atmosphere'23

BELGIUM

Revolutionize Your Digital Experience with Aruba UXI

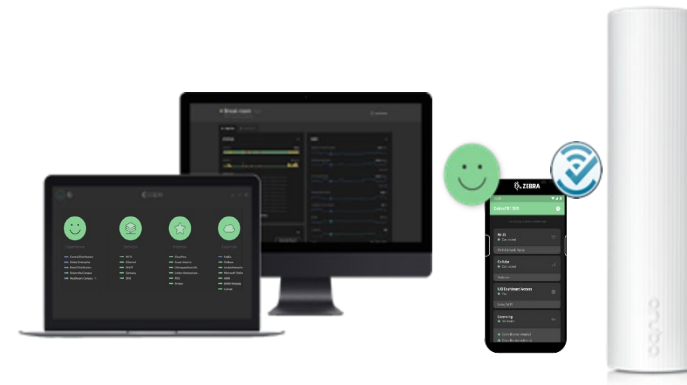**Alain Vercammen**

October 2023

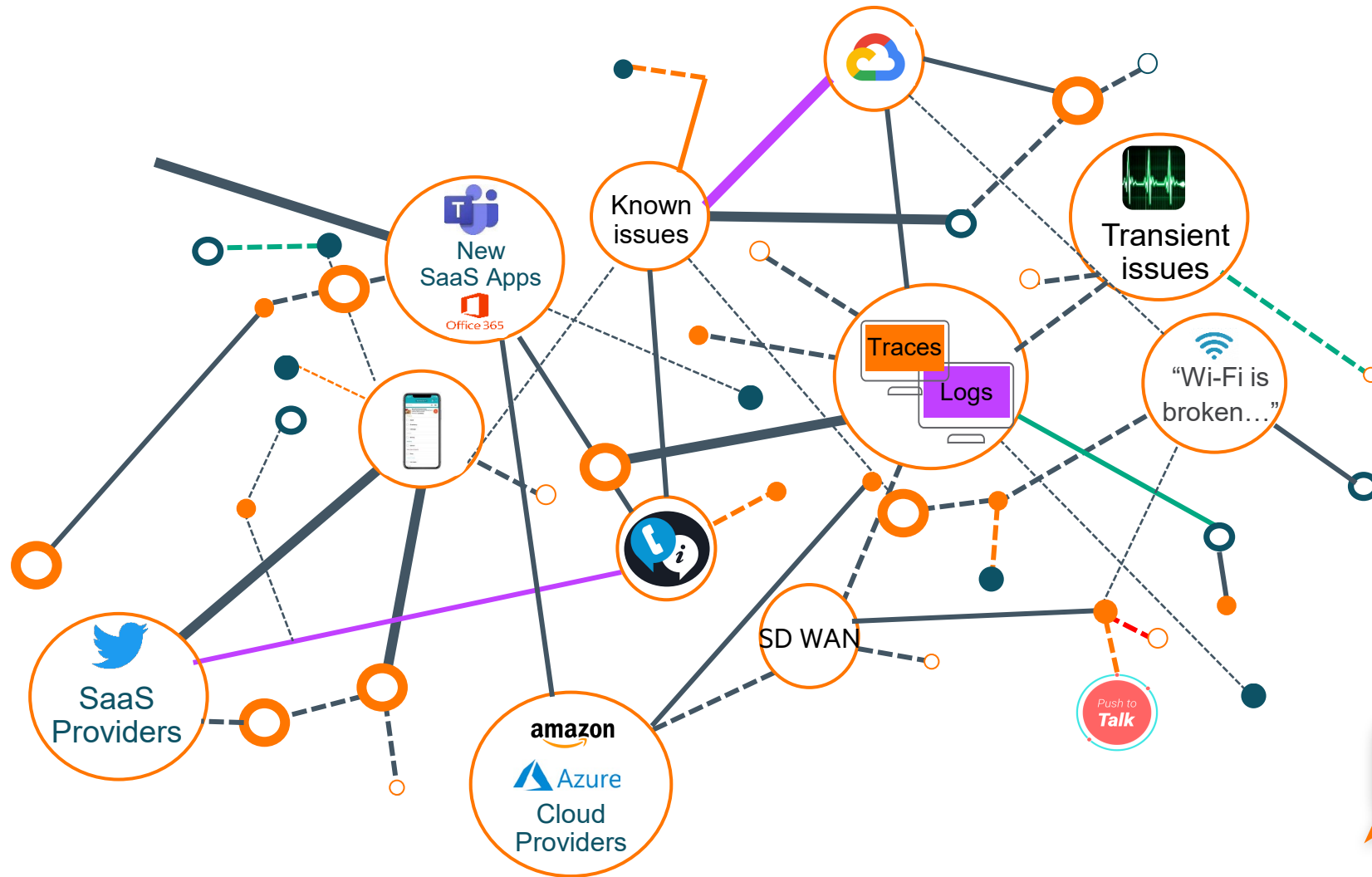**HPE** aruba networking

HPE Aruba Networking UXI

In depth insights into the user experience

Solving Operator Challenges

- Externally hosted apps
- Complaint driven days
- Skill gap challenges
- Lack of end-user awareness

Where to start…?

The cost of NOT monitoring user experience

Up to 68%

of employees experience a late start of 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
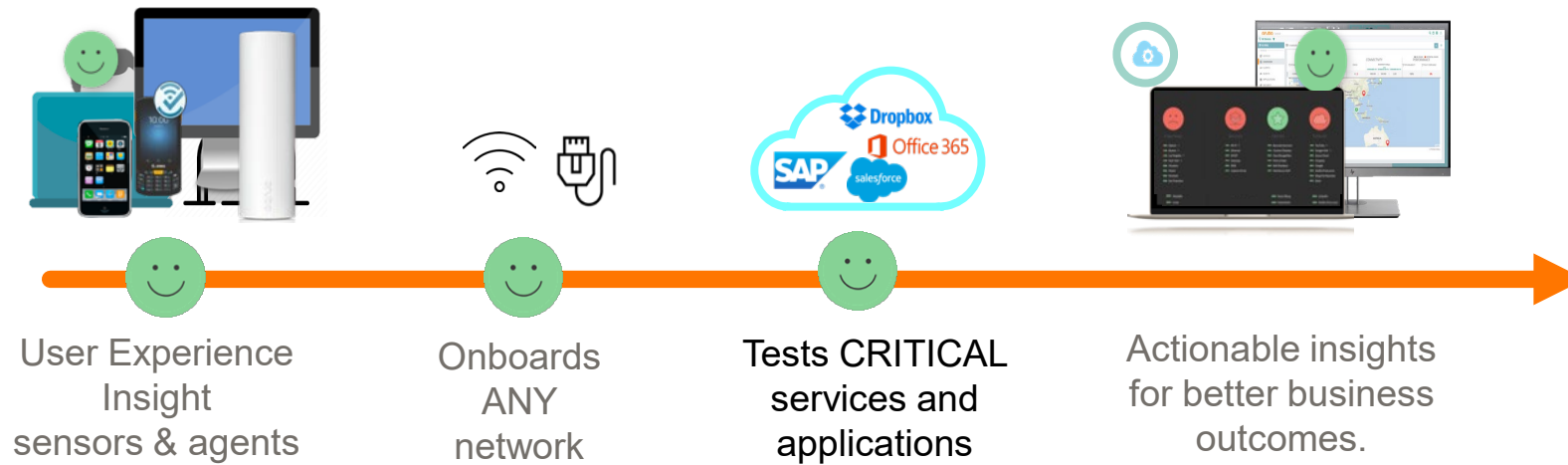
70% of

IT's time is spent troubleshooting

Meaning less time for strategic projects

HPE Aruba Networking User Experience Insight

Measuring the digital experience

User Experience
Insight
sensors & agents

Onboards
ANY
network

Tests CRITICAL
services and
applications

Actionable insights
for better business
outcomes.

**Better
Resource
Allocations**

**Quicker
Adoption**

**Change
Management
Validation**

Achieve the **BEST USER EXPERIENCE and BETTER OUTCOMES**
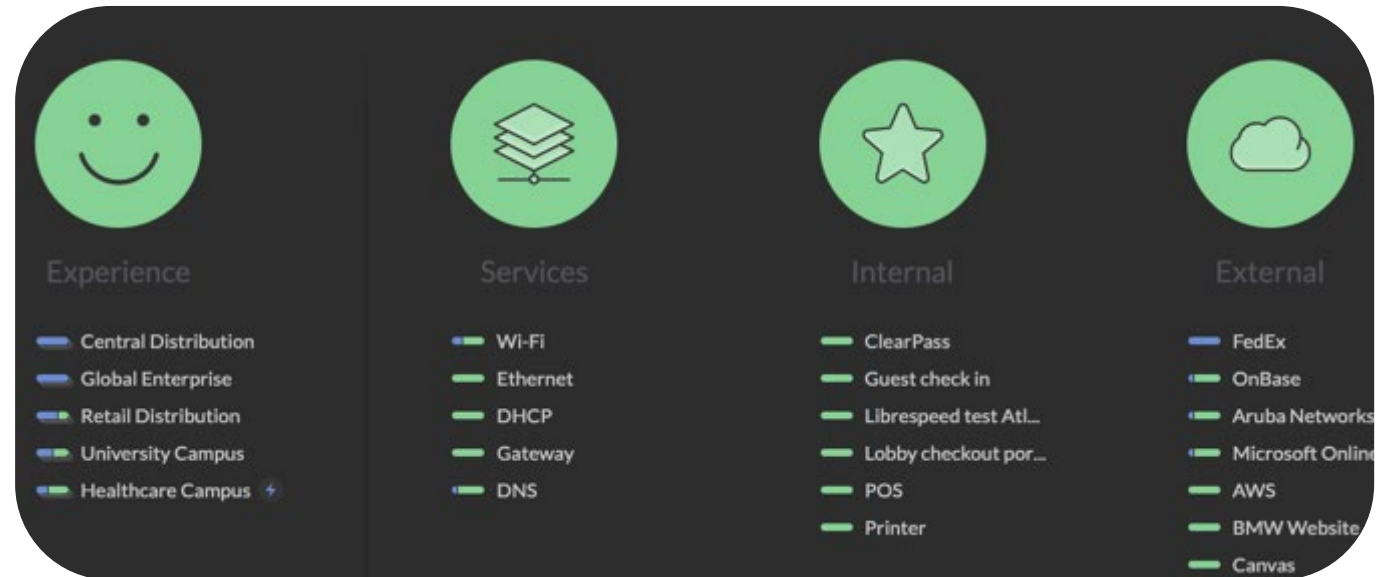through insights, recommendations and automation.

UXI Benefits are seen globally!

127 countries
86k sensors
700 million tests per day
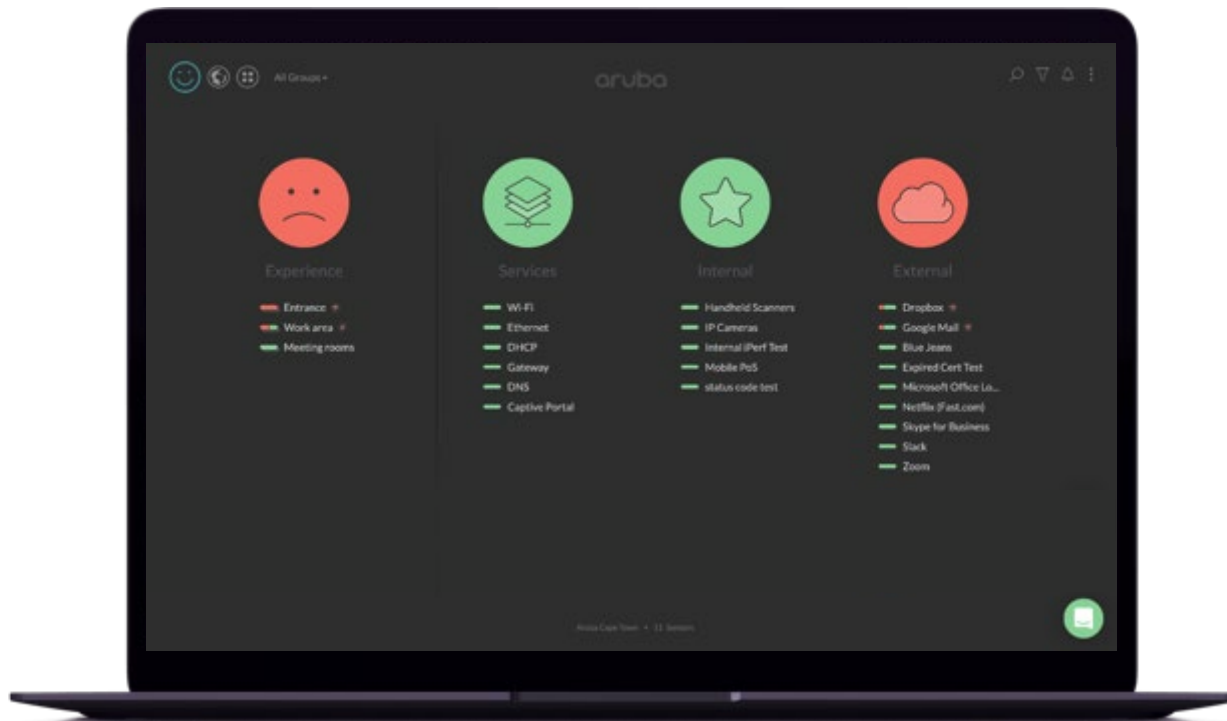
20K tests/sensor/day
6828 customers

AUTHORIZED

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Detailed End-User Metric's

- Proactive visibility into network and application your business relies on.

- Understand the impact services have on users.
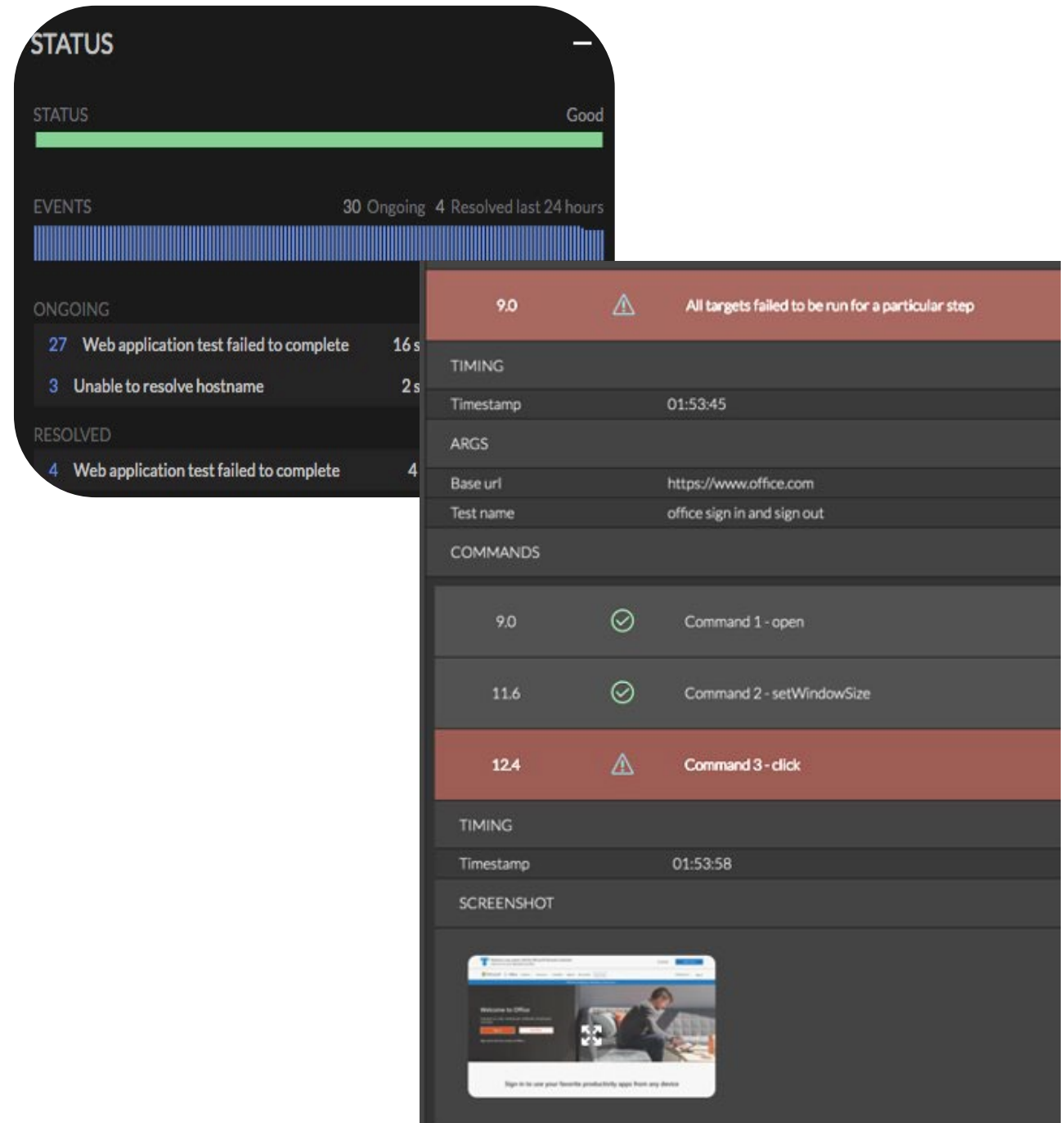
At-a-Glance Stats

Performance is OK

There's an issue

Web Application Testing

In addition to webserver, ping, and throughput tests....

- Record and replay web interactions.
  - ✓ Clear understanding of the digital experience.

Root Cause Analysis

Back-in-time

- ✓ Triage

- ✓ Troubleshooting

- ✓ Isolate issue to wireless vs wired domain.

- ✓ Packet capture.

- ✓ Visual screenshot of last page presented as part of the test.

BENEFITS:

Fully understand back-in-time metrics surrounding the issue.

AIOPs Incident Detection: Prioritize what's important

- Detailed impact analysis
- Reveal baselined metrics drastically changed in real-time

Groups
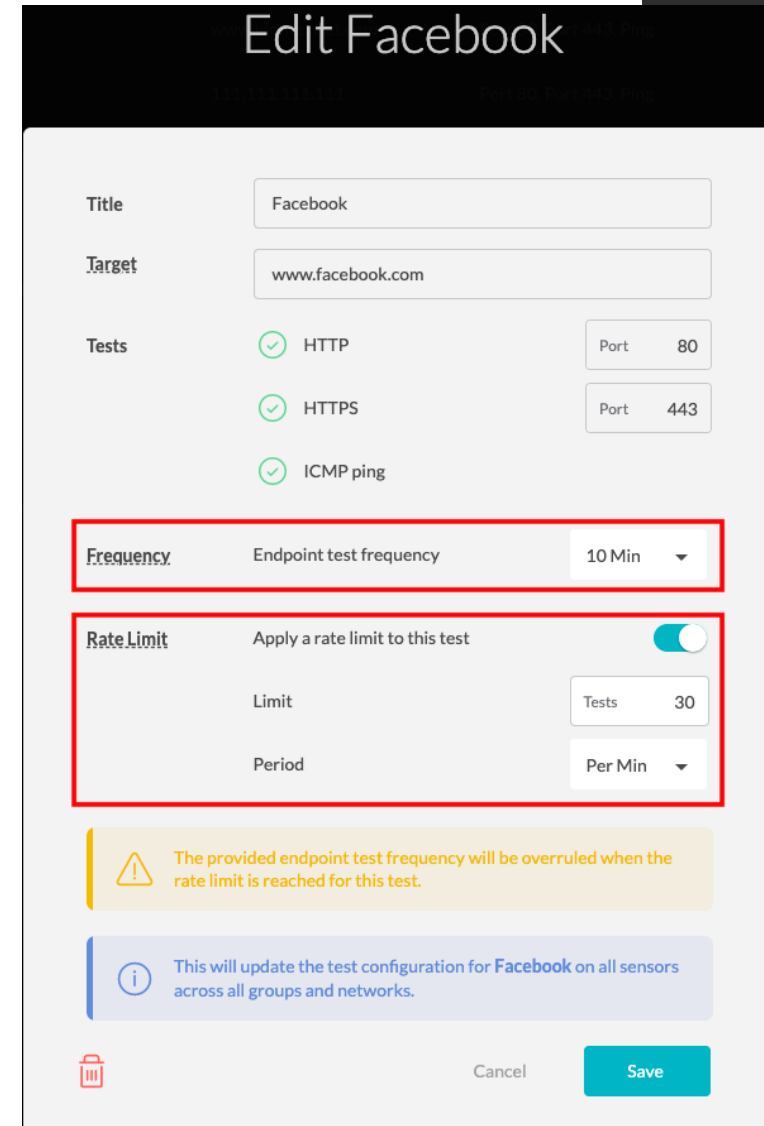
Networks

Services & Tests
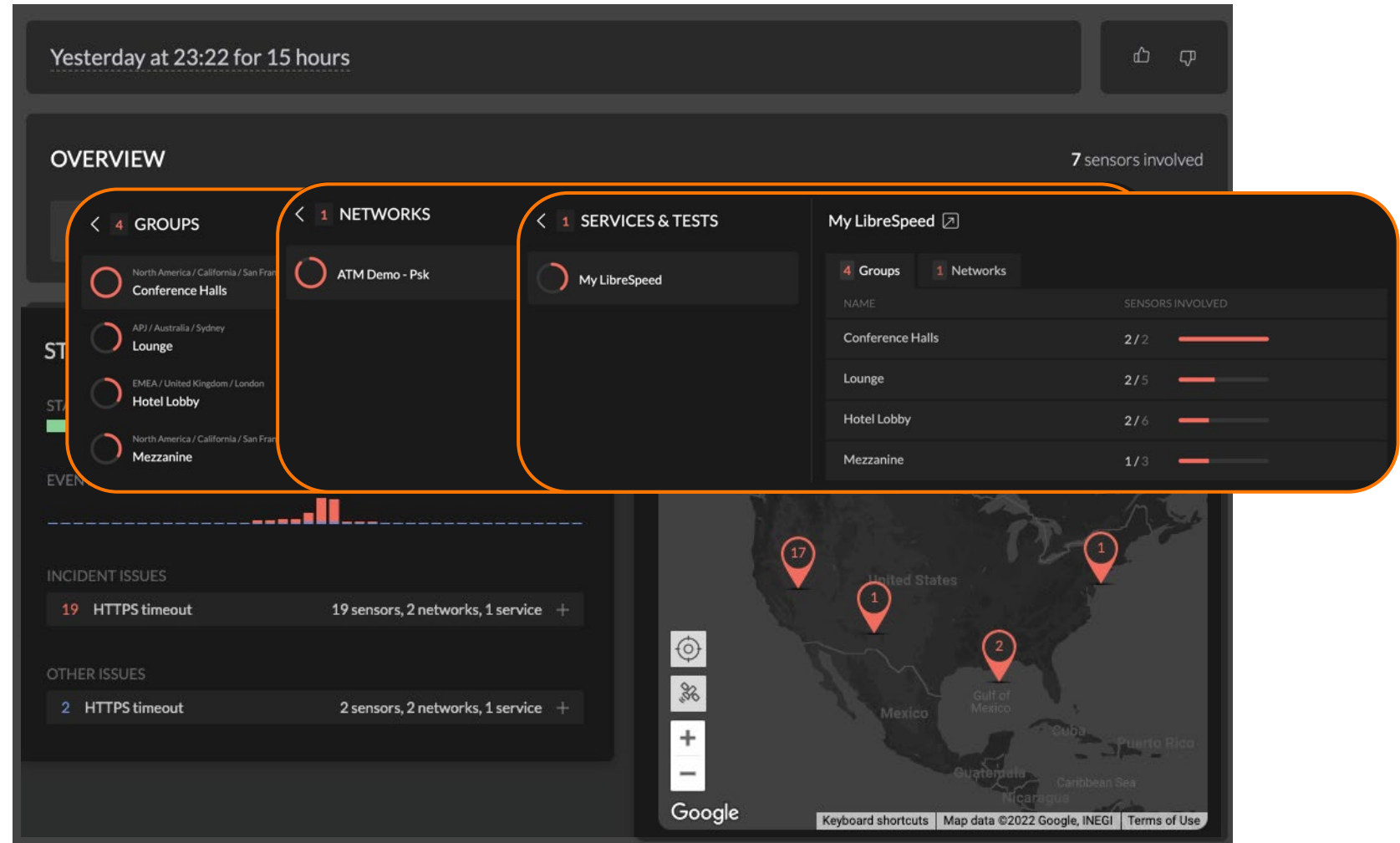
Service Rate Limiting – Aug'23

- 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.

Enhanced Reporting

- 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.
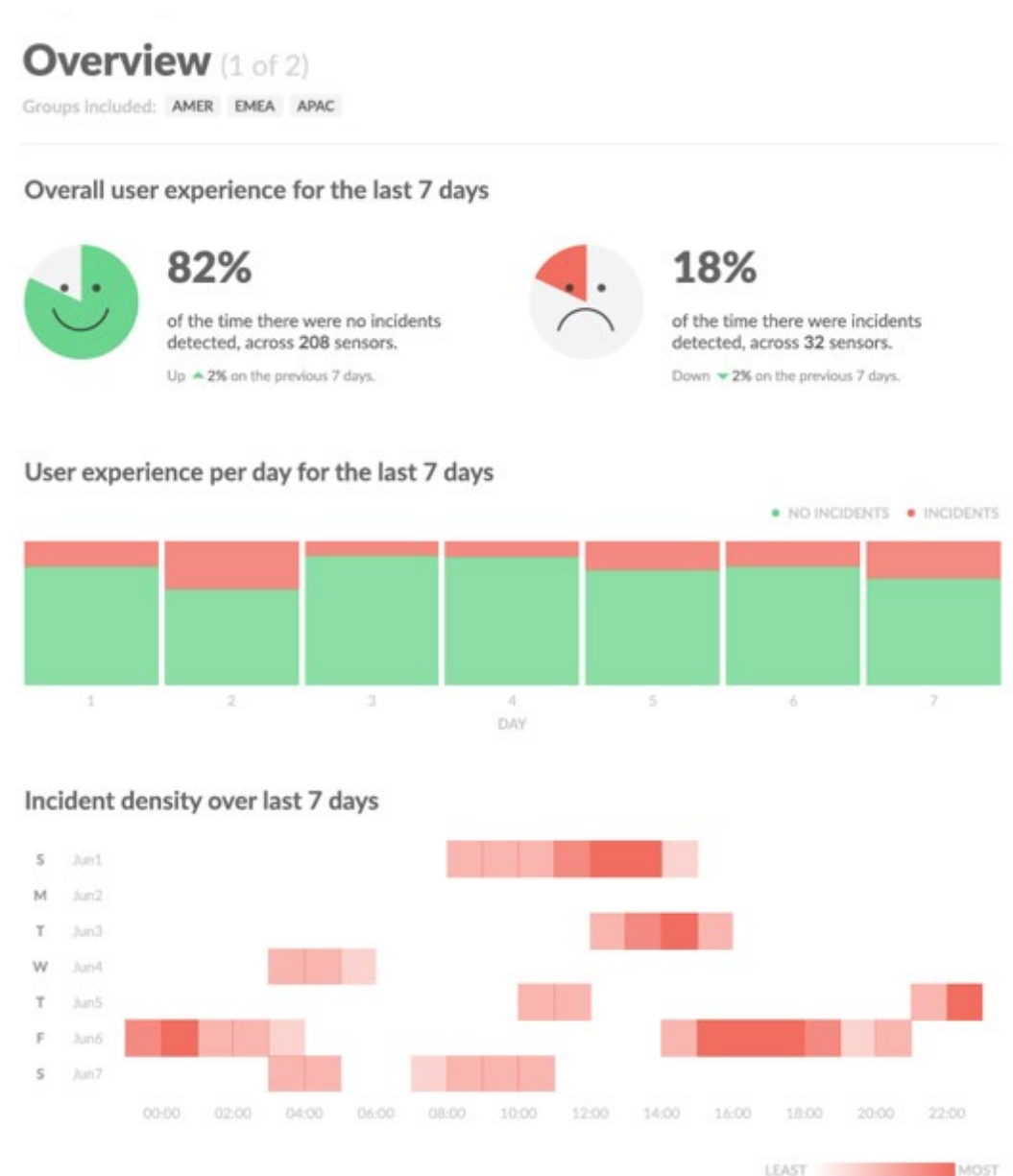
UXI Data Push Destinations

Direct stream from UXI to a customer destination

UXI Data from UXI Cloud

- **Test Results**

- **Issues**

- **Incidents**

- **Audit Logs (coming soon)**

To Your Container

Google BigQuery

Amazon S3

{ ... } Generic HTTP

Elasticsearch

Splunk (Beta)

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Data Push Destination Examples
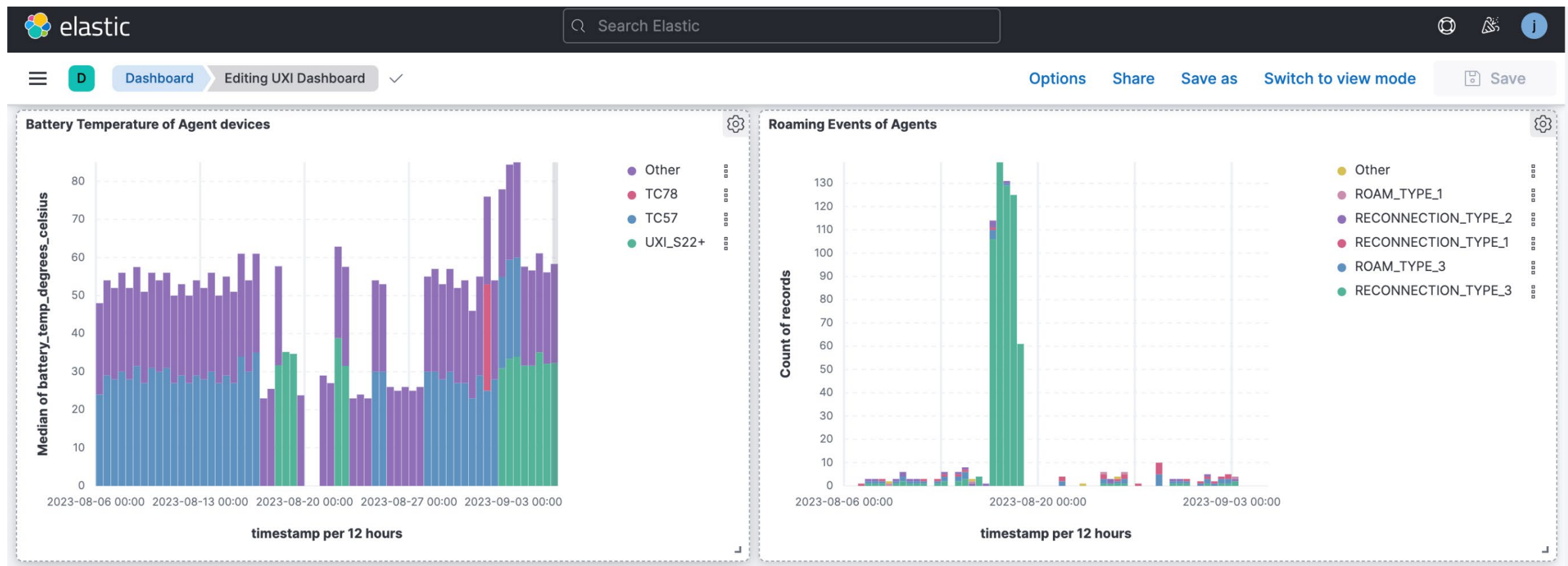
Automating Monitoring, Trending and Alerting

UXI Benefits:

- Capacity monitoring for the agility to adjust for shifting use cases.

- Trending, alerting, and reporting to ensure the change is having the best impact on its users.

- Performance degradation can be transient in a making it AIOps and incident management is critical.

AP Association Over Time
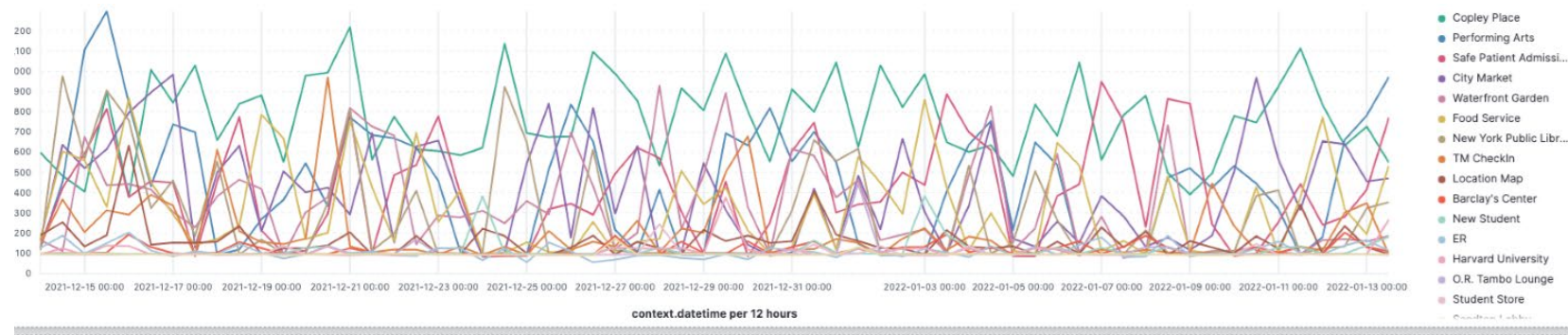
Web Application Browser Tests

Web Application Success Rate

- BMW Website, 27.10%
- Aruba SF.com login, 38.19%
- FedEx , 36.15%
- ATT, 42.60%
- HPE, 65.70%
- Workday, 58.90%
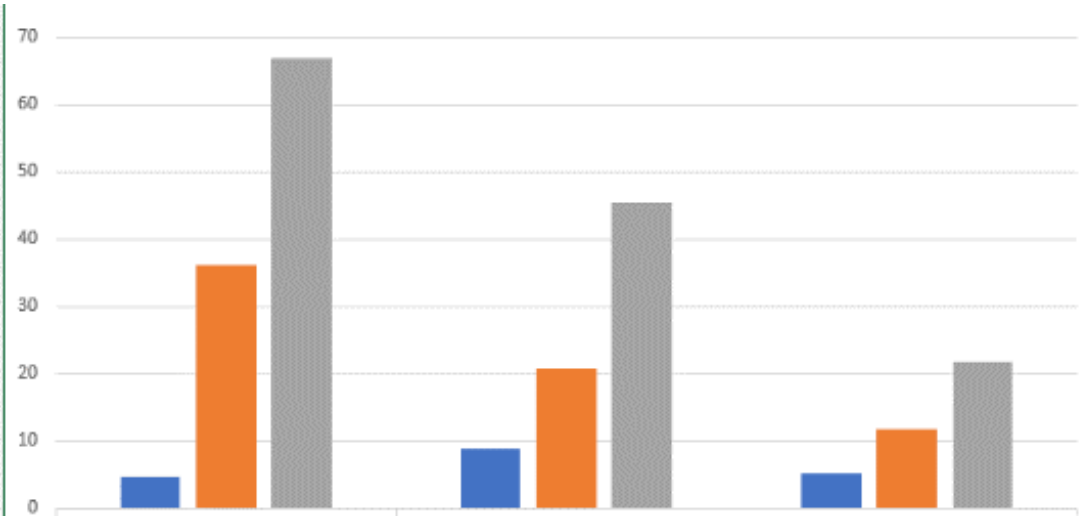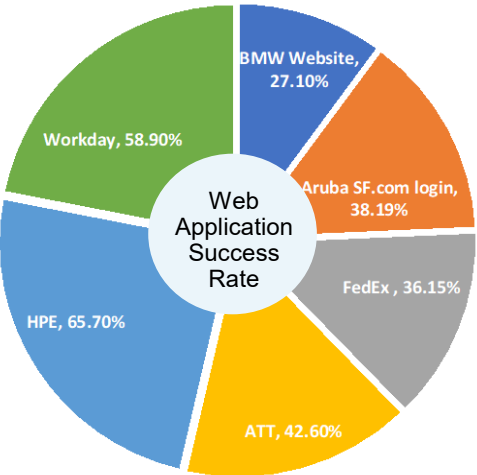
ISP to ISP vs SDWAN Comparison

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Digital Experience Monitoring (DEM)with UXI

- ❑ Sensor and agent-based DEM solution
- ❑ Vendor Agnostic, tests wired and wireless network, monitor SaaS and Web apps
- ❑ Provides: packet capture on-demand and back-in-time analysis (triage)

Sensor - Linux based, Wi-Fi 6 compatible (6E launching in Oct), run tests 24x7

Dashboard – AI powered, intuitive, data push, reports, detailed triage

Agent for Windows, iOS, macOS, and Linux planned for future releases

Agent for Android – Device information, synthetic tests, self-service portal

Agent for Zebra - Device roaming & posture metrics, Voice analysis

DEM with UXI
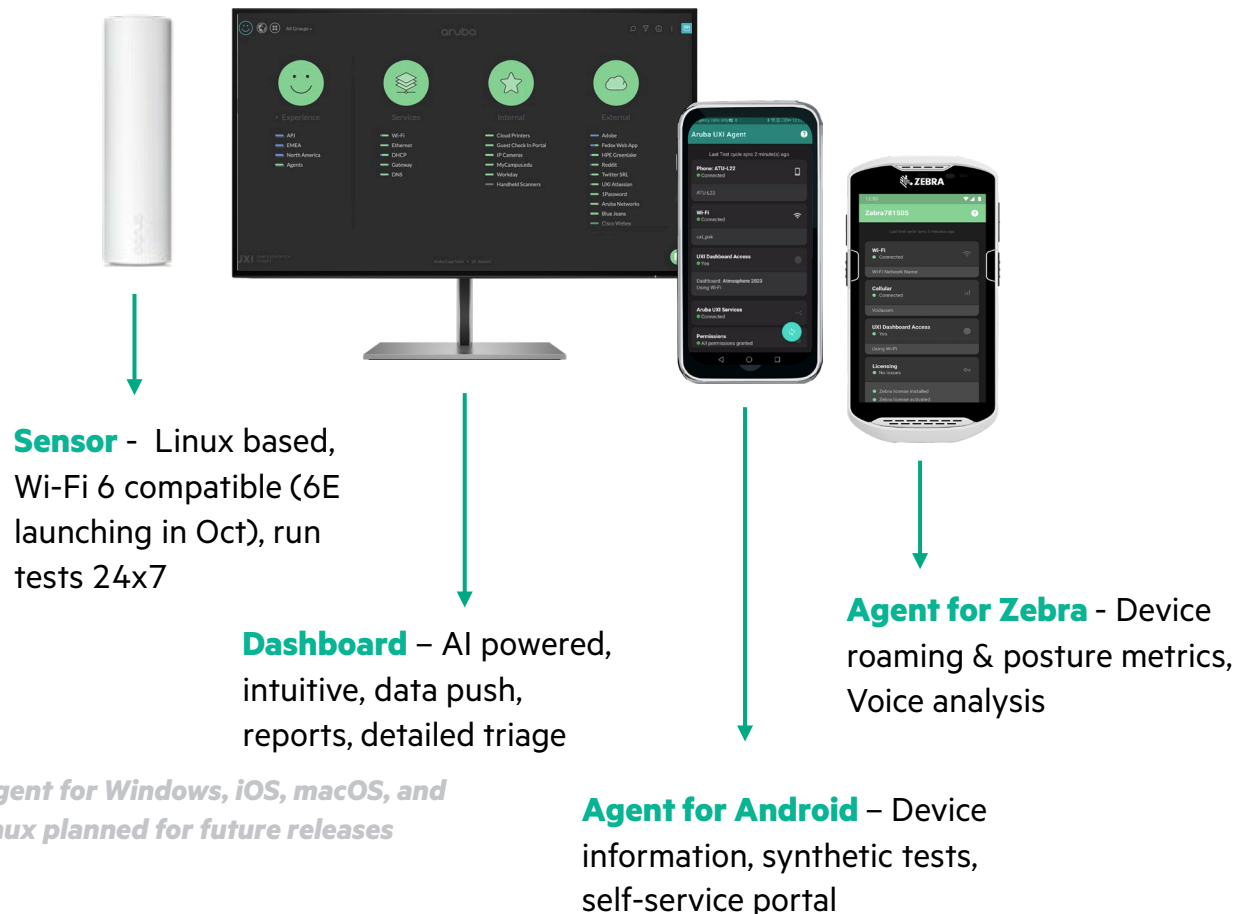
Synthetic Transaction Monitoring (STM)

UXI sensors and agents run synthetic tests to monitor network and application performance.
Sensors support web application testing that comprehensively tests the end user clickthrough workflow

Real User Monitoring (RUM)

Sensors mimic end-users' workflow for testing network and application performance.
Agent for Zebra provides roaming and call quality performance on Zebra devices.
Observed Traffic monitoring is planned for future releases.

Endpoint Monitoring (EP)

UXI agent monitors devices and provides comprehensive details including: PID, serial number, IP address, primary/secondary DNS, battery percentage, temperature, location, etc.
Note: Location information can be turned off on request.

UXI Agent Demo

Confidential | Authorized

User Self-service portal (laptop portal view)
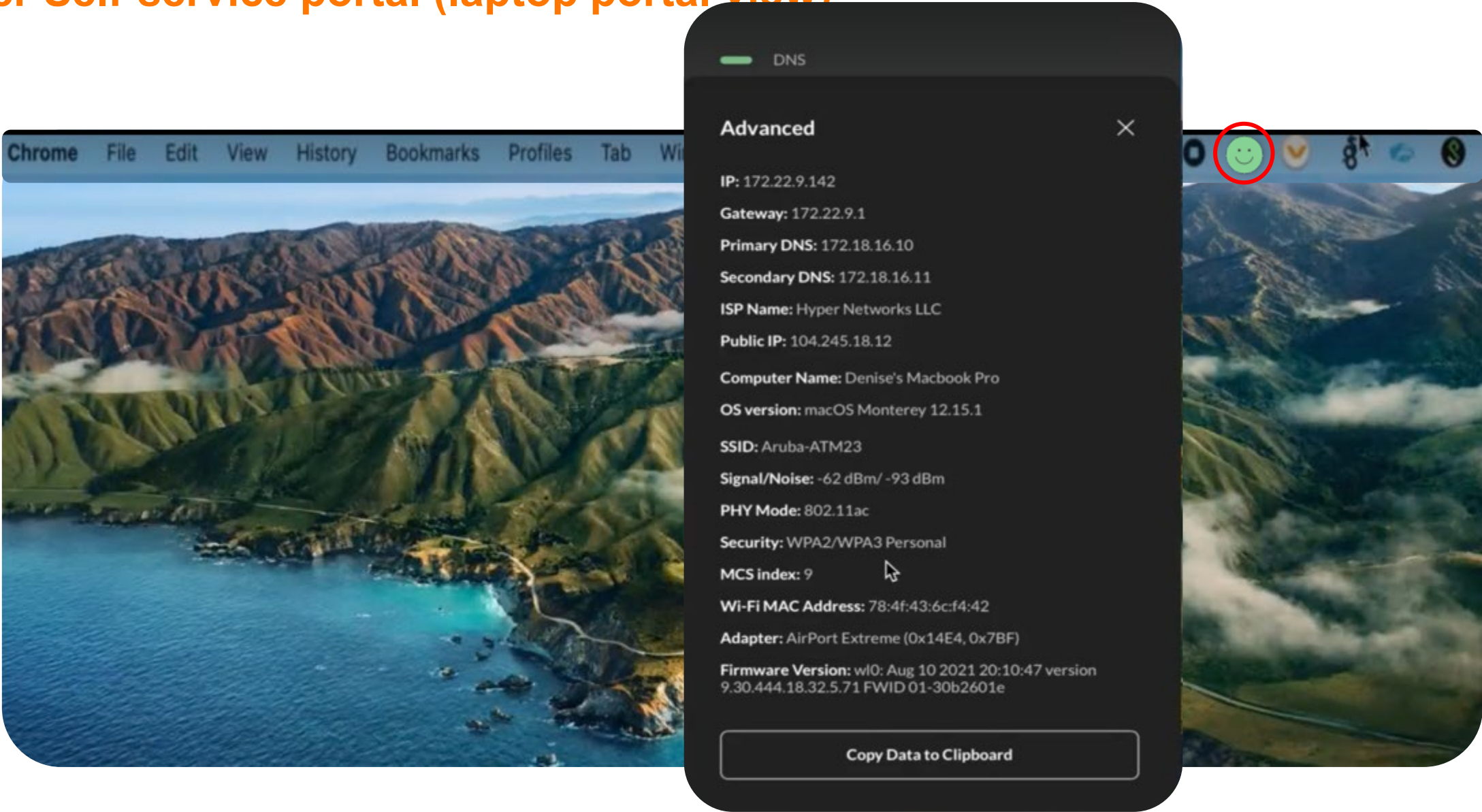
Current Features of HPE Aruba Networking UXI Agent for Android OS

Feature	Aruba UXI Android Agent
Synthetic Application Testing from device: Packet loss, latency, jitter Gateway Reachability AP_SCAN. DNS HTTP GET PING	Y
Application Experience Testing Internal & External • Packet loss, latency, jitter, HTTP GET (Elapsed Time)	Y
Troubleshooting Experience with back in time issue triage	Y
WLAN Vendor Agnostic • **Wi-Fi Visualization chart** : Channel overlap, SSIDs, Channel, Width, Signal of nearby APs • **Wi-Fi Metrics**: Signal(RSSI), Tx and Rx bitrate, BSSID, Band, and Channel	Y
Device Information Access to persistent device identifiers (PID) (Hidden by Android A11+), Serial Number, IP address, IP Config, Gateway, DHCP, Primary/Secondary DNS, Battery %, Health, Temperature	Y
Location information Location of device on Google Map view	Y
Installation – Download App from Aruba Support Portal and Google Play or via MDM	Y

Better Together: Sensor + Agent for Android

UXI Linux based Sensors

+

UXI Android Agents

UXI Cloud UI
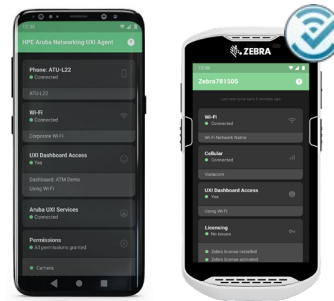
❑ Actively baselines & trends on any wired & wireless network.

❑ Notifications of why there was a power outage.

❑ Provide insights into performance, availability and user experience real-time.

❑ Quickly determine root cause of application performance such as page load times, and performance bottlenecks.

❑ Global device and network analytics integrated into your workflow.

❑ Easy to understand and prioritize critical issues.

❑ 3rd Party & NOC integrations

WHY USE UXI ANDROID AGENT
REAL USER EXPERIENCE MONITORING
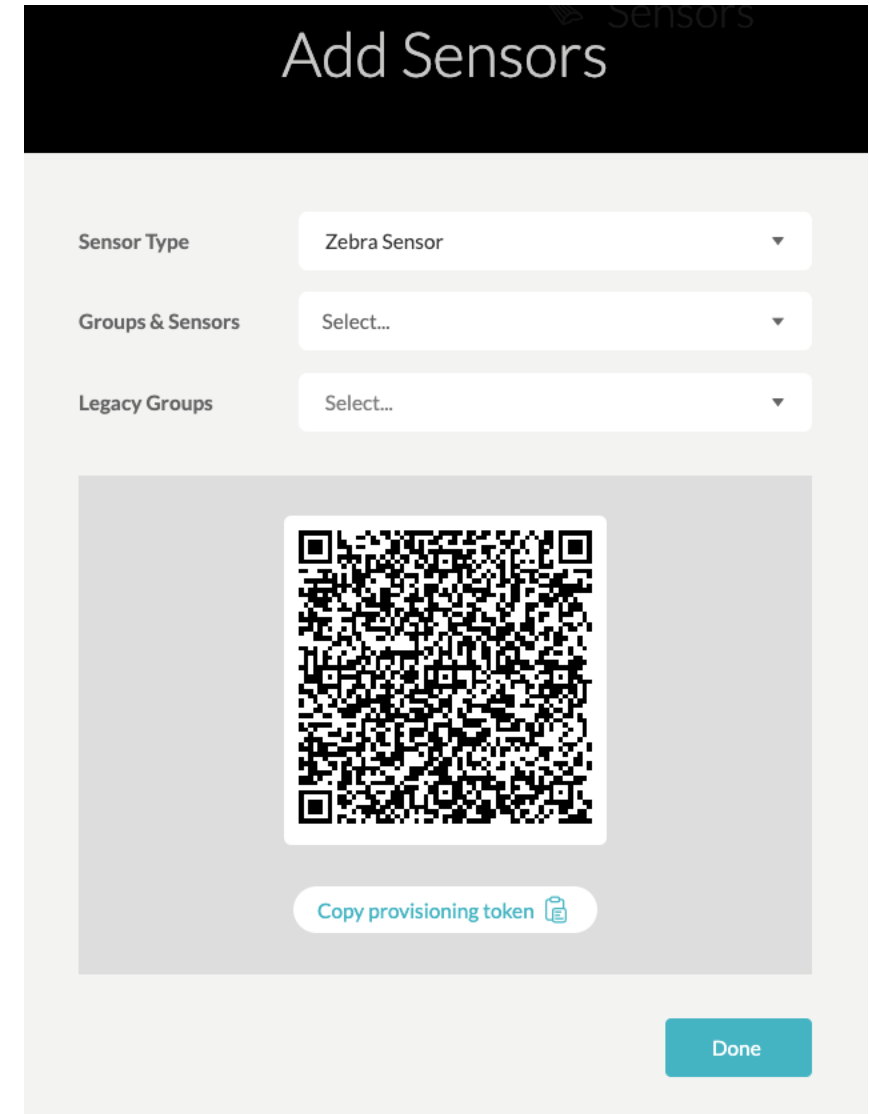
UXI Endpoint Agents **Now Available for Android, future release include**

android   macOS   ⊞ Windows   iOS   Linux

Synthetic Monitoring

Real User Experience Monitoring

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.*

WI-FI EASY CONNECT

Device Provisioning Protocol (DPP)

Make it easy to do it correctly

Make it hard to do it incorrectly

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.
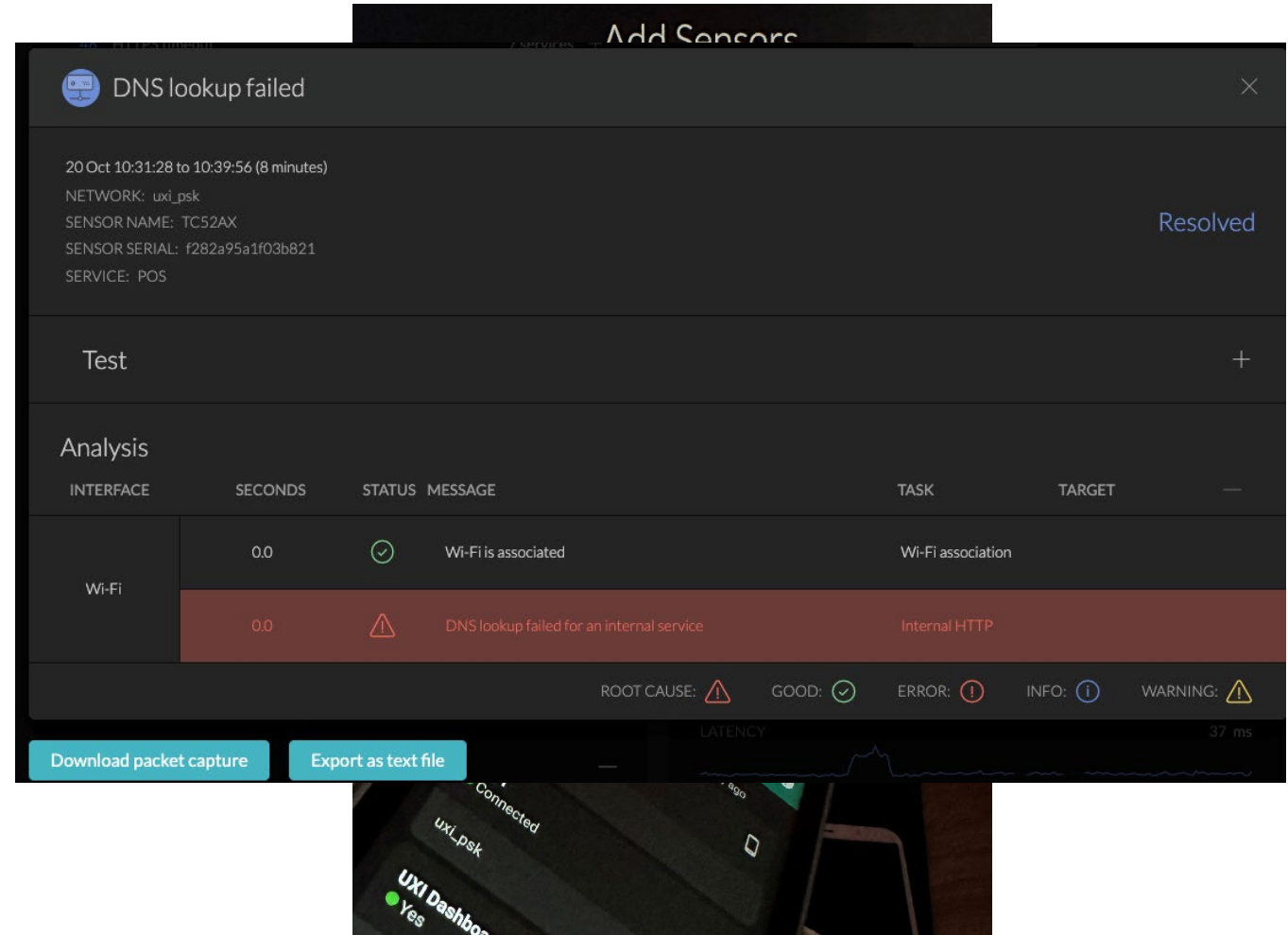
UXI + Central provide an end-to-end digital journey

User Perspective ← → **Network Perspective**

User Experience Insight Dashboard and Sensors

HPE Aruba Networking Central Cloud Management for WLAN, LAN,VPN and SD-WAN
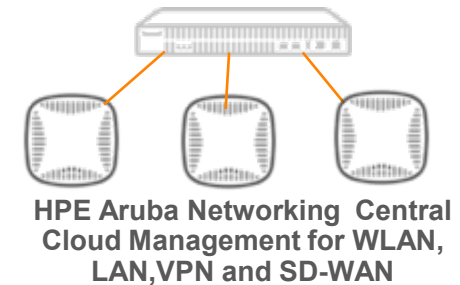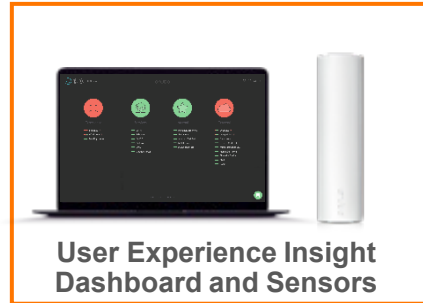
User Experience Insight

Use:
Continuous testing and validation with automated troubleshooting. Real-time alerts provide notifications of a bad user experience.

Leverages Data from:
Purpose-Built UXI Sensors and integrates with HPE Aruba Networking Central.

HPE Aruba Networking Central

Use:
AI Insights provides network performance insights. Recognize the impact of those suggestions with UXI.

Leverages Data from:
HPE Aruba Networking UXI, WLAN, LAN, and SD-WAN.

UX-6E

Dual tri-band Wi-Fi + Ethernet

Perfect for

greenfield deployment,

Campus

- Ethernet connectivity recommended
- Universal AC power supply optional

UX-6EC

Dual tri-band Wi-Fi + Ethernet + Cellular

Perfect for

Rapid,

flexible deployment

Branch

– Ethernet connectivity optional

– Cellular backhaul connectivity

– Universal AC power supply included

– Last gasp power included

Family specifications

	G6	G6C	6E	6EC
SKU	R7H75A	R7H76A	S0U51A	S0W38A
2X2 Wi-Fi Radio	2.4/5Ghz ax	2.4/5Ghz ax	**Dual** Triband 2.4/5/6Ghz ax (6E)	**Dual** Triband 2.4/5/6Ghz ax (6E)
Off-Band monitoring	*NA*	*NA*	**Yes**	**Yes**
Client monitoring	*NA*	*NA*	**Yes**	**Yes**
Enhanced WI-FI environment	*NA*	*NA*	**Yes**	**Yes**
RAM	2GB	2GB	2GB	2GB
Power Backup	*NA*	*≥30s*	*NA*	*≥30s*
Power (W)	12W	12W	12W	12W
BLE	Yes	Yes	Yes +Zigbee	Yes +Zigbee

Differentiators with 6E Sensors*
Wi-Fi Environment improvements:

- Off band monitoring **enables constant scanning of BSSIDs under the target test SSID.**

- **8 new performance metrics across** BSSID's.

- **Comparing performance of:**

  - **Retry rates,**

  - **Airtime usage, Available admission capacity (how much airtime for AP)**

  - **Client count of each BSSID** along with traffic breakdown (% of management, control and data frames).

  - BSSID Color

  - Count of clients moving to a BSSID

  - EAP timing of connecting clients.

  - **WI-FI environment now available as** time series data for back in time views. **(Previously a last snapshot.).**
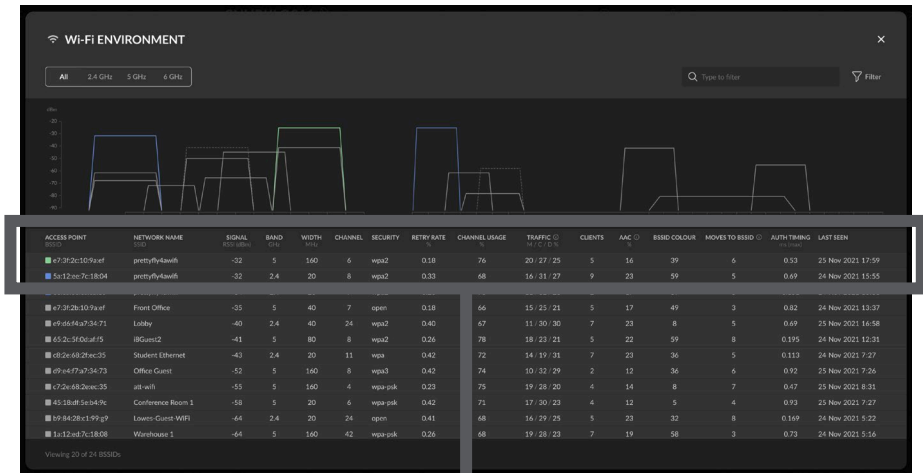
New measures

ACCESS POINT BSSID	NETWORK NAME SSID	SIGNAL RSSI (dBm)	BAND GHz	WIDTH MHz	CHANNEL	SECURITY	RETRY RATE %	CHANNEL USAGE %	TRAFFIC ⓘ M / C / D %	CLIENTS	AAC ⓘ %	BSSID COLOUR	MOVES TO BSSID ⓘ	AUTH TIMING ms (max)	LAST SEEN
🟩 e7:3f:2c:10:9a:ef	prettyfly4awifi	-32	5	160	6	wpa2	18	76	20 / 27 / 25	5	16	39	6	0.53	25 Nov 2021 17:59
🟦 5a:12:ee:7c:18:04	prettyfly4awifi	-32	2.4	20	8	wpa2	33	68	16 / 31 / 27	9	23	59	5	0.69	24 Nov 2021 15:55

*Nov 2023

Differentiators with 6E Sensors*

8 New high-level metrics: (Sensor Status Page)

- **SNR** – see the noise.

- **Channel Utilization breakdown** – See % traffic load in BSSID, outside of BSSID and non-Wi-Fi energy

- **Client count** on BSSID. See the client count and contention in the space. (from packet capture)

- **QBSS** info now shown for the BSSID. (AP perspective)

  - Available airtime.

  - Impacted clients.

  - QBSS reported utilization

rized

30
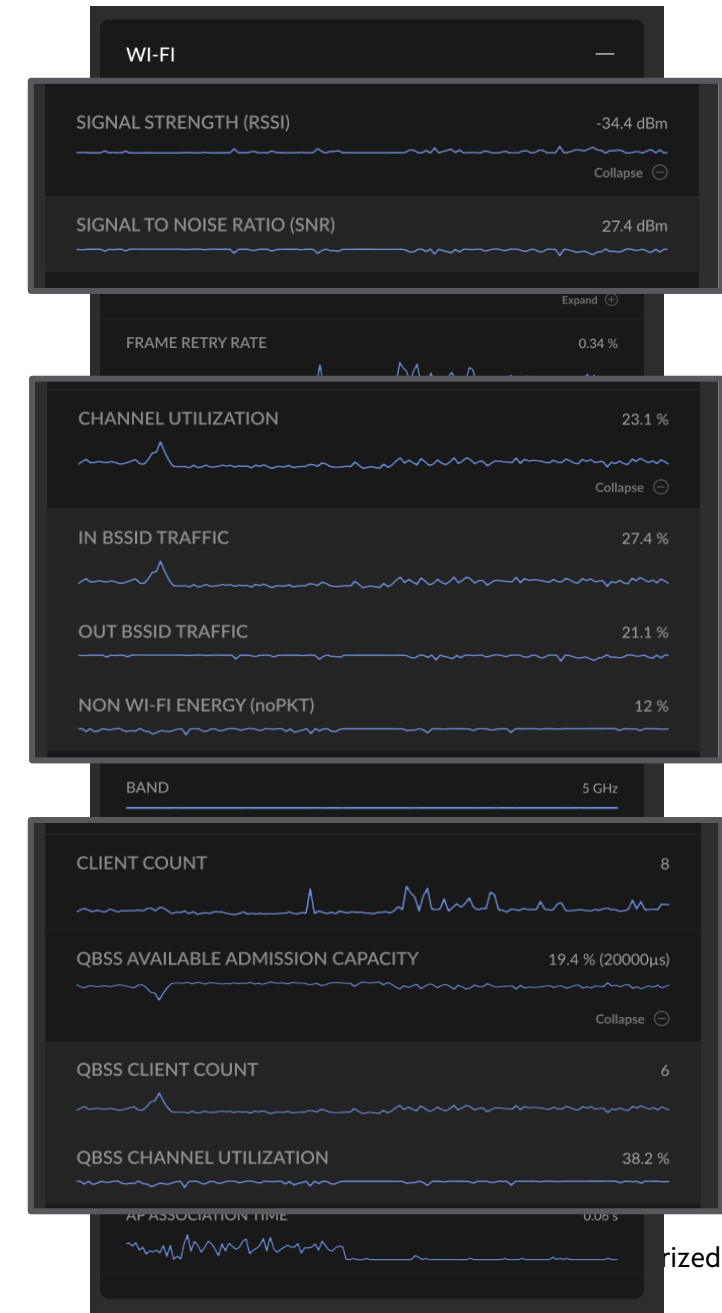
*Nov 2023

Differentiators with 6E Sensors: Client environment

New high-level metrics:

- Client roams and associations. The second half of any 802.11 Fast Roams that are captured on a BSSID being scanned and will be counted and displayed if successful

  - A roaming quality score will also be associated with the measurements

- Client **Environment:**

  - RSSI

  - MCS rates

  - Retries rate

  - Will be displayed in bins indicating what % of clients are performing at various levels
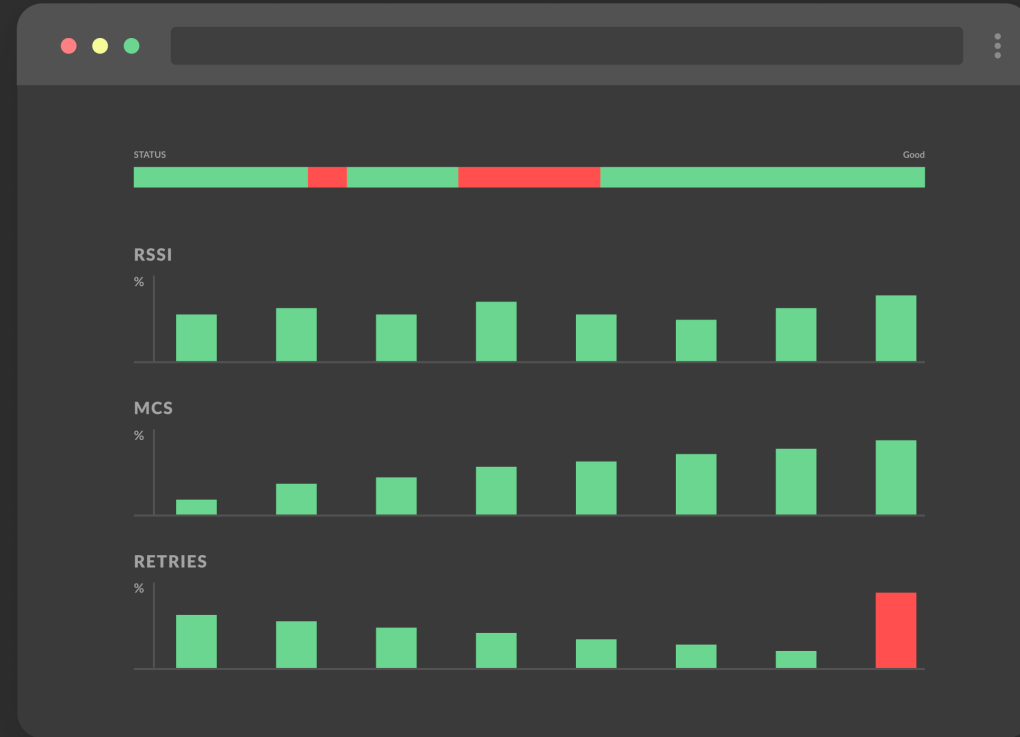
Helping Customers In Different Industries Solve Real Life Use Cases

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

Create a Data-Driven Branch
Customer experience drives loyalty and revenue.

Provide a frictionless, self-service experience for customers.

UXI: Heightened guest testing, trending and active testing and alerting from a single dashboard.

Multi-vendor environment. Multiple data sources.

UXI: Vendor neutral testing as a client to stop finger pointing. Validate interoperability across all sites, network providers.
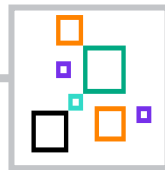
Agility to know you successfully pivoted as required.

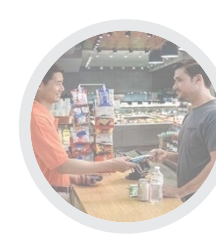**UXI:** Before introducing a new application or technology solution know what day 1 is going to look like.

Global in-house technical resources required.

UXI: 24x7 remote technician. Sensor or agent for device testing and real roaming and call analysis.

Enterprise – Campus Environment
Adaptable environment to stay competitive.

No Global application, VoIP performance visibility.
UXI: Global views, VoIP testing, trending and active alerting from a single dashboard.

Back-in-time visibility to wired & wireless events.
UXI: Triage details, pinpoint issues real-time and back-in-time.

Transformation business goals need to match IT budgets.
UXI: Data brings visibility and resource efficiencies to know where projects stand.

Fighting perception
UXI: Better MTTR. Reduced truck rolls. Clear root cause understanding of issues.
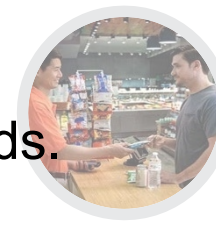
Executing a back to office strategy. With CxO needs.
UXI: Pre, post and ongoing change management success tracking.

Manufacturing - Warehouse
Productivity challenges and sporadic workload requirement needs.

Streamline floor operations.
UXI: Test reachability of critical services and applications.

Voice-pick performance issues.
UXI: In depth analysis into real voice call analysis.

VOICE Analysis

Increase DC productivity to meet bonus/revenue opportunities.
UXI: Clear understanding of where issues are
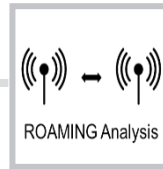
Device roaming issues, and global baselining.
UXI: 24x7 global roaming monitoring performance on Zebra devices.

ROAMING Analysis

Unplanned downtime, hits productivity and budgets.
UXI: Triage details, pinpoint issues real-time and back-in-time. Utilize data to reduce disruption.

Healthcare Optimization
Require the agility for disruption and rapid changes.

Limited onsite support access.
UXI: Let the sensor be your remote technician.
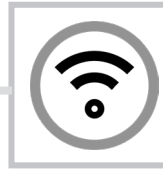
Guest application, maps, in-patient support management.
UXI: Spot issues before your guests do. Triage details, pinpoint issues real-time and back-in-time.

EHR; VDI; tele-medicine support requirements.
UXI: Corollate application, vs network issues

Lack of new device support and control.
UXI: Trend network performance and impact as new devices show up.

Transient application and 911 VoIP issues.
UXI: In depth analysis into real voice call analysis. Integrate VoIP and SIP call analysis.

More Verticals

Any organization with a network that generates revenue need HPE Aruba Networking UXI

Airport checkpoints, kiosks, clubs and business operations.
UXI: Test reachability of critical services and applications.

Hospitality concierge, housekeeping, task management.
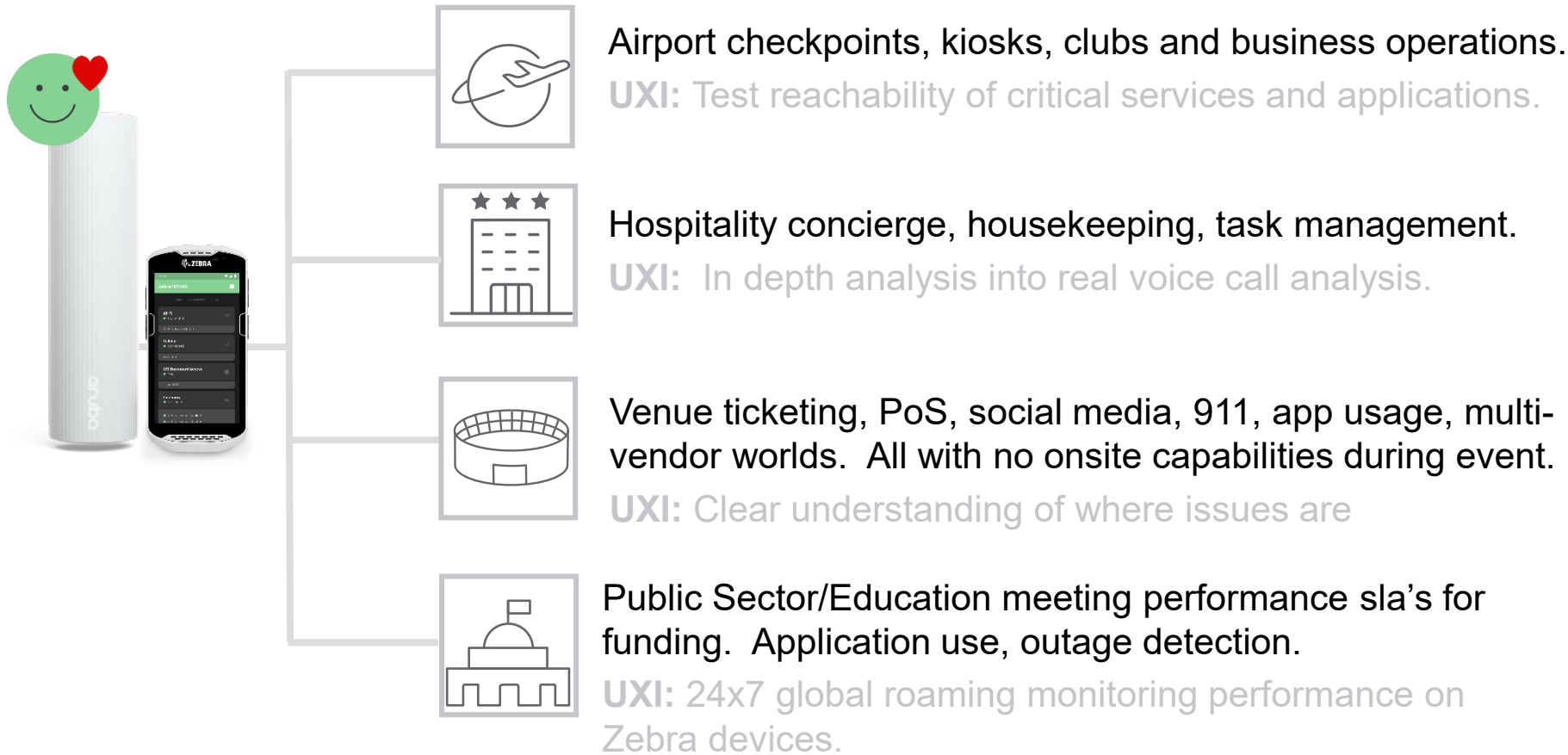**UXI:** In depth analysis into real voice call analysis.

Venue ticketing, PoS, social media, 911, app usage, multi-vendor worlds. All with no onsite capabilities during event.
UXI: Clear understanding of where issues are

Public Sector/Education meeting performance sla's for funding. Application use, outage detection.
UXI: 24x7 global roaming monitoring performance on Zebra devices.

HPE Aruba Networking UXI

Thank You