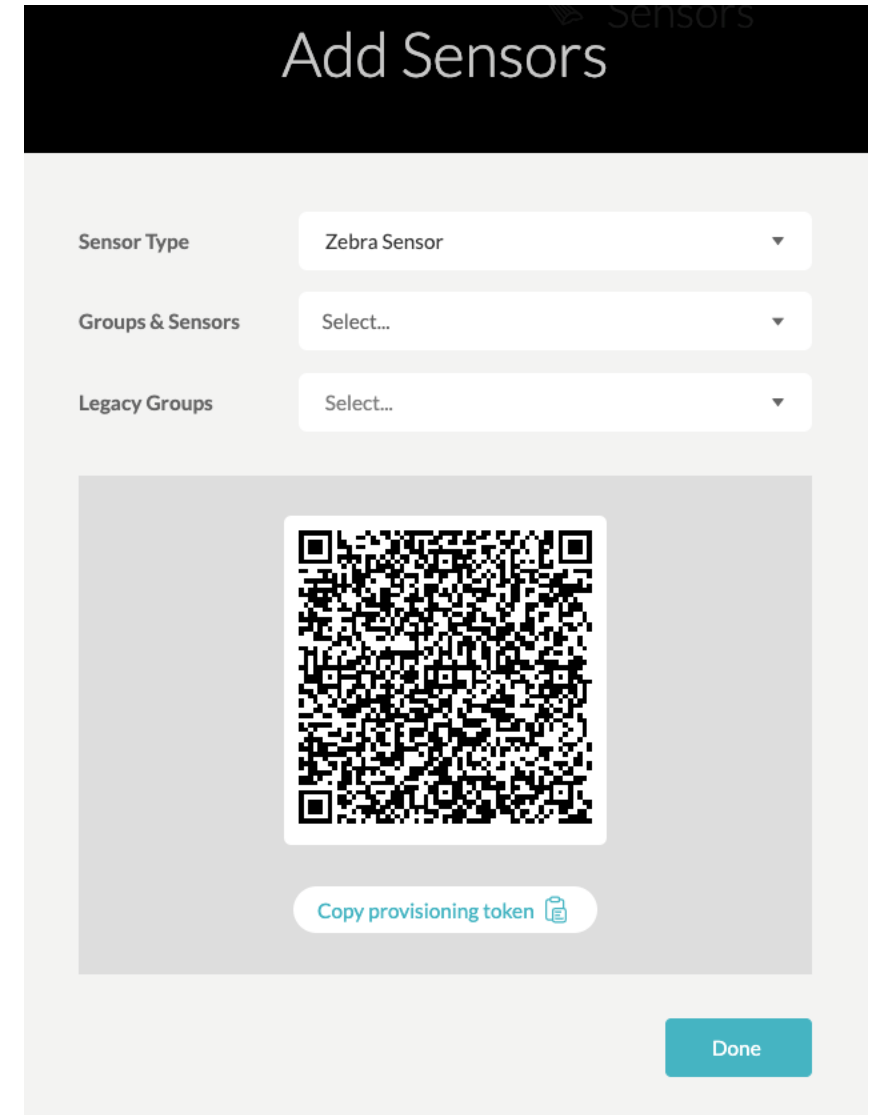
Onboarding and Location

Service Rate Limit

- Auto generate provisioning token / QR code from UXI dashboard. Pcap attached to "Issue Triage" if available in Zebra Wireless Insights.
- Provides detailed impact analysis of each incident on your sensors, groups, networks, and services. **Groups, Networks Services & Tests.**
- Visualize your channel plan and see areas free, with channel overlap or with channel interference. Identify Rogue or Spoof BSSIDs, Aps.
- Sensor collects AP hostname from beacons frame.
- Raises an issue for ICMP ping test failures.
- Wi-Fi Easy Connect onboarding in case of no wireless or wired connectivity.
- Apply limits on execution of all internal and external tests:

Zebra UXI Agent: Simplified Onboarding

- Auto generate provisioning token / QR code from UXI dashboard.
- Settings > Sensors > Add sensors > Zebra sensor.
- Specify group in which you want to onboard Zebra device and test template group.
- Ensures correct group assignment and test configuration on Zebra device.
- *Note: Wireless Insights license needs to be enabled.*



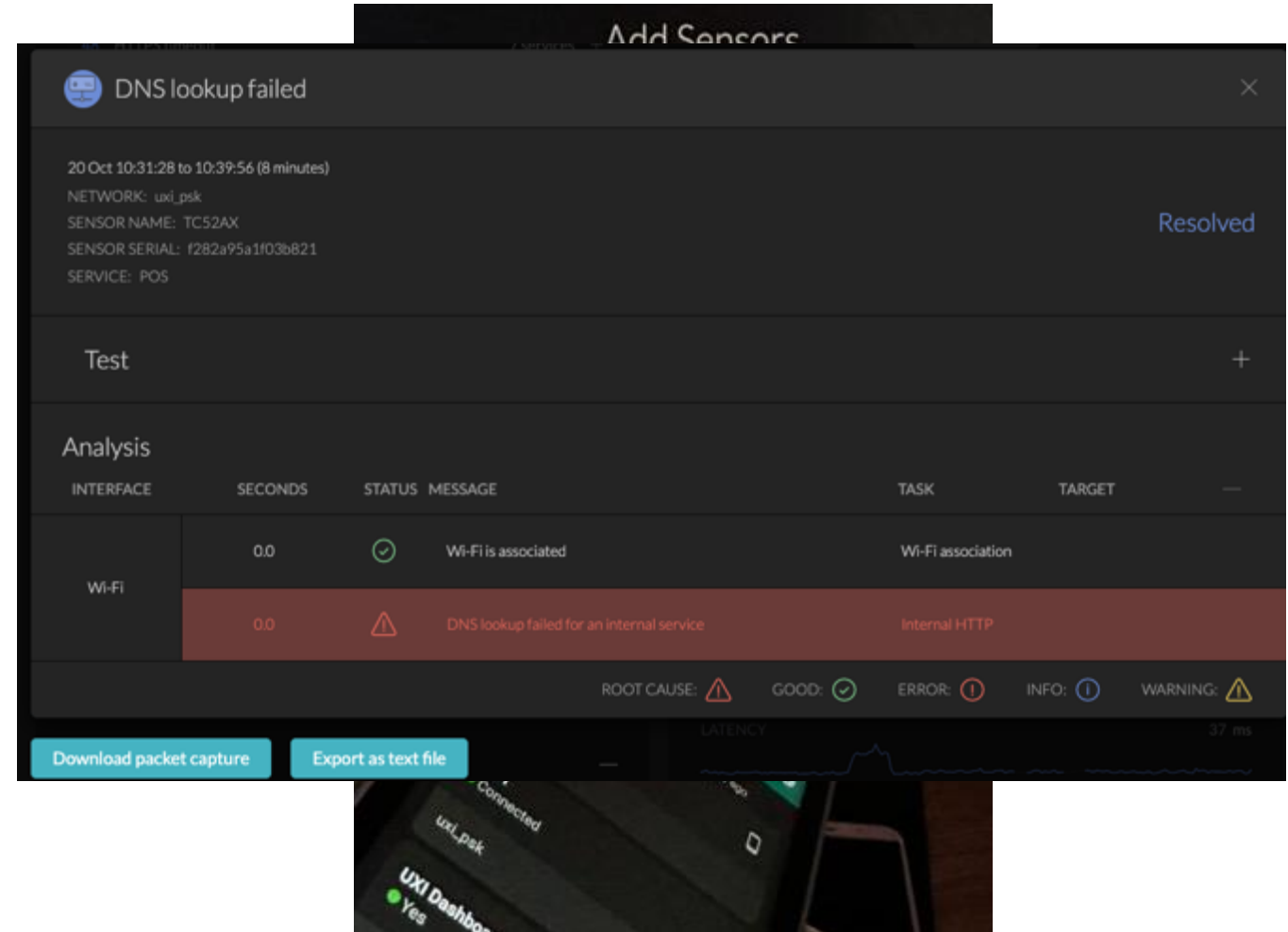
The screenshot shows the 'Add Sensors' interface. At the top, there's a dark header with the title 'Add Sensors'. Below this, there are three dropdown menus: 'Sensor Type' (set to 'Zebra Sensor'), 'Groups & Sensors' (set to 'Select...'), and 'Legacy Groups' (set to 'Select...'). In the center, there is a large QR code. Below the QR code, there is a button labeled 'Copy provisioning token' with a clipboard icon. At the bottom right, there is a blue 'Done' button.

What's New with Zebra UXI Agent version 1.1.11

- Zebra doesn't have a camera?
 - Use the Zebra built-in scanning function to onboard devices.
- Updated Packet Capture:
 - Pcap will be attached to "UXI Issue Triage" if available in Zebra Wireless Insights.

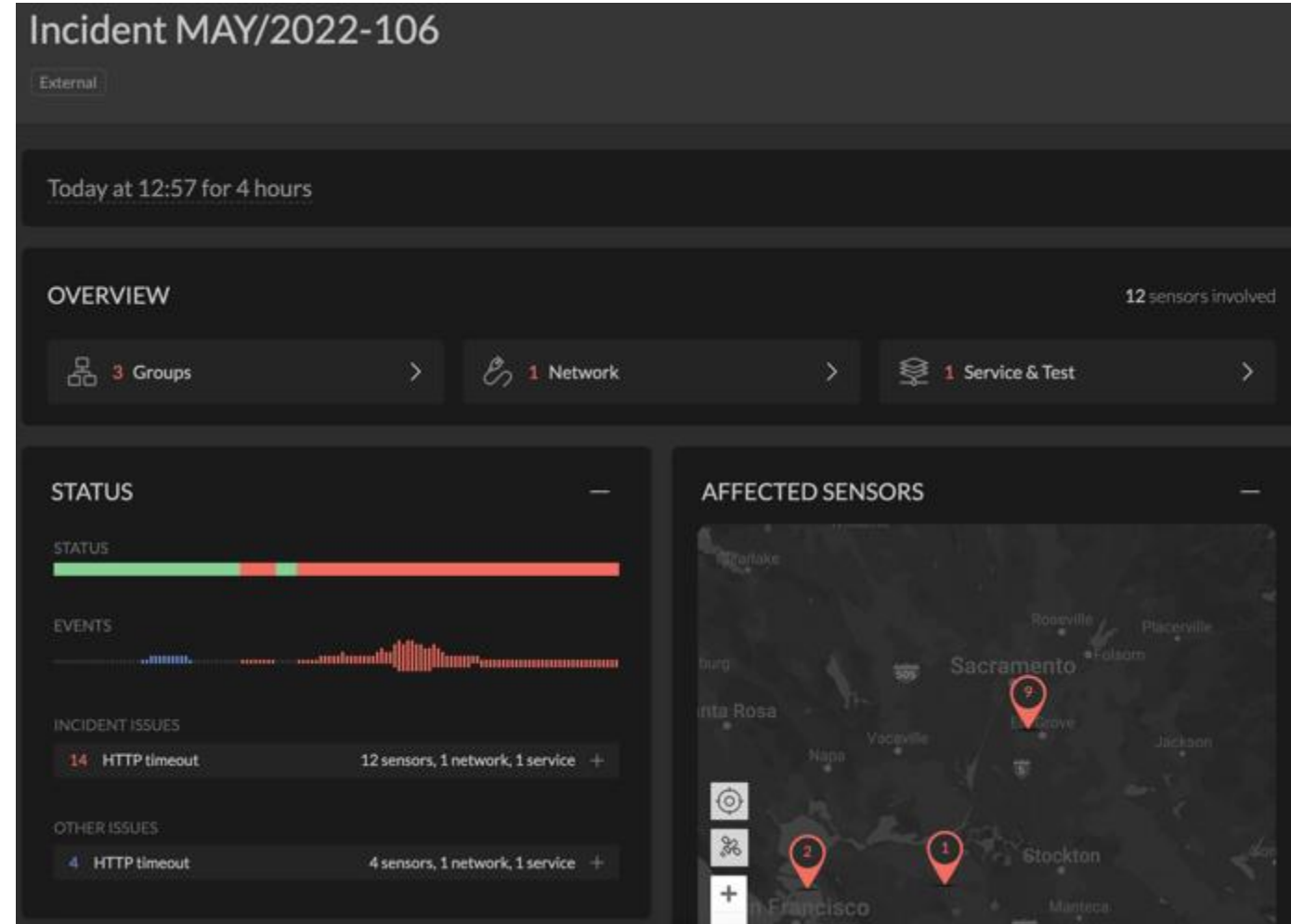
Zebra Device Updates:

- Pcap behavior is defined by dashboard settings.
- External storage permissions are now required for all devices running Android 11 and above.



AIOPs Incident Overview Card

- Provides detailed impact analysis of each incident on your sensors, groups, networks, and services.
 - **Groups**
 - **Networks**
 - **Services & Tests**
- Voting give thumbs Up/Down.
- Ability to parse through major outages easier.



Using Filters Wi-Fi Environment Visualization

- Displays the Wi-Fi environment around the sensor from a periodic AP scan.

- The results include:

- SSIDs

- BSSIDs

- RSSI

- Channel

- Band

- Width

- AP Name (If AP name advertised in beacon frame)

BENEFITS:

- Visualize your channel plan and see areas free, with channel overlap or with channel interference.
- Identify Rogue or Spoof BSSIDs, APs



Multivendor AP Name Display

BSSID

40:2b:50:cb:cb:47

(AP Name: Reference Design)

- Supported vendors: HPE Aruba Networking , Juniper MIST, Cisco, Extreme or Microsoft AP.
- Advertise AP name settings must be enabled at the SSID level on AP.
- Sensors collects AP hostname from beacons frame.
- See AP name under Issue triage context
 - (i) element for SSID being tested BSSID test result chart.

SSID STATUS

Currently testing

LAST SEEN

January 27th, 2023 at 14:05:30

DATA RATES

6.0 - 1733.3 Mbps

VENDOR

ARRIS Group, Inc.

SECURITY

wpa-psk

AP NAME

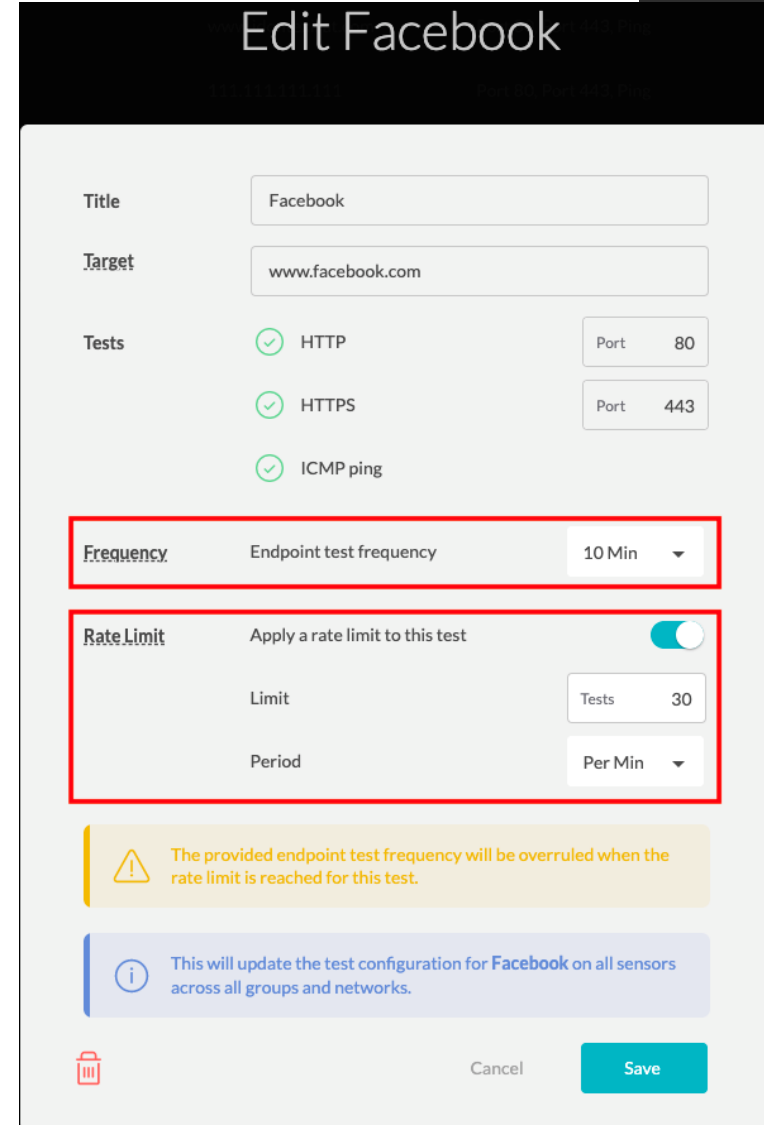
Reference Design

TEST DETAIL		ERROR CONTEXT	
Type	WebApp	AP name	Reference Design



Service Rate Limiting

- Apply limits on execution of all internal and external tests:
 - Frequency: Minimum time between two test cycles.
 - Rate Limit: Number of tests per sec/min that sensors should not exceed collectively.
- Greater control over execution of UXI testing cycle.
- Reduce potential impact on application or network service.



The screenshot displays the 'Edit Facebook' configuration window. The 'Title' field is set to 'Facebook' and the 'Target' field is 'www.facebook.com'. Under the 'Tests' section, three tests are listed: HTTP (Port 80), HTTPS (Port 443), and ICMP ping. The 'Frequency' section is highlighted with a red box, showing 'Endpoint test frequency' set to '10 Min'. The 'Rate Limit' section is also highlighted with a red box, showing a toggle switch for 'Apply a rate limit to this test' which is turned on. Below the toggle, the 'Limit' is set to '30' tests and the 'Period' is set to 'Per Min'. A yellow warning message states: 'The provided endpoint test frequency will be overruled when the rate limit is reached for this test.' A blue information message states: 'This will update the test configuration for Facebook on all sensors across all groups and networks.' At the bottom, there are 'Cancel' and 'Save' buttons.

Edit Facebook

Title: Facebook

Target: www.facebook.com

Tests:

- ✓ HTTP (Port: 80)
- ✓ HTTPS (Port: 443)
- ✓ ICMP ping

Frequency: Endpoint test frequency 10 Min

Rate Limit: Apply a rate limit to this test (Toggle: On)

Limit: 30

Period: Per Min

The provided endpoint test frequency will be overruled when the rate limit is reached for this test.

This will update the test configuration for Facebook on all sensors across all groups and networks.

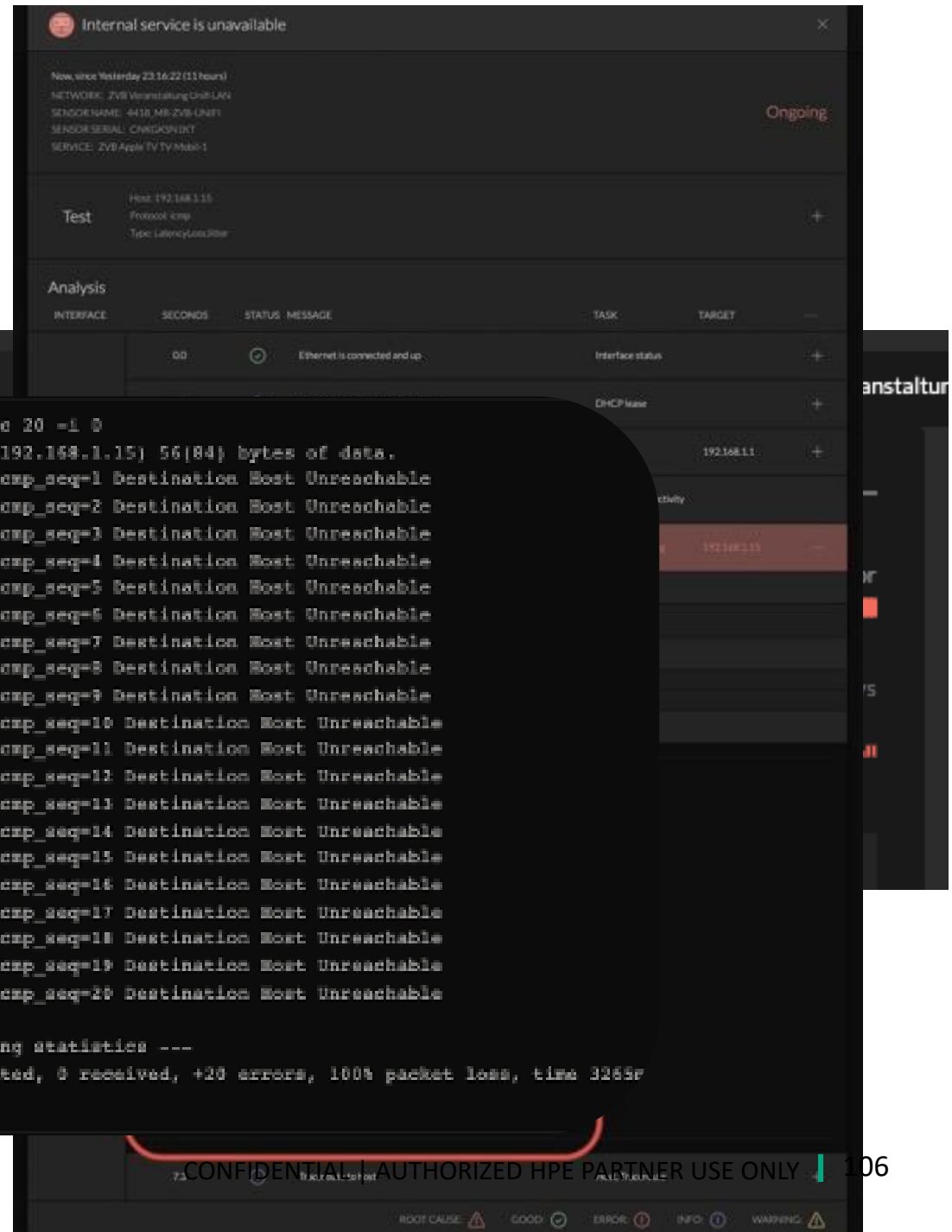
Cancel Save

Change in Behavior for Ping Test

- Sensor **NOW** raises an issue for ICMP ping test failures.
- Explore “UXI Issue Triage” for more context.
- Applies to F and G series sensors, older models of sensors are unchanged.

```
ping 192.168.1.15 -c 20 -i 0
PING 192.168.1.15 (192.168.1.15) 56(84) bytes of data.
From 192.168.1.60 icmp_seq=1 Destination Host Unreachable
From 192.168.1.60 icmp_seq=2 Destination Host Unreachable
From 192.168.1.60 icmp_seq=3 Destination Host Unreachable
From 192.168.1.60 icmp_seq=4 Destination Host Unreachable
From 192.168.1.60 icmp_seq=5 Destination Host Unreachable
From 192.168.1.60 icmp_seq=6 Destination Host Unreachable
From 192.168.1.60 icmp_seq=7 Destination Host Unreachable
From 192.168.1.60 icmp_seq=8 Destination Host Unreachable
From 192.168.1.60 icmp_seq=9 Destination Host Unreachable
From 192.168.1.60 icmp_seq=10 Destination Host Unreachable
From 192.168.1.60 icmp_seq=11 Destination Host Unreachable
From 192.168.1.60 icmp_seq=12 Destination Host Unreachable
From 192.168.1.60 icmp_seq=13 Destination Host Unreachable
From 192.168.1.60 icmp_seq=14 Destination Host Unreachable
From 192.168.1.60 icmp_seq=15 Destination Host Unreachable
From 192.168.1.60 icmp_seq=16 Destination Host Unreachable
From 192.168.1.60 icmp_seq=17 Destination Host Unreachable
From 192.168.1.60 icmp_seq=18 Destination Host Unreachable
From 192.168.1.60 icmp_seq=19 Destination Host Unreachable
From 192.168.1.60 icmp_seq=20 Destination Host Unreachable

--- 192.168.1.15 ping statistics ---
20 packets transmitted, 0 received, +20 errors, 100% packet loss, time 3265r
nc 14
```



WI-FI **EASY CONNECT** DEVICE PROVISIONING PROTOCOL (DPP)

Make it easy to do it correctly
Make it hard to do it incorrectly



Sensor Hostname in Client List

- Using the sensor name in the dashboard instead of serial number when the sensors make DHCP request via DHCP option 12.
- Controllers** and tools like Central often display the clients name during DHCP, to make the sensors easier to identify under the clients list.
- The name in the dashboard needs to be a valid hostname.

The screenshot displays the Aruba Central interface for the 'Clients Profile' section. At the top, there are tabs for 'Clients' and 'Clients Profile'. Below this, a summary bar shows the total number of clients (297) and their status: 2 Connecting, 97 Connected, 19 Failed, 179 Offline, and 0 Blocked. It also shows the number of wireless (297), wired (0), and remote (0) clients.

The main table lists the clients with columns for Client Name, Status, IP Address, VLAN, Connected To, SSID/Port, AP Role, and Gateway. The client 'ER' is highlighted, showing it is connected to the 'ATM Demo - Psk' network.

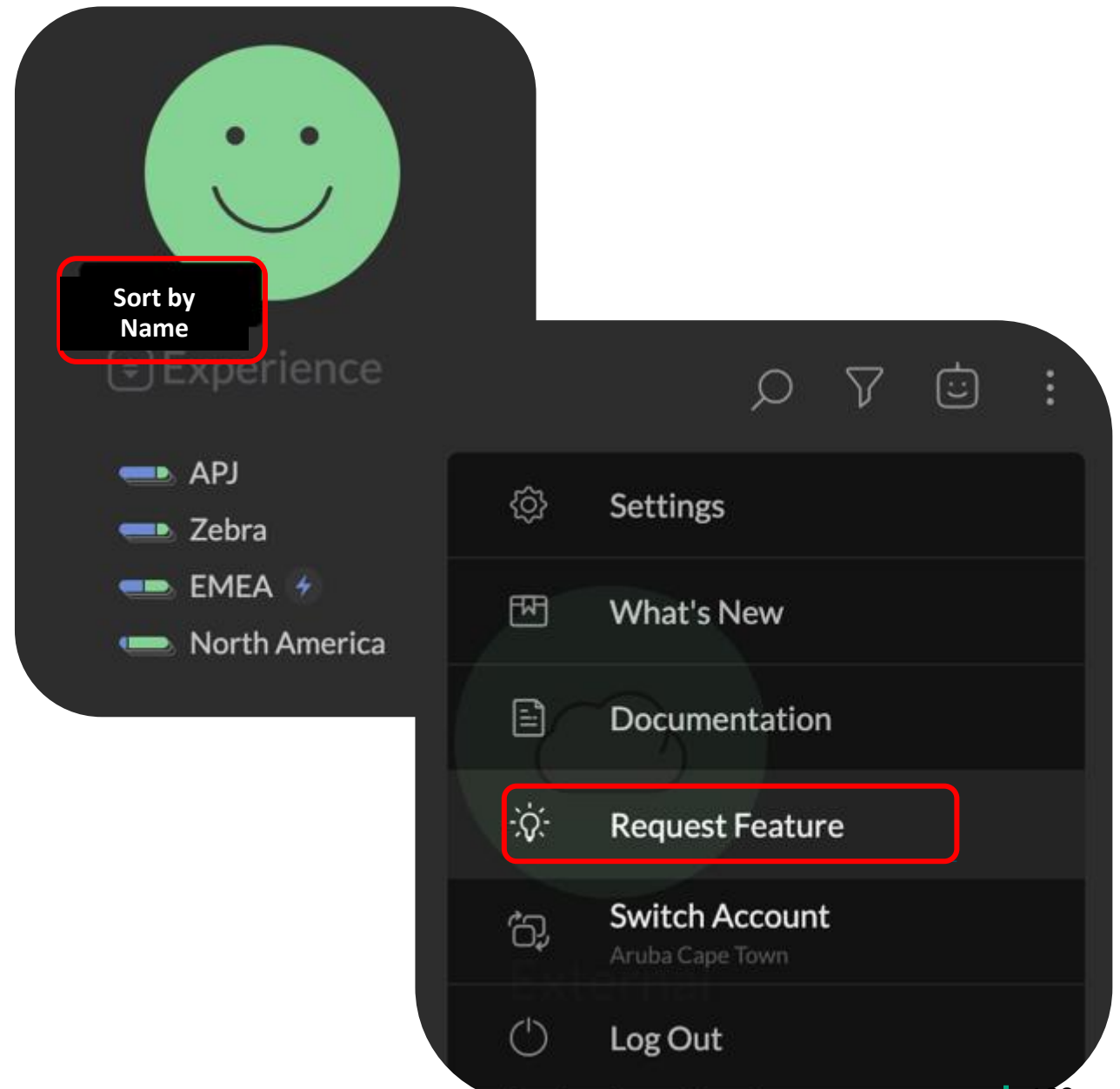
Below the client list, a detailed DHCP packet capture is shown for the client 'ER'. The packet is a DHCP Request (Type 1) from the client to the server. The packet details include:

- Frame 9047: 342 bytes on wire (2736 bits), 342 bytes captured (2736 bits)
- Ethernet II, Src: ArubaHe_81:38:7f (20:4c:03:81:38:7f), Dst: Broadcast (ff:ff:ff:ff:ff:ff)
- Internet Protocol Version 4, Src: 0.0.0.0, Dst: 255.255.255.255
- User Datagram Protocol, Src Port: 68, Dst Port: 67
- Dynamic Host Configuration Protocol (Request)
 - Message type: Boot Request (1)
 - Hardware type: Ethernet (0x01)
 - Hardware address length: 6
 - Hops: 0
 - Transaction ID: 0xdd5d3f2e
 - Seconds elapsed: 0
 - Bootp flags: 0x0000 (Unicast)
 - Client IP address: 0.0.0.0
 - Your (client) IP address: 0.0.0.0
 - Next server IP address: 0.0.0.0
 - Relay agent IP address: 0.0.0.0
 - Client MAC address: ArubaHe_81:38:7f (20:4c:03:81:38:7f)
 - Client hardware address padding: 00000000000000000000
 - Server host name not given
 - Boot file name not given
 - Magic cookie: DHCP
 - Option: (53) DHCP Message Type (Request)
 - Option: (54) DHCP Server Identifier (10.12.6.1)
 - Option: (50) Requested IP Address (10.12.7.171)
 - Option: (12) Host Name
 - Length: 2
 - Host Name: ER
 - Option: (55) Parameter Request List
 - Option: (60) Vendor class identifier
 - Option: (255) End
 - Padding: 000000

The packet capture also shows the raw data at the bottom, with the host name 'ER' clearly visible in the DHCP message.

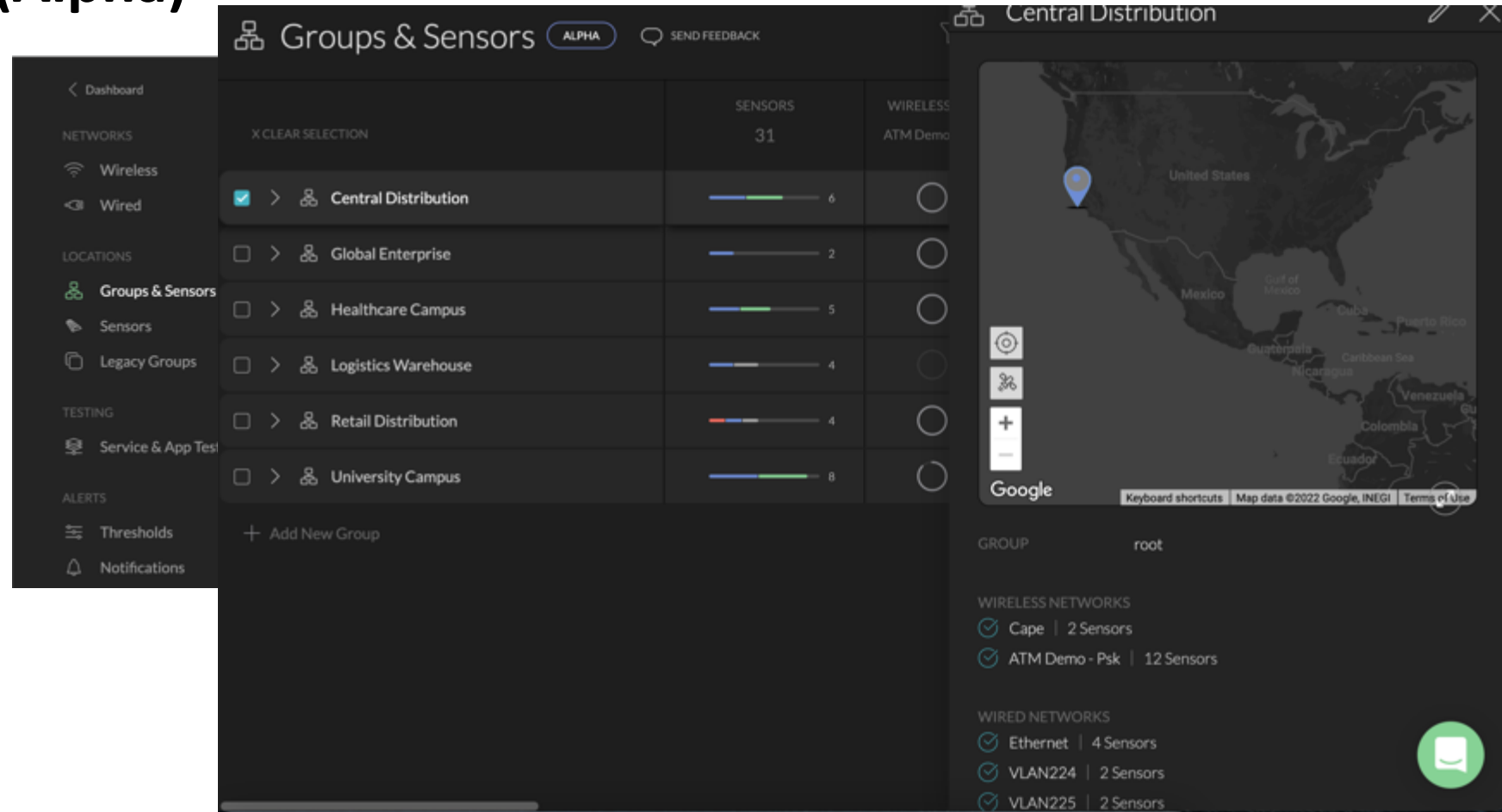
Sort by name and Request

- Sort groups or sensors in experience column.
- Request Feature option added for new feature requests.
- Linked to “HPE Aruba Networking Innovation Zone”.



Groups and Hierarchy (Alpha)

- Having groups enabled makes troubleshooting much easier.
- Search sensors by group, serial, or name
- Click and drag to add new groups.



support@capenetworks.com to enable

Cross Customer Outage Detection and Analysis

- Anonymizing application performance data collected by sensors across the globe.
- Validate using status pages of applications.
- Check if you are impacted due to global application outages.
- Network vs application issues: Isolate the issues using triage.
- See Airheads Blog posts.



Stay ahead of global application outages with Aruba UXI

20 days ago

Wouldn't it be nicer to know about application outages before end users are impacted?

Aruba UXI proactively picks outages happening across network and applications and help IT team take proactive steps to reduce business impact.

[#NetworkMonitoring](#)

[#DigitalExperienceMonitoring](#)

Enterprise – Campus Environment

Customer Pain

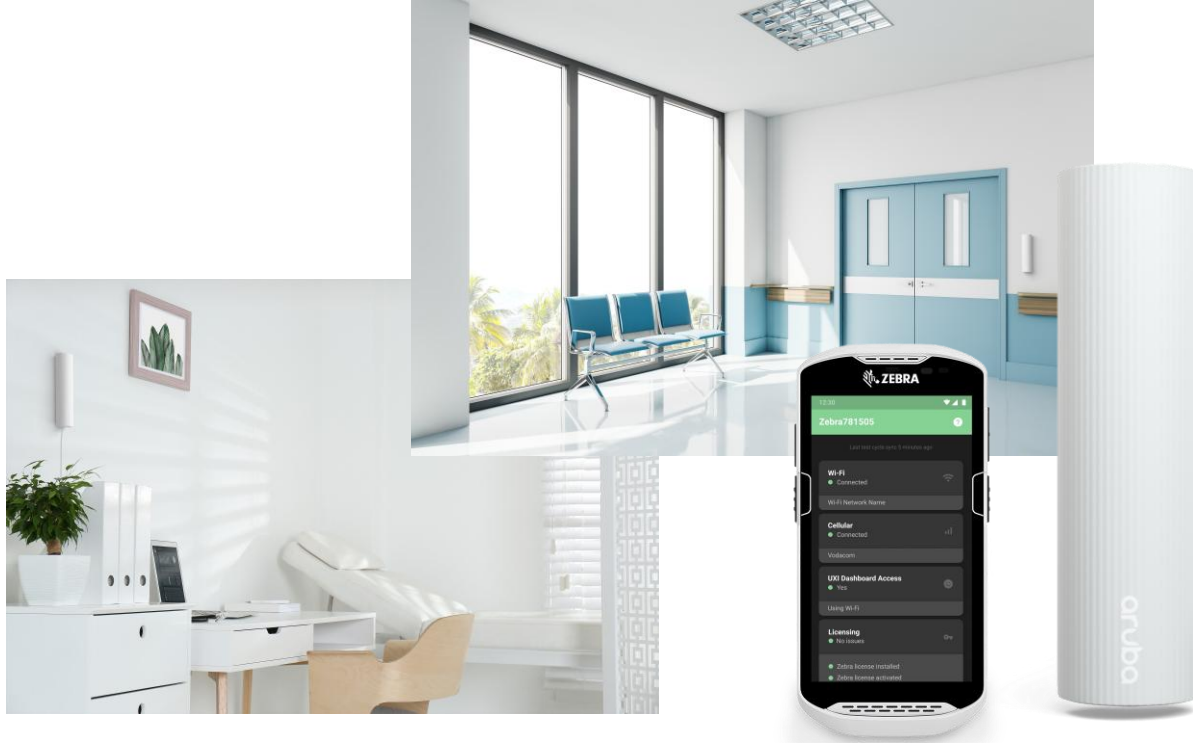
- No Global application performance visibility.
- MTTI – performance scores.
- CxO management needs.
- No back in time visibility.
- Unable to pinpoint wireless vs wired events.
- Video Conference issues.
- AI Data needs.
- Move to SaaS.
- Not able to execute back to office changes.



UXI Facilitates

- Global view and trending from a single dashboard.
- Internal/external application testing.
- Triage details pinpointing issues.
- Reduced truck roll.
- Better MTTR scores.
- Validation of rogue ap's.
- Quick adoption to new technology – agility.
- As-a-Service offering.

Healthcare Optimization



Customer Pain

- Rapid network change requirements.
- Limited onsite support access.
- Transient, 911 VoIP issues.
- EHR, VDI collaboration tools, tele-medicine support.
- Lack of new device control.
- Guest access.

UXI Facilitates

- Corollate application, network and auth issues.
- Tactical: Tech armed with sensor for validation testing.
- NO CABLE PULL REQUIRED ease to deploy.
- Optimization of network at pop up sites.
- Executive site experience performance visibility.
- Integrated voice application testing and real SIP testing.

Presbyterian Ladies College (PLC) ensure connectivity to critical applications

Customer Pain

- Need to test their network infrastructure to ensure consistent connectivity to critical EdTech applications such as NAPLAN tests.
- Meet government standards to qualify for funding.
- The college couldn't afford connectivity dropouts as it would adversely impact student literacy and numeracy grading, as well as the school's grading.

[Click to read the press release](#)

"The HPE Aruba Networking User Experience Insight report is an excellent resource, and I can see the benefit for deploying User Experience Insight sensors for tasks such as NAPLAN proofing as well as general monitoring and specific troubleshooting."

UXI Facilitates

- Provides tests, conformed to NAPLAN standards to confirm compliance is met.
 - NAPLAN tests identified applications and infrastructure that were struggling to perform due to the increased network demands.
- Enabled local users' to create their own tests based on the needs of their network and end-users.
- Assures network performance and reliability of Wi-Fi before and during the electronically administered tests.

 – Brenton Harty, Director of ICT,
Presbyterian Ladies' College