



WGC EMEA

OCT 07 – OCT 10

Wi-Fi Innovation: Connecting Our Digital World

Paris Expo Porte De Versailles. Paris, France

#WGCEMEA | #wifirevolution | #lovewifi





Tiago Rodrigues

President & CEO, Wireless Broadband Alliance

Welcome address

HEALTH & SAFETY



THE FIRE ALARM SOUND IN THIS BUILDING IS A SIREN



IF YOU DISCOVER A FIRE, RAISE THE ALARM BY BREAKING THE GLASS



DO NOT STOP TO COLLECT YOUR BELONGINGS OR USE THE LIFTS



DO NOT OBSTRUCT ANY EXITS OR GANGWAYS



THERE IS A NO SMOKING POLICY AT THIS EVENT. SMOKING WILL ONLY BE ALLOWED OUTSIDE OF THE VENUE IN DESIGNATED AREAS



PLEASE MAKE YOURSELF AWARE OF THE EMERGENCY EXITS IN YOUR IMMEDIATE AREA



THERE IS NO ASSEMBLY POINT FOR THIS VENUE, PLEASE EXIT THE VENUE & DISPERSE



SHOULD YOU REQUIRE SPECIAL ASSISTANCE PLEASE CONTACT A MEMBER OF THE EVENT STAFF

WI-FI Access

NETWORK NAME: NetworkX2024

PASSWORD: networkx



THANK YOU TO OUR SPONSORS



EVENT PARTNER



Disruptive Analysis

Don't Assume

EVENT PARTNER



EVENT PARTNER



EVENT PARTNER















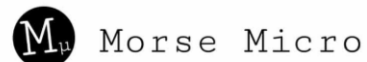
















 **WAA** 世界无线局域网应用发展联盟
WLAN Application Alliance

Welcome Opening Address

Wireless Global Congress EMEA
Paris, 9th October 2024

2024 a positive year



- 20 Projects Delivered
- Membership Grew 20%
- OpenRoaming Grew 100%
- Marketing Exposure Grew 150%
- Wireless Global Congress with +2,500 participants

Welcome to New Members



Program Management Office (PMO) Deliverables



2024 was a successful year for the programs & projects of WBA



20

PROJECTS FINALIZED

+15%

MEMBERS PARTICIPATING

+60%

NEW MEMBERS INVOLVED

+10%

+2,000 EXTRANET USERS

+10%

MEETINGS ATTENDANCE

OpenRoaming Map

+3,000
server certificates issued

+800
unique entities involved



<https://wballiance.com/openroamingmaps/>

OpenRoaming OpenSource Tools



Hybrid Connector Implementation

Access Network Provider (ANP)



Identity Provider (IDP)



Provisioning Portal Baseline Implementation

A screenshot of the OpenRoaming Provisioning Service portal. The left side is a dark blue banner with the OpenRoaming logo and text: "Welcome to OpenRoaming Provisioning Service", "This portal allows you to download and install an OpenRoaming profile tailored to your device, allowing you to connect automatically to OpenRoaming Wi-Fi networks across the world.", and contact information "openroaming@wballiance.com". The right side is a white page with the Wireless Broadband Alliance logo, a heading "Download and install an OpenRoaming profile tailored to your device, as part of the WBA OpenRoaming demo program.", a paragraph "WBA's profiles are proven to work across a broad range of devices, including iOS, Android, macOS, and Windows, ensuring optimal compatibility.", a section "Obtain Your Profile:" with the instruction "To get started, select one of the following authentication methods:", and two buttons: "Create Account" and "Login Here". At the bottom, there is a small disclaimer: "The profiles generated here are intended for demonstration and WBA event purposes. For more detailed information about the OpenRoaming technology, visit www.openroaming.org".



wireless-broadband-alliance

<https://github.com/wireless-broadband-alliance>

Marketing Deliverables



2024 Increased WBA Industry Outreach and Engagement



- 54** BRIEFINGS TO MEDIA
- +35%** WHITEPAPER DOWNLOADS
- +148%** ARTICLES IN MEDIA
- +60%** WEBSITE SESSIONS
- +13%** SOCIAL MEDIA FOLLOWERS

The London Wi-Fi OpenRoaming trial achieved download speeds of 340 Mbps and upload speeds of 350 Mbps, according to project partners

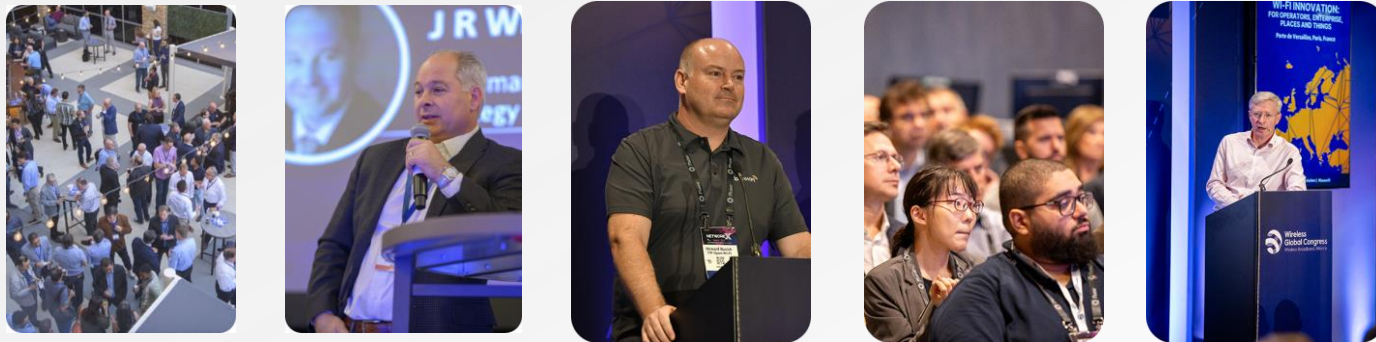
The Wireless Broadband Alliance (WBA) announced the completion of an advanced public Wi-Fi OpenRoaming proof-of-concept (PoC) in Shoreditch, London. WBA worked with streetside telecons infrastructure asset provider CIN, digital infrastructure company Colt Technology Services and wireless ISP provider GlobalReach Technology. The trial reportedly achieved download speeds of 340 Mbps and upload speeds of 350 Mbps.



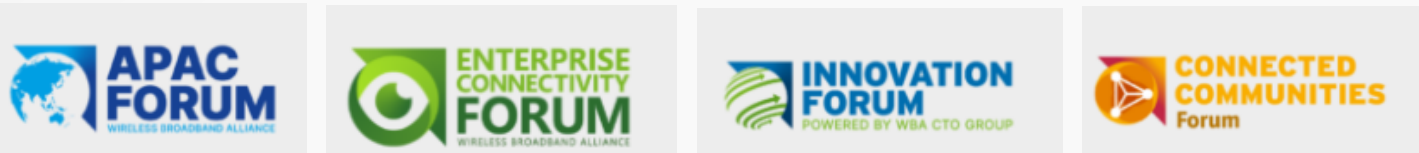
Events Deliverables



2024 EXPANDED WBA EVENTS AND PARTICIPATION ON 3RD PARTY EVENTS



- 28** WGC SPONSORS
- +2,500** WGC ATTENDEES
- +200** SPEAKERS
- +6%** SATISFACTION SURVEY RECORD
- 12** EXTERNAL EVENTS PARTICIPATION



“SEAMLESS AND INTEROPERABLE WI-FI SERVICES”

**OpenRoaming-Passpoint
in Public-Guest Wi-Fi**

**Convergence & Coexistence
of Wi-Fi and Cellular**

**Next Generation
Wireless Networks**

JOIN AND BE PART OF THIS REVOLUTION

**ESTABLISHED
IN 2003**

**200+ MEMBERSHIP
COMMUNITY**

**PROJECTS &
PROGRAMS**

**3 ANNUAL
EVENTS**

**PROMOTION &
GO-TO-MARKET**

**THOUGHT LEADERSHIP
& MARKET RESEARCH**

Thank you

Tiago Rodrigues
Wireless Broadband Alliance (WBA)
President and CEO
tiago@wballiance.com

Time	Presentation
9:00 AM (CET)	President & CEO Opening Remarks Tiago Rodrigues, President & CEO, Wireless Broadband Alliance.
9:10 AM (CET)	6G NTN and Direct-to-Device for Global Coverage and Seamless Mobility Dr. Amina Boubendir, Head of Research & Standardization, Airbus Defence and Space.
9:20 AM (CET)	Determinism by the Numbers Matthew MacPherson, Wireless CTO, Cisco.
9:40 AM (CET)	Intel Connectivity Analytics Eric McLaughlin, Vice President, Client Computing Group; General Manager, Wireless Solutions Group, Intel Corporation.
10:00 AM (CET)	Enhancing Home Broadband with AI & ML Metin Taskin, CEO, Airties.
10:20 AM (CET)	The Entertainment Capital of the World – Transforming Las Vegas with 5G and Wi-Fi Dr. Derek Peterson, CTO, Boingo Wireless.
10:40 AM (CET)	COFFEE & NETWORKING



Dr. Amina Boubendir
Airbus Defence and Space



Matthew MacPherson
Cisco



Eric McLaughlin
Intel Corporation



Metin Taskin
Airties



Dr. Derek Peterson
Boingo Wireless



Dr. Amina Boubendir

Head of Research & Standardization, Airbus Defence and Space.

6G NTN and Direct-to-Device for Global Coverage and Seamless Mobility

6G NTN and Direct-to-Device for Global Coverage and Seamless Mobility

Amina Boubendir
Head of Research and Standardisation
Airbus Defence and Space

DEFENCE AND SPACE

09/10/2024

AIRBUS

Connectivity Platforms and Services Space, Air, Ground, and Maritime



Space

Improving life on Earth and beyond



Defence

Shaping a safer world



Helicopters

Providing the most efficient rotary-wing solutions



Security

Delivering solutions customers can trust



Satellites



Aeroconnectivity



UAS Solutions



Maritime connectivity

6G NTN: a challenging convergence of technologies

Challenging integration of 5G/6G and Non-Terrestrial Networks

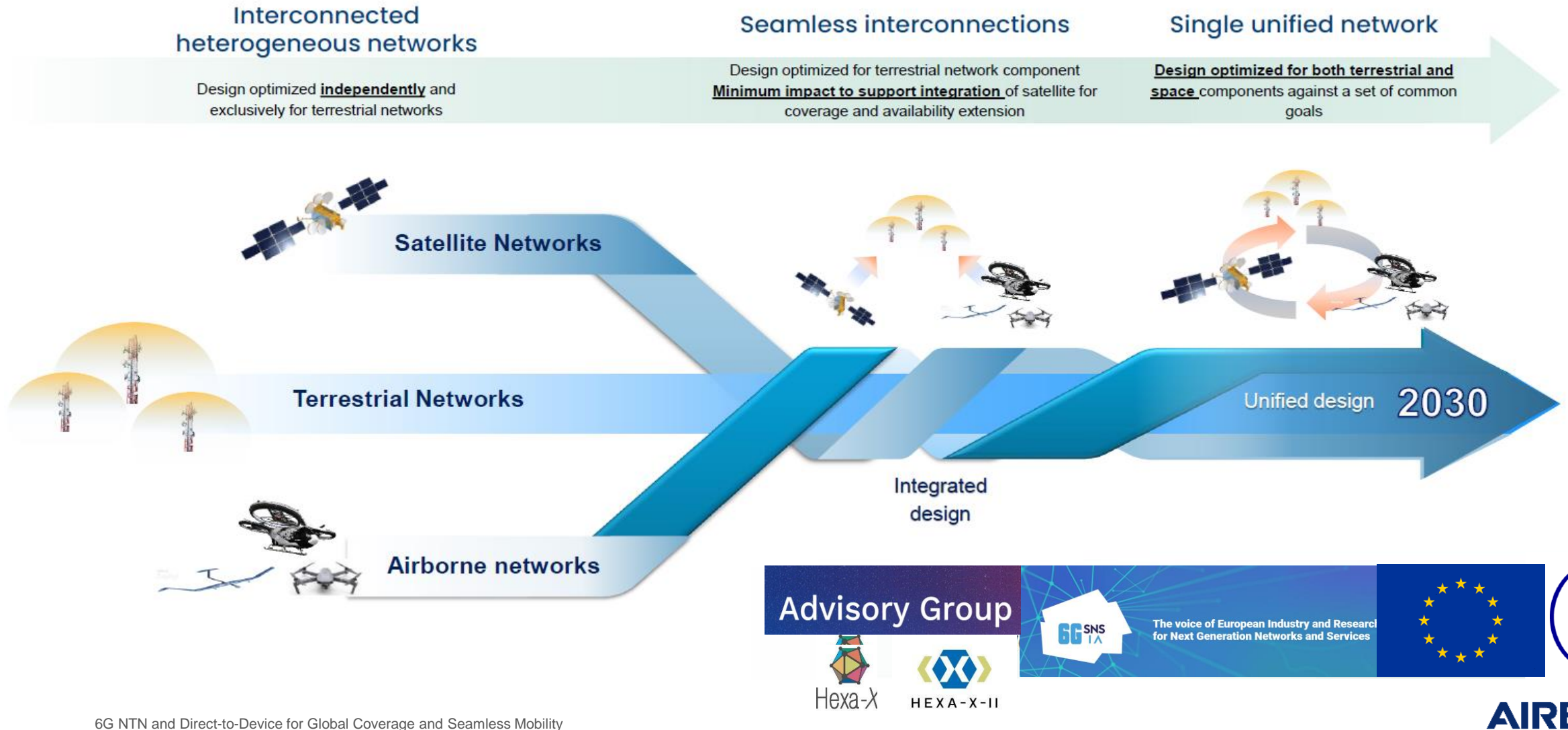
Telco world: IP, 5G, IoT, Fibre, Cloud,...



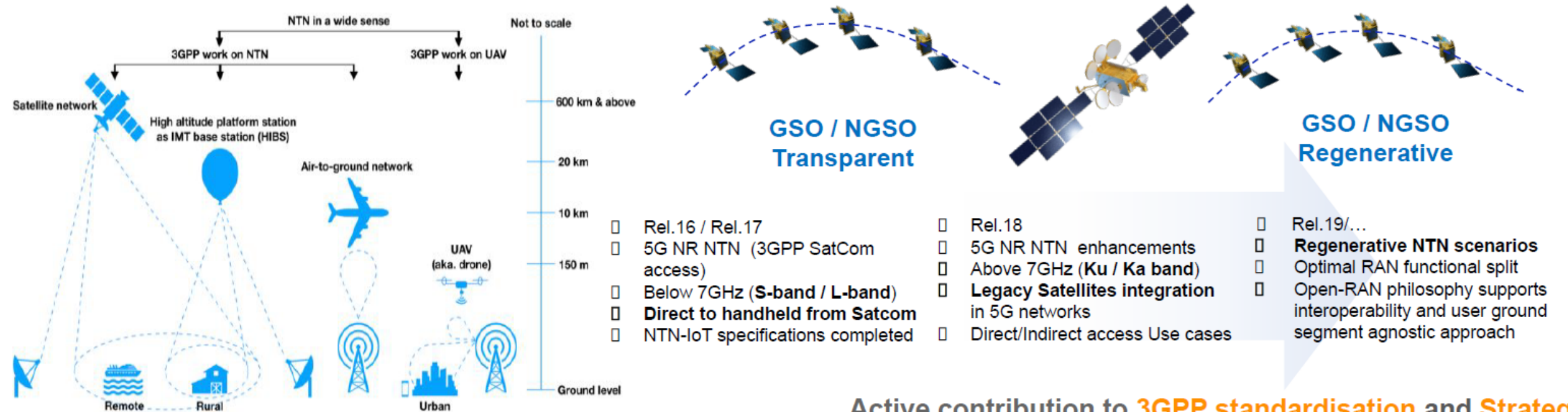
Aerospace world: Planes, Satellites, HAPS, UAVs



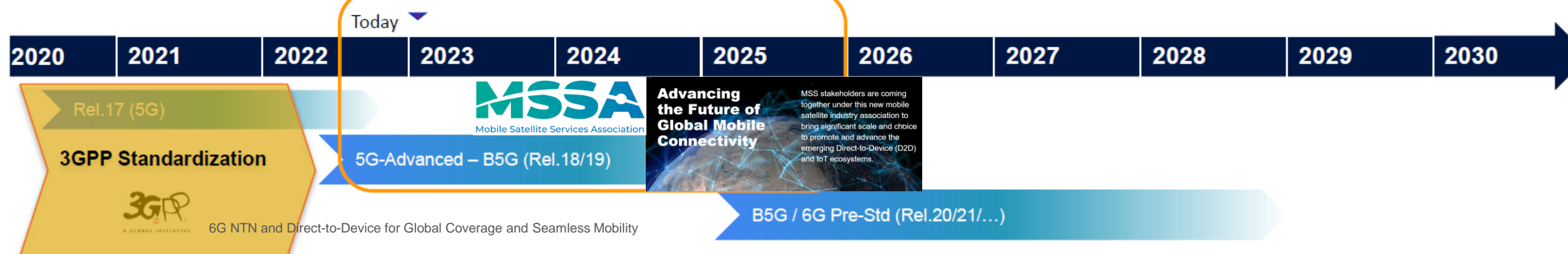
6G NTN journey: a convergence of technologies



6G NTN and Direct-to-Device Standardisation and partnerships enablers



Active contribution to **3GPP standardisation** and **Strategic partnership** with 5G TelCo solutions suppliers are key



6G NTN and Direct-to-Device Global Coverage and Seamless Mobility Use Cases

The image displays six use case categories for 6G NTN and Direct-to-Device connectivity:

- Aero Connectivity:** Images of commercial and military aircraft.
- Satellite-to-Device:** Images of a satellite in orbit and a hand holding a smartphone.
- Remote & Not-Spot Connectivity:** Images of a rural landscape and an offshore oil rig.
- Connected Cars:** Images of a hand interacting with a car's infotainment system and a car on a road.
- Maritime Connectivity:** Images of a ship at sea and a network diagram over the ocean.
- 5G for Defence / Gouv:** Images of military aircraft and a globe with network connections. Includes logos for NATO and OTAN.

A central diagram shows a satellite constellation in orbit above the Earth's horizon.



So called "Wheel diagram"
Source: Document 5/131 and edited in SG 5

6G NTN and Direct-to-Device Towards Global Coverage and Seamless Mobility



Thank you

AIRBUS



Matt MacPherson

Wireless CTO, Cisco.

Determinism by the Numbers Some Comparisons in Wi-Fi 7



Determinism by the Numbers

some comparisons in Wi-Fi 7

Wireless Broadband Alliance
Wireless Global Congress, Network X

Matt MacPherson
Wireless CTO, Cisco

October 2024



Solving Predictable Wireless

The control points

Deterministic wireless enabled through both:

Wireless Stack capabilities

Scheduling

Network Policy

Contention Based Protocols

Interference Management

Avoidance

Mitigation

Reservation

Deterministic Wi-Fi Stack Progression

An over-simplification

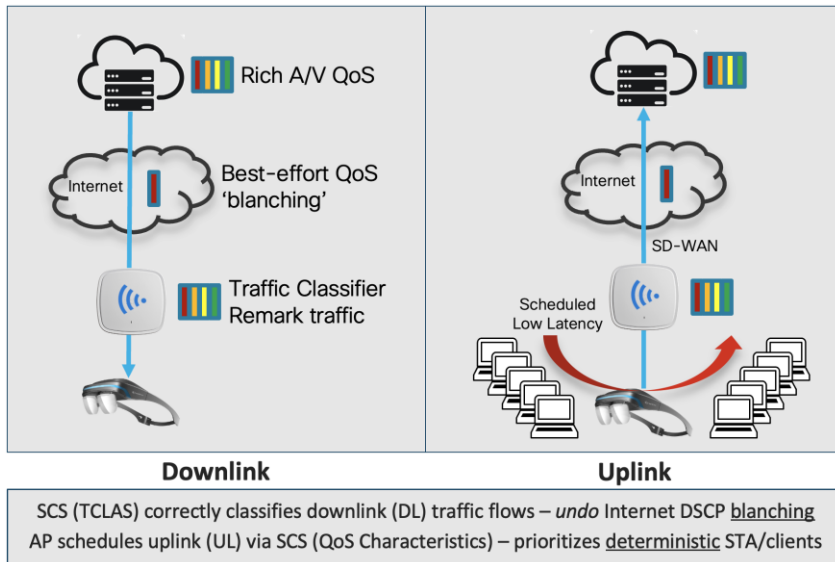
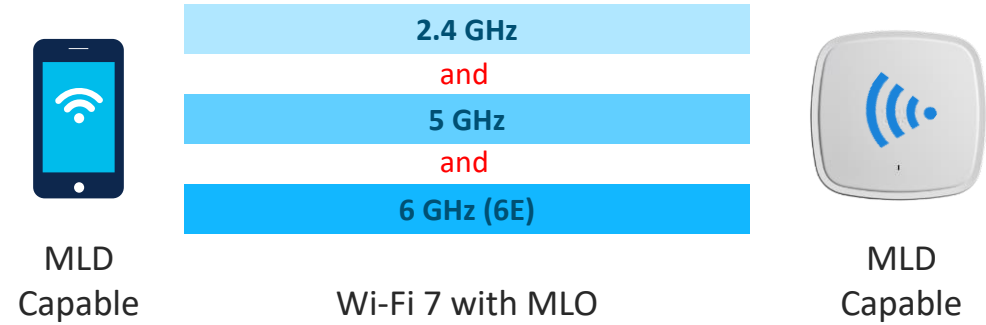
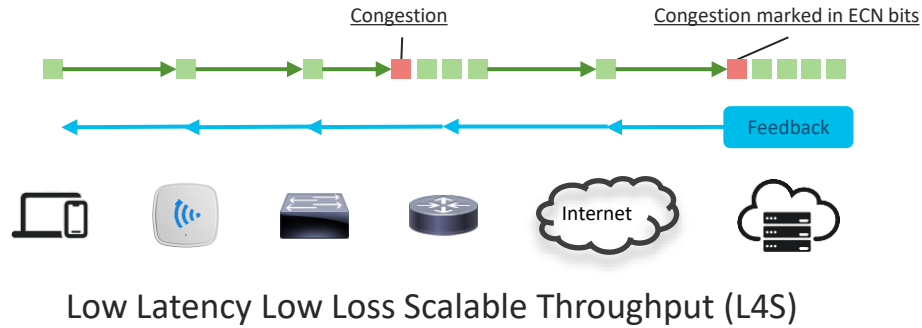


Determinism and QoS

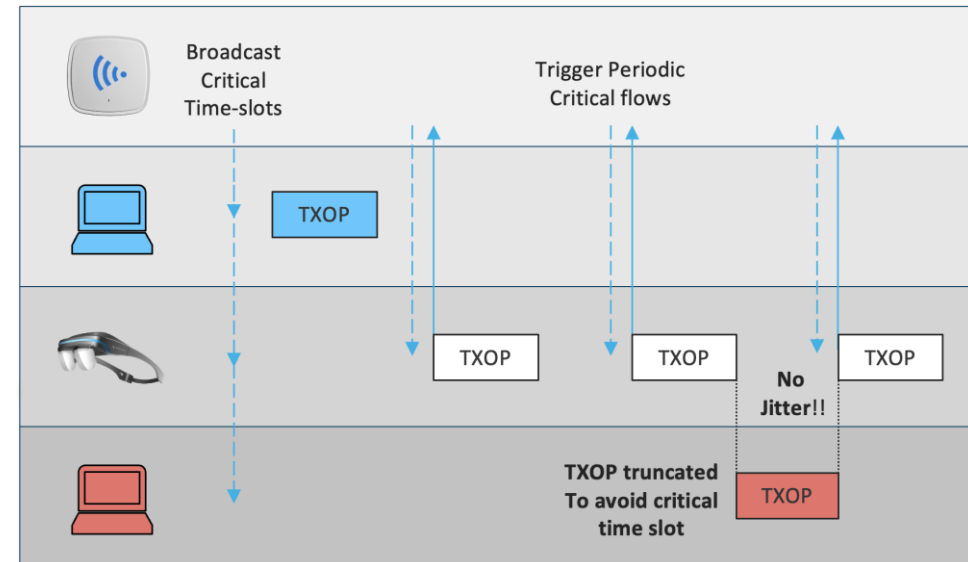
Method	Availability	Optional or Mandatory	Description
WMM Wi-Fi Multi-Media	High/802.11n (prior not mandatory)	Mandatory	Prioritizes voice and video over best effort and background traffic
TUA w/ QC Triggered Uplink Access	Wi-Fi 7r1	Mandatory AP Optional STA	The STA tells the AP "I have stuff to send upstream" and the AP schedules slots for the STA
WFA QoS Management	low adoption QoS2 (Now)	Mandatory AP Optional STA	The STA tells the AP "when you see this traffic (downstream), apply this QoS"
MLO/MLD Multi-Link Operation/Device	Wi-Fi 7r1	Mandatory	Connects STA to AP using multiple channels, e.g. 2.4 and 5 and 6Ghz
R-TWT Restricted Target Wait Time	Wi-Fi 7r2	Optional	Time slot reservation. All clients on WLAN must support to get benefit.
Puncturing	Wi-Fi 6	Optional	Uses full channel around interference
Puncturing	Wi-Fi 7	Mandatory*	APs – mandatory for 80 and 160 MHz, optional 320 STA – mandatory for 80MHz, optional 160, 320

AI-RRM – Radio Resource Management – Channel planning for multi-AP systems

Key technologies that enable determinism

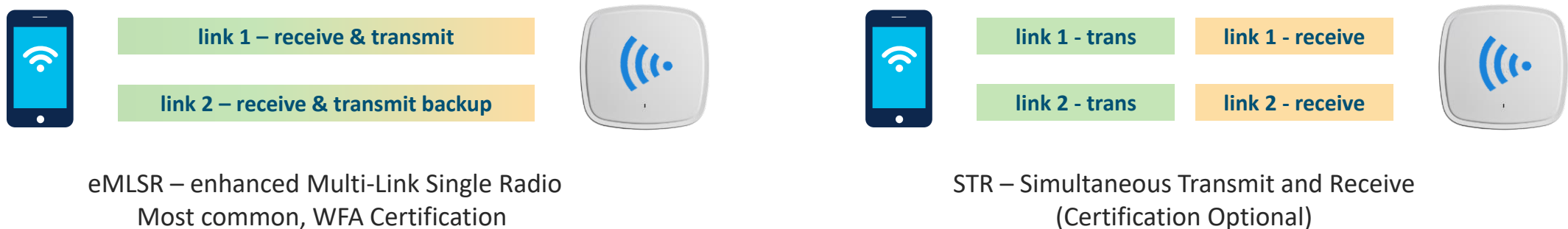
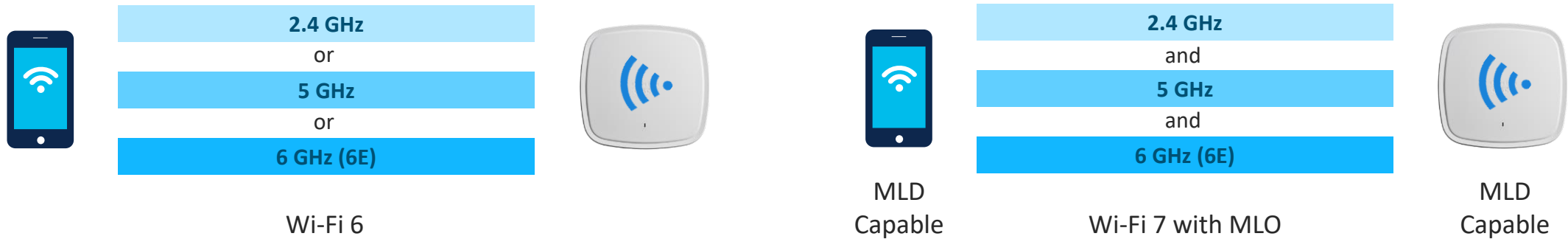


Wi-Fi 7 TUA & QoS Management r2



Wi-Fi 7r2 with Restricted-TWT

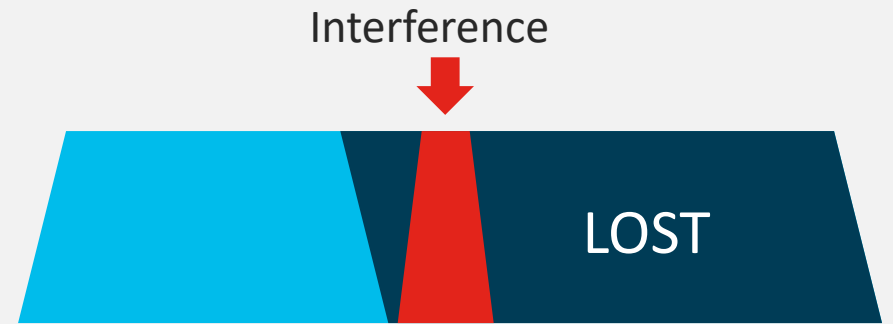
Wi-Fi 7 MLD/MLO Operating Modes



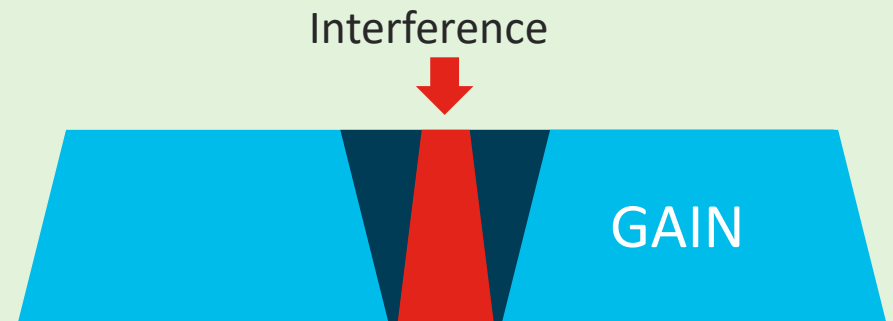
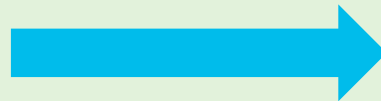
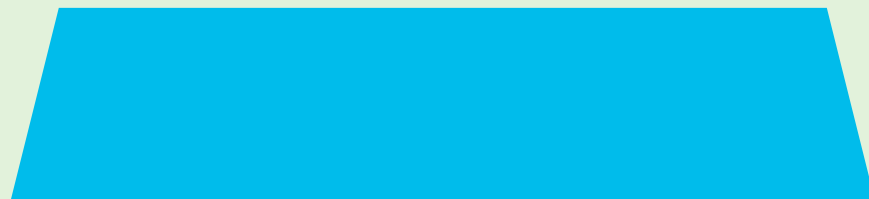
Protecting interference domain with puncturing

Optional in Wi-Fi 6, Mandatory in Wi-Fi 7

Without Puncturing



With Puncturing

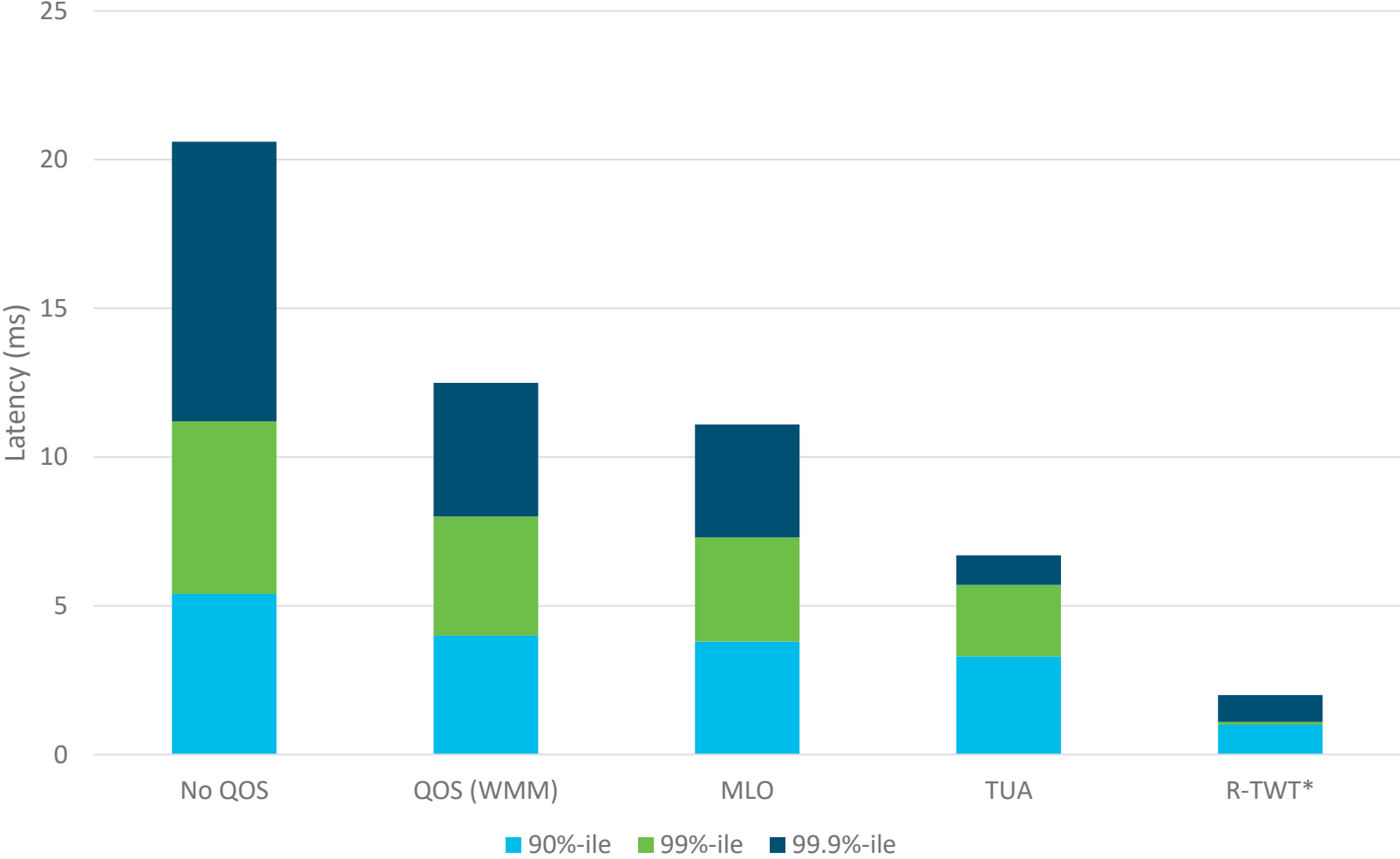


Wi-Fi 7 Latency improvement

- Avg. 50% CU
- 40MHz
- TUA needed to meet 10ms



Latency vs. mode



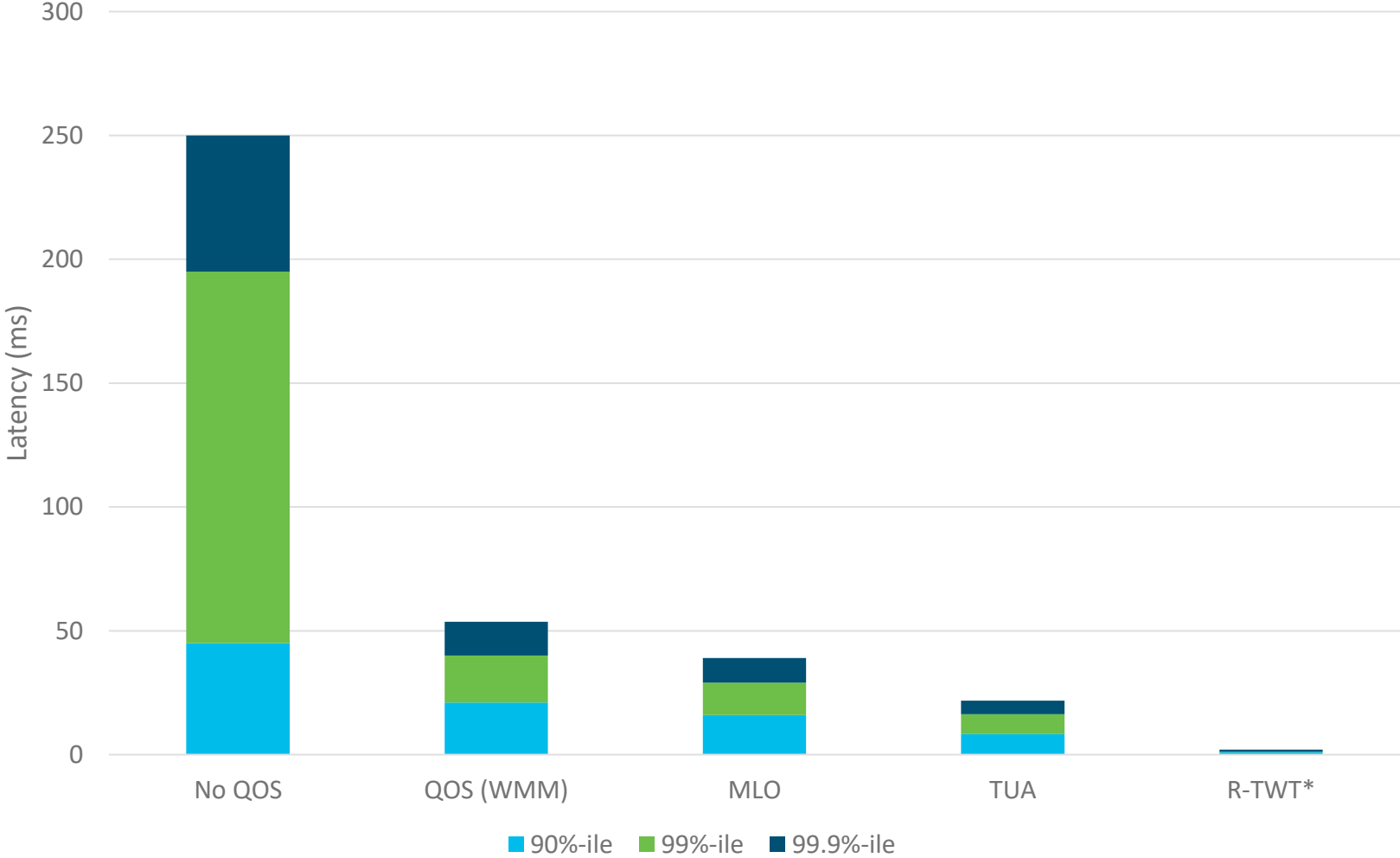
*from WTSN PoC
CU Channel Utilization

Wi-Fi 7 Latency improvement

- Avg. 90% CU
- 40MHz
- WMM Won't meet 10ms
- R-TWT required for 1mS 99.9%



Latency vs. mode



*from WTSN PoC
CU – Channel Utilization

Questions?







Eric McLaughlin

Vice President, Client Computing Group
General Manager, Wireless Solutions Group
Intel Corporation.

Intel Connectivity Analytics

Wireless Broadband Alliance: Wireless Global Congress EMEA 2024



Intel Connectivity Analytics

Eric A. McLaughlin

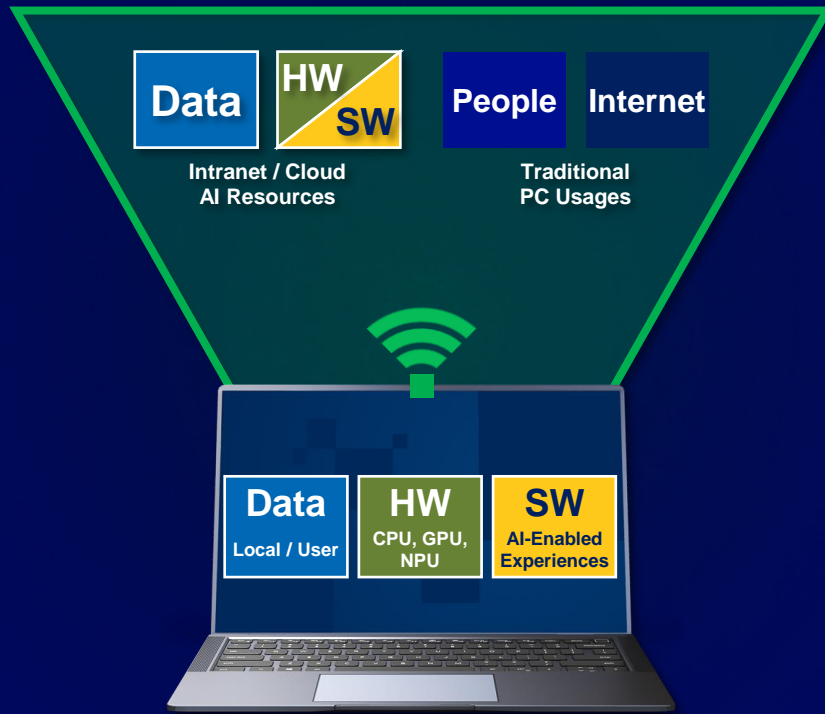
Vice President, Client Computing Group

General Manager, Wireless Solutions Group

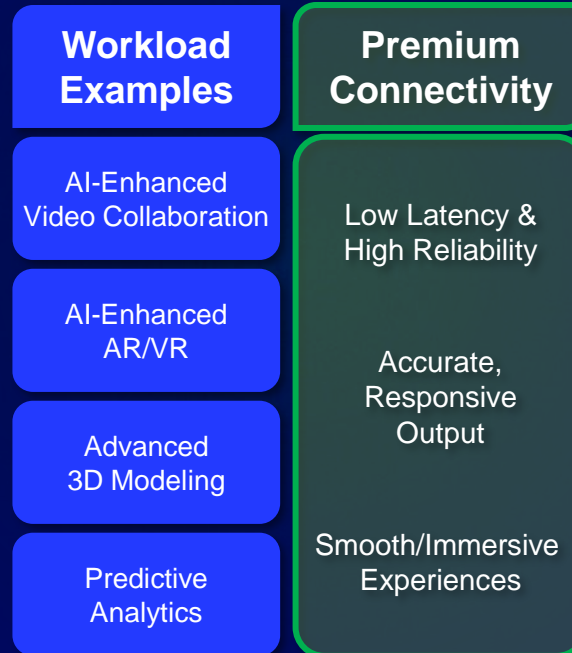
October 9, 2024

Connectivity and AI (A Positive Feedback Loop)

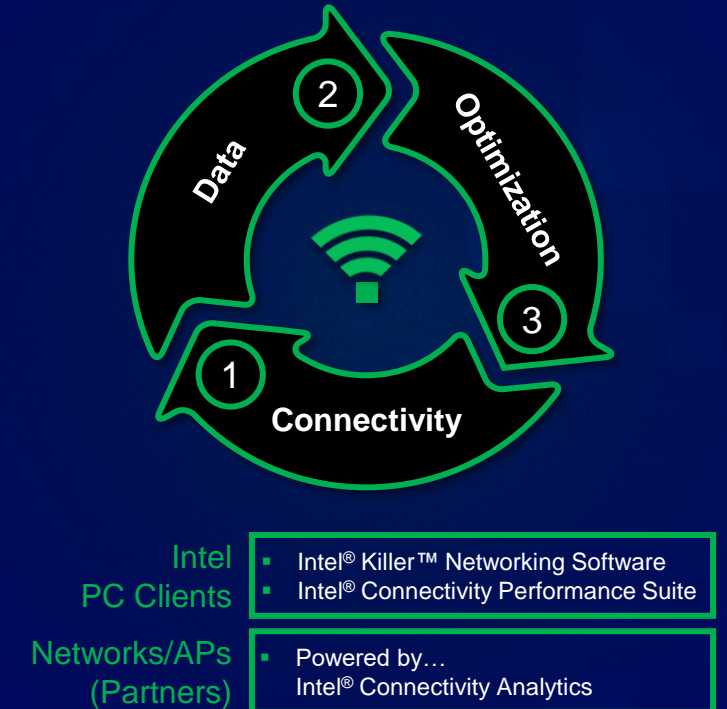
AI PC = AI & Traditional Usages



AI Experiences



AI-based connectivity optimization leveraging real-time data & insights



Premium connectivity improves AI PC experiences,
Client/Network data & AI can further enhance premium connectivity

Intel AI-Based PC Client Networking Optimization Software

The image displays two main components of the software. On the left, the 'intel KILLER' logo is positioned above a Wi-Fi signal icon and the text 'WI-FI 7'. To the right, the 'intel' logo is above 'Wi-Fi 7' and '5 Gig'. Below these, the 'intel Connectivity Performance Suite' logo is shown.

Traffic Prioritization

The diagram illustrates traffic prioritization with a 3D box labeled 'Prioritization' and four horizontal bars representing different traffic types: Voice and Video Calls (green), Streaming and Productivity (yellow), Games (red), and Downloads (blue).

Smart AP Selection & Fast Switching

The diagram shows six factors for smart AP selection: Congestion (represented by three people icons), Wi-Fi Generation (represented by numbers 4, 5, 6, 7), Band (2.4 GHz, 5 GHz, 6 GHz), Security (represented by a padlock icon), Signal Strength (represented by a Wi-Fi signal icon), and Historical Performance (represented by a clock icon).

Advanced Connection Manager

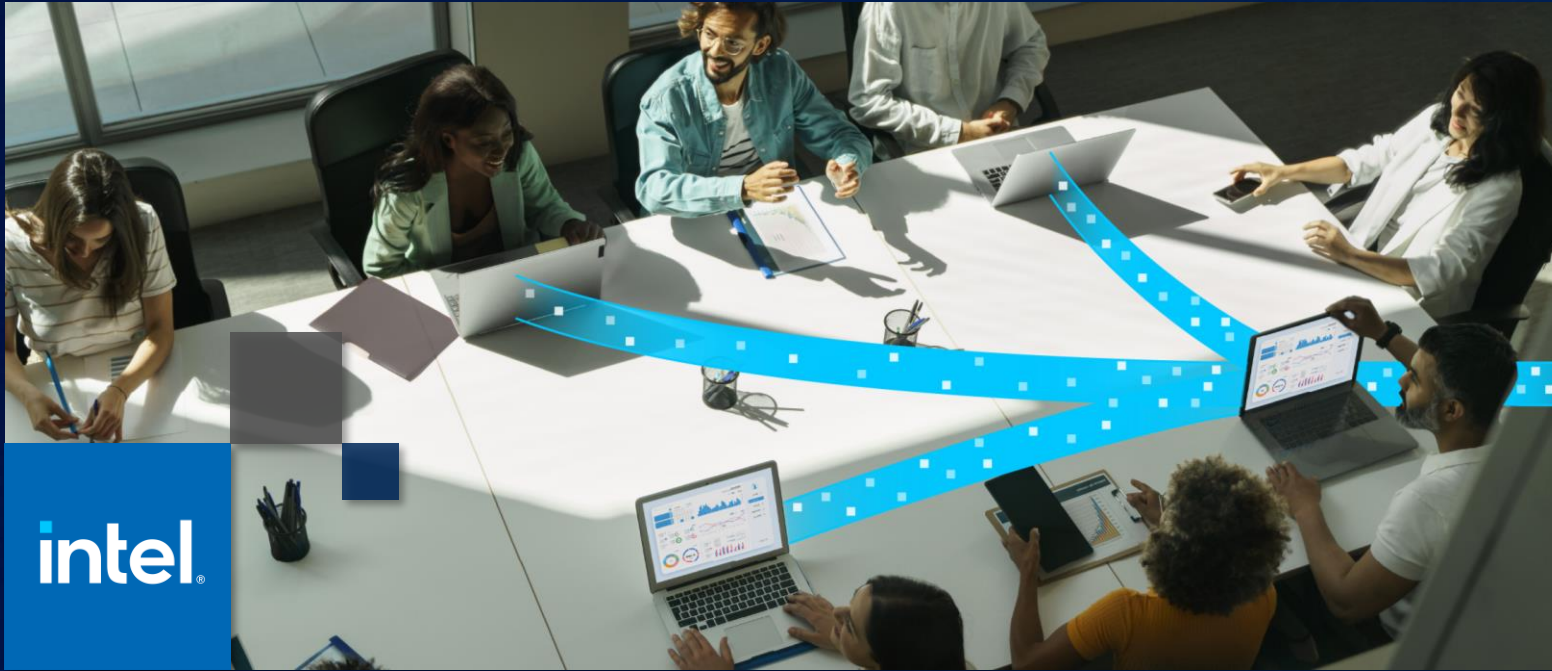
Interface	Connection Score
Cellular	60
Wi-Fi	100
Ethernet	100

Enhanced connectivity performance, stability, and reliability

Intel® Connectivity Analytics Program

www.intel.com/ica-program

New and better experiences with unprecedented connectivity analytics



intel

How it Works

Access valuable connectivity analytics from wireless & wired PCs across the entire network



Deeper Connectivity Insights Improve Applications & Services



Network health



Quality of Service



Technical support



Security assurance



Sensing and location



UX monitoring

Intel® Connectivity Analytics

Connectivity Telemetry Manager

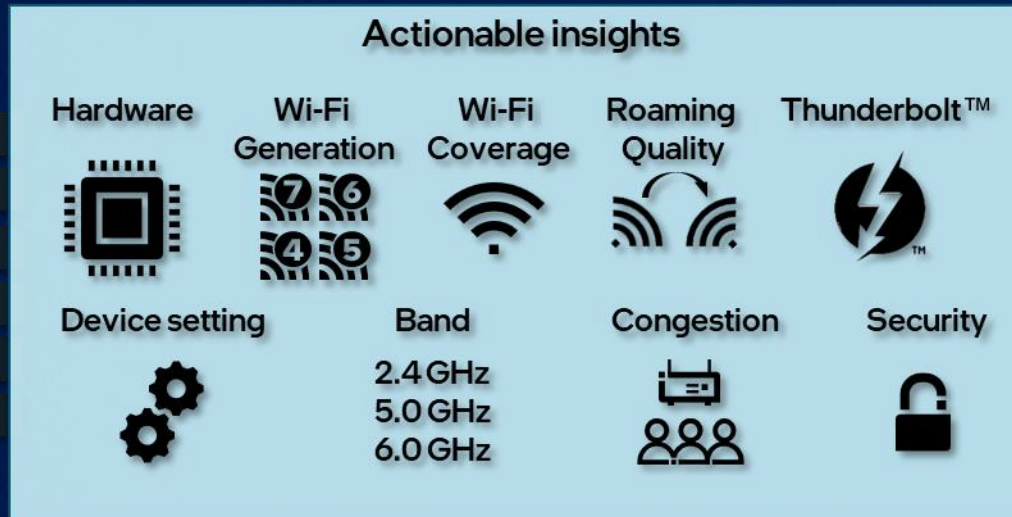
Unique data from Intel's PC footprint

Streaming Analytics Engine

Actionable Insights and Faster Resolution Time

Enable Amazing Experiences

Better User Experiences, Simplify IT & Lower TCO



PC Client wireless/wired connectivity data & insights for the AI Era

Intel-IT Whitepaper on The Benefits of ICA and Cisco Catalyst



White Paper
September 2024



IT@Intel: Optimizing and Troubleshooting Wi-Fi Networks Using Client Analytics

Intel IT collaborated with Intel's Client Computing product group and Cisco to refine and expand the features and use cases of Intel® Connectivity Analytics software, enabling us to manage our network better

"Cisco and Intel have a rich history of successful collaboration, and we are excited to continue our joint efforts to enhance Wi-Fi experiences for both users and IT organizations.

We share a vision in which devices and the network work together and make each other smarter to achieve the best security and reliability possible."

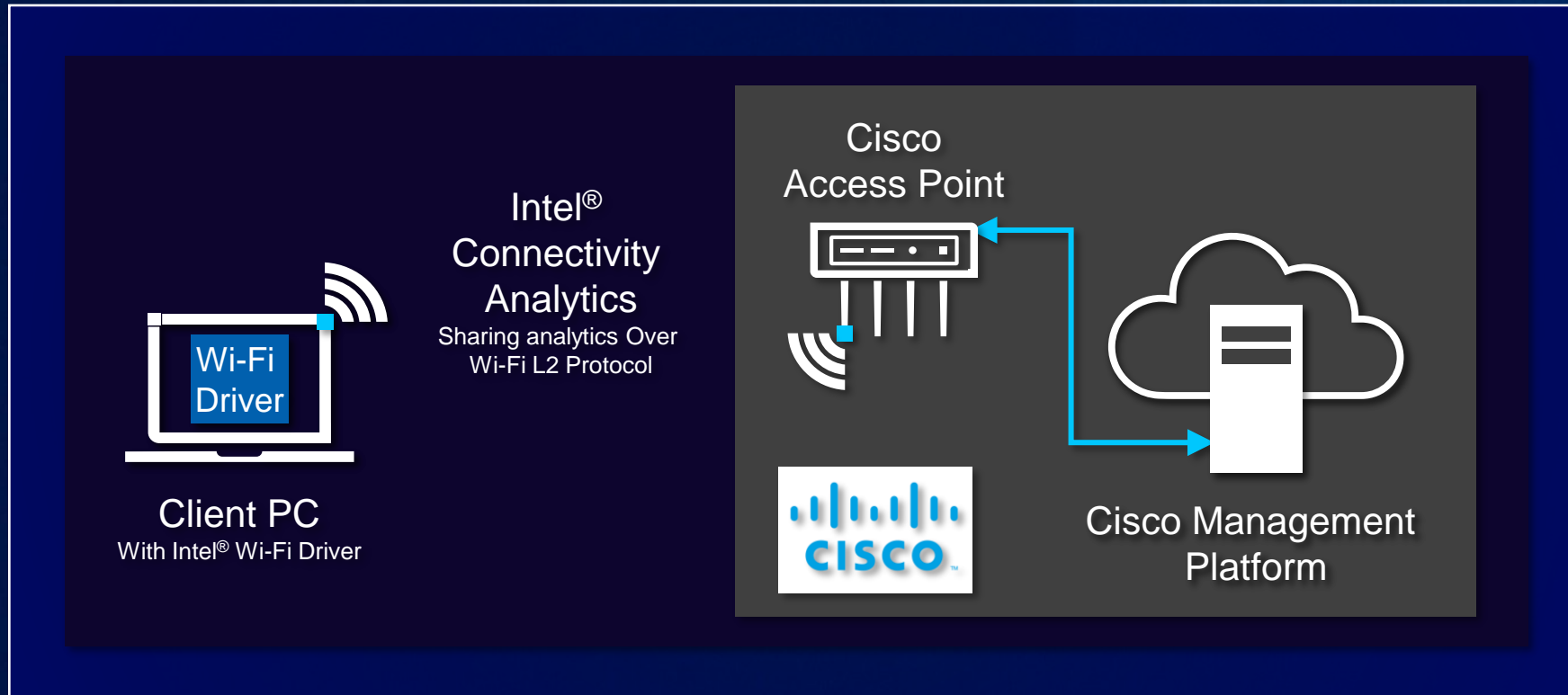
— Matt MacPherson, Wireless CTO, Cisco

"The ability to extract the complete data from a single tool that sees both infrastructure-side and client-side data **is a game changer.**"

Client troubleshooting & MTTR drop...
"10-15 seconds" vs. "10-15 minutes"

The root cause of network issues...
"a matter of seconds" vs. "days"

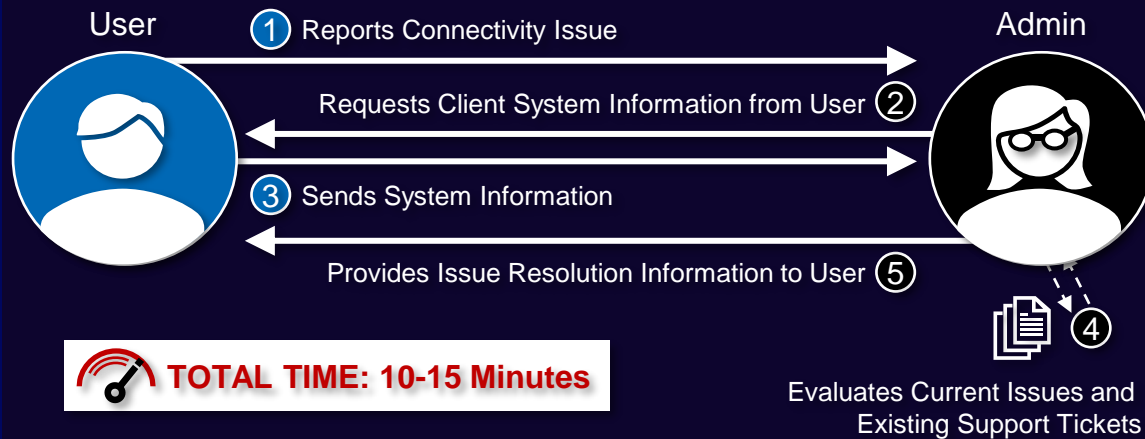
Cisco Management Platforms & Intel® Connectivity Analytics



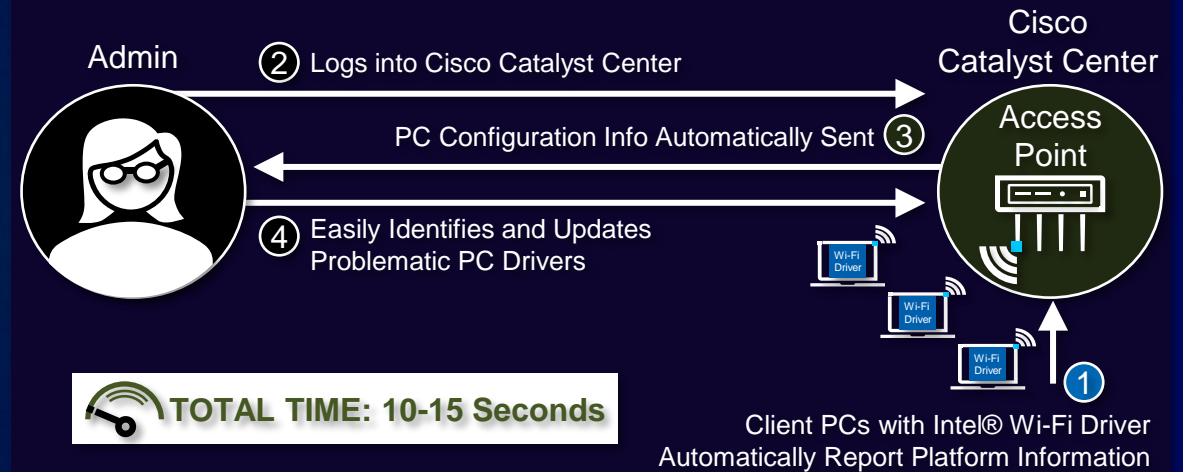
Intel® Connectivity Analytics automatically sends client PC telemetry data through the AP to a Cisco management platform for analysis and report generation

Client Connectivity Issues (Single User)

Without - Intel® Connectivity Analytics



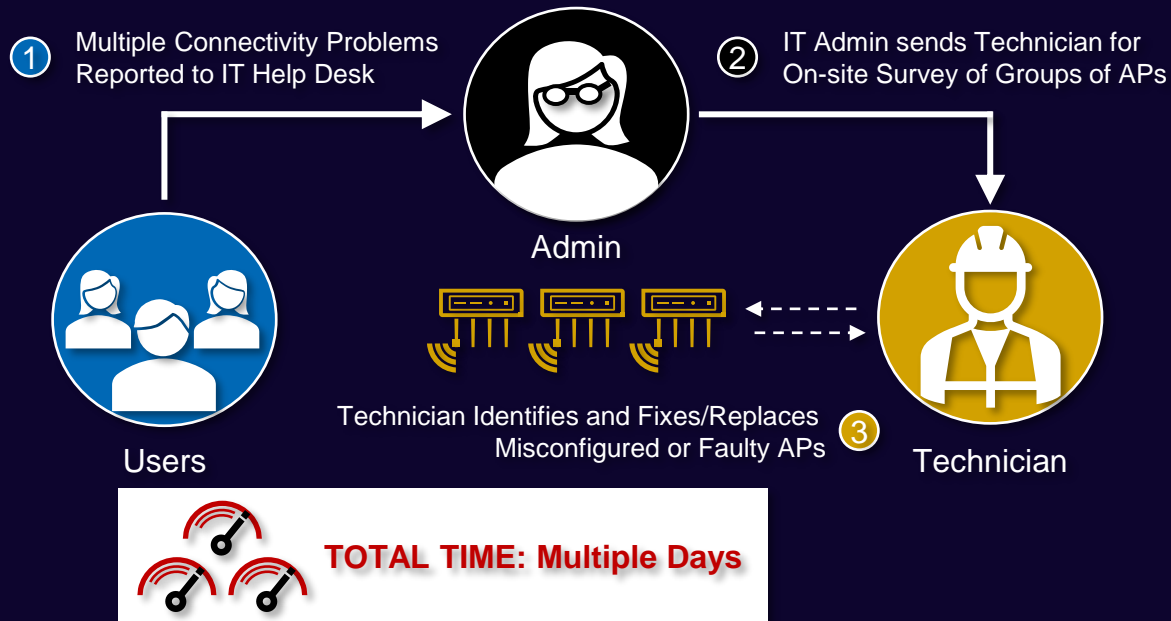
With - Intel® Connectivity Analytics



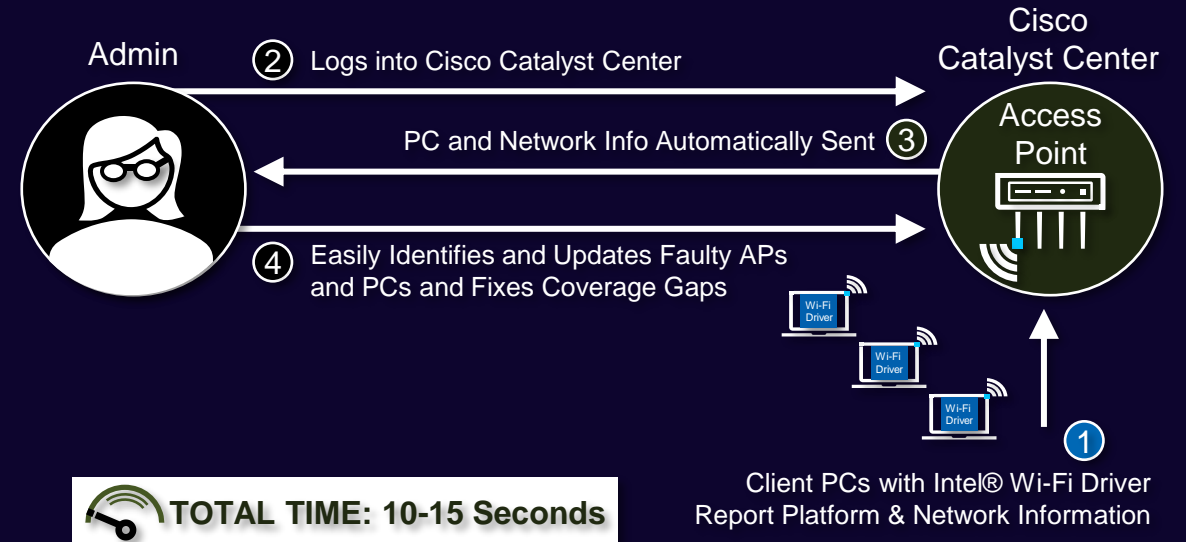
IT Admins can save significant time troubleshooting user issues, and can even pre-emptively address user issues before they are reported

Network Connectivity Issues (Multiple Users)

Without - Intel® Connectivity Analytics



With - Intel® Connectivity Analytics



Intel® Connectivity Analytics can help reduce IT admin Wi-Fi troubleshooting and issue resolution time - from days to minutes or mere seconds

Closing Thoughts

- Premium connectivity is essential for great AI PC experiences
- The ability to capture and share real-time client and network data is a game-changer
- AI-based optimization solves real-world problems and improves performance/reliability
- Intel® Connectivity Analytics can be leveraged to enhance client/network management/services
- Industry collaboration is essential to maximize innovation – let's work together!

Thank You!

www.intel.com/ica-program

Questions?



Notices & Disclaimers

6 GHz laptop functionality requires Intel® Wi-Fi 6E/7 products, Wi-Fi 6E/7 APs/Routers/Gateways, and Operating System support, along with country-specific 6 GHz spectrum allocation for non-licensed use and associated regional regulatory approvals. 6 GHz may not be available in some countries.

While Wi-Fi 7 is backward compatible with previous generations, new Wi-Fi 7 features require PCs configured with Intel Wi-Fi 7 solutions, PC OEM enabling, operating system support, and use with appropriate Wi-Fi 7 routers/APs/gateways.

Intel is committed to protecting individual's privacy. For additional information, please refer to [Intel's Privacy Notice](#).

All product plans and roadmaps are subject to change without notice.

Statements in this document that refer to future plans or expectations are forward-looking statements. These statements are based on current expectations and involve many risks and uncertainties that could cause actual results to differ materially from those expressed or implied in such statements. For more information on the factors that could cause actual results to differ materially, see our most recent earnings release and SEC filings at www.intc.com.

For additional details, please visit www.intel.com/performance-wireless

Performance varies by use, configuration, and other factors.

No product or component can be absolutely secure.

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intel®



Metin Taskin

CEO, Airties.

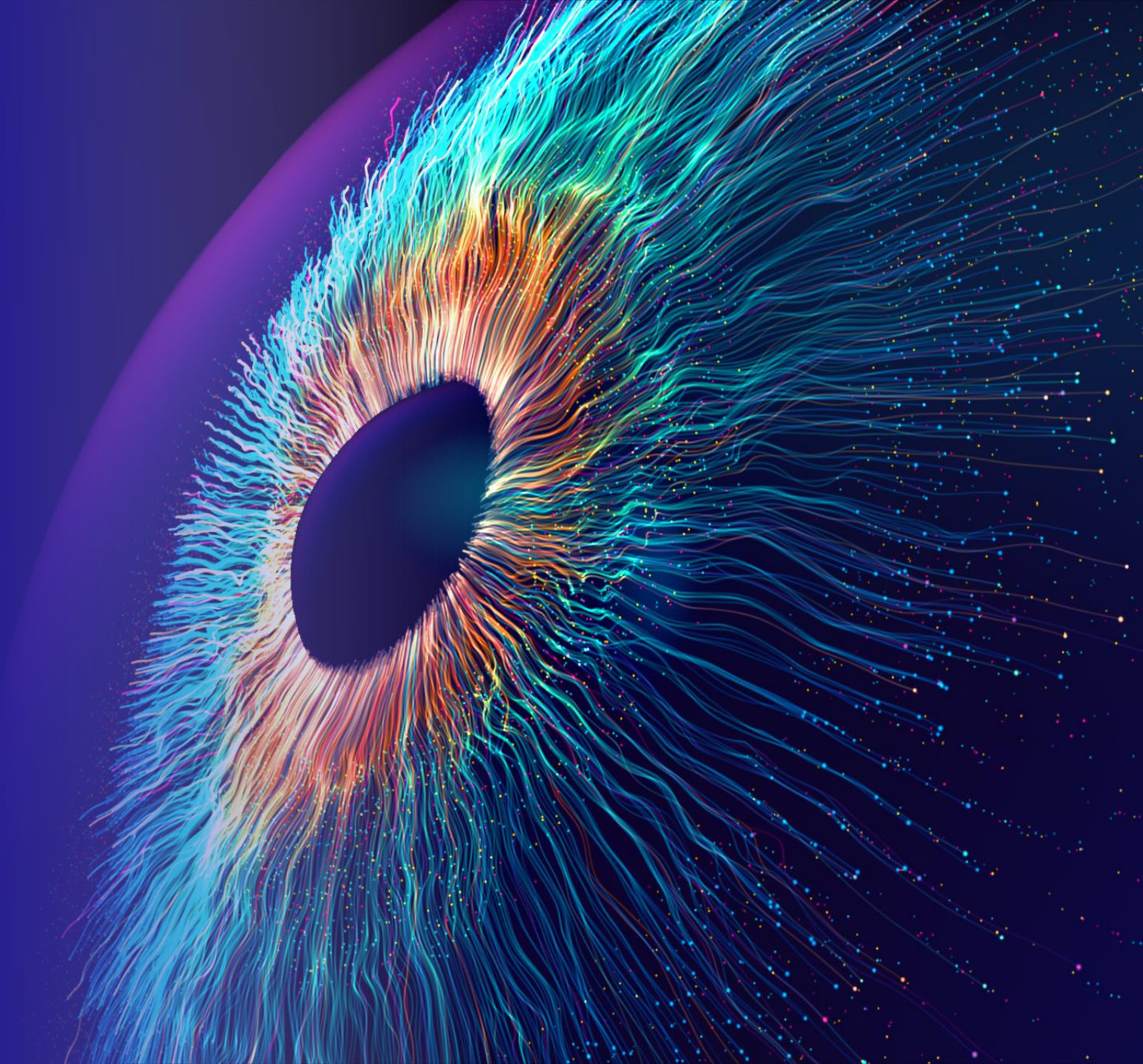
Enhancing Home Broadband with AI & ML



Enhancing Home Broadband

with AI & ML

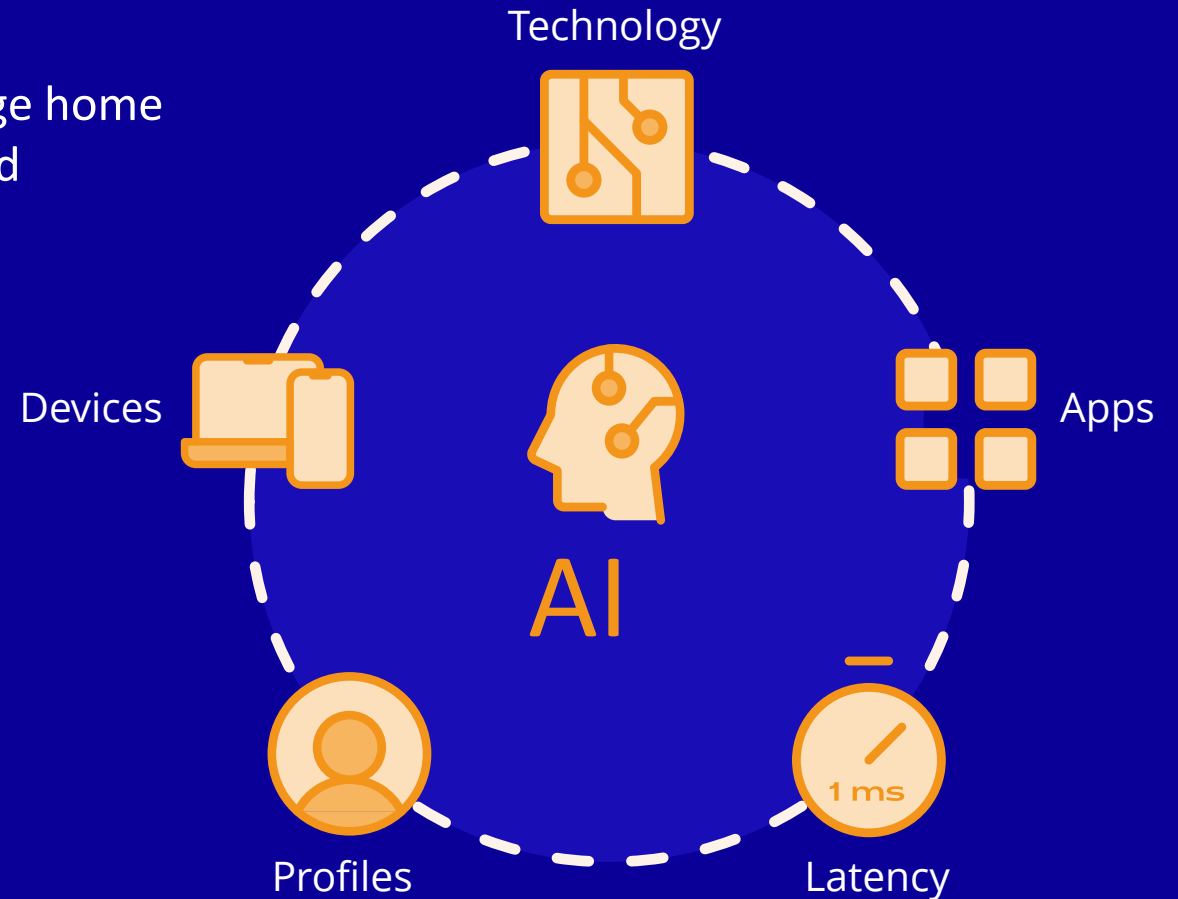
Metin Taskin, CEO



The role of AI in Wi-Fi management

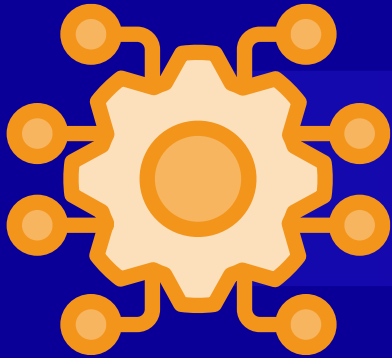
AI-driven solutions are transforming how we manage home Wi-Fi networks, improving experiences for users and operators alike

- Integration of AI in Wi-Fi management in our product portfolio
- Enhanced user experience and operational efficiency through AI-driven optimizations



From Expert Systems to AI/ML

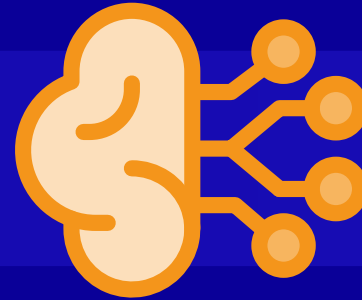
Our base platform continuously evolves, transitioning from traditional systems to cutting-edge AI



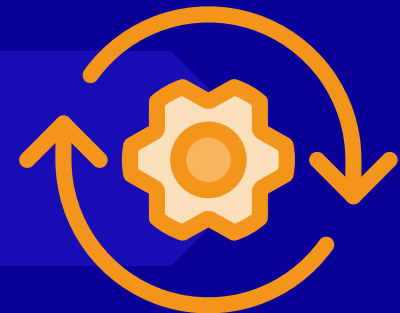
Expert systems



AI



ML



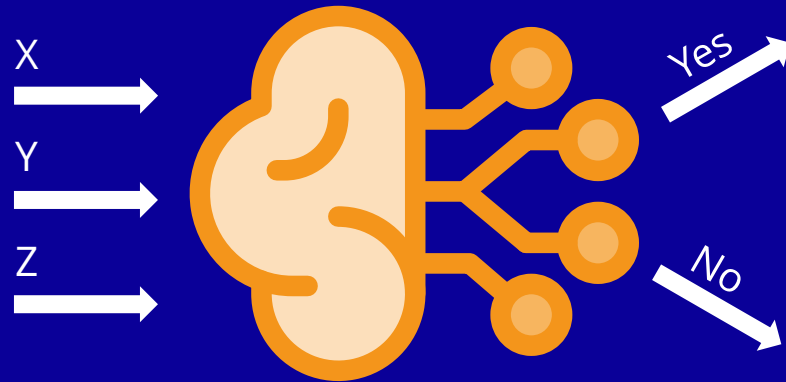
Automated optimizations

- Continuous improvement driven by AI/ML
- AI models evaluated and updated based on performance



Calculating Wi-Fi Experience with AI

Using logistic regression, we calculate Wi-Fi Experience Index (WFEI) to measure user and population-level performance



Use of logistic regression for
Wi-Fi index calculation

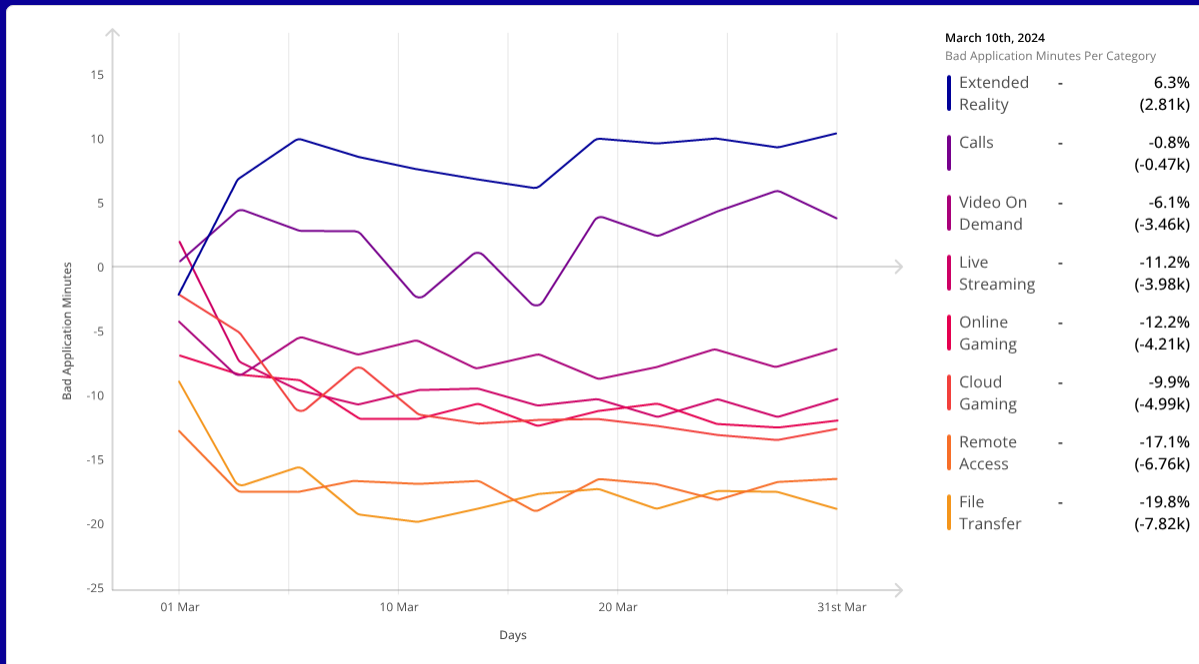


Improvement of overall
user experience
based on the index



AI-Driven Anomaly Detection

AI helps us identify issues like bad application minutes and population-level anomalies.



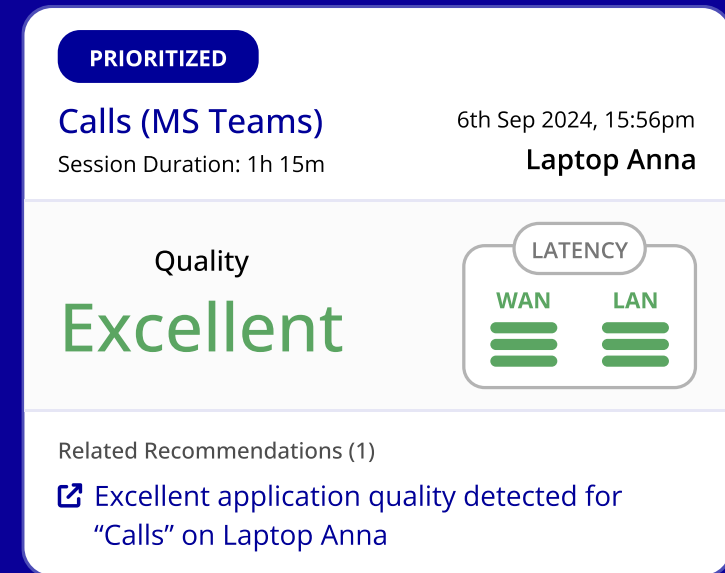
- AI identifies anomalies like bad application minutes and population level performance drops
- AI parses vast amounts of data to pinpoint issues that may not be noticeable manually



Predicting Traffic and Profiles with AI

We use NARIMA models for traffic predictions and optimize profiles for each home based on traffic patterns.

- Time series prediction with NARIMA models
- Personalized network optimization for homes
- Resource allocation through traffic pattern prediction



Advanced App and Device Detection with AI

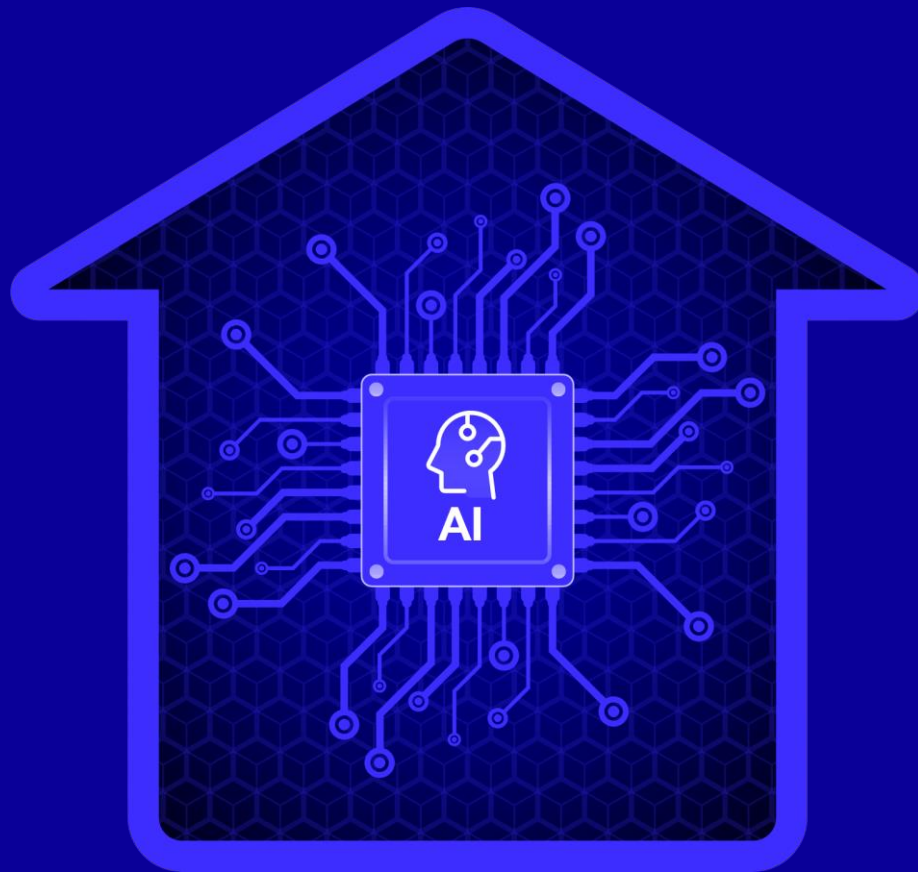
We use rule-based and machine learning approaches to identify devices and apps, even with advanced privacy techniques

- AI-driven app and device detection
- Clustering and AI-based classification techniques
- Overcoming challenges like VPN, MAC randomization, and private relays



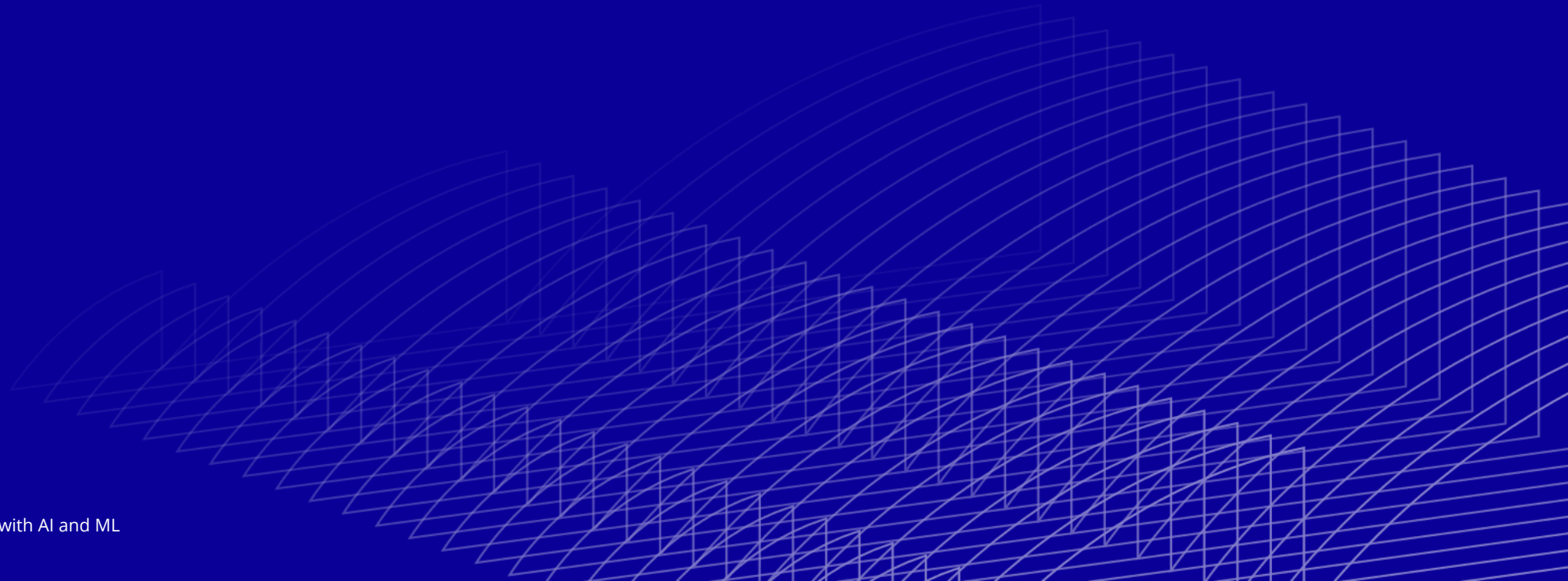
The Future of AI in Home Broadband

AI and machine learning are transforming home broadband management, and we will continue to evolve our products



- Continuous improvement with AI
 - Advanced AI/ML
 - Next-Gen traffic prediction
- Future exploration of Gen AI use-cases for support agents
 - Generative AI for support







Dr. Derek Peterson

CTO, Boingo Wireless

The Entertainment Capital of the World
- Transforming Las Vegas with
5G and Wi-Fi



THE ENTERTAINMENT CAPITAL OF THE WORLD

Transforming Las Vegas with 5G and Wi-Fi



WGC EMEA at Network X

October 2024

Boingo is a leading

5G & Wi-Fi

provider

The Demand for Intelligent Infrastructure

LAS VEGAS

- Formula 1's Grand Prix
- Super Bowl LVII
- 75 major trade shows/year
- 3 major league sports teams
- More than 655,000 residents
- 40+ million visitors a year ...and growing!

5 MILLION

passengers ride the all-electric Las Vegas monorail each year

300

hotel and resorts requiring cellular and Wi-Fi connectivity

6 MILLION

annual visitors to the Las Vegas Convention Center

Las Vegas Convention Center

Connecting one of the busiest facilities in the world

- Home to some of the biggest tradeshows in the world, the Las Vegas Convention Center hosted nearly 6 million people in 2023.
- Neutral host DAS network will service 4.6 million square feet of convention and meeting room space.
- Network is designed to provide robust cellular connectivity, from all three carriers, for exhibitors, venue staff and attendees.

Wi-Fi 7 is Live in Las Vegas

Boingo launched the first-ever Wi-Fi 7 network at a public venue

- Wi-Fi 7 network is live at the Las Vegas Monorail station at the Las Vegas Convention Center.
- Wi-Fi 7 doubles network bandwidth for increased reliability.
- Wi-Fi 7 quadruples the speed of Wi-Fi 6 with peak rates exceeding 40 Gbps.
- Wi-Fi 7 enhances energy efficiency, lowering overall power usage.
- Wi-Fi 7 features enhanced WPA3 security protocols.

Boingo Innovation Center

Launch pad for testing and trialing next generation wireless technologies

- Wi-Fi 7 and OpenRoaming/Passpoint networks are live at the Boingo Innovation Center.
- Better with Boingo partner showcase, a living laboratory for the future of connectivity.
- Conveniently located just across the street from the Las Vegas Convention Center, inside the monorail station.
- Includes meeting space, executive board room, team workspaces, a theater and a tavern.
- Hosted the WBA CTO Forum in 2023.



Leading Through Convergence

Meeting data demands and seamlessly supporting a diversity of devices and services.



Carrier cellular network

Improve cell service, eliminate dead zones and boost signal strength for all wireless carriers with distributed antenna system (DAS), small cell and tower solutions.



Private 5G network

From point-of-sale systems to smart utilities, power IoT and critical devices with a dedicated, segmented network.



Enterprise Wi-Fi

Provide end users and staff with super-fast connectivity for mobile apps, streaming and internet browsing. Support OpenRoaming for a seamless experience.

Download Boingo's eBooks for IT pros



HEALTHCARE



AIRPORTS



SPORTS AND
ENTERTAINMENT



Q & A


boingo
wireless

Thank You

Let's connect

Derek Peterson
Boingo Wireless CTO
dpeterson@boingo.com



WGC EMEA

COFFEE & NETWORKING
BE BACK IN 25 MINUTES AT
11.05 AM CET



Dean Bublely

Founder & Director, Disruptive Analysis.

Session Moderator



Maureen Gallagher
Wi-Fi Alliance



Ivan Muccini
Cloud4Wi



Mittal Parekh
RUCKUS Networks



Hiroshi Kiji
Wire & Wireless



Naoto Komatsu
Wire & Wireless



Dr. Doriana Guiducci
European Communications Office



Metin Taskin
Airties



Matt MacPherson
Cisco



Brian Shields
Boingo Wireless



Eric McLaughlin
Intel Corporation

Time	Presentation
11:05 AM (CET)	Moderator Introduction Dean Bubley, Founder and Director, Disruptive Analysis.
11:10 AM (CET)	25 years of Wi-Fi®: Reflecting on an Incredible Journey Maureen Gallagher, VP Marketing, Wi-Fi Alliance.
11:25 AM (CET)	Beyond Captive Portals: The Future of Seamless Connectivity with Passpoint and PPSK Ivan Muccini, VP Product, Cloud4Wi.
11:45 AM (CET)	Beyond the Hype: Role of AI in Converged Enterprise Networks for Delivering the Best End User Experience Mittal Parekh, Senior Director, Product Marketing & Technical Marketing, RUCKUS Networks.
12:05 PM (CET)	OpenRoaming in Japan: Early Adoption Trends and Future Prospects Naoto Komatsu, CTO and Hiroshi Kiji, Vice President, Wire & Wireless.
12:20 PM (CET)	Panel Session Metin Taskin, CEO, Airties; Matt MacPherson, Wireless CTO, Cisco; Brian Shields, VP of Engineering, Boingo Wireless; Dr. Doriana Guiducci, Spectrum Expert, European Communications Office; Eric McLaughlin, Vice President, Client Computing Group; General Manager, Wireless Solutions Group, Intel Corporation.
1:00 PM (CET)	LUNCH & NETWORKING



Maureen Gallagher

VP Marketing, Wi-Fi Alliance.

25 years of Wi-Fi®:
Reflecting on an
Incredible Journey



25 years of Wi-Fi®:

Reflecting on an incredible journey

Maureen Gallagher, Wi-Fi Alliance®
October 2024

One reason for our success:

Wi-Fi is a catalyst for equal opportunity innovation. The economics and de-centralized nature of deploying Wi-Fi networks allow almost anyone to innovate on top.



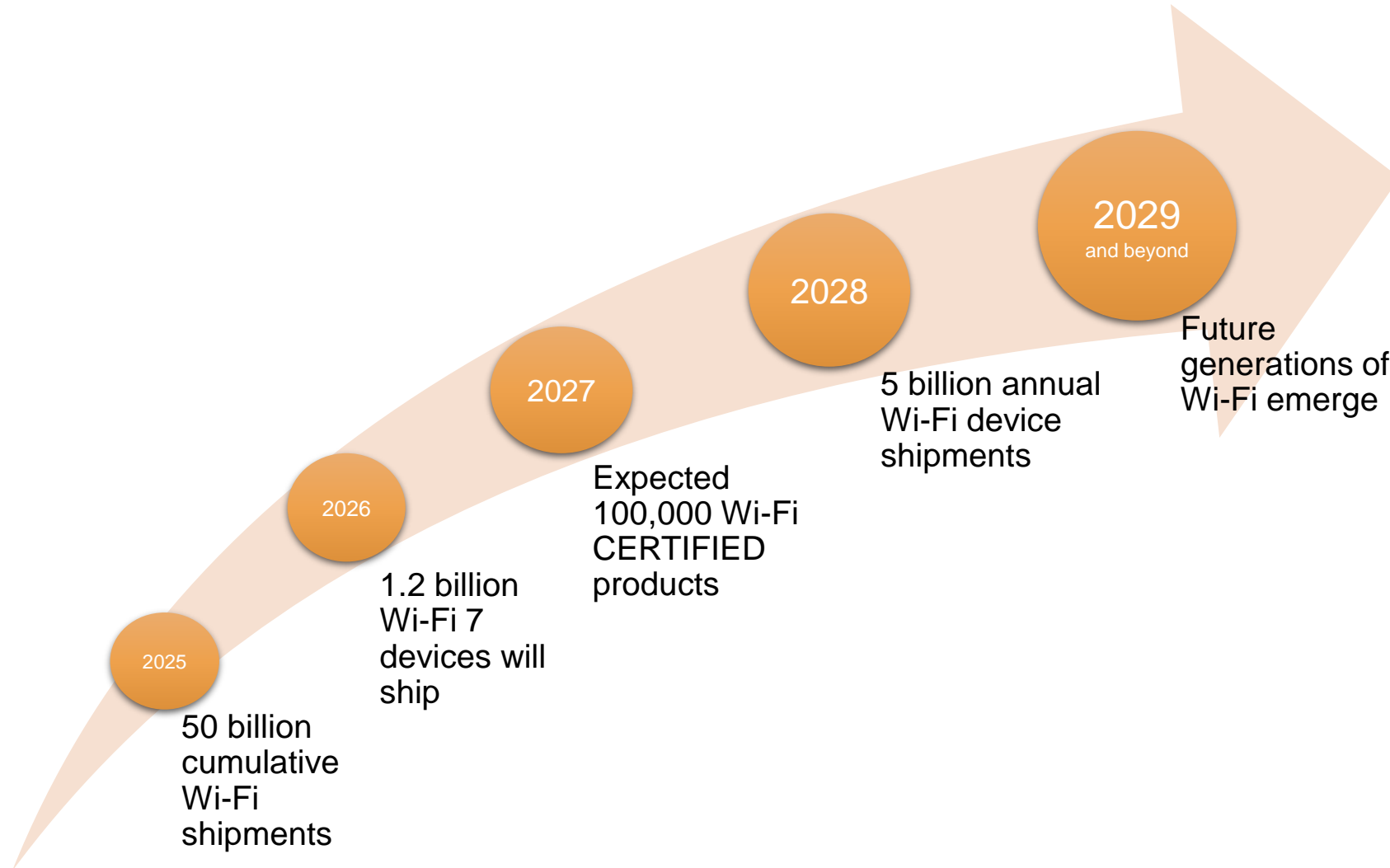
2024: a victory lap

Wi-Fi's 25th year saw monumental accomplishments of its own:

- The successful launch of Wi-Fi CERTIFIED 7™
- An unprecedented number of Wi-Fi devices in use (21 billion)
- Wi-Fi delivers more than USD \$4.3 trillion in economic value
- Innovative and unique 6 GHz deployments in healthcare and esports

And the story continues...

What does the next 25 years hold for Wi-Fi?



6 GHz Wi-Fi: powering the next 25 years of connectivity



Efficacy:

Wi-Fi in 6 GHz supports advanced and immersive use cases

Innovation:

Advancements will continue to emerge thanks to the uncongested channels of unlicensed spectrum

Confidence:

6 GHz Wi-Fi provides reliable connectivity consumers trust - essential for widespread adoption of new technology

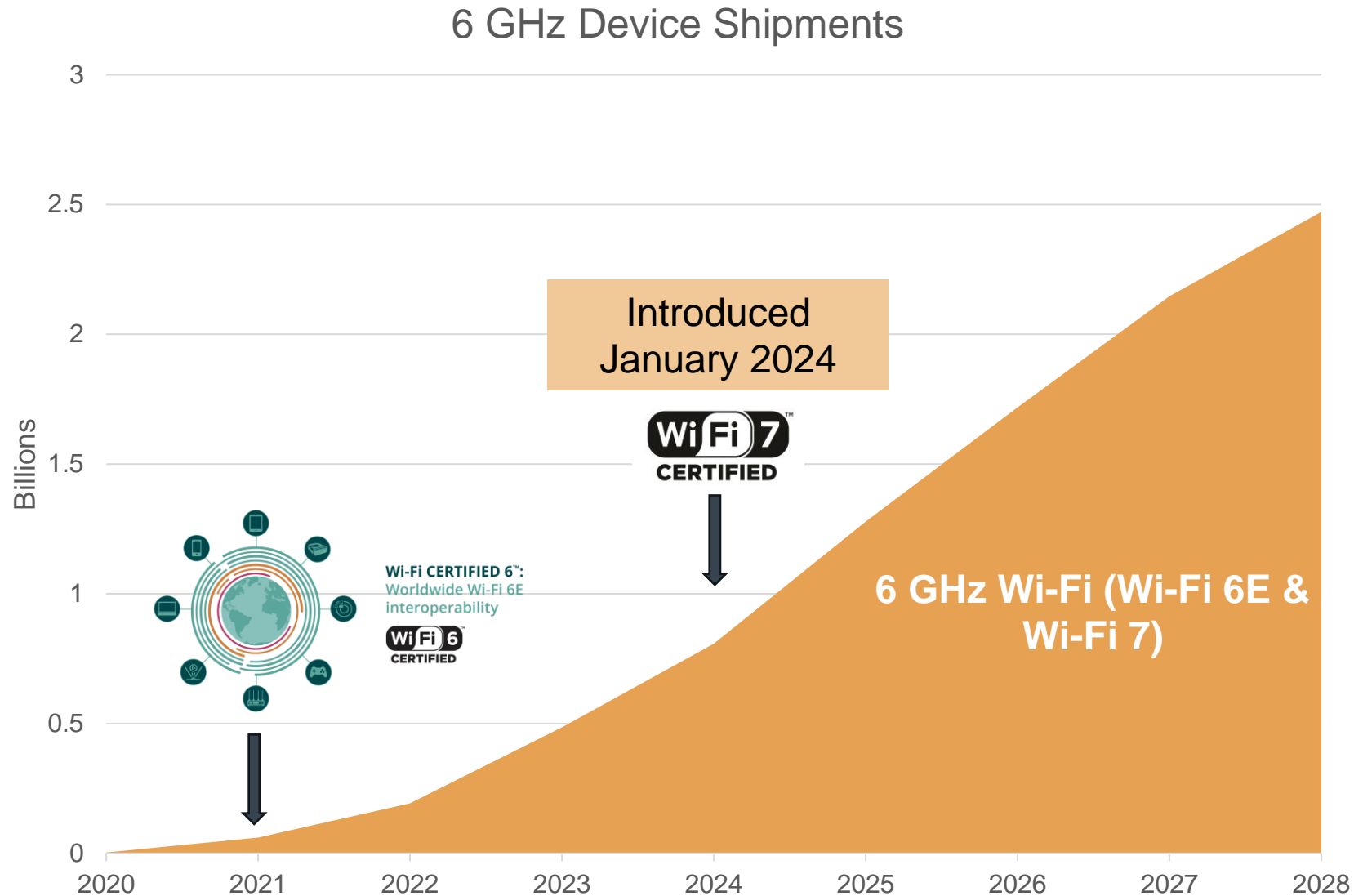
Scalability:

Supports future technology advancements and allows enterprises to maintain a cutting-edge

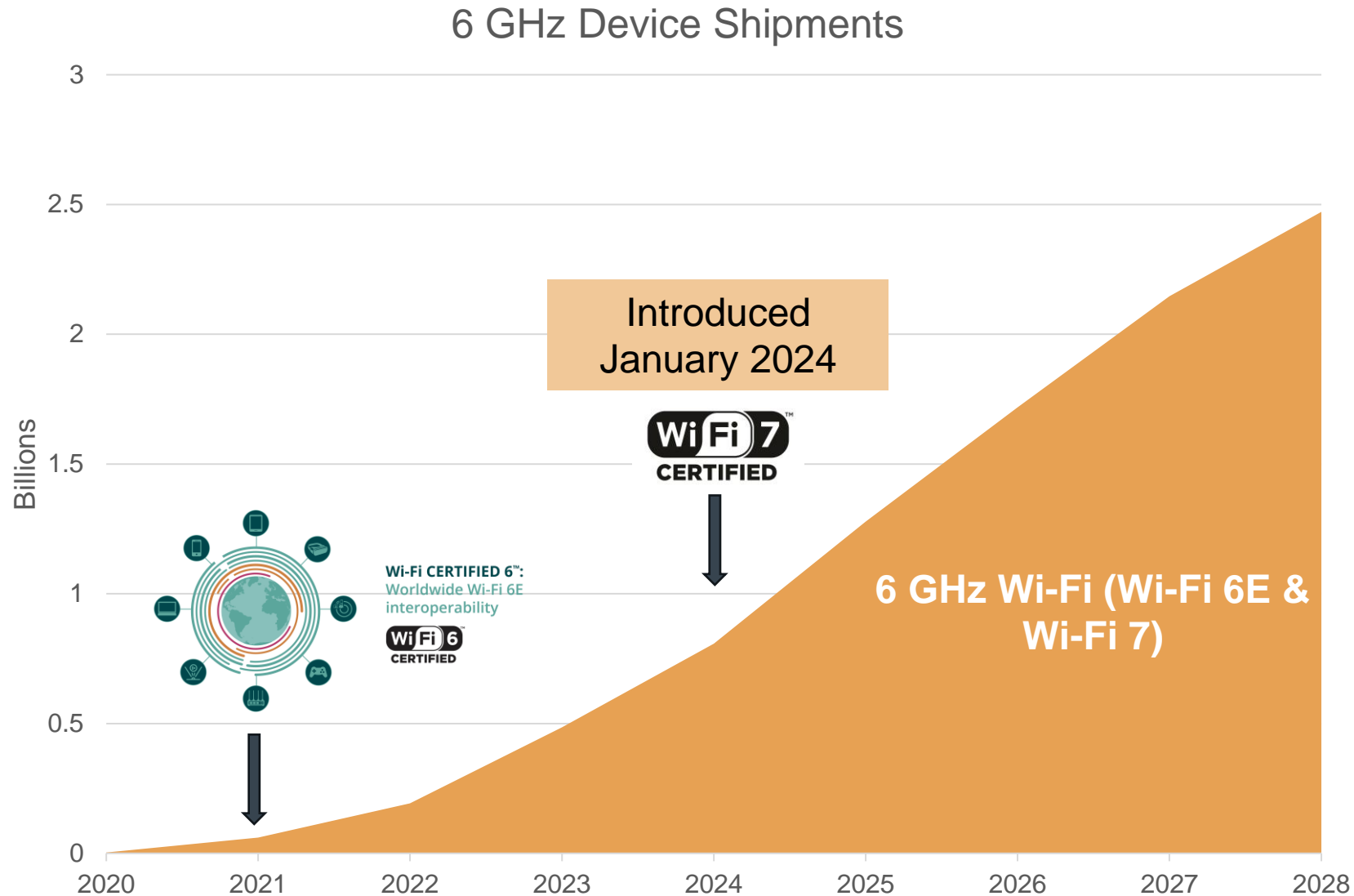
Equal access:

Full access to 6 GHz delivers the best Wi-Fi experience for all users

6 GHz is the frontier for the latest generation of Wi-Fi



6 GHz is the frontier for the latest generation of Wi-Fi



A robust Wi-Fi CERTIFIED 7™ device market emerges



Extreme Networks
AP5020

Samsung Galaxy S24
Ultra

TP-Link Deco and Archer
line of routers

Ubiquiti U7 Pro

Comcast XB10 Gateway

Qualcomm Wi-Fi 7
Automotive AP

Windows 11

Cambium X7-35X



HPE Aruba 730 Series
Campus Wi-Fi 7 AP

Netgear Nighthawk
RS300 and Orbi 770

Asus RT-BE96U

NETGEAR WBE710

Google Pixel 8

iPhone 16

MediaTek's Filogic
Chipsets

Data shows 6 GHz spectrum is necessary to achieve Gigabit infrastructure goals

- **Study:** Analyzed the impact of spectrum availability on Wi-Fi's ability to support Gigabit connectivity in residential deployments
- **Results:** 5.945-6.425 GHz spectrum capacity is **insufficient to support the Gigabit policy objectives**
 - Currently available spectrum allows Wi-Fi to support gigabit coverage to only **50-60%** of residential building areas
 - 100% (whole-building coverage) requires a minimum of ten 160 MHz channels
- [Similar study conducted in China](#)



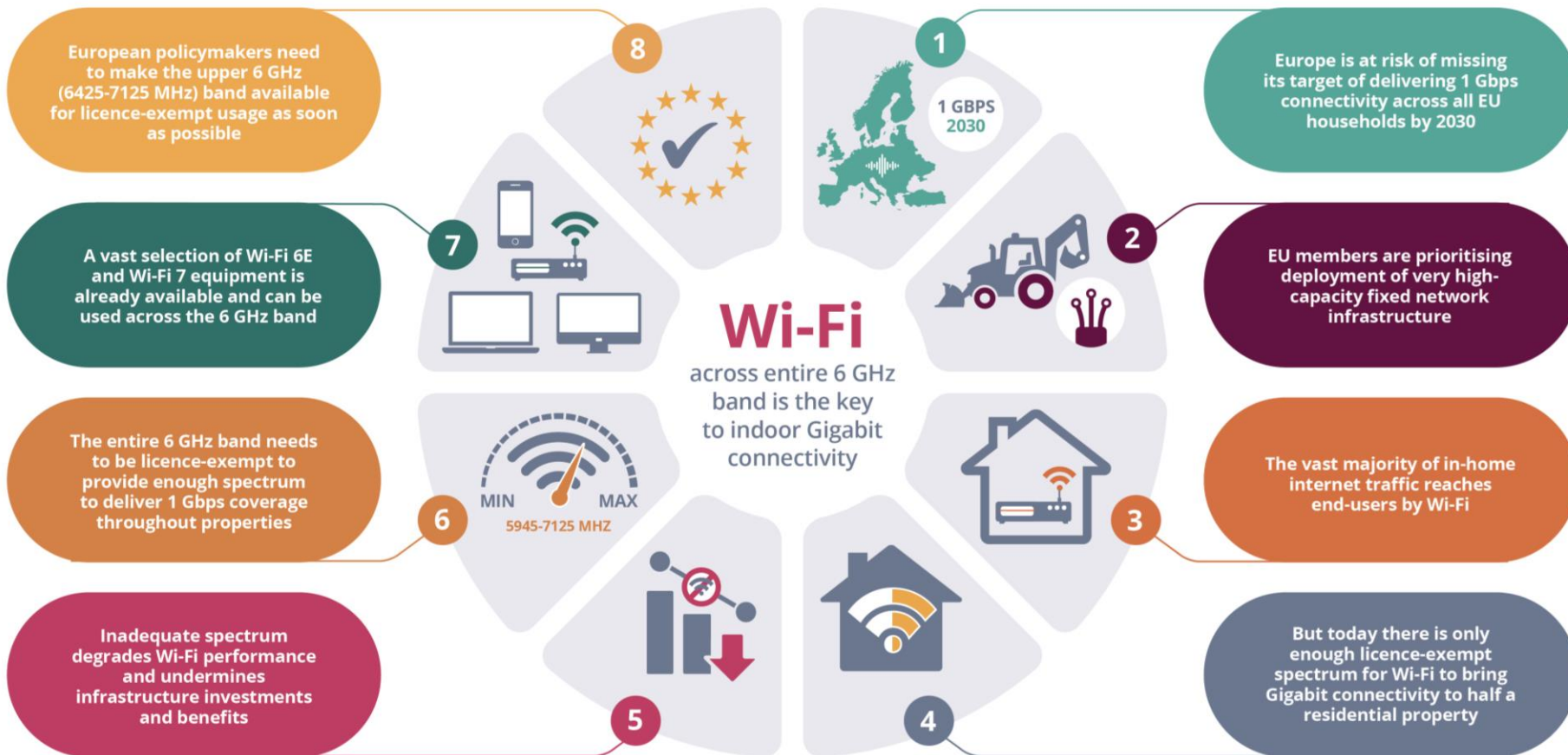


**Access to 6 GHz will be necessary to achieve
E.U. gigabit connectivity goals.**

Europe must open the full 6 GHz band to Wi-Fi to achieve Gigabit connectivity goals



Wi-Fi® Spectrum Requirements



Wi-Fi Spectrum Requirements (2024), Plum Consulting (<https://www.wi-fi.org/wi-fi-download/46968>)

Full access to 6 GHz advances sustainability goals in combating climate change



Scenario 1: Assigning the entire 6 GHz band to Wi-Fi

Scenario 2: Assigning the upper 6 GHz band to mobile

Energy consumption increases without full access to 6 GHz

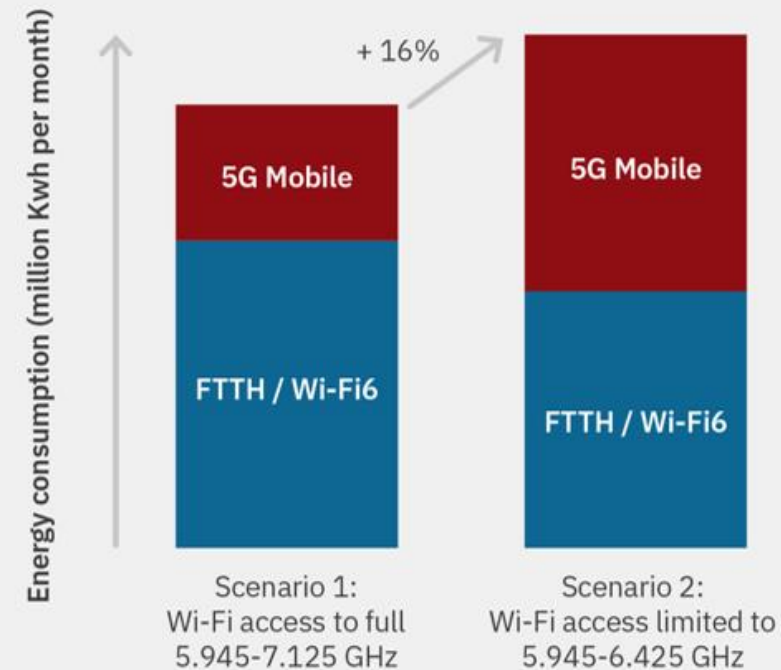
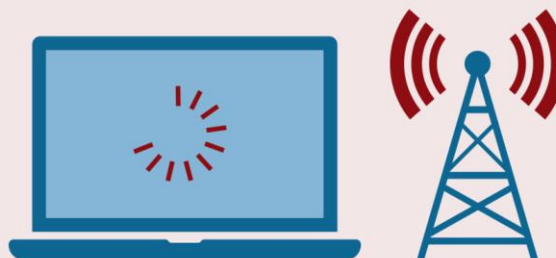
By 2030, Europe will see:

- Total FTTH/Wi-Fi energy consumption of **9,518 million kWh/month**
- Total mobile energy consumption of **4,088 million kWh/month**
- Total connectivity energy consumption would therefore be **13,606 million kWh/month**



By 2030, Europe will see:

- Total FTTH/Wi-Fi energy consumption of **7,849 million kWh/month**
- Total mobile energy consumption of **7,988 million kWh/month**
- Total connectivity energy consumption would therefore be **15,837 million kWh/month**



6 GHz Wi-Fi is revolutionizing healthcare

- Wi-Fi Alliance and Ramathibodi Hospital are working together to promote the value of 6 GHz Wi-Fi in Thailand
- Successfully demonstrated the use of 6 GHz Wi-Fi for AR/VR medical applications and dense deployments
- Underscored the importance of making the **full 6 GHz spectrum** available for Wi-Fi to support stringent latency requirements and data throughputs



6 GHz Wi-Fi brings esports to life

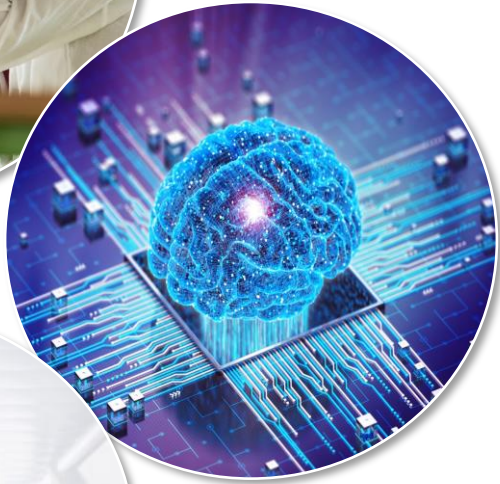
- Participants competed in The Nokia Apex Legends event over Wi-Fi
- Event showcased Wi-Fi's “near-deterministic latency and ethernet-like performance” in esports
- Underscored 6 GHz Wi-Fi's ability to change the game in esports – bringing ultra low latency and heightened speeds



“Running an Esports event like this targeting specifically pro-players playing over Wi-Fi was long thought to be impossible. Today, we’re showing it can be done.”

– Gino Dion, Head of Innovation Solutions at Nokia

Drive the future of Wi-Fi by advocating for full access to 6 GHz



- A thriving 6 GHz Wi-Fi device ecosystem is now available – but current spectrum regulations block Wi-Fi from delivering optimal performance
- The latest and future generations of Wi-Fi need access to the full 6 GHz band to deliver optimal performance – **there is no alternative spectrum to support Wi-Fi evolution**
- Making the entire 6 GHz band available for Wi-Fi in Europe unlocks the full potential of advanced technologies and supports future innovation across market segments



Celebrating the future of Wi-Fi



Ivan Muccini

VP Product, Cloud4Wi.

Beyond Captive Portals: The Future of Seamless Connectivity with Passpoint and PPSK



Beyond Captive Portals: The Future of Seamless Connectivity with Passpoint and PPSK

Ivan Muccini, VP Product



**Wireless
Global Congress**
Wireless Broadband Alliance

Porte de Versailles | Paris | France
Come Join us **on October 9** at **11:25am**
and **on October 10** at **10:15am**



A trusted by leading global enterprises and partners

COMPANY PROFILE



Enabling enterprises to offer a **seamless, secure WiFi access** and unleash innovative **location-aware experiences**



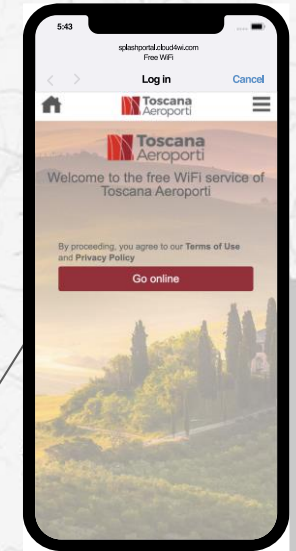
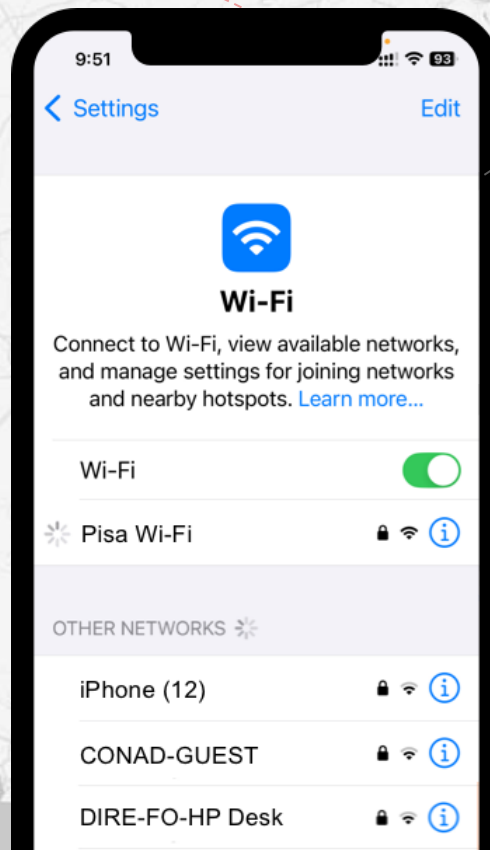
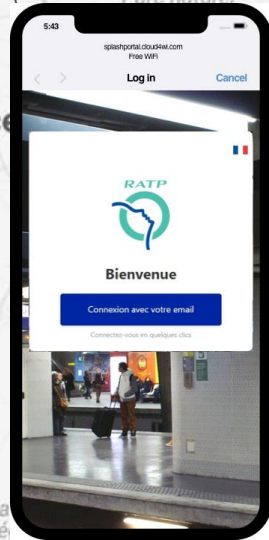
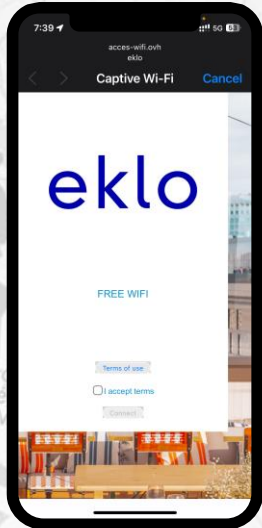
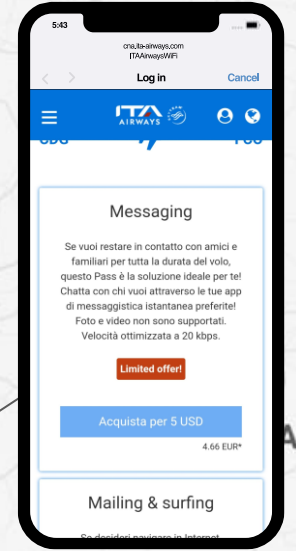
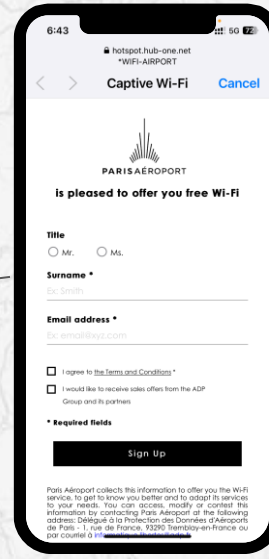
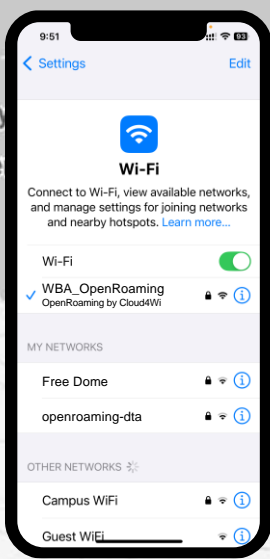
Global presence with over **150 million mobile users** connected across **70,000 locations** in more than **150 countries**



WBA Principal Member and founding member of the Enterprise Connectivity Forum

SOME OF OUR CLIENTS





My WiFi journey



Captive portals are here to stay

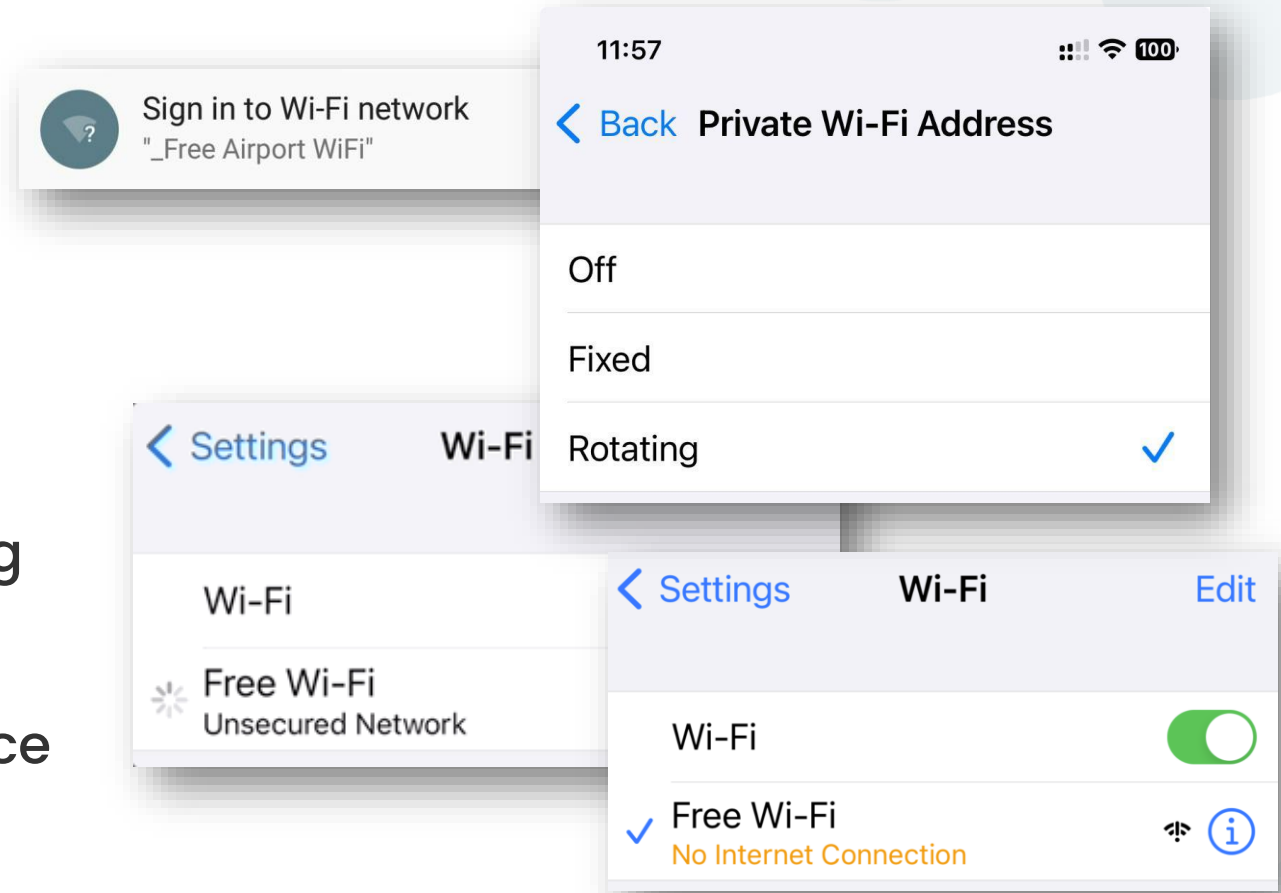
... and play their role as onboarding channels

No security

• MAC rotation

• Repeated, manual onboarding

• Disrupted data intelligence

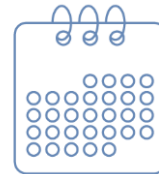


It's time to adapt.



Short term

- 1 Mitigate impact on existing experiences



Long term

- 1 Embrace Passpoint / WBA OpenRoaming
- 2 Introduce complementary solutions (e.g. PPSK)



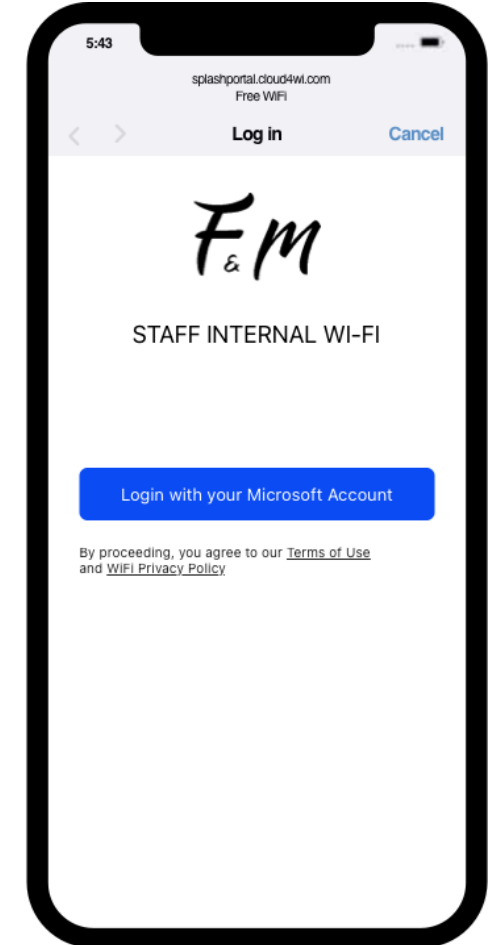
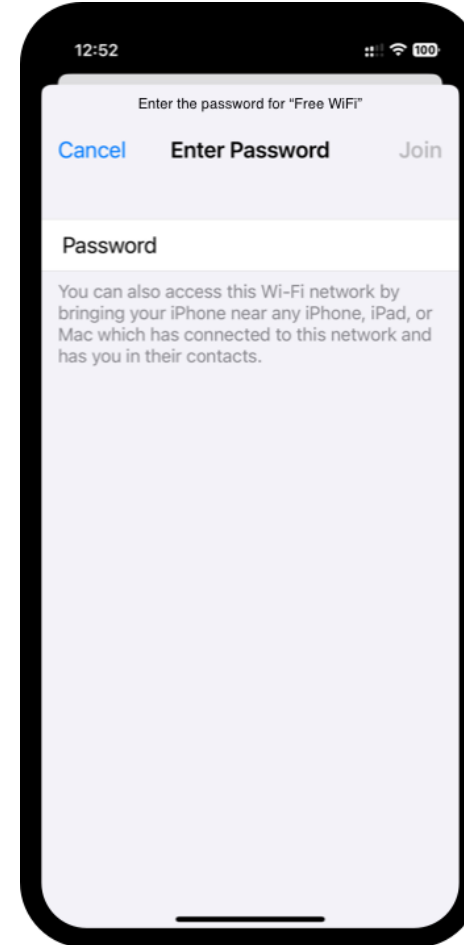
Adopt mitigation measures in the short term

Password-less, MAC-less user identification

- Apple ID login (biometric)
- Simplified attribute-based onboarding (e.g. phone + email)

Secure hotspots

- Prevent MAC rotation, enhance security
- Ideal when password sharing is viable





Plan for the long term



Passpoint
onboarding
via
mobile app



Passpoint web-based
onboarding



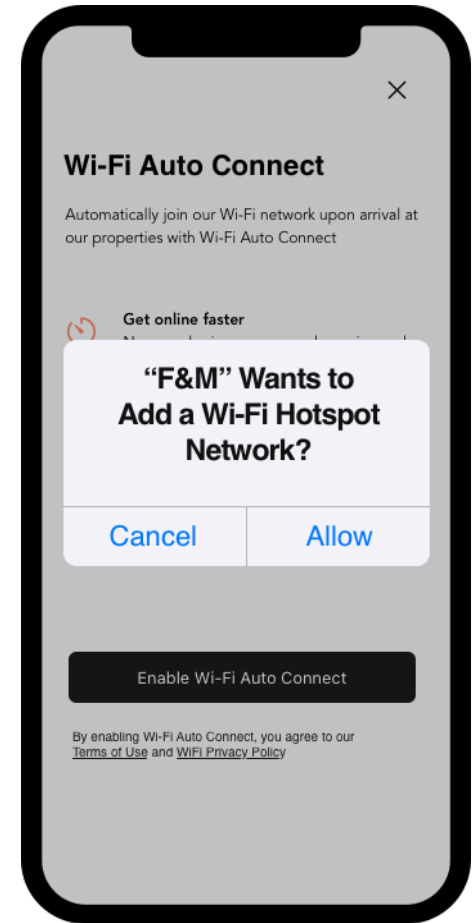
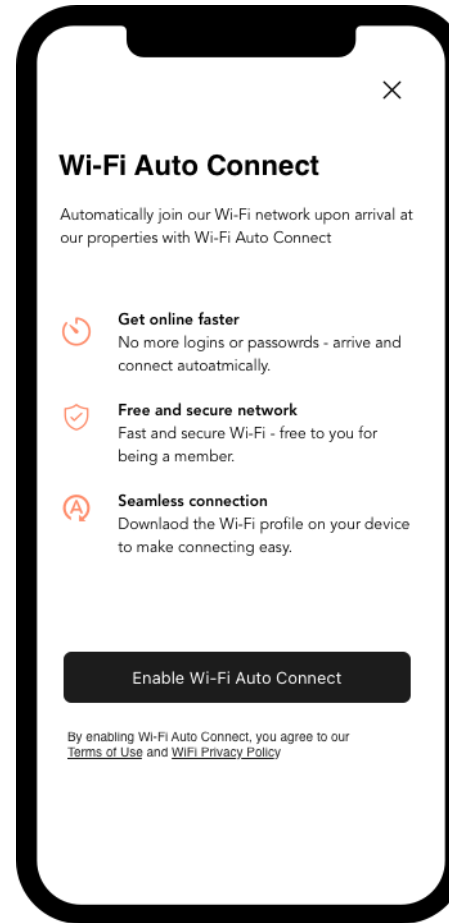
Passpoint Federations
/ WBA OpenRoaming



Private Pre-
Shared key
(PPSK)
for headless
devices

Passpoint onboarding via mobile app

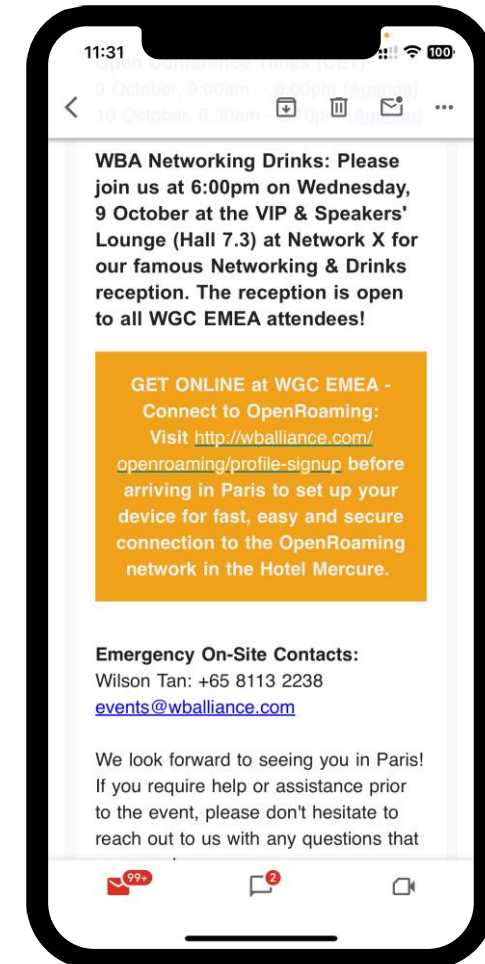
- **Seamless integration** for app developers with SDK, best practices, and compliance toolkit
- Seamless **user experience**
- Enhanced business outcomes with **location-aware experiences**



Passpoint web-based onboarding

(Since there's no real OSU replacement yet...)

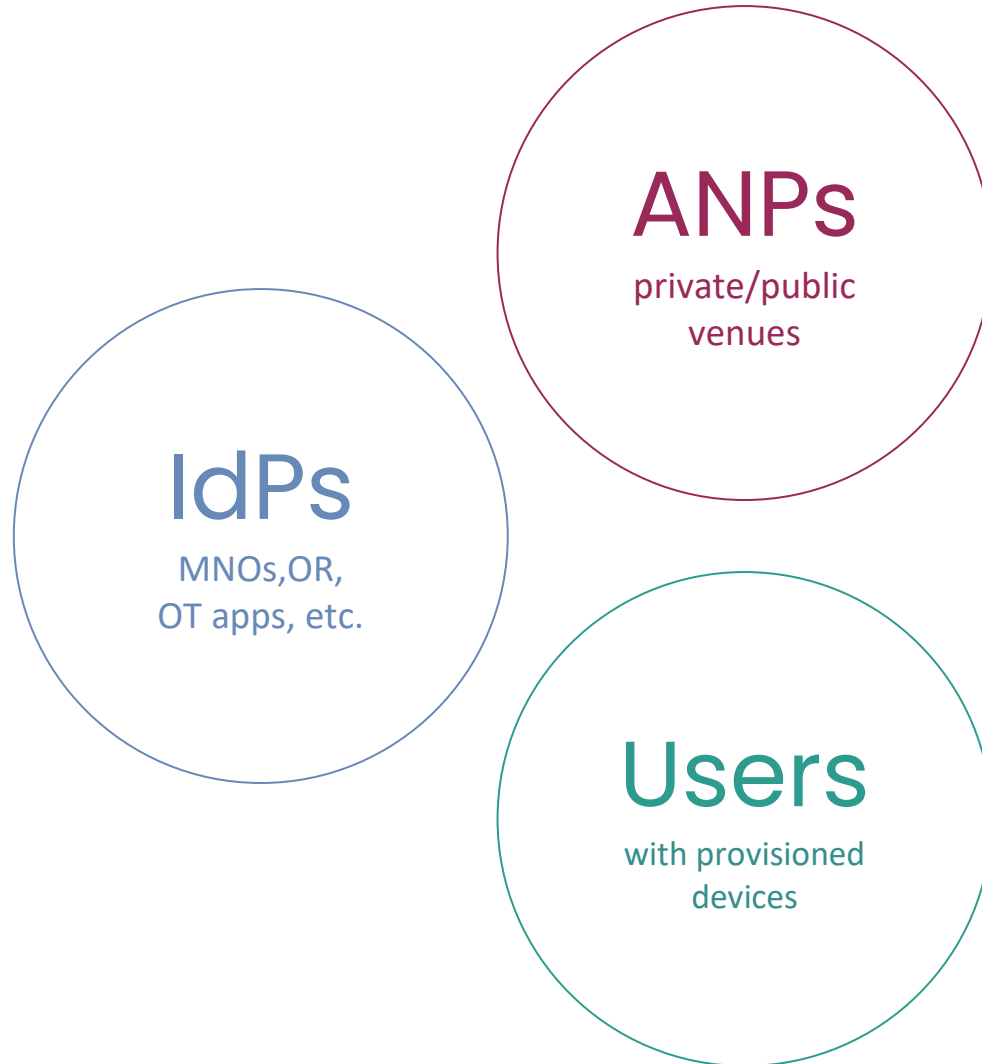
- Passpoint enrollment via **captive portals** provides users a smoother, enhanced experience
- Existing digital touchpoints (e.g., email) can be used to promote **browser-based onboarding**





Passpoint Federations / WBA OpenRoaming

- **Adoption barrier**
Aligning the requirements of Users, IDPs, and ANPs
- **Solution**
One-time portal prompt for visitors connecting with federated identities



For IDPs

- Free coverage and offload
- Data intelligence

For ANPs

- Digital touchpoint for engagement/compliance
- Analytics

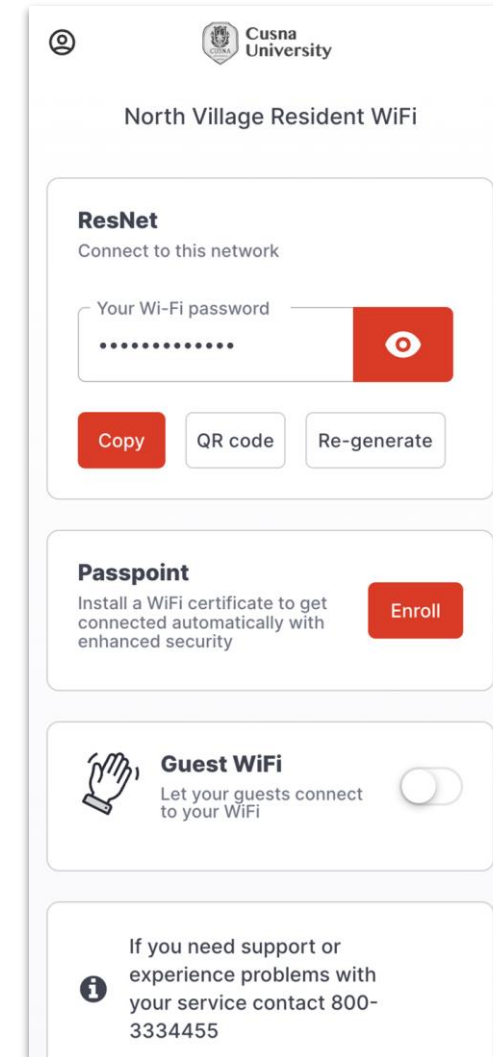
For Users

Secure, seamless, extended WiFi connectivity



Private Pre-Shared-Key (PPSK)

- Not a “standard”
- Simple yet effective, **self-serve onboarding** for headless devices
- Practical, ideal solution for various scenarios, from MDU to BYOD



Hybrid solutions for various deployment scenarios



Public WiFi

WiFi network accessible to everyone
(e.g. visitors of a retail venue)

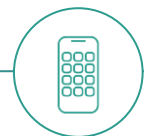
- Captive portal with Passpoint onboarding



Private WiFi

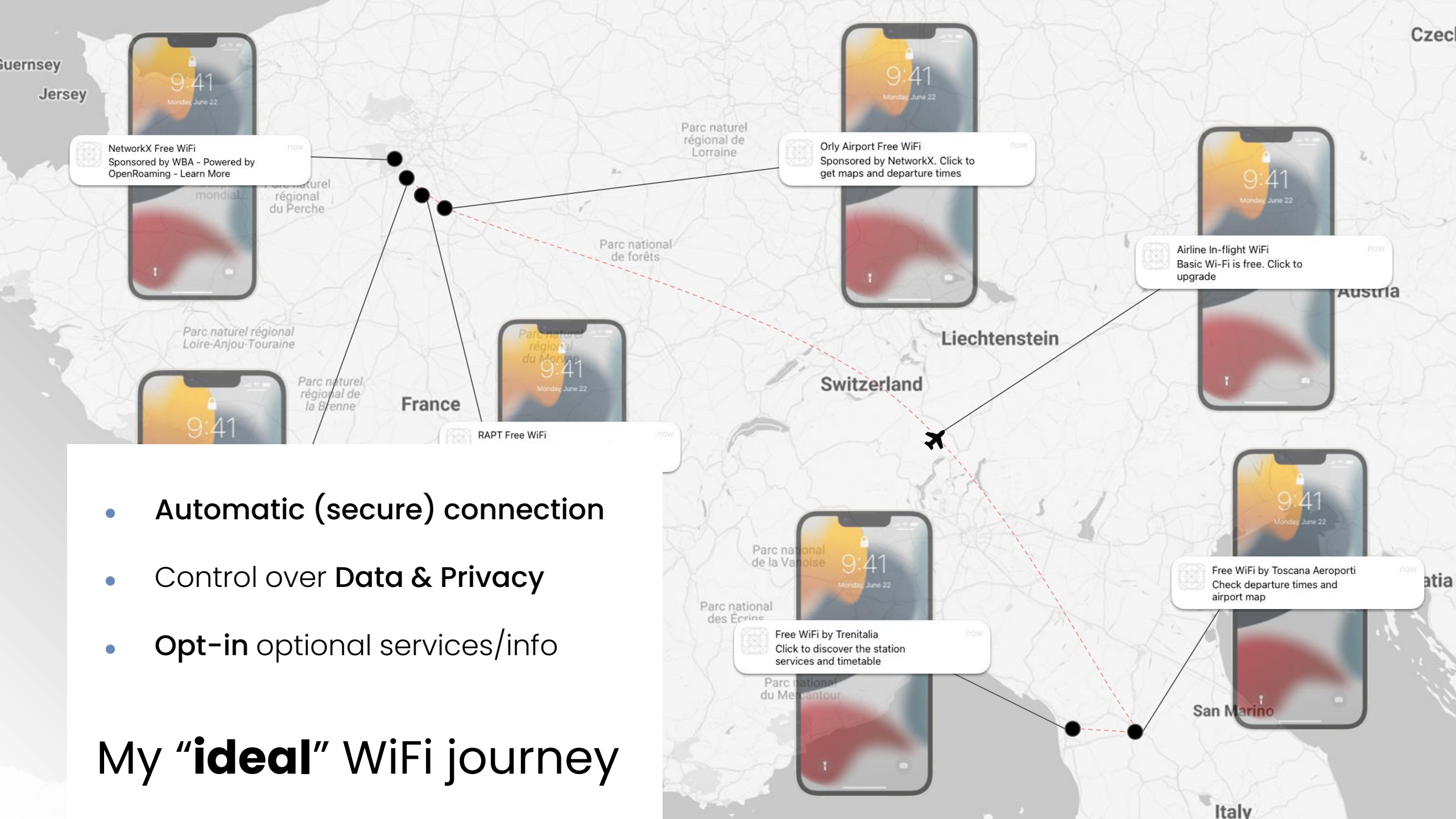
Access for authorized users only
(e.g. hotel guests, loyalty members, employees)

- Passpoint and/or PPSK



Mobile app users

Passpoint with onboarding through mobile app



- Automatic (secure) connection
- Control over **Data & Privacy**
- **Opt-in** optional services/info

My **“ideal”** WiFi journey



Next steps for IT teams

1

Explore

Explore the available options based on the context

2

Experiment

Leverage existing solutions to easily test options

3

Implement and scale

Rely on specialized solution providers to mitigate long-term risk

We are here to help.
info@cloud4wi.com





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Mittal Parekh

Senior Director, Product Marketing & Technical Marketing,
RUCKUS Networks.

Beyond the Hype:
Role of AI in Converged Enterprise
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Beyond the Hype:
Role of AI in converged enterprise networks for delivering
the best end user experience

Mittal Parekh

**Senior Director, Product Marketing & Technical
Marketing**

Date: Oct 2024



TM
TM

Enterprise Network Trends

Ubiquitous voice
& video,
AR/VR/XR

Latency sensitive
applications

Sustainability

Increasing Cost
of Network
Incidents

IT Staff
Reduction and
Expertise

Increasing
Cybersecurity
Threats

Right
Connectivity for
the Right
Application

Role of AI within enterprise networks is **exploding**



Intelligent Orchestration

Orchestration and automation of routine and repetitive tasks to minimize human errors and improve productivity



Business Intent Cognition

Understands the business intent and translate business requirements and policies into automated network configurations



Design and Optimization

With the increasing complexity in wireless technologies, AI-Driven network optimization is essential to network performance



Dynamic Network Management

Dynamic network configurations to tune networks based on network usage, traffic patterns and RF environment



Network Troubleshooting

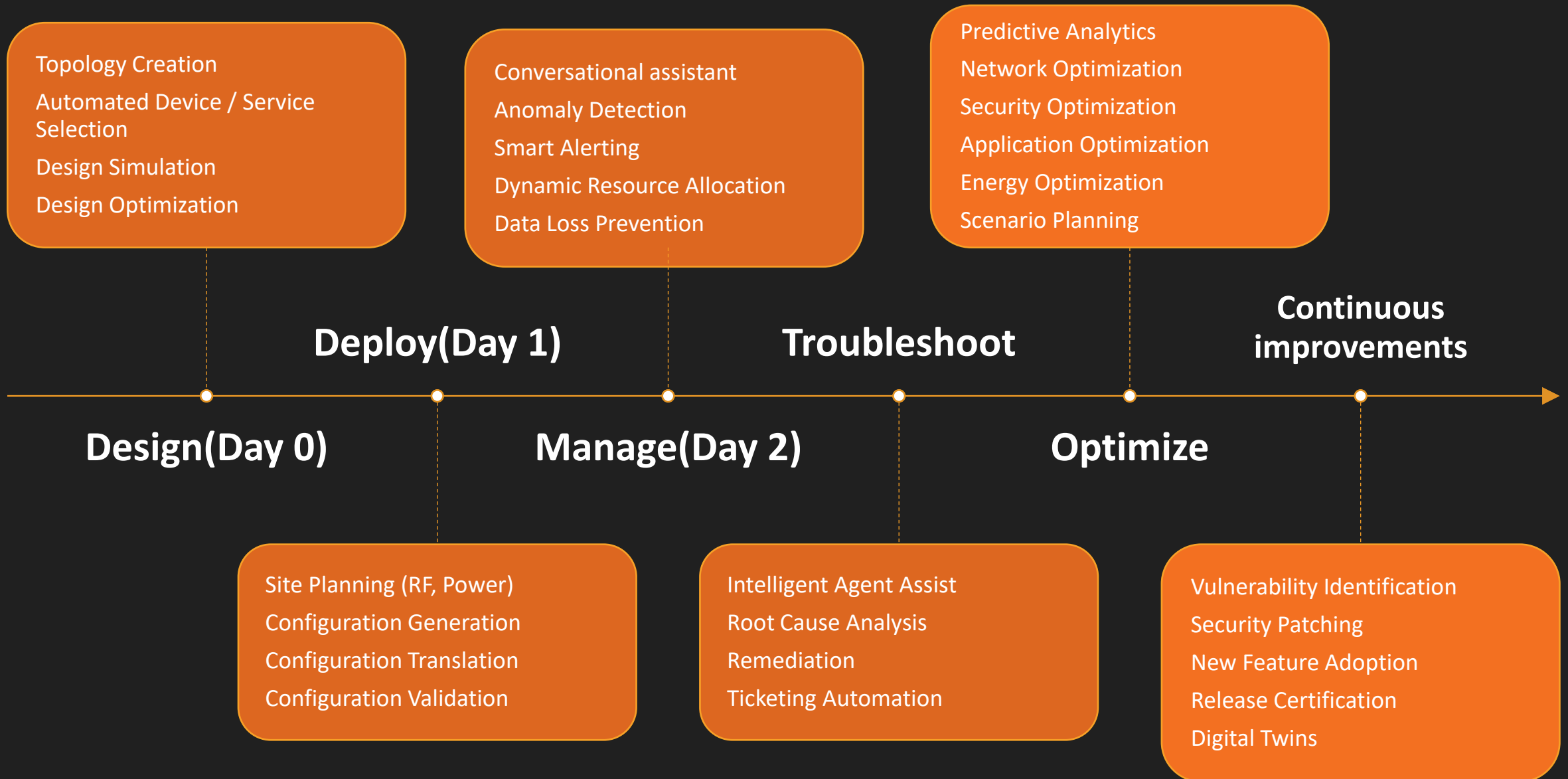
Auto identification, root cause analysis and recommended remediation actions



AI

Gen AI-based agents will accelerate innovation in this space

AI Impact Across the Network Lifecycle



AI
in

Network Efficiency

Surface issues before they blow up



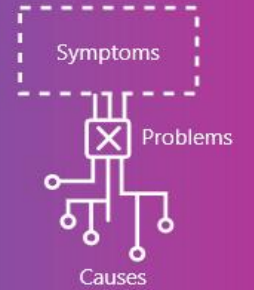
ML-driven incident and anomaly detection

Address the most urgent issues first



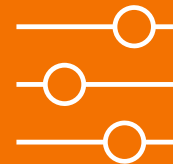
AI-driven prioritization

Fix them fast



ML-driven root cause and recommendations

Compare network KPIs before and after a change to analyze the impact



Config change analysis

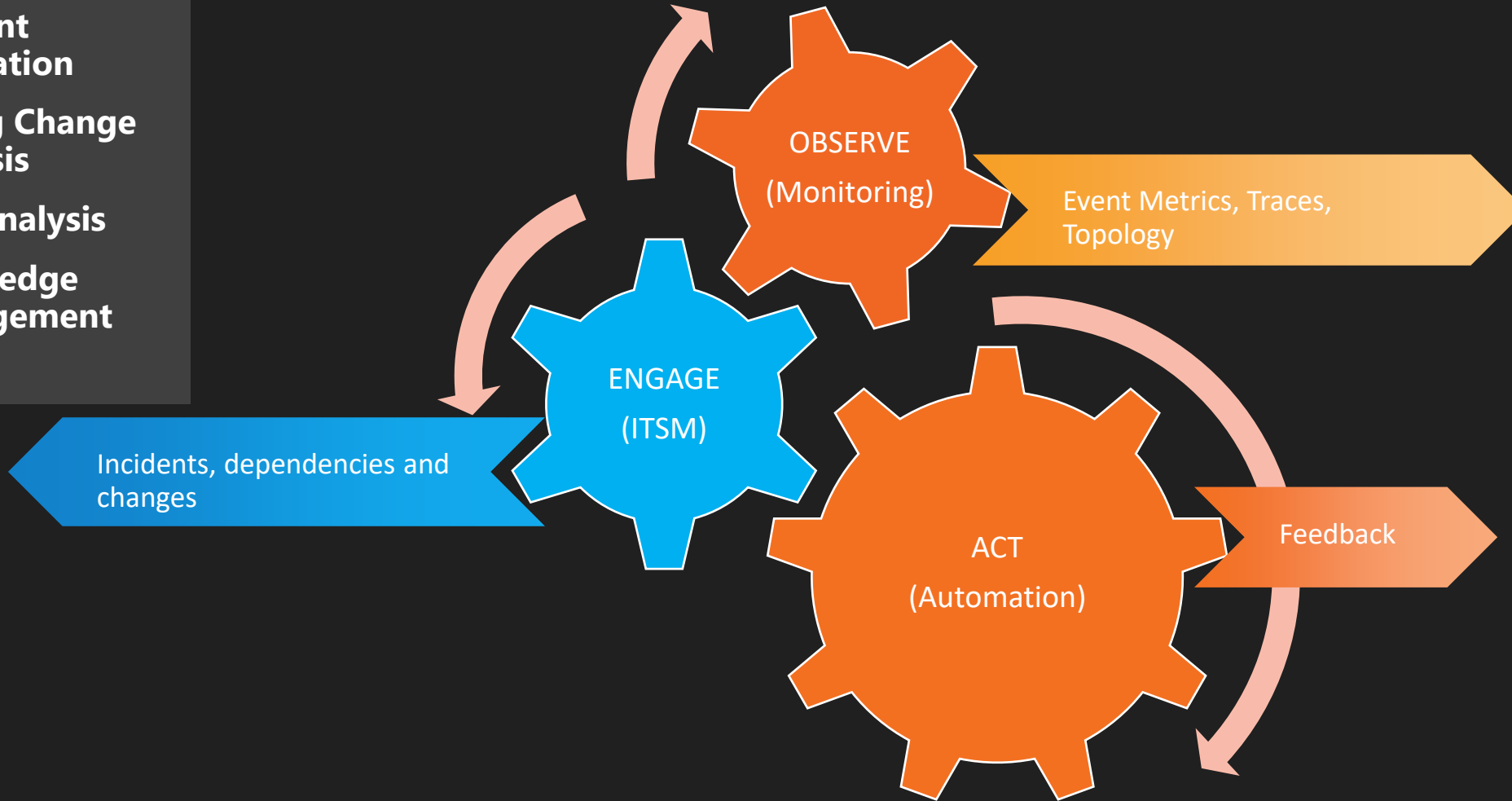
Let the system make recommendations on changes to improve network performance



AI-recommendations

AI in Operational Efficiency (AIOps)

- Incident generation
- Config Change Analysis
- Risk Analysis
- Knowledge Management



- Real Time data
- Historical data
- Anomaly Detection
- Performance Analysis
- Correlation and Context

- Scripts
- Runbooks
- App Release Automation (ARA)



**Greater AP
Capacity**

**Higher client
throughput**

**Lower Airtime
Utilization**

**Higher
Reliability**

**Operate APs at
MAX capability**

Proactive Network Performance Optimization



- Data Analysis
- Proactive Maintenance
- Simulations and Scenarios
- Optimization
Recommendations
- Autonomous Networking



- Intent-Based Networking
- Declarative vs. Imperative
- Automated Configuration
- Continuous Optimization
- AI-Powered Intelligence

AI is taking us to the promised land!



	Manual	Assisted	Partial	Conditional	High	Full
	L0	L1	L2	L3	L4	L5
Execution	P	P/S	S	S	S	S
Awareness	P	P/S	P/S	S	S	S
Analysis	P	P	P/S	P/S	S	S
Decision	P	P	P	P/S	S	S
Intent/Experience	P	P	P	P	P/S	S

Source: TM Forum

P = People (Manual) | S = System (Autonomous)

Now, I want you to ask this question

Would she be
smiling like this had
she got just
one chopstick?



It's not OR, it's AND



Remember!



What does RUCKUS offer?



RUCKUS offers GREAT AI and GREAT Wi-Fi



We continue to maintain our lead in Wi-Fi



THE ONLY ENTERPRISE VENDOR ON THE TEST BED OF Wi-Fi Certified 7

RUCKUS[®]
COMMSCOPE

“We are happy to have a RUCKUS Networks Wi-Fi 7 commercial AP platform as part of our testbed for the Wi-Fi CERTIFIED 7 program. We look forward to the rapid adoption of Wi-Fi CERTIFIED 7 across home, enterprise and industrial environments, and take pride in facilitating interoperability among the entire Wi-Fi 7 worldwide device ecosystem. Wi-Fi CERTIFIED devices, such as those from RUCKUS Networks—a longtime member of Wi-Fi Alliance—help deliver a good user experience in the enterprise,”

Kevin Robinson

President and CEO, Wi-Fi Alliance



Innovation of the Year Award 2024

RUCKUS AI-Driven Wi-Fi 7 Solution

RUCKUS[®]
COMMSCOPE

- Recognized for
 - Breakthrough innovation
 - Addressing market challenges
 - Integration with other industry products
 - Value to the community
 - Ease of use and manageability
 - Functionality

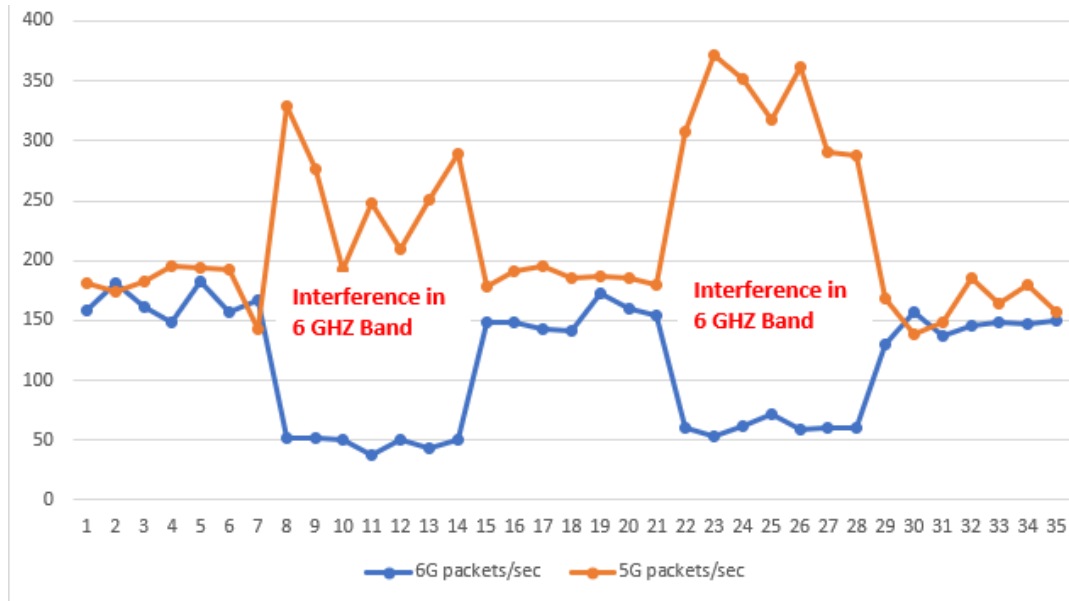


The Wi-Fi
AWARDS
Innovation of the Year

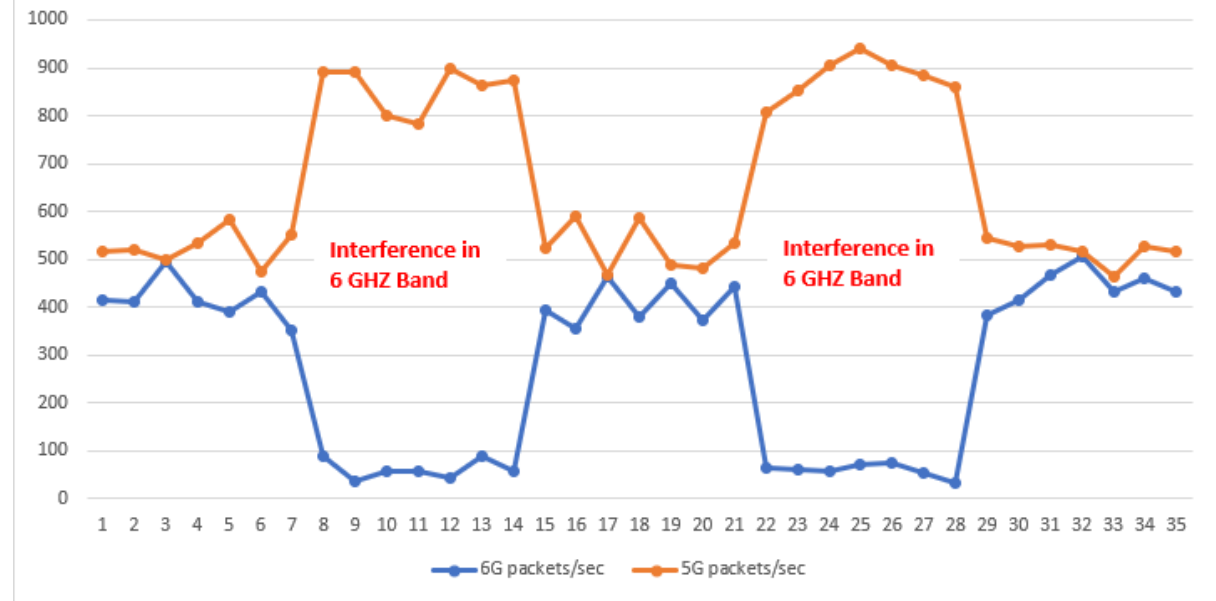
RUCKUS[®]
COMMSCOPE

Let's Talk About
The Real
Wi-Fi 7

RUCKUS Wi-Fi 7 Multi-link Operations(MLO) Interference



DOWNLINK

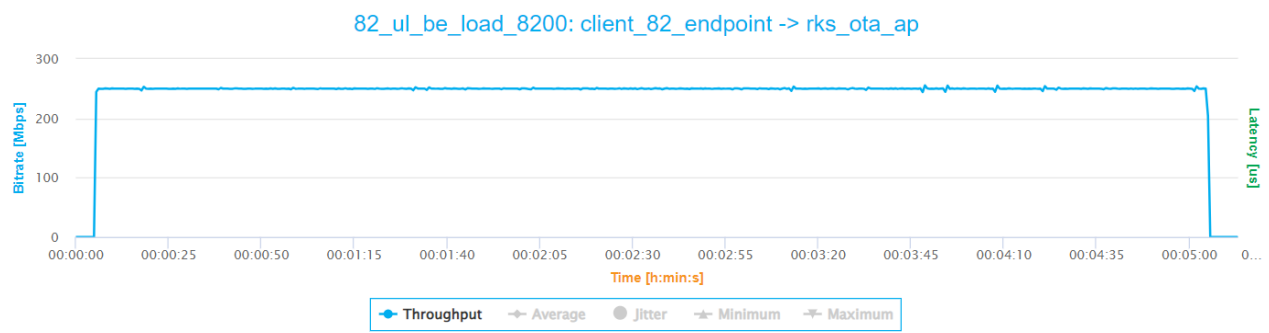
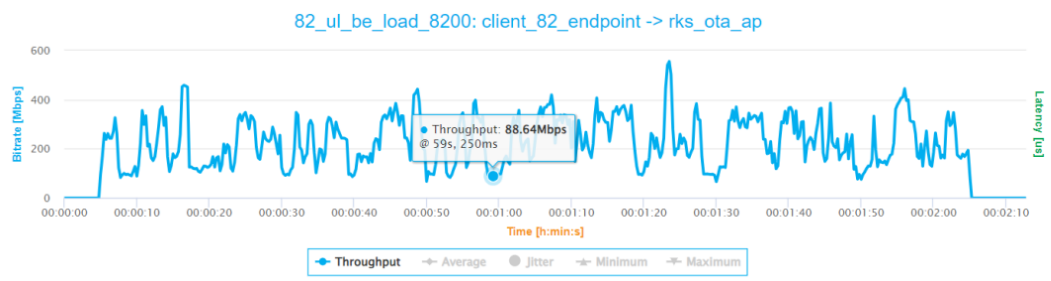


UPLINK

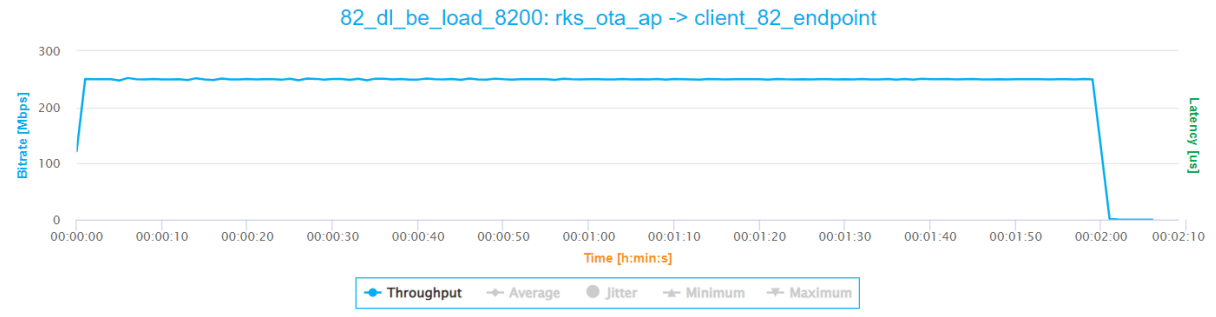
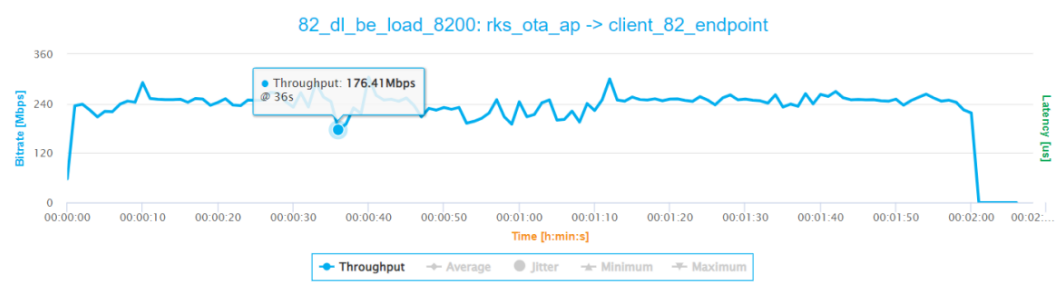
With MLO

Yes, We Tested in RUCKUS Labs

RUCKUS Wi-Fi 7 Multi-link Operations(MLO) Throughput Loss



~40% Gain With MLO



Without MLO

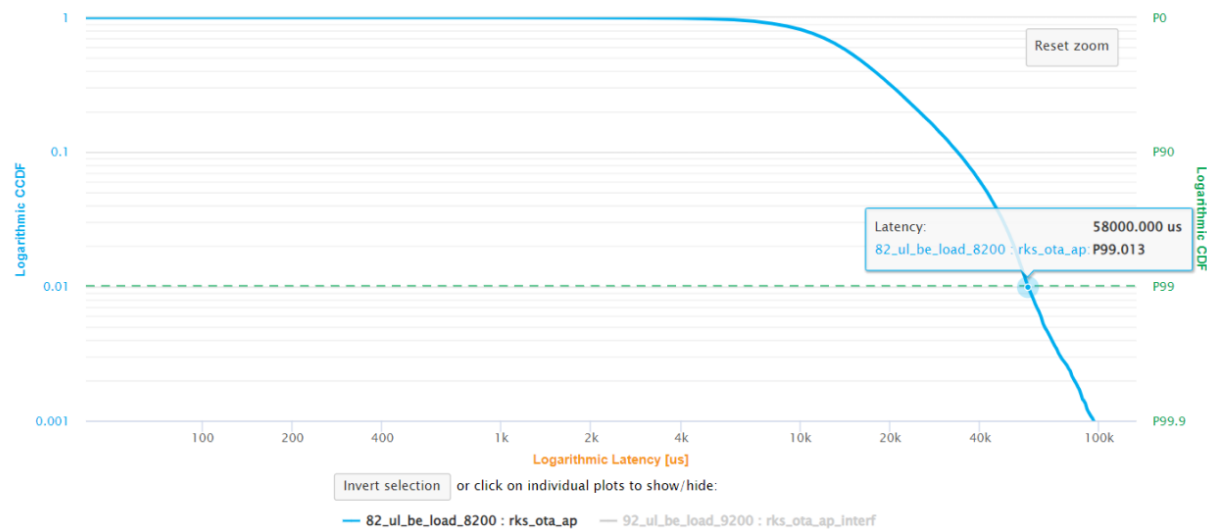
With MLO

Yes, We Tested in RUCKUS Labs

19X improvement at the 99th %tile

Frame Blasting Flows: Latency CCDF and CDF

Flows at the left have lower latency



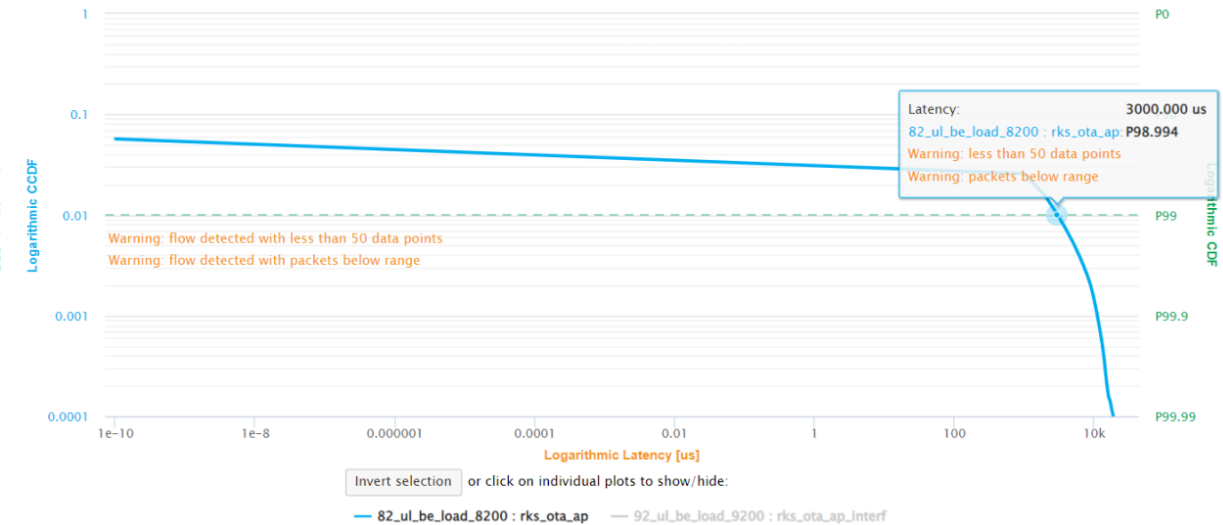
Without MLO

Uplink

With MLO

Frame Blasting Flows: Latency CCDF and CDF

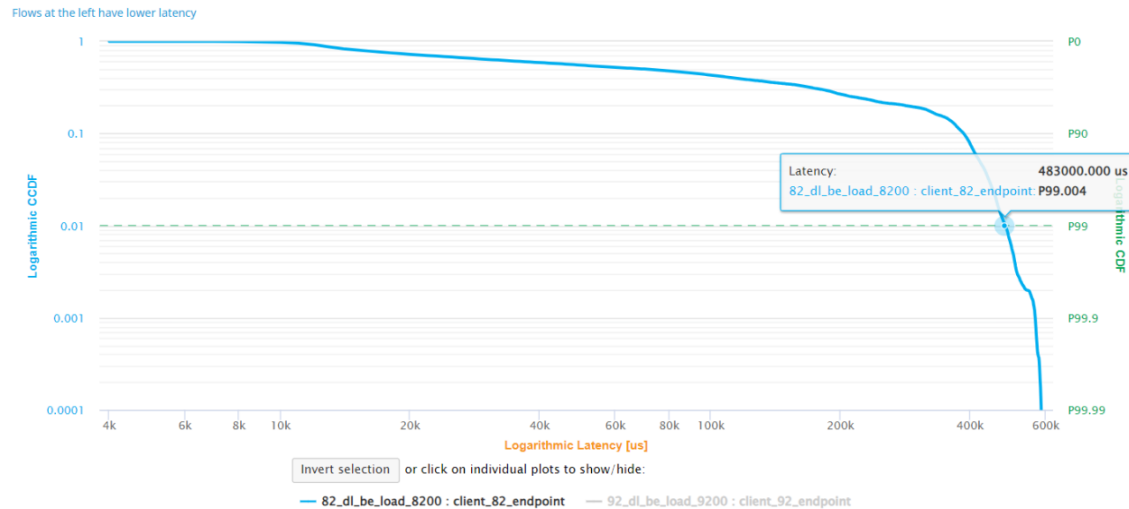
Flows at the left have lower latency



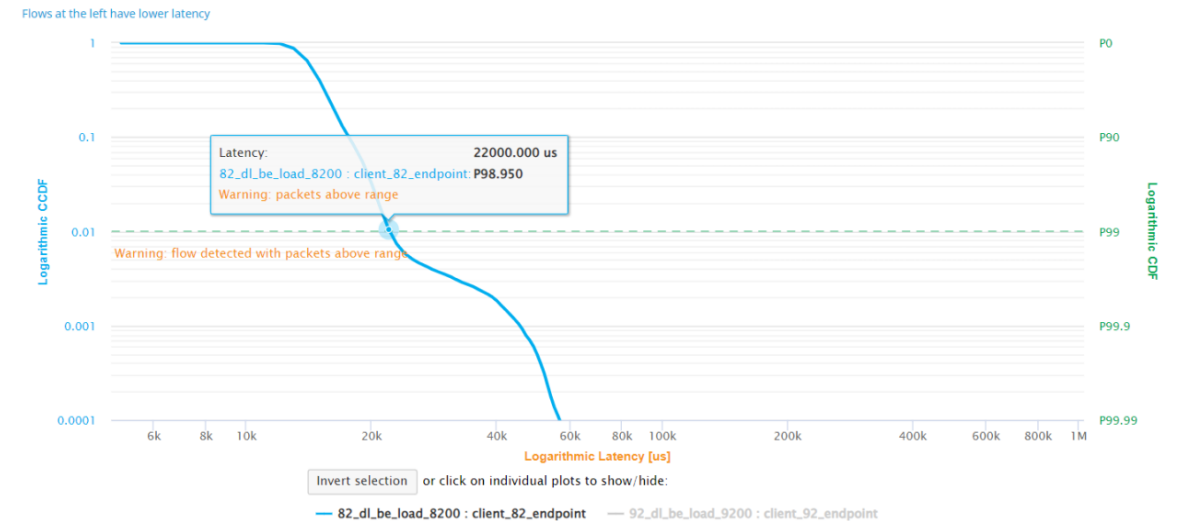
Yes, We Tested in RUCKUS Labs

22X improvement at the 99th %tile

Frame Blasting Flows: Latency CCDF and CDF



Frame Blasting Flows: Latency CCDF and CDF



Without **MLO**

Downlink

With **MLO**

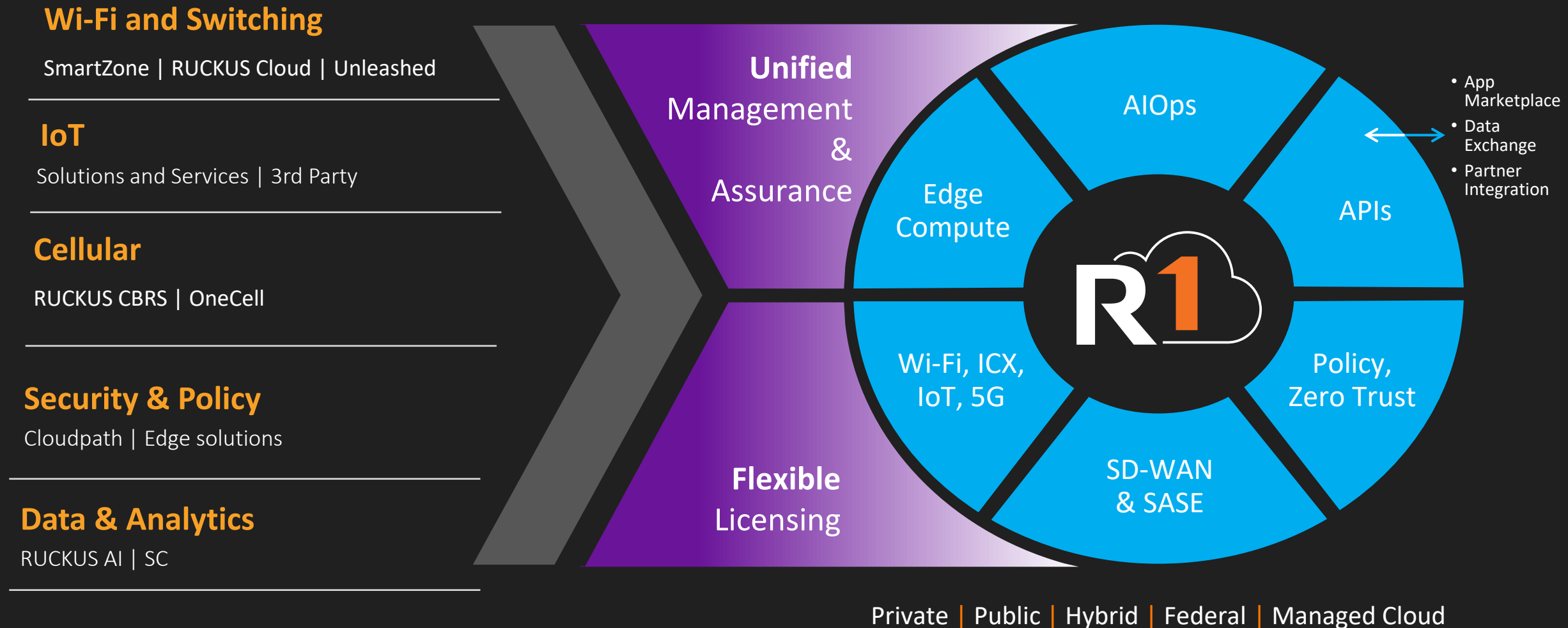
Yes, We Tested in RUCKUS Labs

AI-driven RUCKUS One

Converged **Network Assurance** and **Business Intelligence** Platform



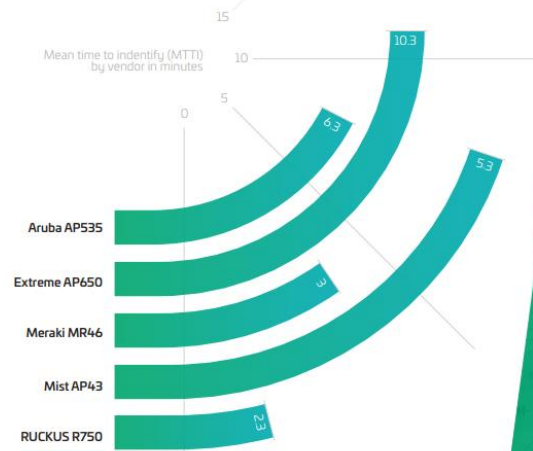
Unified Platform



RUCKUS AI delivers Benefits across the entire value delivery chain

Lowest Mean Time To Identification

Troubleshooting with network analytics tools

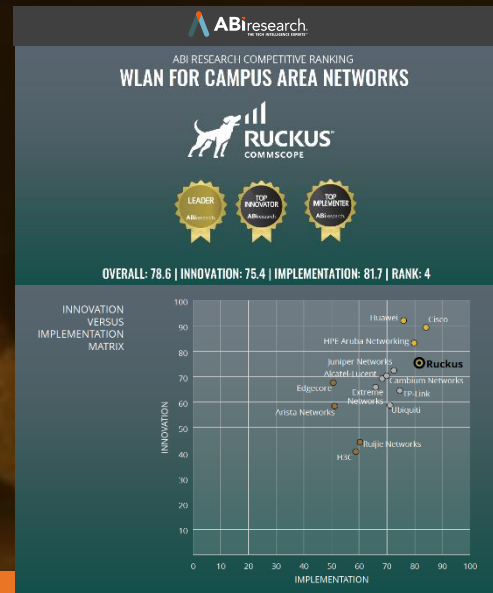


Mean time to identify

Mean time to identify (MTTI) is the time a network administrator needs to determine the root cause of a network issue or incident. A shorter average MTTI reduces the troubleshooting burden on IT while improving user experience by allowing IT to more effectively limit incident duration and impact.

- **67%** Reduction in mean time to resolution
- **40%** Reduction in time prioritizing & triaging
- **20%** Fewer helpdesk tickets
- **60%** Savings of SME IT time
- **50%** Reduction in new IT hire training
- **80%** Reduction in customer churn

Industry Recognition



A Leader



A Gartner® Magic Quadrant™ Visionary



A Company & New Product Innovator

*Gartner, Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure, 6 March 2024, Tim Zimmerman, Christian Canales, Nauman Raja, Mike Leibovitz

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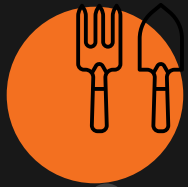
*This graphic was published by Gartner, Inc. as part of a larger research document and should be evaluated in the context of the entire document. The Gartner document is available upon request from [insert client name or reprint URL].

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AI from RUCKUS



RUCKUS AI – AI/ML, Service Assurance, Weed out bad config, Data Studio



**Autonomous
Networking, AIOps**



Melissa NLP, Gen AI



Digital Twin



**Intent based
networking**



AI for Sustainability



**App Quality of
Experience**



GenAI for context sensitive, self-adjusting experience



PURPOSE-DRIVEN ENTERPRISE NETWORKS



Hiroshi Kiji

Vice President, Wire & Wireless



Naoto Komatsu

CTO, Wire & Wireless

OpenRoaming in Japan: Early adoption trends and future prospects

OpenRoaming in Japan: Early adoption trends and future prospects

October 9, 2024

Hiroshi Kiji/Naoto Komatsu



Company profile

- Wire and Wireless (Wi2) is Japanese Wi-Fi operator of KDDI Group, one of three largest mobile carriers, which has approx. 68M subscriber lines.
- Established in July, 2007
Launched Wi-Fi business in April, 2009
Joined to KDDI Group in October, 2010
- Wi2 has mainly three business domains.



1) provide public Wi-Fi service to consumers directly and to users of mobile carriers (MNO/MVNO)/Wi-Fi operators (international/domestic roaming service).



2) deploy Wi-Fi infrastructure/network and operates Public Wi-Fi service delegated by location owner clients in both public/private sectors(e.g. regional government, transportation, coffee shops, retail stores...)

3) develop digitalization/digital transformation solution with location owner clients and IT solution vendors, mainly utilizing Wi-Fi deployed in their location(e.g. IoT device connection, access log data utilization...)

Public Wi-Fi assets

Wi2 has +100,000 hotspots nationwide/+300 location owner clients of public Wi-Fi deployment and is in 2nd position behind NTT group.

Public sector



Private sector



Market situation

Public Wi-Fi market in Japan is rather active in recent years and is considered to continue growing in BtoB market.

Time of **renewal of Wi-Fi 4/5** access points which was deployed by early adoptive customers **to Wi-Fi 6/7**

Revival of incoming **foreign tourists** to Japan and their high demand to Wi-Fi connection



Distrust to security/
not seamless connection

Location owner clients' demand to use Wi-Fi deployed in their location not only for customer satisfaction but for their initiatives to **Digitalization/Digital Transformation**

Mobile Carriers' demand to traffic off-loading is reduced due to expansion of 5G

Paid Wi-Fi consumer service market is almost disappeared

Expansion of OpenRoaming

Wi2 has acted as first mover of OpenRoaming in Japan, consequently IdPs which expect lots of usage are operated by Wi2 so far.

Public sector

Private sector



Started at 7 cities
in FY2023
Scheduled at 5 cities
in FY2024



Mar/2023~



Oct/2024~



Started auto-connect Wi-Fi
in Spring, 2024
(not OpenRoaming)

Project in Tokyo

OpenRoaming Wi-Fi deployment is one of main projects of Tokyo metropolitan government's strategic policy 'TOKYO DATA Highway'.

- PJ owner: Tokyo Metropolitan Gov.
- Objective: build up secondary wireless network independently managed and separated from cellular network to utilize multidimensionally in 'TOKYO DATA Highway'.
- IdP: Wi2
- ANP: Various operators(by location)
NTTBP(existing conventional(captive-portal) Wi-Fi operator)



- Deployment schedule and locations:

1,300 locations by end of FY2025

-580 newly deployed locations



-740 locations converted from conventional Wi-Fi
(mainly deployed for convenience of tourists)

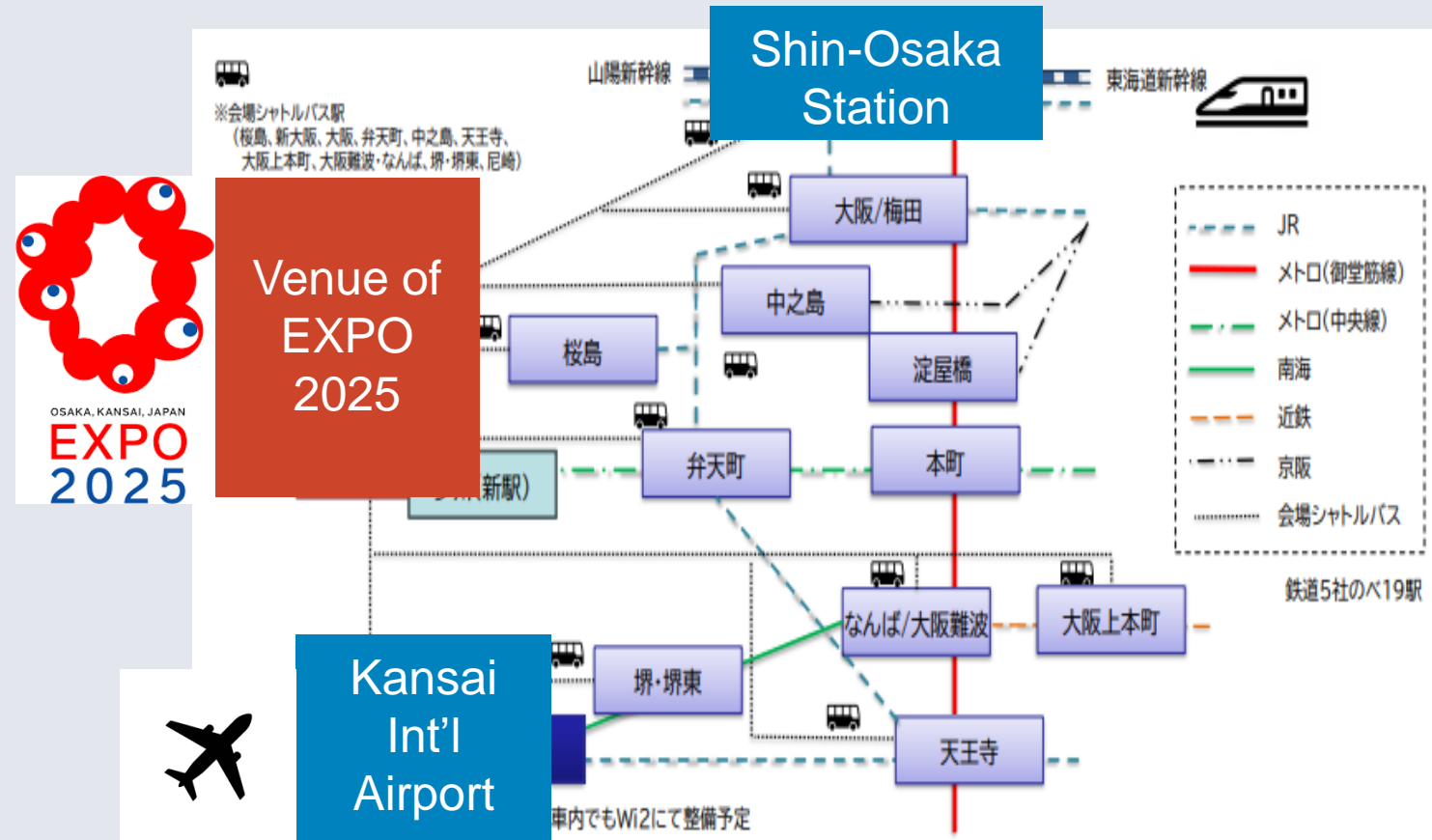


Project in Osaka



Osaka regional governments(Pref./City) has announced 'Osaka Free Wi-Fi' service should be upgraded by OpenRoaming and relocation of Hotspots from incoming tourists' point of view before beginning of EXPO 2025.

- PJ owner: Osaka Convention & Tourism Bureau
- Objective: support of internet connection by tourists to EXPO 2025 and sightseeing spots in Osaka
- IdP: Wi2
- ANP: Various operators(by location)
~1st phase is deployed by Wi2
NTTBP(existing conventional (captive-portal) Wi-Fi operator)



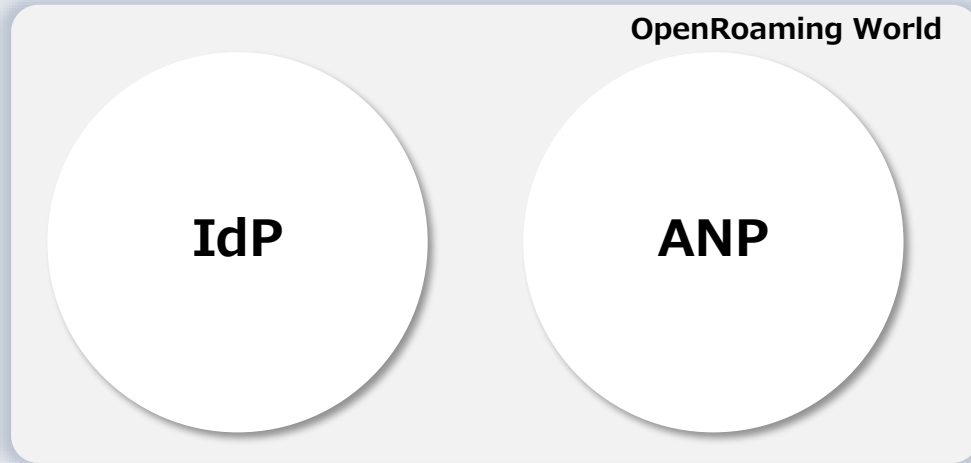
Issues left

Even though OpenRoaming is launched by some projects/regions in Japan, we still have issues to be addressed.

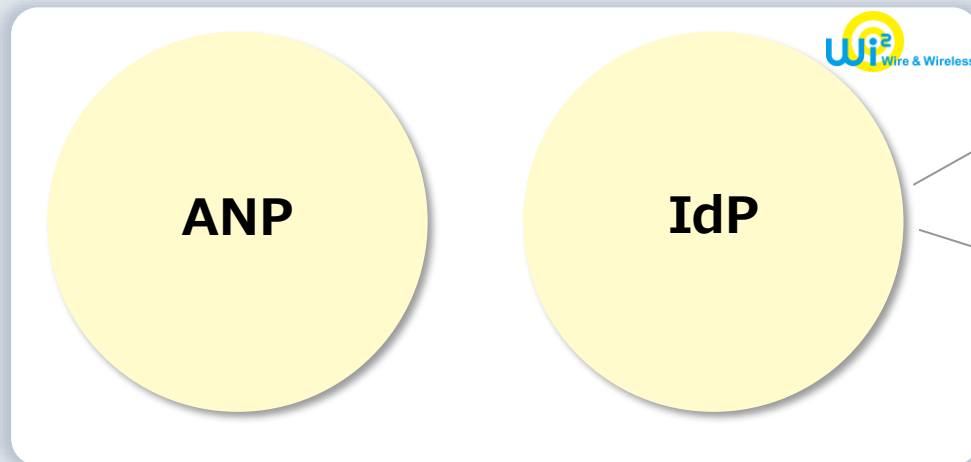
- Make OpenRoaming more popular
- Increase of OpenRoaming hotspots, in particular, expansion to Private sector location
(coffee shops, stations/airports, . . .)
- Increase quantity of users/authentications
- Additional value easily comprehended by location owner clients to upgrade to/newly deploy OpenRoaming (Visit detection solution, BigData . . .)

Network overview

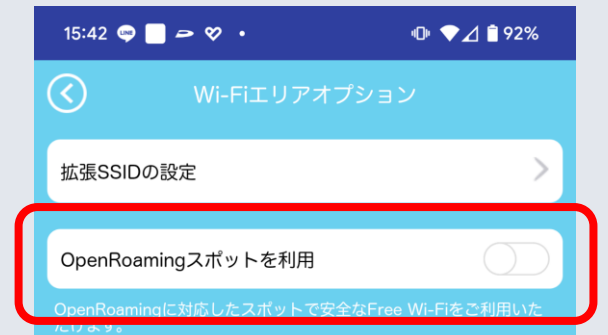
- We provide both IDP and ANP
- Our traffic related to OpenRoaming is handled by cityroam



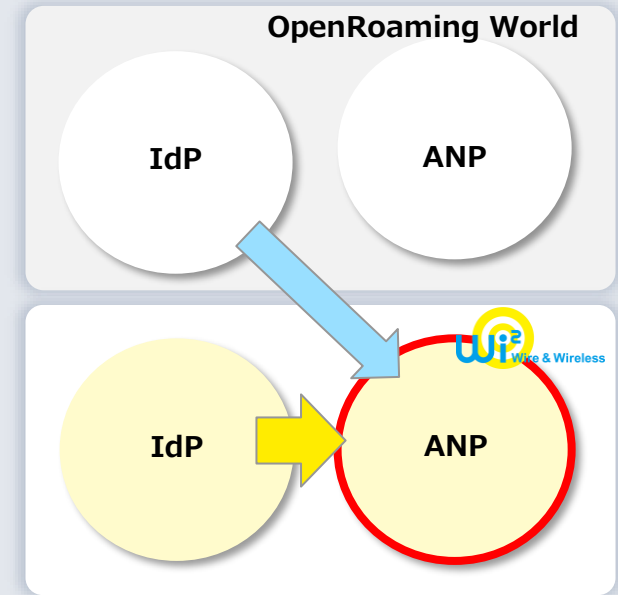
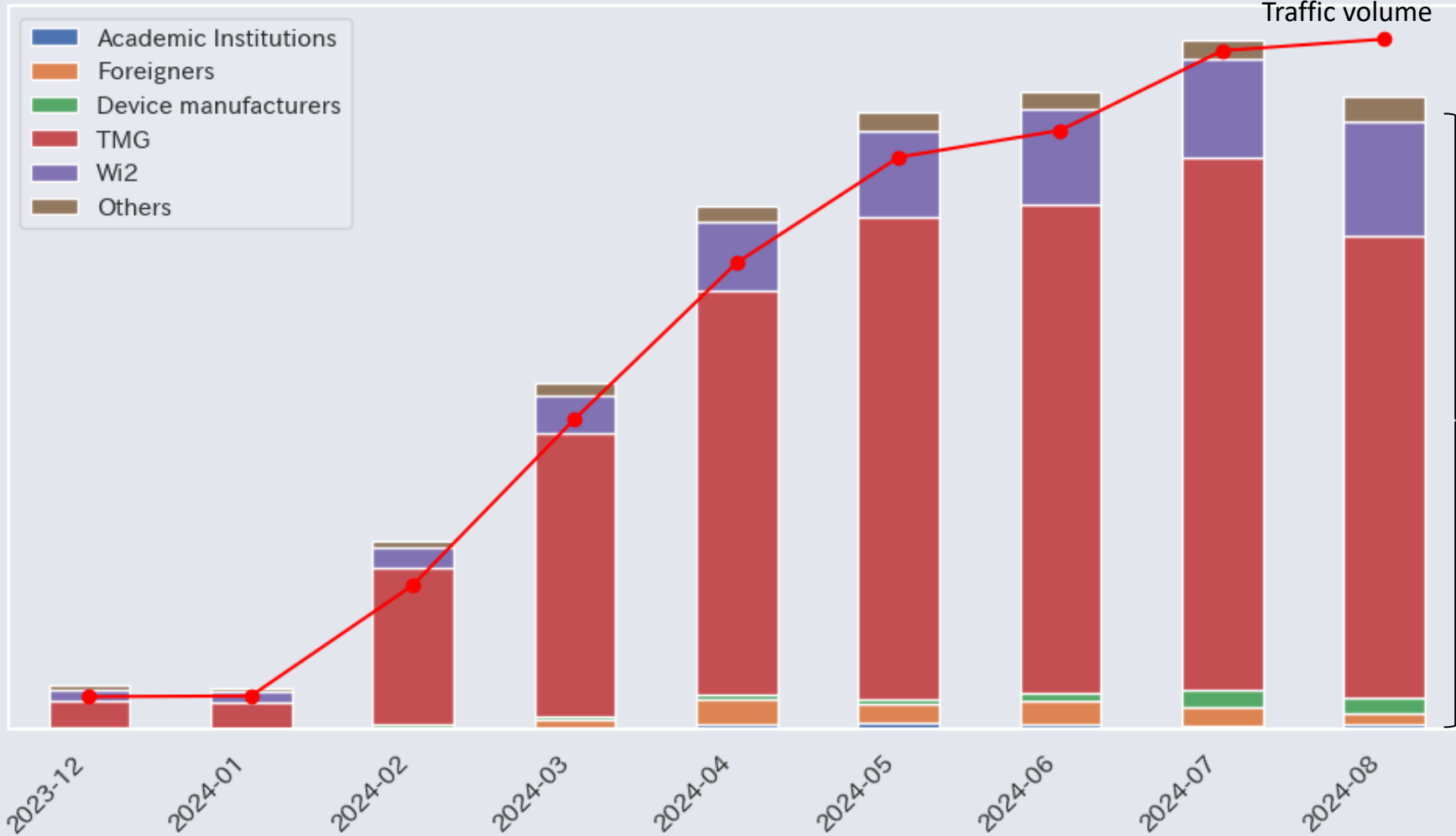
Who uses our ANP and how much? Which ANPs does our IDP use and how frequently?



Local governments

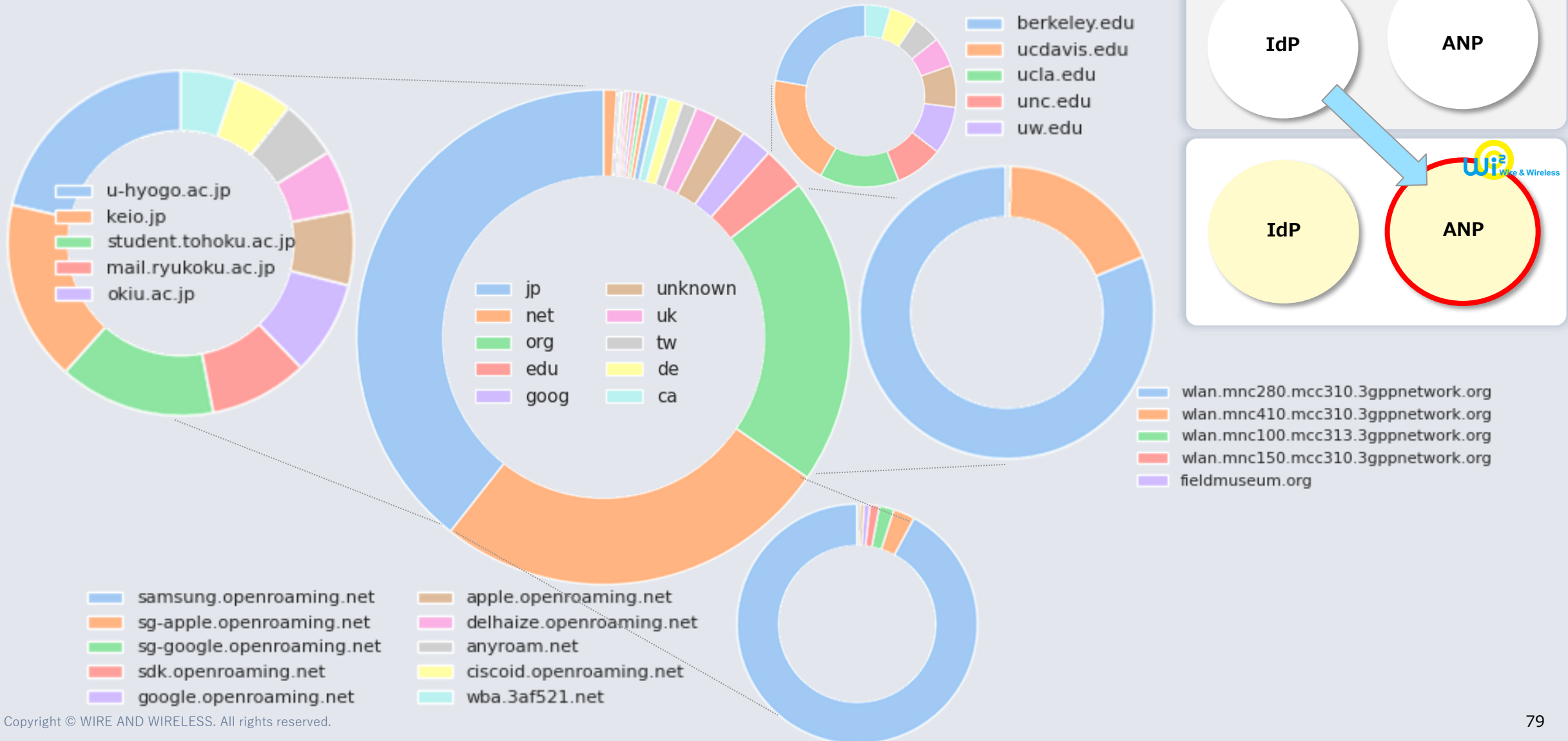


Authentication count and Traffic volume



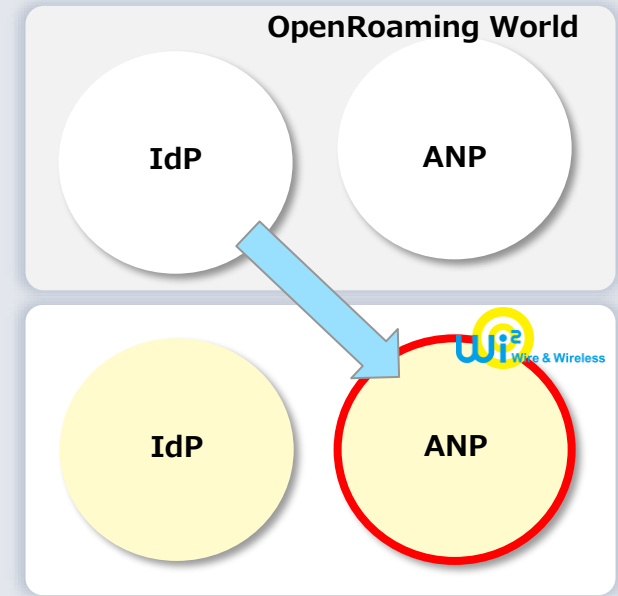
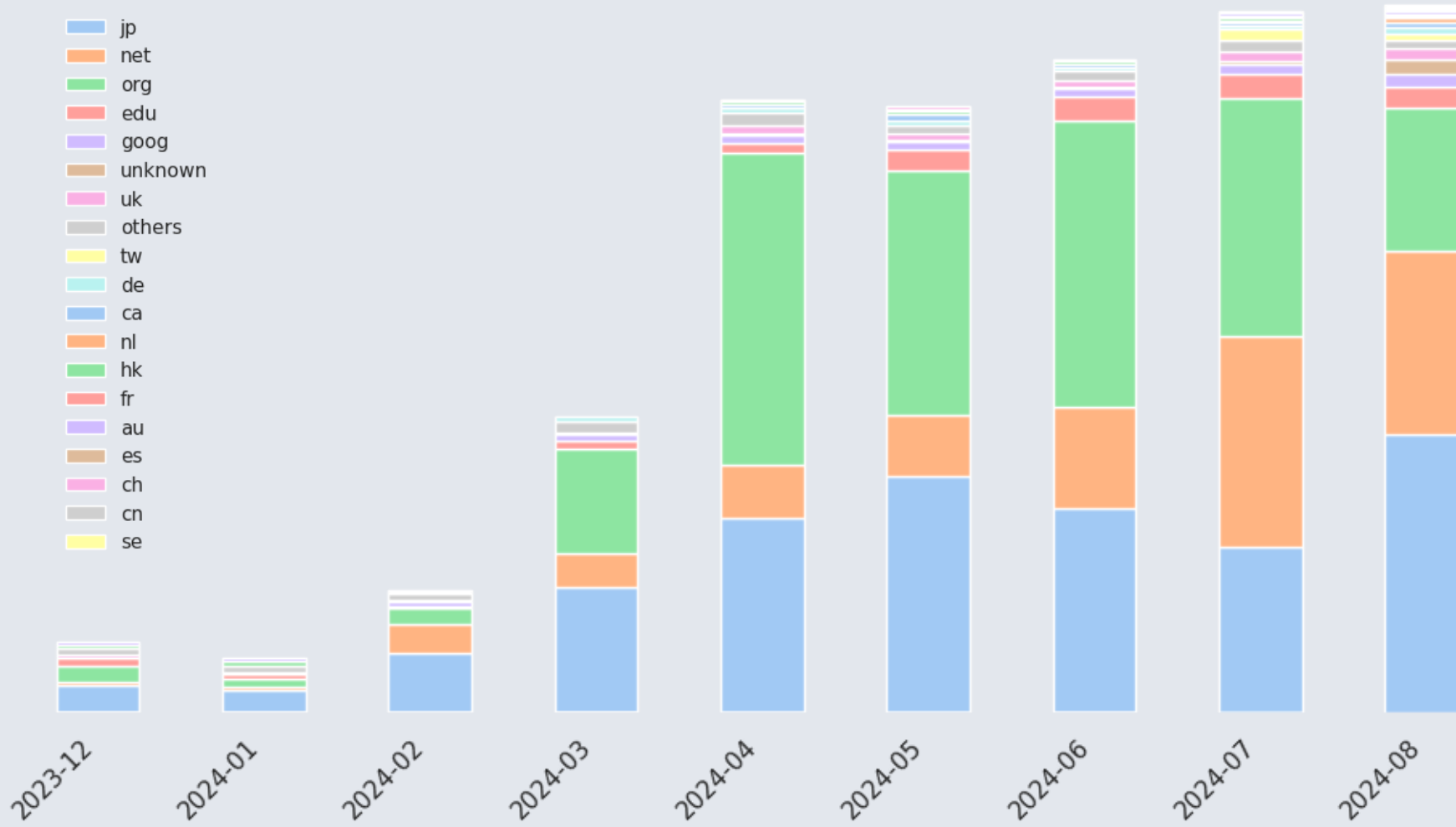
Authentication count

Authentication count by realm(from outside of Wi2)



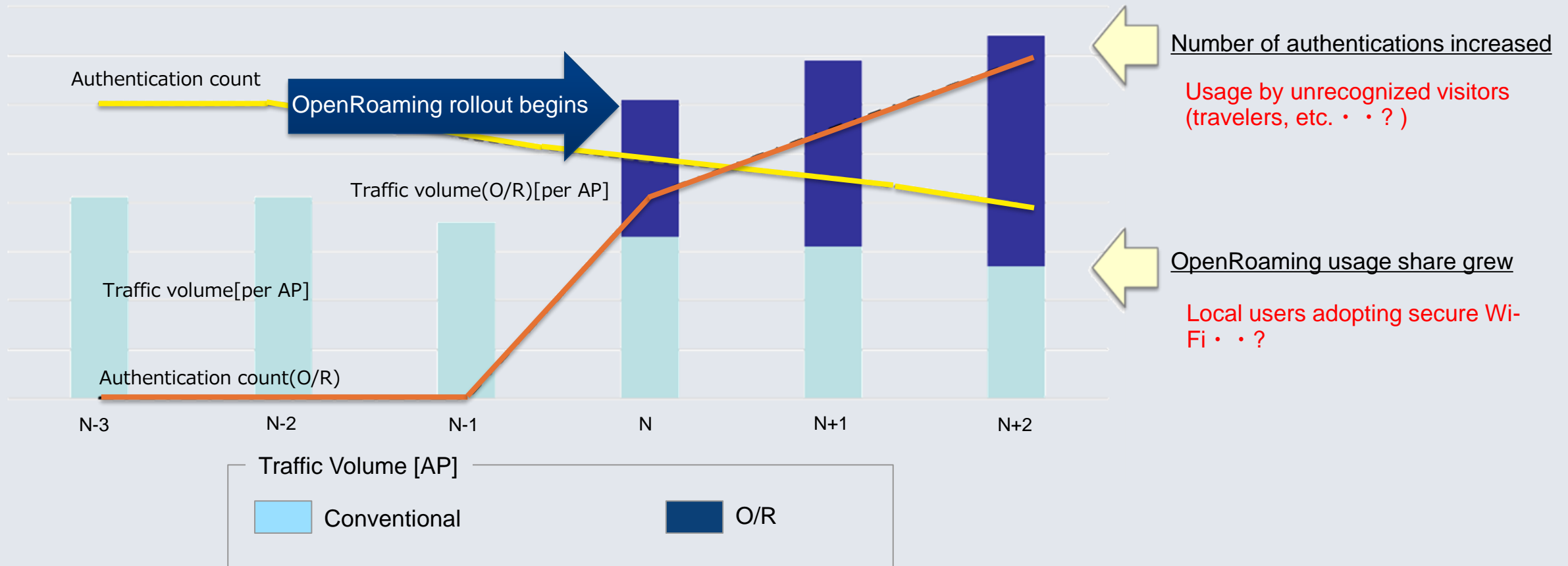
▣ Trend: Authentication count by realm(from outside of Wi2)

- jp
- net
- org
- edu
- goog
- unknown
- uk
- others
- tw
- de
- ca
- nl
- hk
- fr
- au
- es
- ch
- cn
- se



Comparing Access Point Traffic: Conventional Free Wi-Fi and OpenRoaming

Trends observed during the gradual transition of a local government's free Wi-Fi areas to OpenRoaming



But you know..

- It looks like OpenRoaming still has a way to go before it's widely adopted

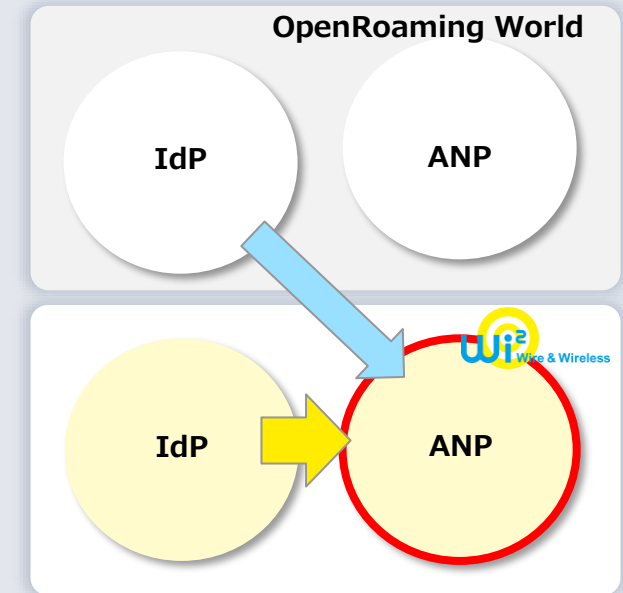
Both the number of authentications and the traffic volume are less than 1% of Wi2's overall figures



Counts



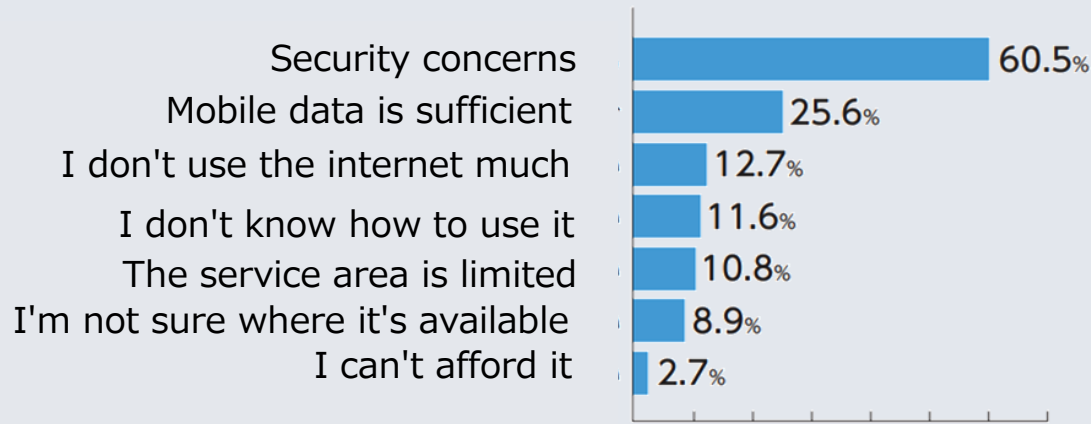
Volume



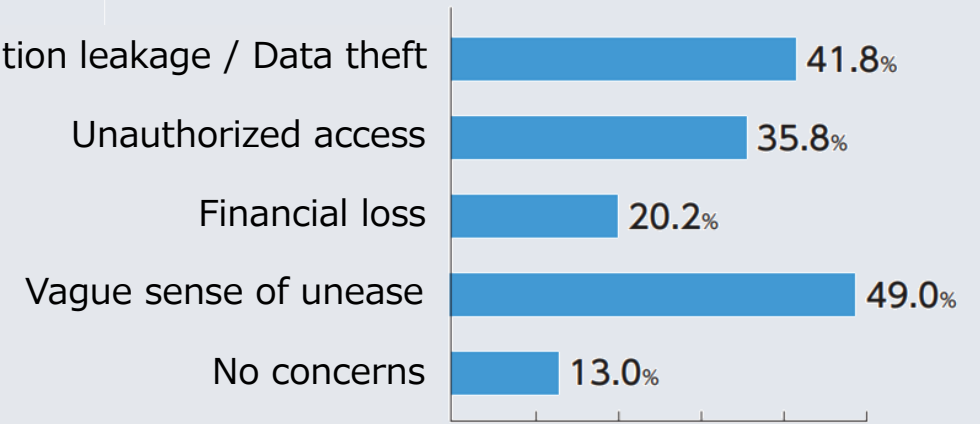
Make OpenRoaming more popular

A survey in Japan shows that about 60% of respondents do not use public Wi-Fi due to security concerns.

Reasons for not using public Wi-Fi



Security concerns when using public Wi-Fi



Based on the Ministry of Internal Affairs and Communications' research project for wireless LAN security guideline development
Ref.: https://www.soumu.go.jp/main_sosiki/cybersecurity/wi-fi/

OpenRoaming is expected to solve security issues faced by users and provide a more comfortable experience compared to traditional free Wi-Fi.



Panel: New Possibilities with Wi-Fi 7 and 6 GHz in Residential and Enterprise



Metin Taskin
CEO
Airties



Matt MacPherson
Wireless CTO
Cisco



Dr. Doriana Guiducci
Spectrum Expert
European Commissions Office



Brian Shields
VP of Engineering
Boingo Wireless



Eric McLaughlin
VP, Client Computing Group
GM, Wireless Solutions Group
Intel Corporation

The work in ECC on the 6 GHz band

Doriana Guiducci, European Communications Office
doriana.guiducci@eco.cept.org

Panel Session “New Possibilities with Wi-Fi 7 and 6 GHz in Residential and Enterprise”
Wireless Global Congress EMEA 2024
9-10 October 2024 – Paris, France



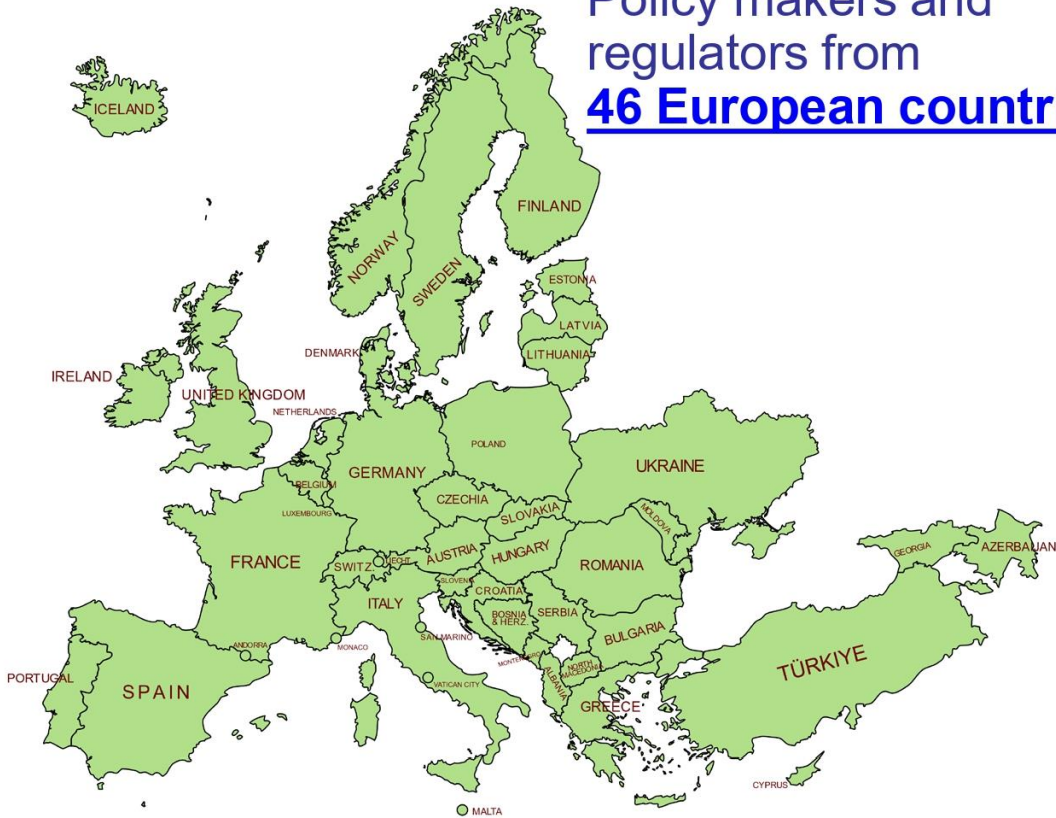
European Conference of Postal and Telecommunications Administrations

- 46 European countries cooperating to regulate posts, radio spectrum and communications networks



Introduction to CEPT

Policy makers and regulators from 46 European countries



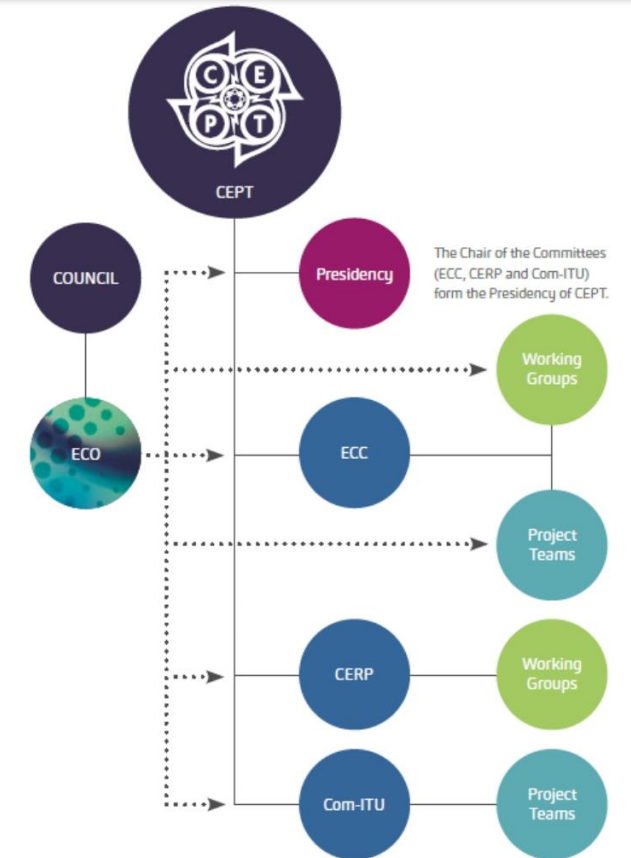
Promote harmonisation of telecommunication, radio spectrum and postal regulations

ECC: Electronic Communications Committee – telecommunications harmonisation and European co-ordination and preparation for ITU-R meetings

Com-ITU: Committee for ITU Policy – European co-ordination for ITU meetings

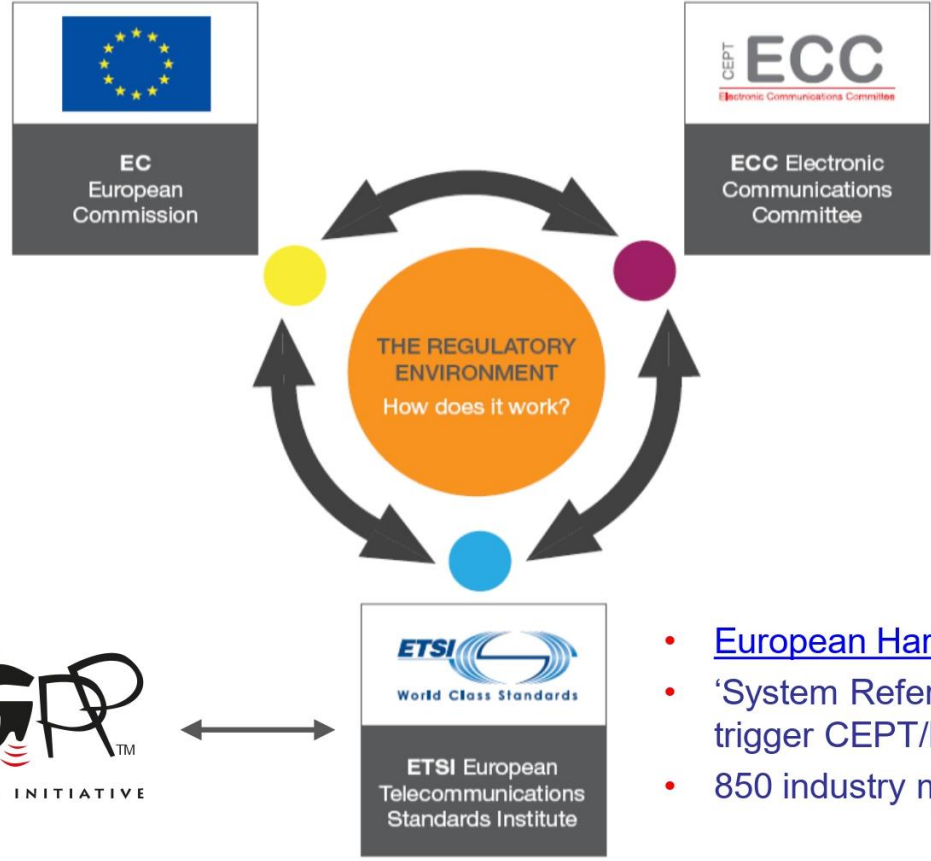
CERP: European Committee for Postal Regulation – postal regulation, as well as European co-ordination and preparation for meetings of the Universal Postal Union (UPU)

ECO: European Communications Office - Permanent office of the CEPT in Copenhagen



European regulatory framework for radio spectrum and equipment

- Single market issues (27 Member States)
- Binding regulations (EC Decisions) based on:
 - the technical expertise of CEPT/ECC (CEPT Reports)
 - ETSI harmonised standards



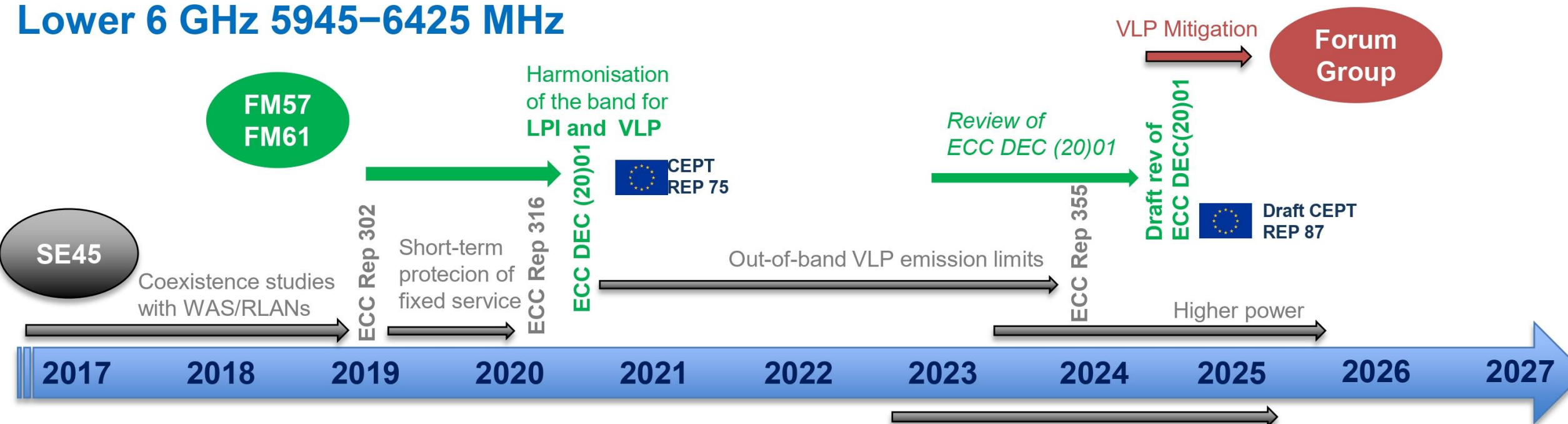
- Consensus based voluntary harmonisation (ECC Decisions) for 46 member countries
- Spectrum designation to systems/applications and technical conditions for its use

- European Harmonised standards (EN) for radio equipment
- 'System Reference Documents' (SRDoc) which inform and trigger CEPT/ECC work
- 850 industry members and European national regulators



ECC work on the 6 GHz band

Lower 6 GHz 5945–6425 MHz



Upper 6 GHz 6425-7125 MHz



Panel: New Possibilities with Wi-Fi 7 and 6 GHz in Residential and Enterprise



Metin Taskin
CEO
Airties



Matt MacPherson
Wireless CTO
Cisco



Dr. Doriana Guiducci
Spectrum Expert
European Commissions Office



Brian Shields
VP of Engineering
Boingo Wireless



Eric McLaughlin
VP, Client Computing Group
GM, Wireless Solutions Group
Intel Corporation

WGC EMEA

LUNCH & NETWORKING

PLEASE BE BACK FOR 1.40 PM CET



WGC EMEA

OCT 07 – OCT 10

Wi-Fi Innovation: Connecting Our Digital World

Paris Expo Porte De Versailles. Paris, France

#WGCEMEA | #wifirevolution | #lovewifi





Steve Andrews

Chairman, G-Network Communications &
Board Advisor, Wireless Broadband Alliance.

Session Moderator



Matt Hughes
BT / EE



Thomas Li
World WLAN Application Alliance



Bob El-Hawary
Cognitive Systems



Rida Zouaoui
Orange



Bruno Tomás
Wireless Broadband Alliance



Christian Gabetta
Heights Telecom Switzerland



Pramod Gummaraj
Aprecomm

Time	Presentation
1:40 PM (CET)	Moderator Introduction Steve Andrews, Chairman, G-Network Communications & WBA Board Advisor
1:45 PM (CET)	Operator Perspective Matt Hughes, Broadband & TV Product Director (BT, EE & Plusnet)
2:00 PM (CET)	WAA NEW Connectivity: Chasing Best WLAN Application Experience Thomas Li, Chief Scientist, World WLAN Application Alliance
2:20 PM (CET)	Real Impact: How Companies Are Harnessing Wi-Fi Motion Bob El-Hawary, Executive Vice President, Global Sales, Cognitive Systems.
2:40 PM (CET)	Panel Session - Addressing the Critical Aspects of Network Performance, Management and Security in a Connected Home Rida Zouaoui, Head of New Business Strategy, Orange; Bruno Tomás, CTO, Wireless Broadband Alliance; Matt Hughes, Product Director, BT/EE; Christian Gabetta, Heights Telecom Switzerland; Pramod Gummaraj, CTO & Founder, Aprecomm.
3:20 PM (CET)	COFFEE & NETWORKING



Matt Hughes

Broadband & TV Product Director (BT, EE & Plusnet)

Operator Perspective



Operator perspective

Matt Hughes

Broadband & TV Product Director (BT, EE & Plusnet)











NEW EE
DOES MORE

GAME • WORK • HOME • LEARN



The billboard features a central image of a young man with a blue patterned hoodie and headphones, holding a black game controller. Behind him, a group of diverse people are shown in various settings: a man on a laptop, a woman on a mobile phone, a woman with a tablet, and a woman with a laptop. The background is a bright teal color with a yellow lightning bolt graphic.

BARCLAYS

pharmacy

Boots

beauty

GAP

WICKED

incense

Central line

YOUR LEARNING UNLEASHED

SEARCH EE LEARN



HOME • LEARN • WORK • GAME





HOME • LEARN • WORK • GAME

**YOUR HOME
RUNS SMARTER**

WITH EE HOME

HOME

LEARN

WORK

GAME

NEW EE
DOES MORE



HOME LEARN WORK GAME
NEW EE DOES MORE



EE





Thomas Li

Chief Scientist, World WLAN Application Alliance

**WAA NEW Connectivity:
Chasing Best WLAN
Application Experience**



世界无线局域网应用发展联盟
WLAN Application Alliance

WAA NEW Connectivity: Chasing Best WLAN Application Experience



Presenter: LI Li (Thomas), Chief Scientist, WAA

9th October, 2024, Paris

About WAA

Non-Profit
NGO

Registered
In 2022

Formed by
Global WLAN
Stakeholders

Vision and Mission

To promote the healthy and sustainable development of the world WLAN industry, and build up the best WLAN application experience.

The alliance represents the Voice of the WLAN & other short range wireless industry.

WAA Structure Governance



WAA Member List

 中国移动 China Mobile	 中国电信 CHINA TELECOM	 JDT 京东科技	 中国广电 China Broadnet	 Haier	 China unicom 中国联通
 HUAWEI	 ZTE 中兴	 H3C	 CAICT 中国信通院	 中国质量认证中心 CHINA QUALITY CERTIFICATION CENTRE	 FNii 南京智能网络研究院
 中国电子技术标准化研究院 China Electronics Standardization Institute	 TÜVRheinland® Precisely Right.	 机械工业仪器仪表综合技术经济研究所 MECHANICAL INSTRUMENTATION TECHNOLOGY AND ECONOMY RESEARCH INSTITUTE	 CHEARI 中国家用电器研究院	 北京邮电大学 Beijing University of Posts and Telecommunications	 Tencent 腾讯
 鹏城实验室 PENGCHENG LABORATORY	 星河亮点 StarPoint	 HISILICON	 Link	 Realsil	 inspur 浪潮
 BUREAU VERITAS	 CHANGESELF®	 Midea	 睿班 RFI-LAB	 Itenest 极致汇仪	 Spirent
 CAICT 泰尔融创	 BOW 博为科技	 FiberHome	 SMARTGIANT 思赫杰科技	 Mote More than expect	 LITEPOINT
 Tonscend	 TÜV SÜD	 eurofins TA	 LONGSAILING 朗力半导体	 SUNDRA Y 信锐技术	 中承科技 ZHONCENT
 ARCUCHI	 SGS	 浙科睿微 CASEMIC			

14+
Academic
Institution

13+
Testing and
Certification
Services/Equipment

4+
Service
Providers

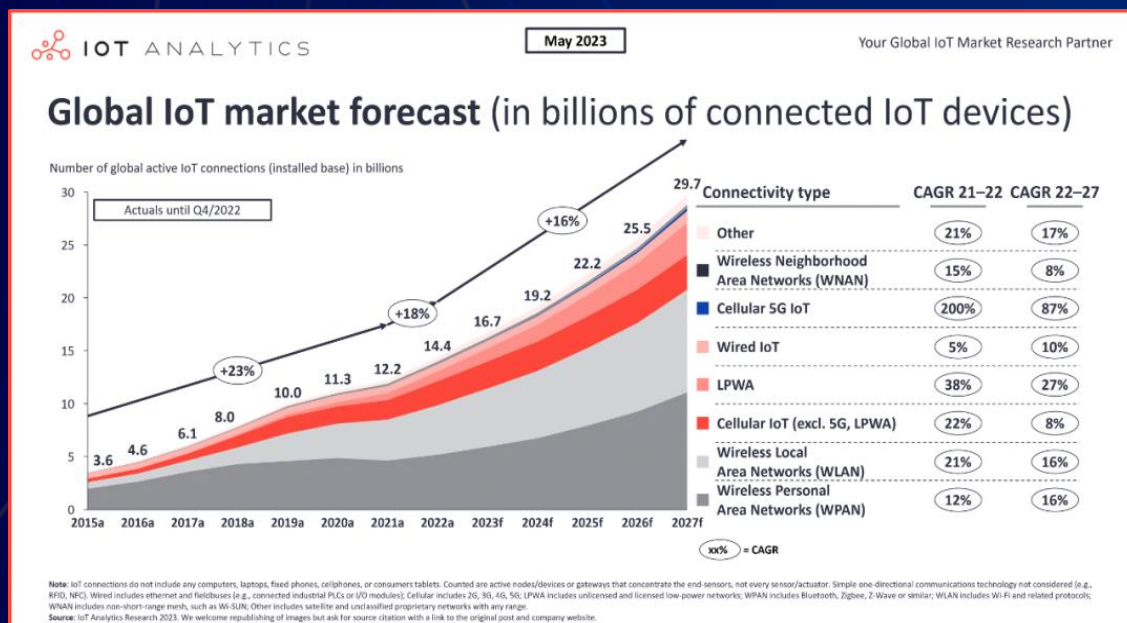
14+
Chip makers

17+
Network
Equipment
Vendors

13+
Terminal
Device
Vendors

Note: Due to space limitation, only a partial list is displayed. The order does not indicate ranking

Why WLAN?



◆ According to IoT analytics, the total number of IoT connections reached 16.7 billion by the end of 2023. **It is expected that by the end of 2027, the number of IoT connections will reach 29.7 billion.**

- ◆ In term of connection distance, short-range IoT technologies (including Wi-Fi, Bluetooth, RFID, etc.) account for **over 70%** of connections, while long-range IoT technologies (such as 2G/3G/4G/5G IoT, Lora, Sigfox, etc.) account for less than 30%.
- ◆ In term of technology breakdown, **those based on the IEEE 802.11 series standards account for 31% of all IoT connections, followed by Bluetooth, which accounts for 27%. Cellular technologies account for 20% of total IoT connections.**

WLAN Product Current User Pain Point

Home Network: Poor Coverage



Multi-devices connection: **frequent network interruption, weak signal coverage, speed degradation**

Office Network: Unstable Connection



Large office connection: **Limited network coverage, insufficient signal strength, and unstable connection speed**

Public Networks: Security Risks



Public place like cafes and airports: **Poor network security, with risks of information leakage and insufficient privacy protection**

High-Density Environment: Network congestion



Venues with high-density crowds such as stadiums, concerts: **network congestion, insufficient bandwidth, and connection difficulties in high-density environment**

User Expect a Better WLAN Internet Experience

- **Intelligent**, **Green** and **Secure** wireless local area network(WLAN)



Application experience

Experience optimization

- Smooth experience
- Low frame drop rate
- Low packet loss rate



Interactive Experience

Internet of everything

- Lower latency
- Lower jitter
- Higher throughput
- Higher number of connections



Connection Experience

User convenience

- Password-free login
- Seamless roaming
- Self-healing faults
- Intelligent operations



Technological innovation

Leading innovation

- Safer, smarter
- Faster connection, accessing and networking
- Enhanced WLAN integration capability
- Reduced power consumption, eco-friendly

Current Status of WLAN Products in the Industry

Mandatory access certification

- Evaluate the Radio frequency performance of WLAN devices to ensure compliance with relevant regulation and standards
- Includes testing of transmit power, frequency range, spectral efficiency, electromagnetic compatibility, electrical safety, environmental protection, and other aspects
- A mandatory compliance requirement before market entry, ensuring devices do not interfere with other radio equipment and operate safely within specified frequencies

Protocol conformance testing certification

- Verify whether WLAN devices comply with communication protocols/standards, such as: Wi-Fi 6/Wi-Fi 7, SIG Bluetooth, etc.
- Includes testing of data transmission rate, channel occupancy, modulation and demodulation techniques, and MIMO (Multiple Input Multiple Output) performance
- Ensures technical compliance and compatibility, enabling devices from different manufacturers to communicate within the same network

Interconnectivity and interoperability testing certification

- Evaluate the interoperability of WLAN devices from different brands and models in real-world environment. Such as certification
- Involves testing connection stability, data transmission performance, and compatibility between devices
- Ensures users have a seamless network experience when using devices from different manufacturers, addressing compatibility issues

WLAN performance testing certification

Missing

Primarily focuses on compliance with underlying technical specifications and standards, lacking Performance evaluation of upper-layer user experience

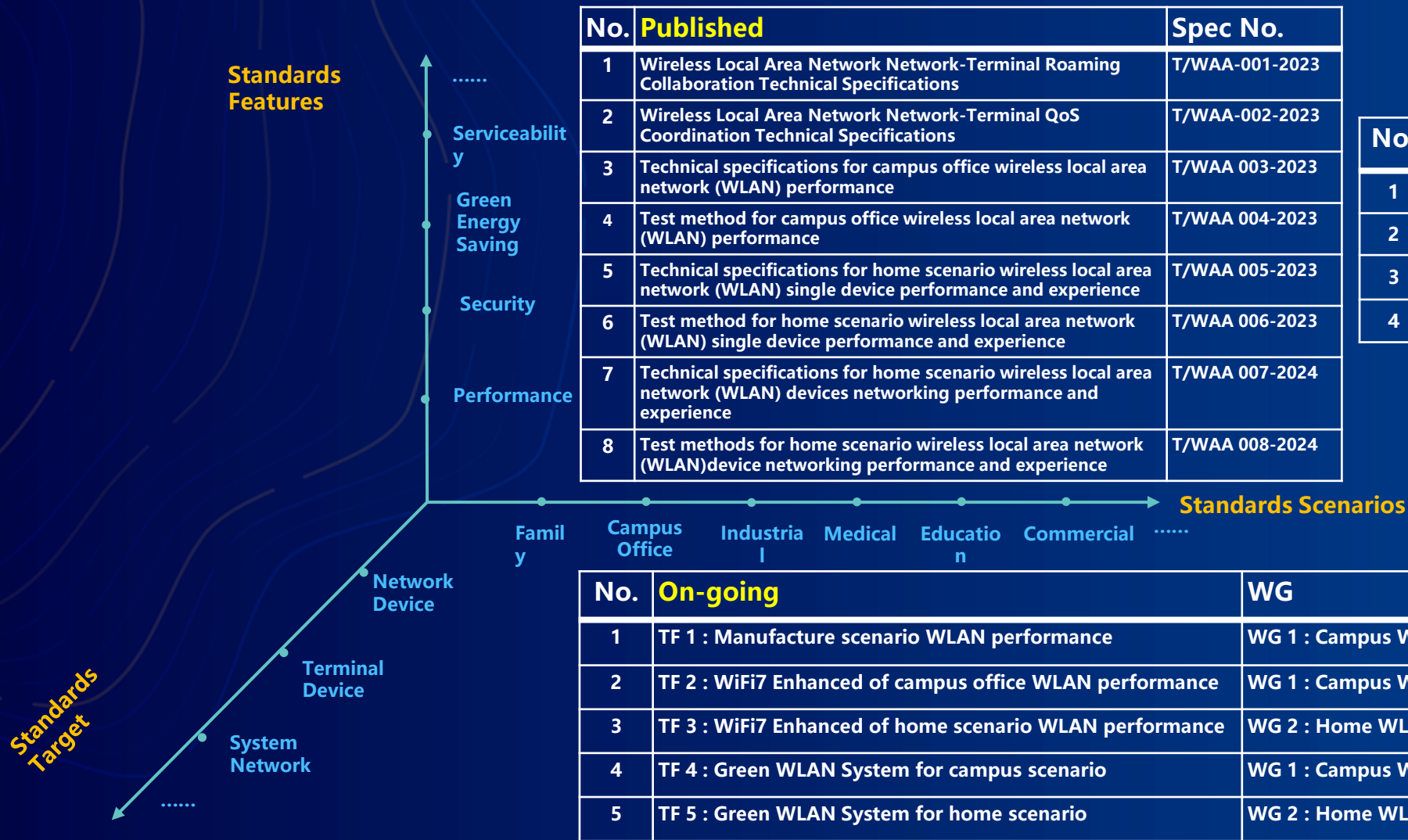
User Experience Performance Metrics Framework

WAA is committed to bridging this gap by developing and enhancing performance testing standards centered on user experience, and creating a comprehensive evaluation and certification framework

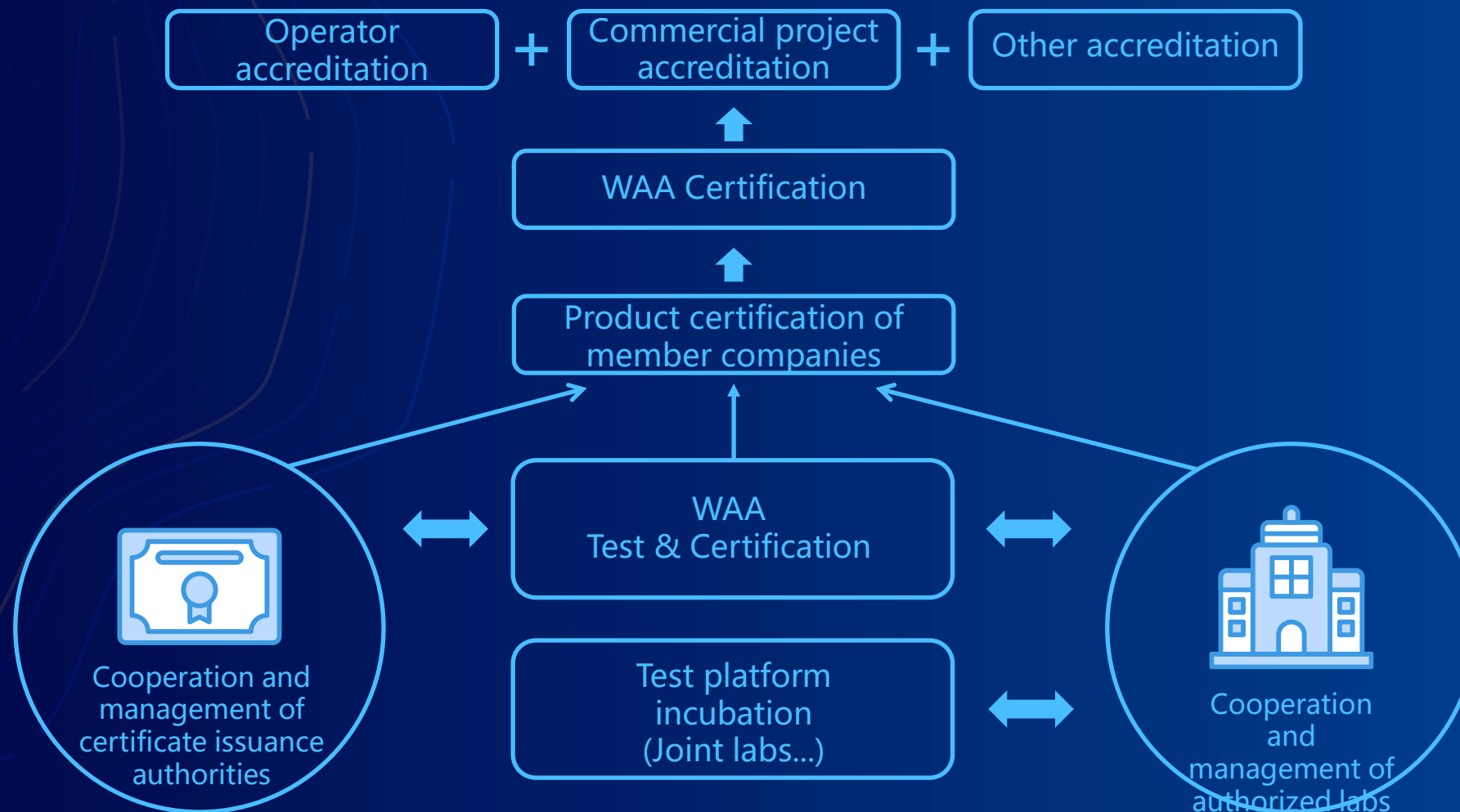


- **Bandwidth and Speed Testing:** Assessing Device Performance in Real-World Scenarios for Data Transfer Speed and Bandwidth Utilization Efficiency
- **Latency and Response Testing:** Measuring Network Latency and Device Response Time to Ensure Seamless Performance of Real-Time Applications
- **Roaming Performance Testing:** Evaluating Device Behavior During Transitions Between Different APs to Ensure Continuous Network Connectivity for Users on the Move
- **Connection Stability Testing:** Assessing Signal Stability When Multiple Devices Connect to an AP and Testing Device Connectivity Over Extended Use to Ensure a Reliable Network Connection

WAA Standards Frameworks



WAA WLAN Certification: Core Testing Elements



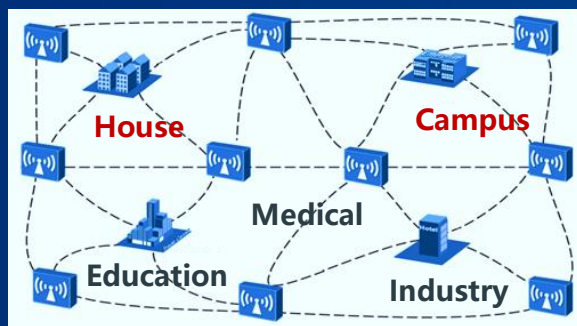
WAA WLAN Certification: Target Scope

Field-Based Certification



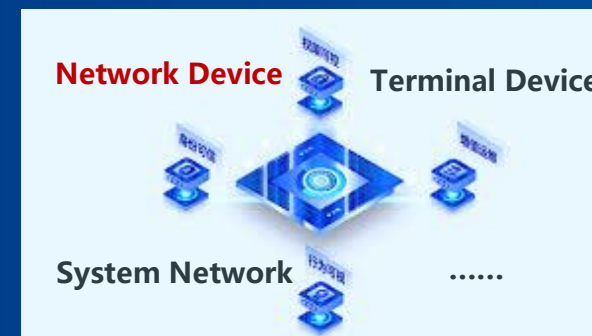
WAA certification begins with performance, targeting household and campus office scenarios, and extends into security and green energy saving, focusing on low power consumption to reduce costs and support national policies.

Scenario-Based Certification



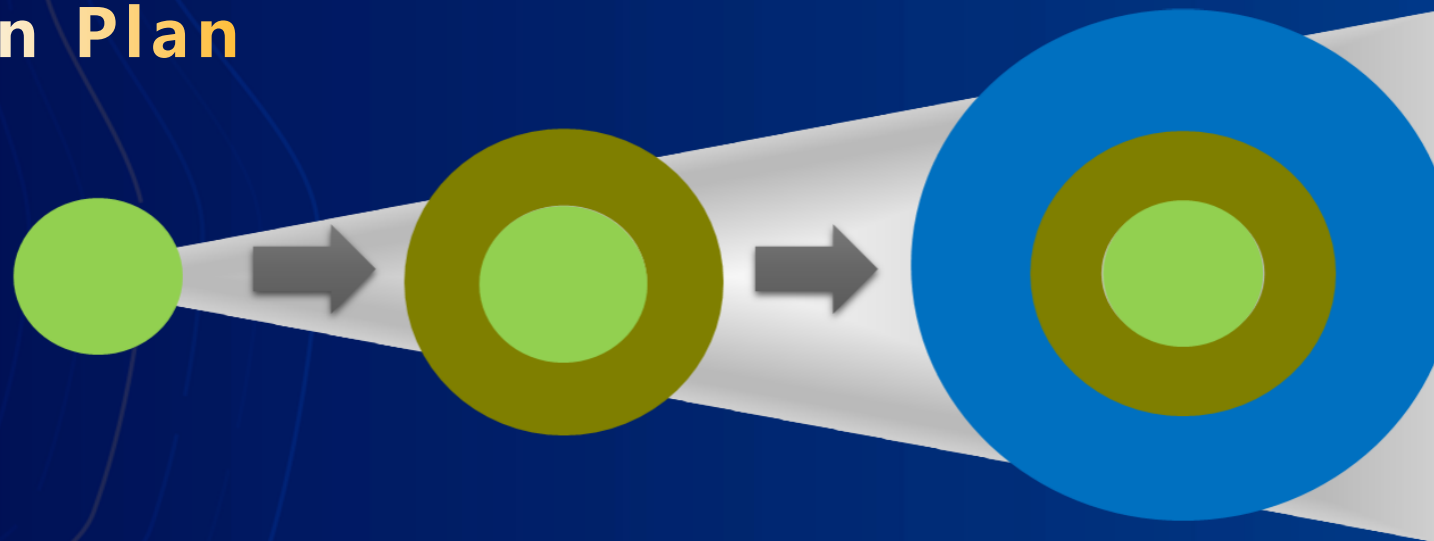
WAA certification begins with household and campus scenarios and progressively expands into industrial, medical, and educational fields. Each scenario presents unique environments, business demands, and specific network requirements, making tailored scenario-based product planning and certification essential.

Product-Based Certification



Network devices, terminal devices, and system networks key categories of certified products. Terminal devices are more diverse and numerous compared to network devices. System networks, however, are not single products but an entire system comprising all network devices. Standards are developed for these system networks, which are then evaluated according to these standards.

WAA WLAN Performance Evaluation and Certification Plan



Industry Status



WAA (Phase I: 2024~)



WAA (Phase II: 2026~)

	WFA/Bluetooth (Available)	WAA Phase I (Easy to Use)	WAA Phase II (Great User Experience)
Core Content	Protocol & Interoperability Certification	Product-Level Standards and Performance Experience Certification	Network Standards & Performance Certification: Product, System/Network
Driving Force	Technology Promotion	Experience/Quality Driven	Business-Driven
Leading Authority	Product Manufacturers	Operators/Vertical Industries	Operators/Vertical/Industries/OTT/Government & Public Sectors

Q1 2024: WAA Product Certifications and Testing System Launch

Issuance WAA First Product Certifications



Huawei, ZTE, H3C, and two other products receive WAA's initial batch of certifications

WAA Initial Batch of Product Certifications



WAA First Authorized Certification Body



China Quality Certification Center(CQC) becomes the first authorized certification body for WAA

WAA Authorized Laboratory



China Mobile Digital Home Laboratory and China Academy of Information and Communications Technology (CAICT) become WAA's first authorized laboratories

WAA First Certified Testing equipment



The HC-2600 by HBTE and the CSWIFI600 testing platform by Brite Semiconductor have been officially designated as WAA's certified testing equipment

WAA Testing Platform: Domestic and International

HBTE



HBTE-HC2600

Single Device Home Scenario Approved

The HBTE-HC2600 is an automated Wi-Fi performance testing system designed for Wi-Fi 6 products, aligned with WAA standards. It supports protocol analysis, benchmarking, and real-world simulations, enhancing product optimization and user experience

Brite Semiconductor

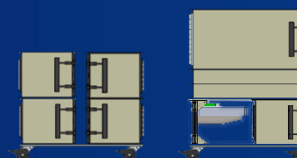


CSWIFI600

Campus Office Scenario Approved

The CSWIFI600 is the industry's only WAA-certified testing system with 4D dynamic scenario simulation, replicating real user conditions. It offers efficient WAA certification testing, expert analysis, and is ready for Wi-Fi 7 performance testing

SPIRENT



OCTOBOX

(Under preparation)

Spirent OCTOBOX Wi-Fi Testbed is a leading solution for testing Wi-Fi device performance. It simulates real-world scenarios like congestion, interference, channels, and mobility, providing accurate performance and user experience evaluation

ZHONCENT



WTS-NE6000

(Under preparation)

The Zhoncent High-Performance WLAN Simulation and Testing System combines multi-user/AP simulation, RF testing, Layer 4 protocol analysis, and OFDMA packet capture. It supports WAA test cases, helping clients tackle technical challenges in WLAN development, certification, and network deployment

Key Focus for Certification System Development

Standards Development

Objective: Address vertical market needs for performance, sustainability, and security

Path: Develop four new standards for: Industrial scenarios, Medical scenarios, Green energy efficiency, Home network device performance

Plan: Establish standards project working in Industrial, Medical and Green



2022~

Testing & Certification

Objective: Establish a WAA certification system to meet market demand

Path: Create alliance labs with CAICT and China Mobile as joint labs, partnering with CQC and TUV for certification

Plan: Lab successfully acceptance by January 2024 and launch the first WAA-certified products. Certify 10+ products by Q4 2024.



2024~

Accreditation

Objective: Meet performance and experience requirements for WLAN devices in operator and consumer markets

Path: Implement operator standards and promote industry/consumer market certification

Plan: China Mobile: Q3 2024
 China Telecom: Q4 2024
 China Unicom: Q2 2025



2025~

WAA Demonstration & Pilot Project



Pilot Project at China Telecom



Demonstration Functions



More demonstration applications in

- Shenzhen
- Xiamen
- Macao
-



Implementing Plan



Experience Platform



世界无线局域网应用发展联盟
WLAN Application Alliance

THANK YOU





Bob El-Hawary

Executive Vice President, Global Sales, Cognitive Systems.

**Real Impact:
How Companies Are
Harnessing Wi-Fi Motion**

Cognitive Systems Corp.

Creators of WiFi Motion™

Real Impact: How Companies Are Harnessing WiFi Motion

Presented by Bob El-Hawary

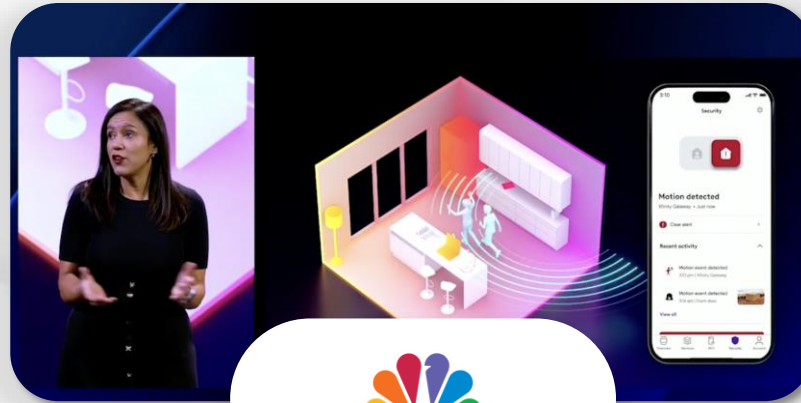
COGNITIVE 



20B+ Wi-Fi devices span the globe, but their capabilities are limited to connectivity...

Cognitive is transforming Wi-Fi devices into sensors, fueling a SaaS platform that unlocks unprecedented intelligence.

Wi-Fi Sensing: A Game Changer



Unlock the aging-in-place market with Wi-Fi Sensing

Elevate eldercare with WiFi Motion™. Deliver seamless monitoring to keep your users reliably ahead of wellness changes.

Meet the growing demand of seniors for independent living.

Enable... ing peace of mind... ecting



For subscribers

Sense

One of HomePass's most ingenious tricks? Turning subscribers' connected devices into a motion awareness system. Sense alerts are easy to enable and less intrusive than traditional cameras.



Other game changers are entering the playground



WiFi Motion Today



15M+

WiFi Motion
deployments



10+

Tier 1 ISPs have launched
WiFi Motion globally



110+

Countries with
WiFi Motion
deployments



150+

Tier 2 and 3 ISPs have
launched WiFi
Motion globally

WiFi Motion Traction

AMERICAS



EMEA



APAC



Examples of Monetizing WiFi Motion



Competitive Advantage



Monetization of Features



Upsell Premium Services



Home Aware Monetization



Eldercare Monetization

The Most Advanced Wi-Fi

Differentiate your broadband services by offering more value with Wi-Fi Sensing basics

Experience Advanced Home Monitoring

Discover enhanced home security with WiFi Motion, exclusively from [ISP Company Name].



Marketing example ad

Competitive Advantage

Monetization of features

Upsell Premium Services

Monetization of Home Aware

Monetization of Eldercare

Advanced Wi-Fi Sensing Upgrades

Enhance your Wi-Fi Sensing capabilities with premium features that provide more in-depth insights and expanded coverage

Advanced Wi-Fi Home Security

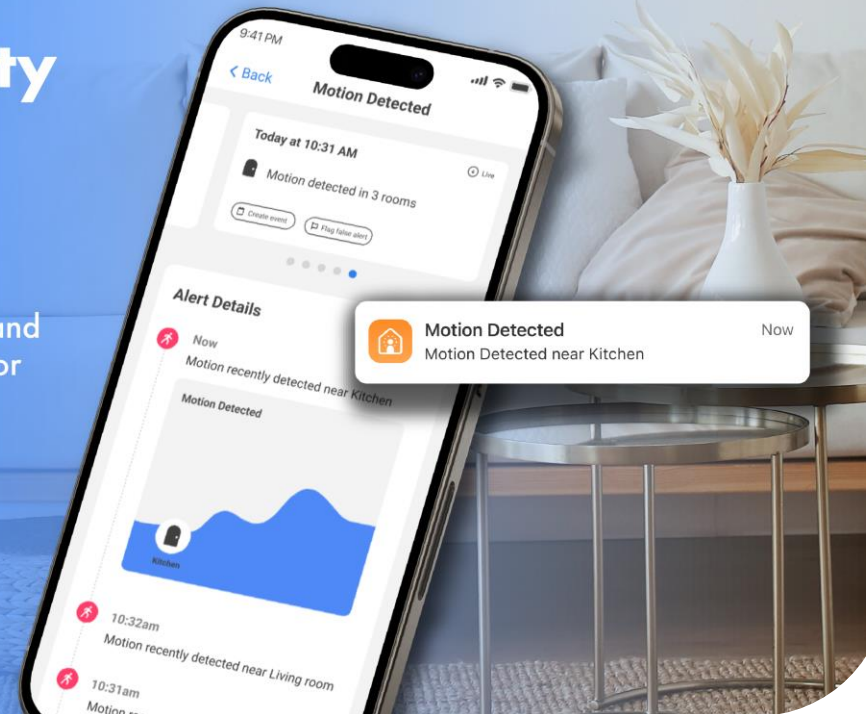
Let your WiFi do more.

Upgrade your WiFi Motion with advanced features.

Access motion history replay, receive personalized notification, and expand your sensing coverage to include up to 7 Wi-Fi devices for more comprehensive sensing experience.

Upgrade your broadband for just

€5/month



Marketing example ad

Competitive Advantage

Monetization of features

Upsell Premium Services

Monetization of Home Aware

Monetization of Eldercare

Channel to Upsell Premium Service

Foster an engaged and active customer base to promote premium feature upgrades

Enjoy Motion Sensing?

Upgrade to Premium Monitoring to unlock additional features, along with 24/7 professional monitoring.

Starting at just
€19.99/month



Marketing example ad

Competitive Advantage

Monetization of features

Upsell Premium Services

Monetization of Home Aware

Monetization of Eldercare

Monetize Home Awareness Using Wi-Fi Sensing

Expand your product catalogue with WiFi Motion for Home Monitoring to deliver affordable and effective motion sensing



Upgrade Your Home Security

Enjoy private and non-intrusive motion sensing with our extended home protection options.

Basic Home Monitoring starting at
€4.99/month

The ad features a smartphone in the foreground displaying a home monitoring app. The app interface includes a 'Good Afternoon' greeting, a home icon, a 'Mode' button, 'Set to Home since 5:00 PM', 'Last Motion Today at 12:20 PM', 'Highlights' section showing 'Today's Total Motion 1 hr 40 min', and a 'Motion History' bar chart for the last 8 hours. The background shows a family in a kitchen setting.

Competitive Advantage

Monetization of features

Upsell Premium Services

Monetization of Home Aware

Monetization of Eldercare

Marketing example ad

Monetize Eldercare with Wi-Fi Sensing

Expand your product catalogue with WiFi Motion for Caregiving to deliver private and non-intrusive wellness monitoring

Wellness Monitoring

Enable proactive health monitoring providing peace of mind and insights on well-being, while respecting privacy, dignity, and independence.

Basic Wellness Monitoring starting at
€19.99/month



Competitive Advantage

Monetization of features

Upsell Premium Services

Monetization of Home Aware

Monetization of Eldercare

Marketing example ad

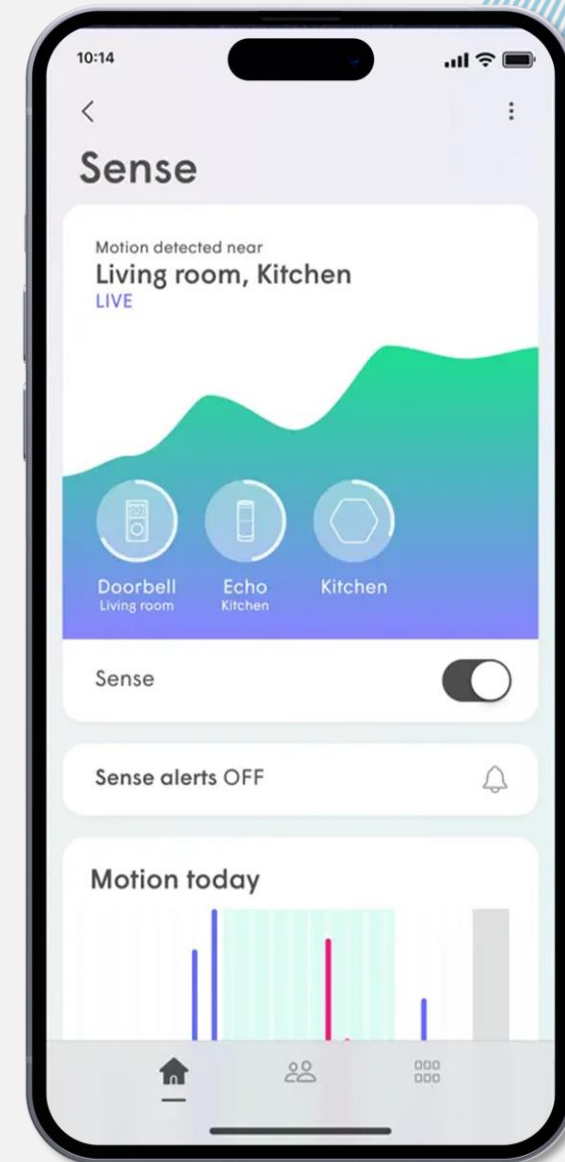
What our customers are saying

COGNITIVE 



“Cognitive Systems stands out with their motion software, designed for efficient integration on APs. This complex software enables our customers to enjoy enhanced motion detection and security features, setting a new standard in the market.”

-Siraj Nour ElAhmadi | Plume
Chief Commercial & Strategy Officer

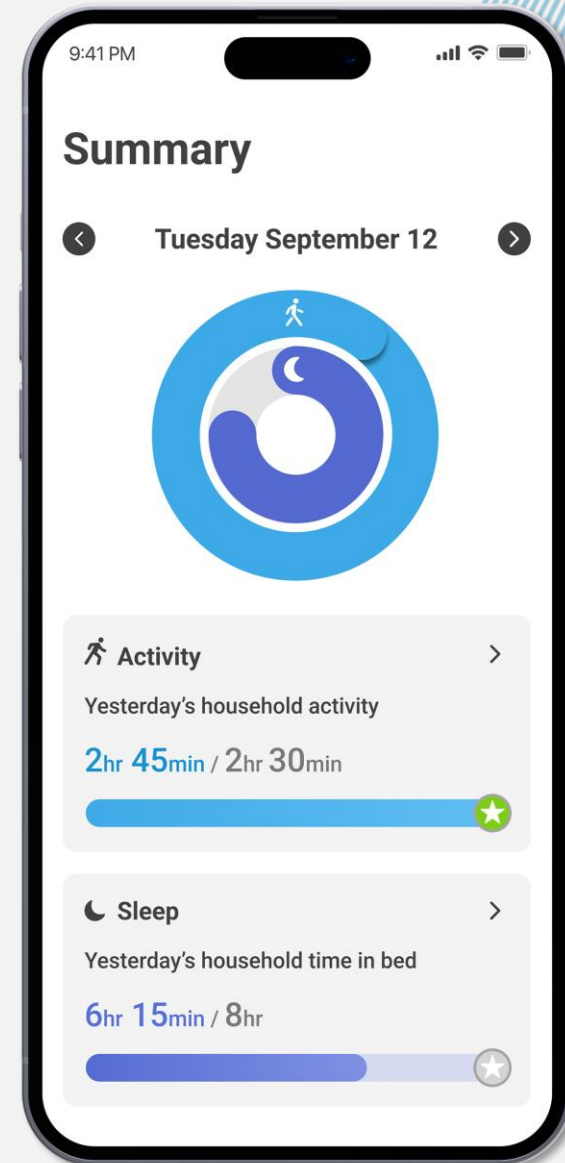


COGNITIVE ∞



“We’ve been a leader in digital health for years, and our partnership with Cognitive Systems only strengthens our position. CareAware is pushing the boundaries of wellness monitoring to offer insights and motion detection capabilities that simply weren’t possible a year ago.”

-Anthony Dohrmann | Electronic Caregiver
Founder and Chief Executive Officer



COGNITIVE 

A hand holding a globe with a network overlay. The background is a blue gradient with a network of white dots and lines. The globe is in the center, and the hand is at the bottom. The text is overlaid on the globe.

Connect with us to explore how your
company can harness WiFi Motion for
transformative results

COGNITIVE[∞]

A hand is shown holding a globe of the Earth. The background is a blue-to-purple gradient with a network of white dots and lines, suggesting a digital or global theme. The text "Thank you" is centered over the globe.

Thank you

COGNITIVE 

Panel: Addressing the Critical Aspects of Network Performance, Management and Security in a Connected Home



Rida Zouaoui
Head of New Business Strategy
Orange



Bruno Tomás
CTO
Wireless Broadband Alliance



Matt Hughes
Product Director
EE



Christian Gabetta
Managing Director
Heights Telecom Switzerland



Pramod Gummaraj
CEO & Founder
Aprecomm

WGC EMEA

COFFEE & NETWORKING
BE BACK IN 25 MINUTES AT
3.45 PM CET



WGC EMEA

OCT 07 – OCT 10

Wi-Fi Innovation: Connecting Our Digital World

Paris Expo Porte De Versailles. Paris, France

#WGCEMEA | #wifirevolution | #lovewifi





Andrew Spivey

Principal Analyst, ABI Research

Session Moderator



Andrew Spivey
ABI Research



Christopher Hols
Telekom Deutschland



Christian Gilby
Juniper Networks



Manish Gangey
HFCL



Shrinath Keskar
Morse Micro

Time	Presentation
3:40 PM (CET)	Moderator Introduction Andrew Spivey, Principal Analyst, ABI Research.
3:45 PM (CET)	Driving the future of Smart Manufacturing with Next Gen Wi-Fi Andrew Spivey, Principal Analyst, ABI Research.
4:00 PM (CET)	Presentation Title Chris Hols, Senior Technical Manager, Telekom Deutschland.
4:15 PM (CET)	Elevate Experiences with AIOps for Wi-Fi Christian Gilby, Senior. Director of Product Marketing, AI-Native Networking, Juniper Networks.
4:35 PM (CET)	Embracing Wi-Fi 7 – Future of Enterprise Wi-Fi Manish Gangey, Executive President, HFCL..
4:50 PM (CET)	Panel Session Shrinath Keskar, Vice President - Global Sales and Business Development, Morse Micro; Christian Gilby, Senior Director Product Marketing, Juniper Networks; Christopher Hols, Sr. Technical Manager, Telekom Deutschland; Manish Gangey, Exec President Product Strategy, HFCL.
5:20 PM (CET)	WBA Industry Awards
6:00 PM (CET)	WBA Networking Drinks Reception (VIP & Speakers' Lounge)



Andrew Spivey

Principal Analyst, ABI Research

Driving the future of Smart
Manufacturing with Next Gen
Wi-Fi



Driving the future of Smart Manufacturing with Next Gen Wi-Fi

Andrew Spivey | Principal Analyst

September 2024

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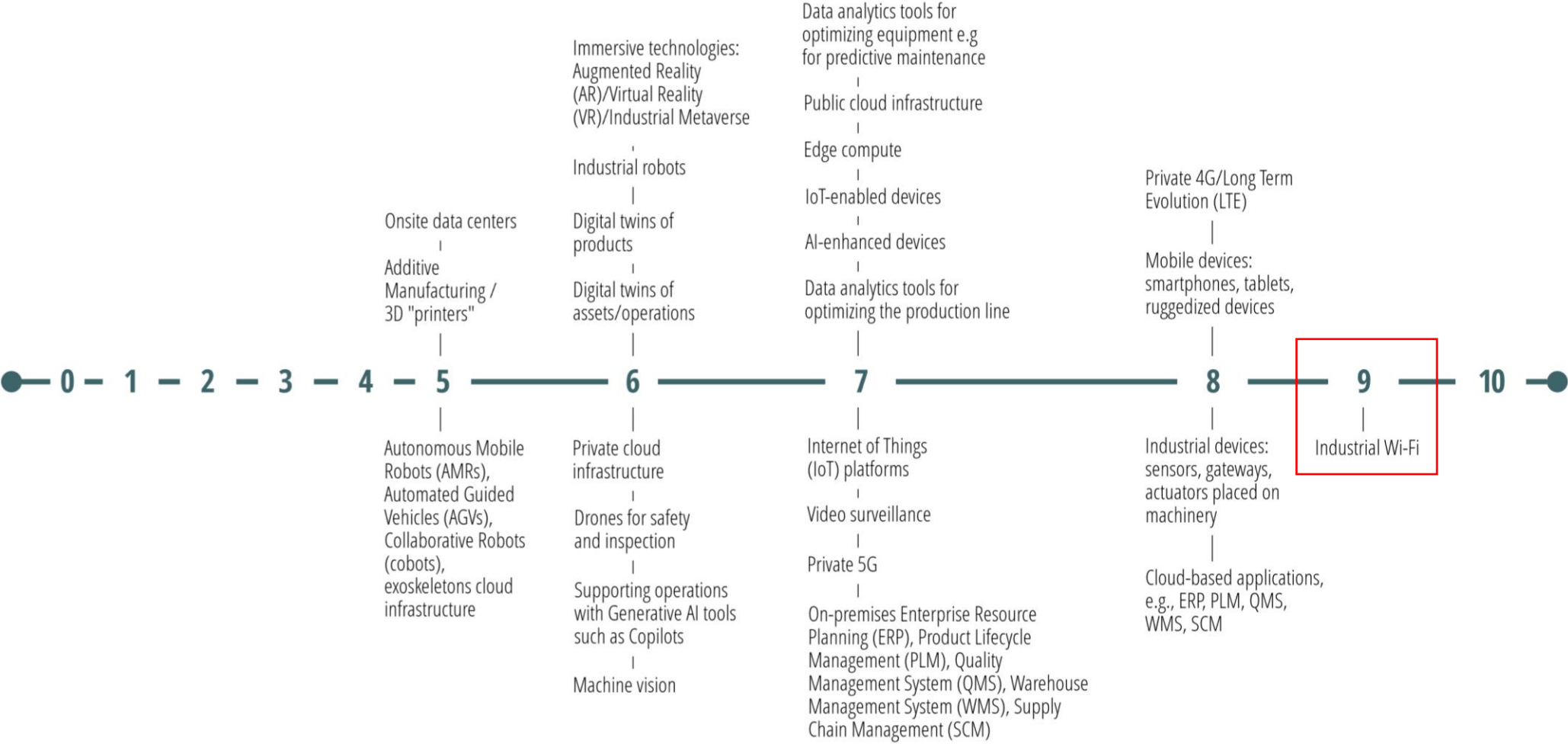




Drivers of Wireless Adoption in Industrial Networks

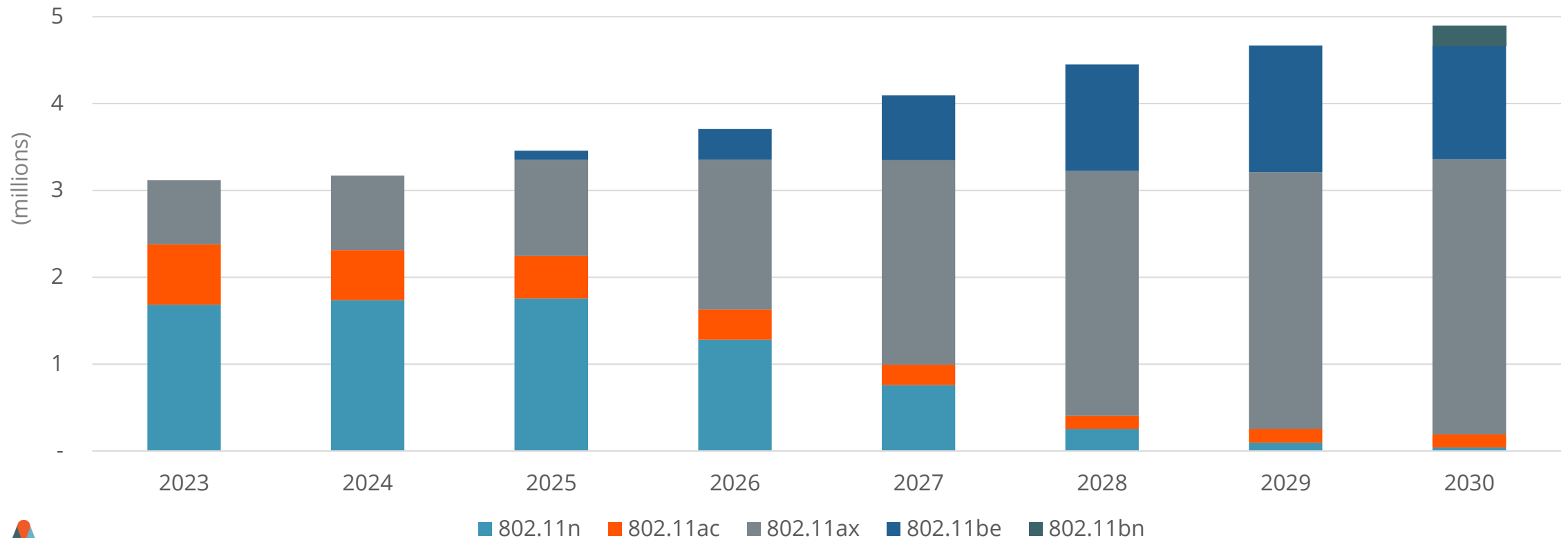
- Increased automation
- Support for new applications
- Connect challenging locations
- More efficient use of floorspace
- Greater number of connections
- Simplified network upgrades
- Reduced network complexity
- Lower cost network installation
- Remote maintenance
- Reduced wear and tear

Industrial WLAN Has the Highest Deployment Level in the United States



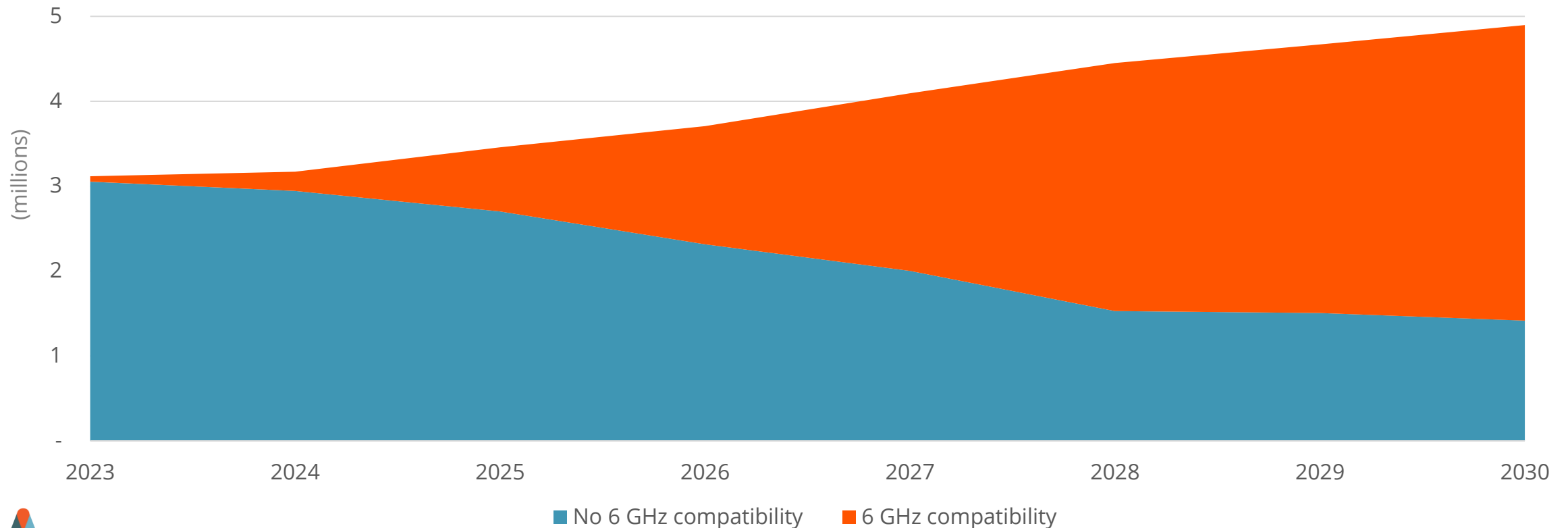
Ruggedized Industrial WLAN AP Shipments by 802.11 Protocol

- >50% of ruggedized industrial APs shipped in 2023 supported 802.11n (Wi-Fi 4).
- Shipments of 802.11ax (Wi-Fi 6) won't surpass 802.11n (Wi-Fi 4) until 2026.
- 802.11ac (Wi-Fi 5) never saw widespread adoption in industrial environments.



Ruggedized Industrial WLAN AP Shipments by 6 GHz Spectrum Compatibility

- In 2023 only 2.4% of APs supported 6 GHz, but this will rise to 74.8% by 2030.
- AFC systems vital in industrial networks to enable external antennas.
- Space, not cost, will be a major determinant of 6 GHz radio inclusion.



Hardware and Topology Trends in Industrial Wi-Fi Networks

- **Compact design**
- **SKU diversity**
- **Additional ports**
- **Redundant power supply**
- **Enhanced security**
- **Ease of implementation**
- **Wireless backhaul**
- **End-to-end solutions**
- **Sustainability**



THANK YOU

Andrew Spivey, Principal Analyst



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ABI Research is uniquely positioned at the intersection of end-market companies and technology solution providers, serving as the bridge that seamlessly connects these two segments by driving successful technology implementations and delivering strategies that are proven to attract and retain customers.

+1.516.624.2500 in the Americas, +44.203.326.0140 in Europe, +65.6592.0290 in Asia-Pacific or visit www.abiresearch.com.



Christopher Hols

Senior Technical Manager, Telekom Deutschland.

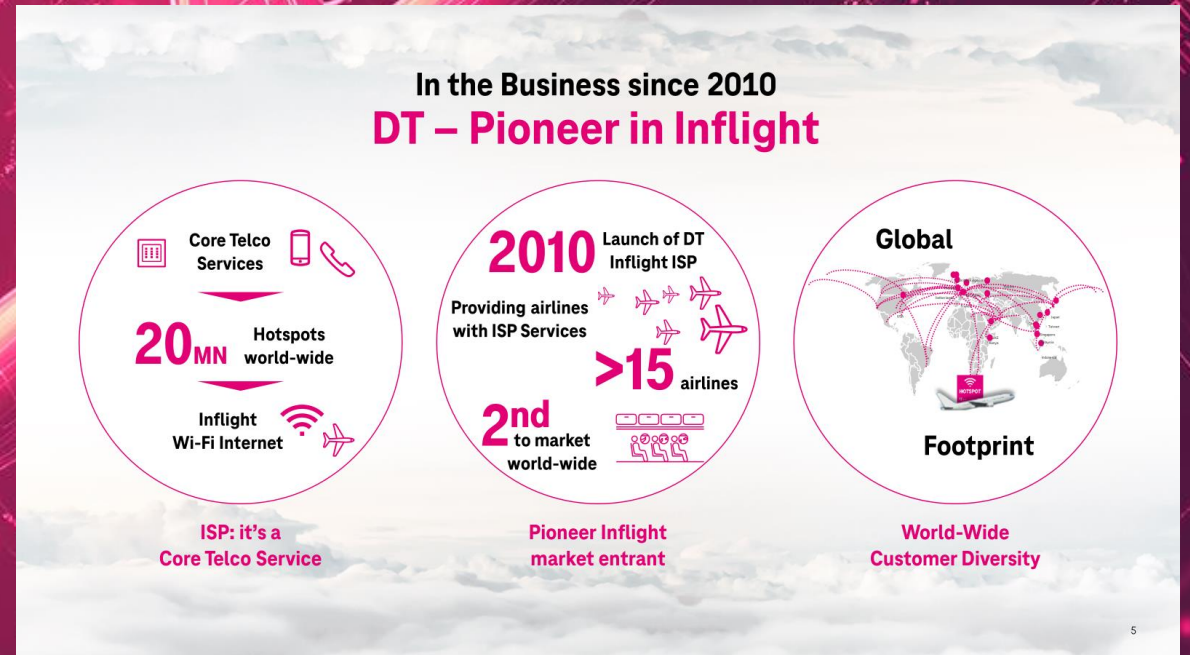
Operator Requirements for Inflight Wi-Fi

Operator Requirements for Inflight Wi-Fi – Challenges & Opportunities

Telekom Global Carriers - Inflight Services & Connectivity |
Christopher Hols | WBA Congress Paris | 09.10.2024

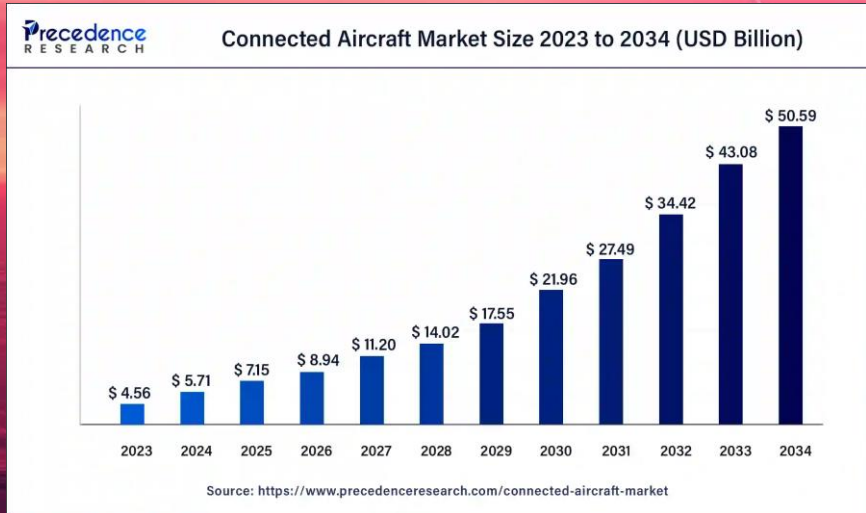


Telekom Global Carrier – Inflight Services & Connectivity



What has happened since the Pandemic?

Growth & Disruption



SpaceX Starlink has 2,500 airplanes under contract after United megadeal, director says

PUBLISHED TUE, SEP 17 2024 10:24 AM EDT | UPDATED TUE, SEP 17 2024 12:24 PM EDT

Michael Sheetz @MICHAELJSHEETZ

KEY POINTS

- SpaceX nearly doubled its backlog of Starlink in-flight Wi-Fi orders with last week's United Airlines deal, a company director said Tuesday.
- Last week, United announced it would retrofit more than 1,000 planes with Starlink and offer Wi-Fi for free.
- Starlink is steadily expanding into the in-flight Wi-Fi market, with previous deals including Hawaiian Airlines and Qatar Airways.

TRENDING NOW

WATCH LIVESTREAM

Prefer to Listen?

NOW UP NEXT Squawk Box Squawk on the Street

Sheetz, Michael. "SpaceX Starlink Has 2,500 Airplanes under Contract after United Megadeal, Director Says." CNBC, CNBC, 17 Sept. 2024, www.cnbc.com/2024/09/17/spacex-starlink-has-2500-aircraft-under-contract.html.

LOT Polish Airlines Selects Viasat to Deliver In-Flight Connectivity to Boeing 787 Dreamliner fleet

Trusted inflight connectivity solution chosen to enhance passenger experience and loyalty

July 25, 2024

CARLSBAD, Calif., July 25, 2024 – LOT Polish Airlines, Poland's flag carrier, and [Viasat Inc.](#) (NASDAQ: VSAT), a global leader in satellite communications, today announced officially that 15 aircraft across LOT's wide-body Boeing 787-8 and 787-9 Dreamliner fleets will be equipped with Viasat's trusted Ka-band, global in-flight connectivity solution.

"LOT Polish Airlines Selects Viasat to Deliver In-Flight Connectivity to Boeing 787 Dreamliner Fleet." [Viasat.Com](https://www.viasat.com/newsroom/press-releases/lot-polish-airlines-selects-viasat-to-deliver-in-flight-connectivity-to-boeing-787-dreamliner-fleet), 25 July 2024, [news.viasat.com/newsroom/press-releases/lot-polish-airlines-selects-viasat-to-deliver-in-flight-connectivity-to-boeing-787-dreamliner-fleet](https://www.viasat.com/newsroom/press-releases/lot-polish-airlines-selects-viasat-to-deliver-in-flight-connectivity-to-boeing-787-dreamliner-fleet).

Air France plans to connect entire fleet to Starlink Wi-Fi

Jason Rainbow September 26, 2024

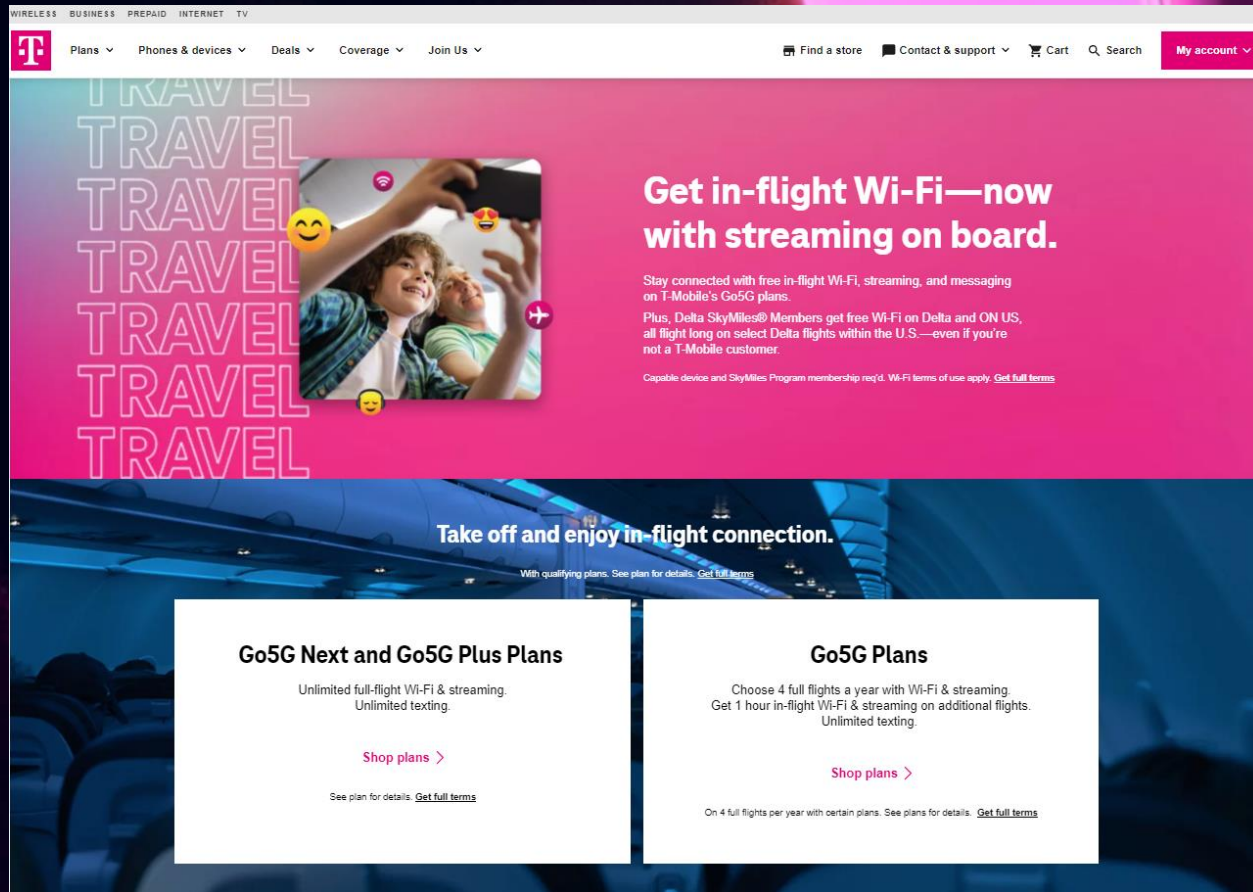
Commercial

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Rainbow, Jason. "Air France Plans to Connect Entire Fleet to Starlink Wi-Fi." [SpaceNews](https://spacenews.com/air-france-plans-to-connect-entire-fleet-to-starlink-wi-fi/), 26 Sept. 2024, spacenews.com/air-france-plans-to-connect-entire-fleet-to-starlink-wi-fi/.

Telco Opportunity: FOC IFC Loyalty Play— Differentiator & Churn PRevention



WIRELESS BUSINESS PREPAID INTERNET TV

Plans ▾ Phones & devices ▾ Deals ▾ Coverage ▾ Join Us ▾

Find a store Contact & support ▾ Cart Search My account ▾

Get in-flight Wi-Fi—now with streaming on board.

Stay connected with free in-flight Wi-Fi, streaming, and messaging on T-Mobile's Go5G plans.

Plus, Delta SkyMiles® Members get free Wi-Fi on Delta and ON US, all flight long on select Delta flights within the U.S.—even if you're not a T-Mobile customer.

Capable device and SkyMiles Program membership req'd. Wi-Fi terms of use apply. [Get full terms](#)

Take off and enjoy in-flight connection.

With qualifying plans. See plan for details. [Get full terms](#)

Go5G Next and Go5G Plus Plans

Unlimited full-flight Wi-Fi & streaming.
Unlimited texting.

[Shop plans >](#)

See plan for details. [Get full terms](#)

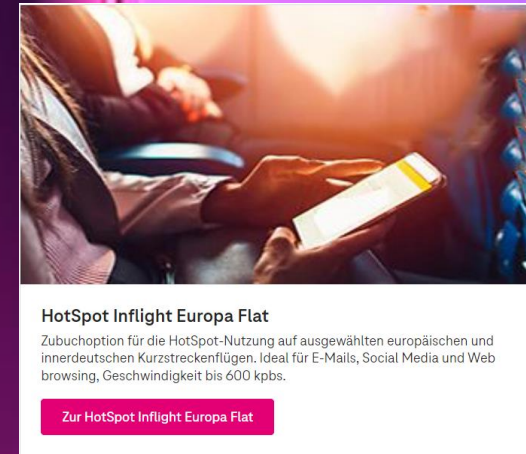
Go5G Plans

Choose 4 full flights a year with Wi-Fi & streaming.
Get 1 hour in-flight Wi-Fi & streaming on additional flights.
Unlimited texting.

[Shop plans >](#)

On 4 full flights per year with certain plans. See plans for details. [Get full terms](#)

"In-Flight Wi-Fi: Unlimited Internet, Streaming & Texting: T-Mobile." T, www.t-mobile.com/benefits/travel/in-flight-Wi-Fi. Accessed 24 Sept. 2024.

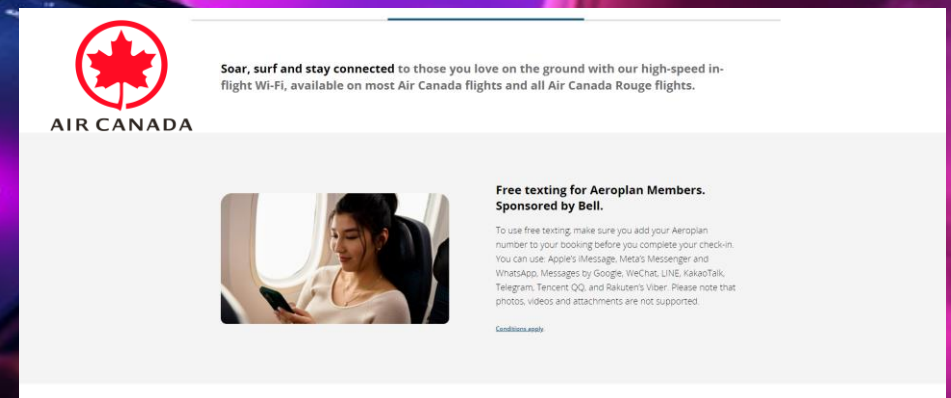



HotSpot Inflight Europa Flat

Zubuchtopion für die HotSpot-Nutzung auf ausgewählten europäischen und innerdeutschen Kurzstreckenflügen. Ideal für E-Mails, Social Media und Web browsing, Geschwindigkeit bis 600 kpbs.

[Zur HotSpot Inflight Europa Flat](#)

"Zubuchtopionen für 'Unterwegs.' Extras Für Unterwegs | Telekom Geschäftskunden, geschaeftskunden.telekom.de/mobilfunk/tarife/zubuchoptionen/extras-fuer-unterwegs. Accessed 25 Sept. 2024.




AIR CANADA

Soar, surf and stay connected to those you love on the ground with our high-speed in-flight Wi-Fi, available on most Air Canada flights and all Air Canada Rouge flights.

Free texting for Aeroplan Members. Sponsored by Bell.

To use free texting, make sure you add your Aeroplan number to your booking before you complete your check-in. You can use Apple's iMessage, Meta's Messenger, and WhatsApp, Messages by Google, WeChat, LINE, KakaoTalk, Telegram, Tencent QQ, and Rakuten's Viber. Please note that photos, videos and attachments are not supported.

Conditions apply.

"Air Canada In-Flight Entertainment and Connectivity." Air Canada In-Flight Entertainment and Connectivity, www.aircanada.com/ca/en/flight-entertainment-and-connectivity.html#tc-panel-container. Accessed 24 Sept. 2024.

But MNOs are Hesitant to Sign Up...

Challenge: Most MNOs Are Interested In Inflight Wi-Fi But Lack Capabilities or Willingness to invest.



Challenges for Telco Managers:

- **No Simple Plug n Play Solution:**
 - Proprietary Onboard Controller SW
 - Seamless Access required, but not readily available
- **Benefit Communication:**
 - Benefit communication, internally and externally, is complicated due different fleet setups
 - Cost case: Days of selling Inflight Wi-Fi to MNO customers are coming to an end.
- **Scalability:**
 - Tremendous effort needed to reach as many airlines as possible

Inflight Wi-Fi needs to be simple and robust, only then it will gain more traction with MNOs.

Challenge: Fleets are Fragmented, Customer Journeys are Clunky



Buy access Roaming Partner Redeem Voucher Login

Choose your partner
Access with Wi-Fi Roaming Partner

boingo

T

You can login with your existing WiFi user credentials on board of this aircraft. The WiFi access is free of charge, if you have booked the free Inflight Europa Flat option. If this is not the case, you will be charged 0.99 € per 10 minutes via your mobile contract invoice. Best suited for emails, social media and web browsing. Speed up to 600 kbps.

Username

Password

Go online

Contact Data Privacy Terms & Conditions Imprint

Deutsch English

Provided by T-Mobile HotSpot GmbH

Opportunity: Neutral Global Access Hub, Alternative Auth Methods



Opportunities:

- **Neutral Global/Regional Access Hubs:**
 - **Technology:**
 - Connected to all MSPs/Airlines*
 - Passpoint/Open Roaming
 - Managed Passpoint Service
 - **Business Models:**
 - Broker for MSPs
 - Reseller
 - Wholesale
- **Alternative Auth Methods(Idea)**
 - Introduce non-standard Wi-Fi auth mechanism that are Telco standard
 - KYC Matches
 - Number Verify

Thank you for your Attention!



Contact me under:

Christopher.Hols@telekom.de

Or

+491714841413

Christopher Hols is a seasoned professional at Deutsche Telekom with more than 8 years in the Inflight & Connectivity Services team and a board member of WBA. In his role as a Senior Product Manager at Deutsche Telekom, he is managing the Inflight Wi-Fi Roaming platform and the IFC Airline Apps. Christopher holds an MBA in Digital Business Innovation from ESMT Berlin and a Master of Arts in European Culture and Economy.





Christian Gilby

Senior Director of Product Marketing, AI-Native Networking,
Juniper Networks.

Elevate Experiences with AIOps for Wi-Fi



Elevate Experiences with AIOps for Wi-Fi

Oct 9, 2024

Christian Gilby

Sr. Director of Product Marketing, AI-Native Networks



Every connection counts.



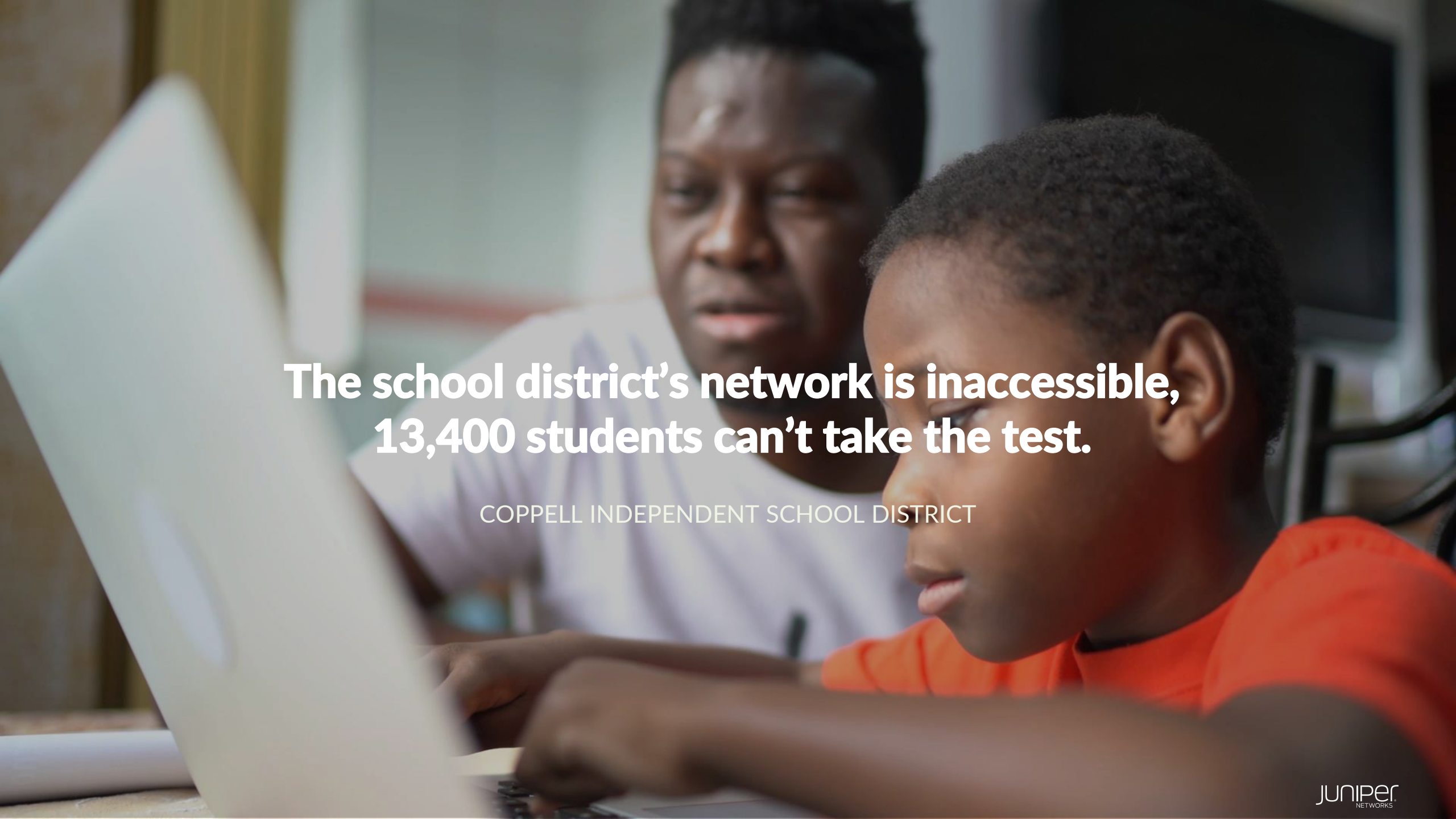
**1-hour outage in distribution centers,
€33 million in lost revenue**

AMAZON



**10-second downtime during the Olympics,
1 million viewers miss the 100m dash.**

BT



**The school district's network is inaccessible,
13,400 students can't take the test.**

COPPELL INDEPENDENT SCHOOL DISTRICT

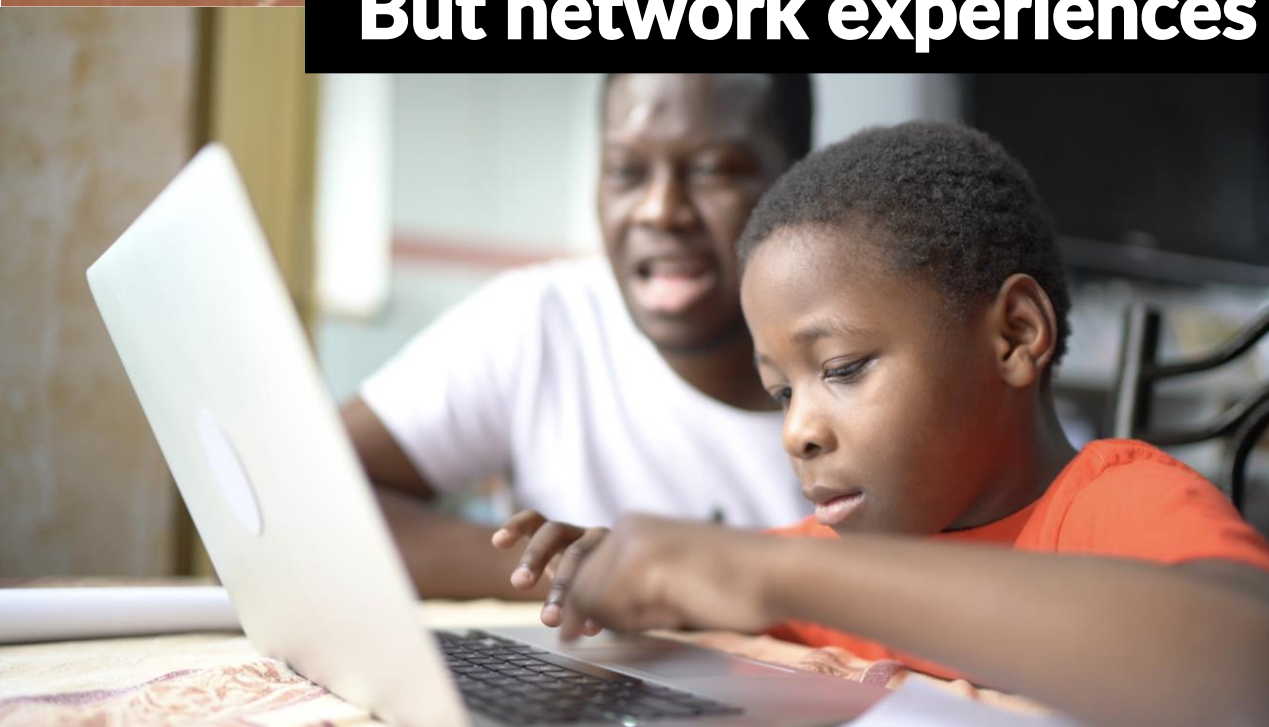


**30 seconds of lost visibility,
a patient wanders out the door.**

VETERANS ADMINISTRATION



But network experiences are fundamentally broken.



“ I paid for Wi-Fi at my hotel, but I still can't load new emails. ”

“ My phone has full bars, but my Zoom call keeps going in and out. ”

**Connectivity is not the same
as experiencing a great connection**

“ My internet is down but there are no outages reported. ”

“ I'm connected, but my video is pixelated. ”

We need a different approach

An **Experience-First** approach changes everything.

Start by asking the right **Experience-First questions**—so
that everything you do is designed to deliver
better end user and operator experiences.

Developers quickly and securely share code around the world.

AUTODESK

**FOR END USERS:
Flawless, personalized experiences.**

Shoppers find what they need faster.

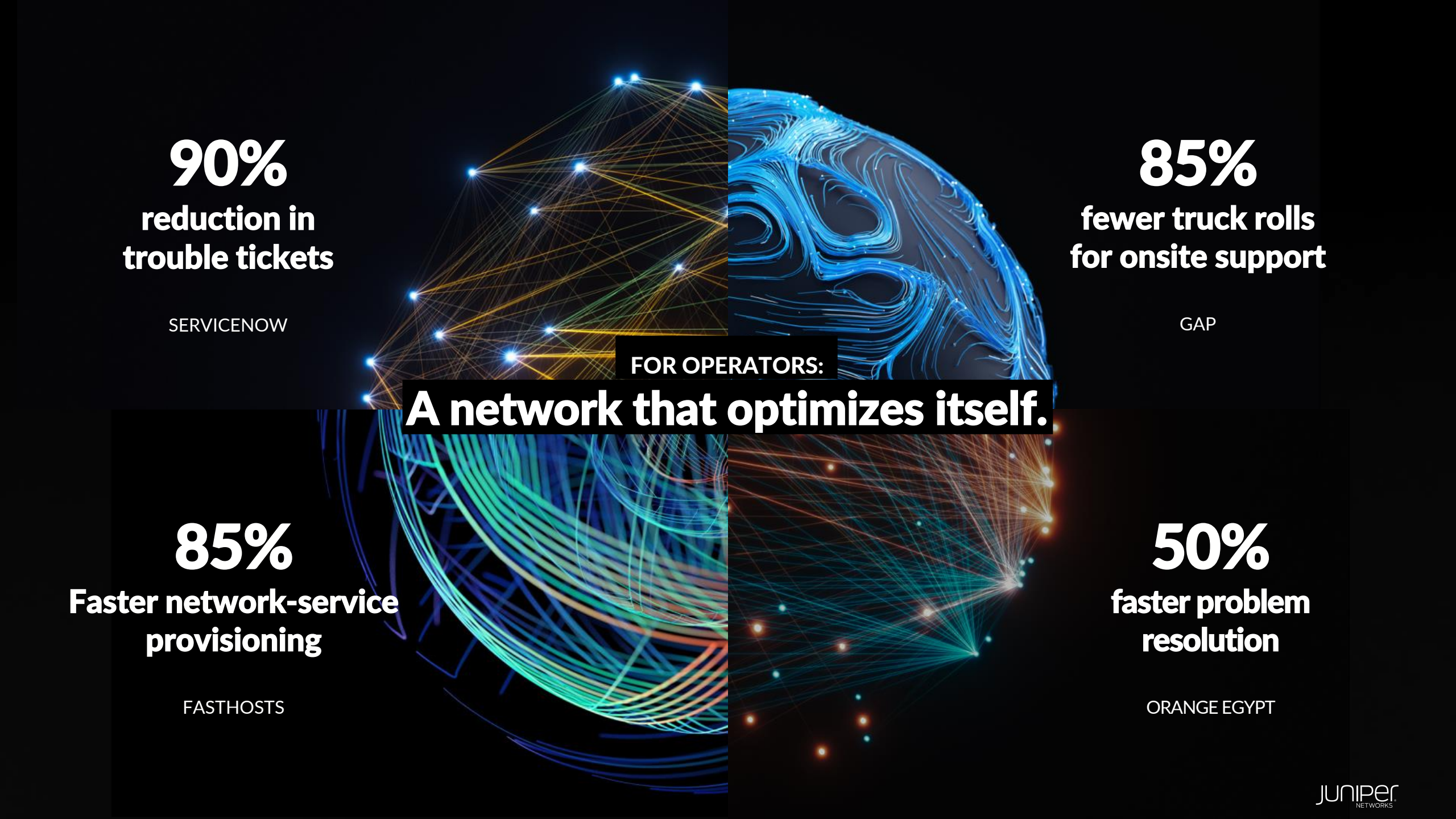
HALFORDS

Enterprises rapidly get business applications up and running.

AMERITRUST

Students seamlessly connect with each other anytime, anywhere.

MIT



90%
reduction in
trouble tickets

SERVICENOW

85%
fewer truck rolls
for onsite support

GAP

FOR OPERATORS:

A network that optimizes itself.

85%
Faster network-service
provisioning

FASTHOSTS

50%
faster problem
resolution

ORANGE EGYPT

AI-NATIVE NETWORKING PLATFORM

Start with Experience-First Questions

“How do we ensure every user, in every location, is getting a consistent experience?”

“Can the network adapt to fix issues before users even know they exist?”

EXPERIENCE-FIRST

“Does the network meet the needs of all necessary stakeholders?”

AI-NATIVE NETWORKING PLATFORM

Delivering the best user and operator experiences

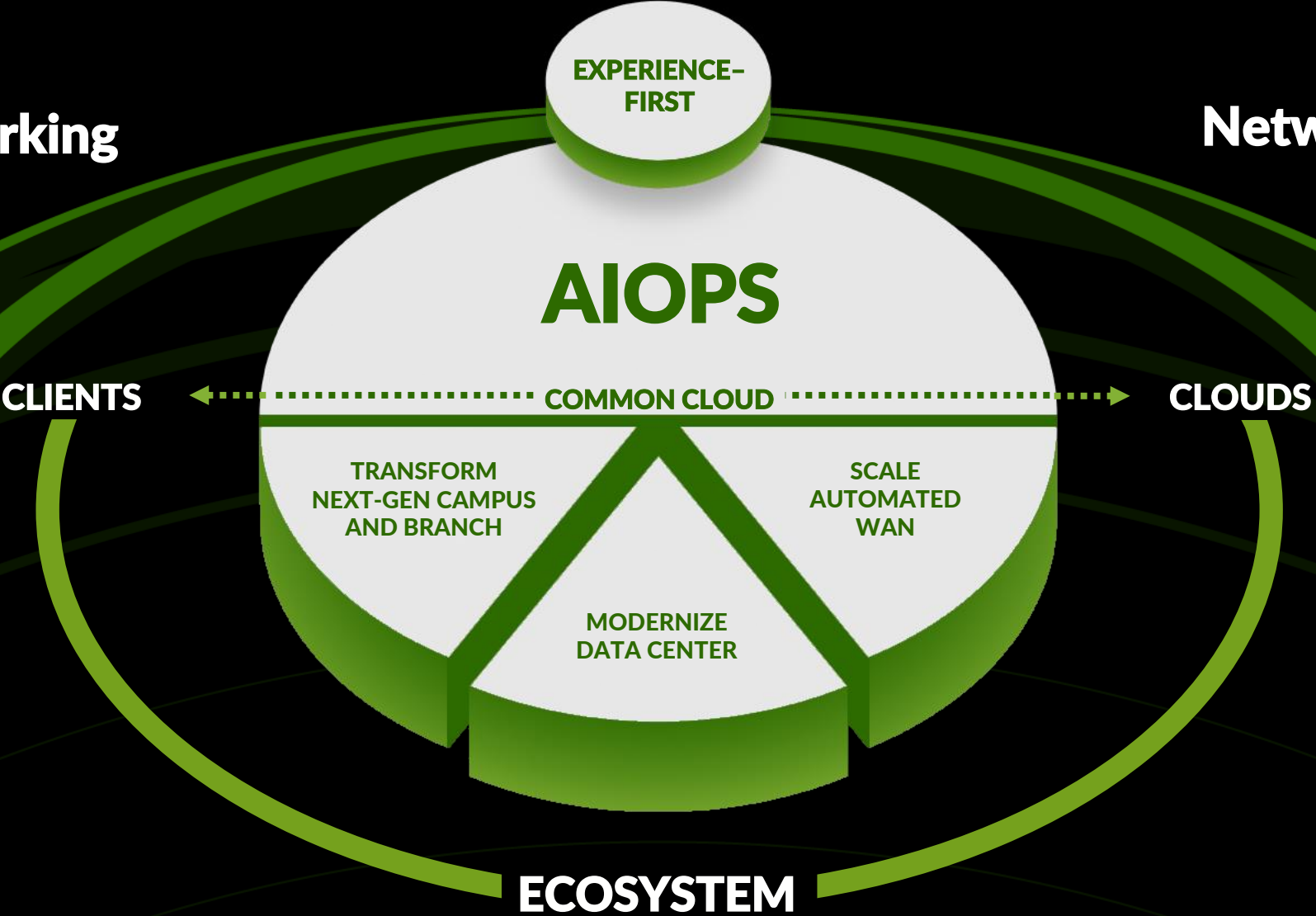


AI-NATIVE NETWORKING PLATFORM

Across all network domains

AI for Networking

Networking for AI





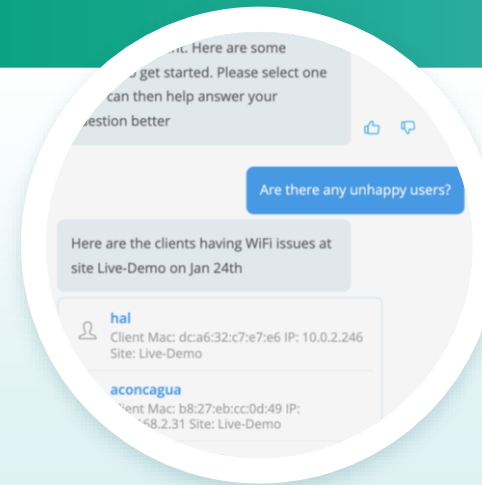
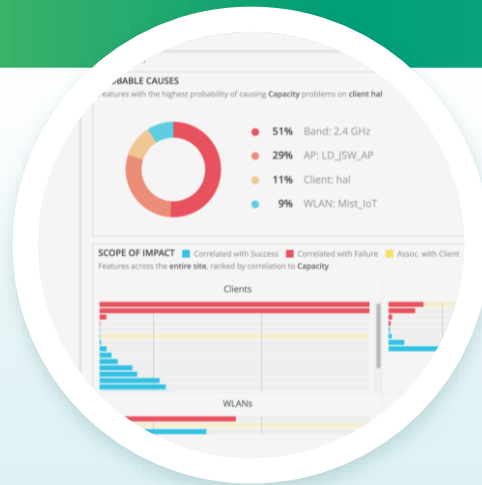
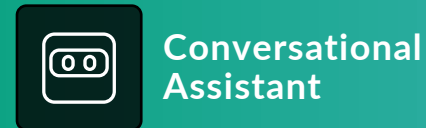
AI for Networking: Driving Better Wi-Fi Experiences with AIOps

AI Ops - Road to an AI-driven Network

Shapley Values

LLM / Generative AI

Network Assistant
Actions



AI is the New Electricity

Supervised Learning

Unsupervised Learning

Reinforcement Learning

Generative AI



Improves IT Operations Experience

SUPERVISED LEARNING

Mist LIVE DEMO Change language (en) MON 12:26 AM Ask a Question

MARVIS

ACTIONS 37

- Clients
- Application
- 1 Layer 1
- Security
- 15 Connectivity
- 5 WAN Edge
- 7 AP
- 9 Switch
- 1 Missing VLAN
- 1 Negotiation Mismatch
- 1 Loop Detected
- 1 Port Flap
- 1 High CPU
- 2 Port Stuck
- 2 Traffic Anomaly
- 2 Other Actions

Org Sites





Unsupervised Learning Enables Rich Mobile Experiences

UN-SUPERVISED LEARNING

Mobile User Engagement

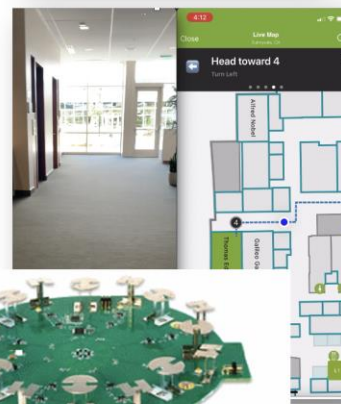
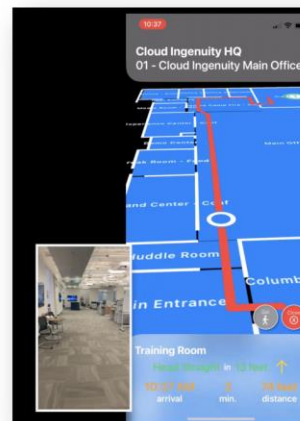
Indoor location capabilities for context-based interactions with users via mobile apps with virtual Bluetooth LE (vBLE)

Indoor location is finally easy to deploy and scale, with unprecedented accuracy and agility.

- Real-time wayfinding – retail, healthcare, enterprise, higher education
- Real-time proximity notifications and alerts with patented Virtual beacons
- Sensor fusion with unsupervised machine learning for real-time microlocation

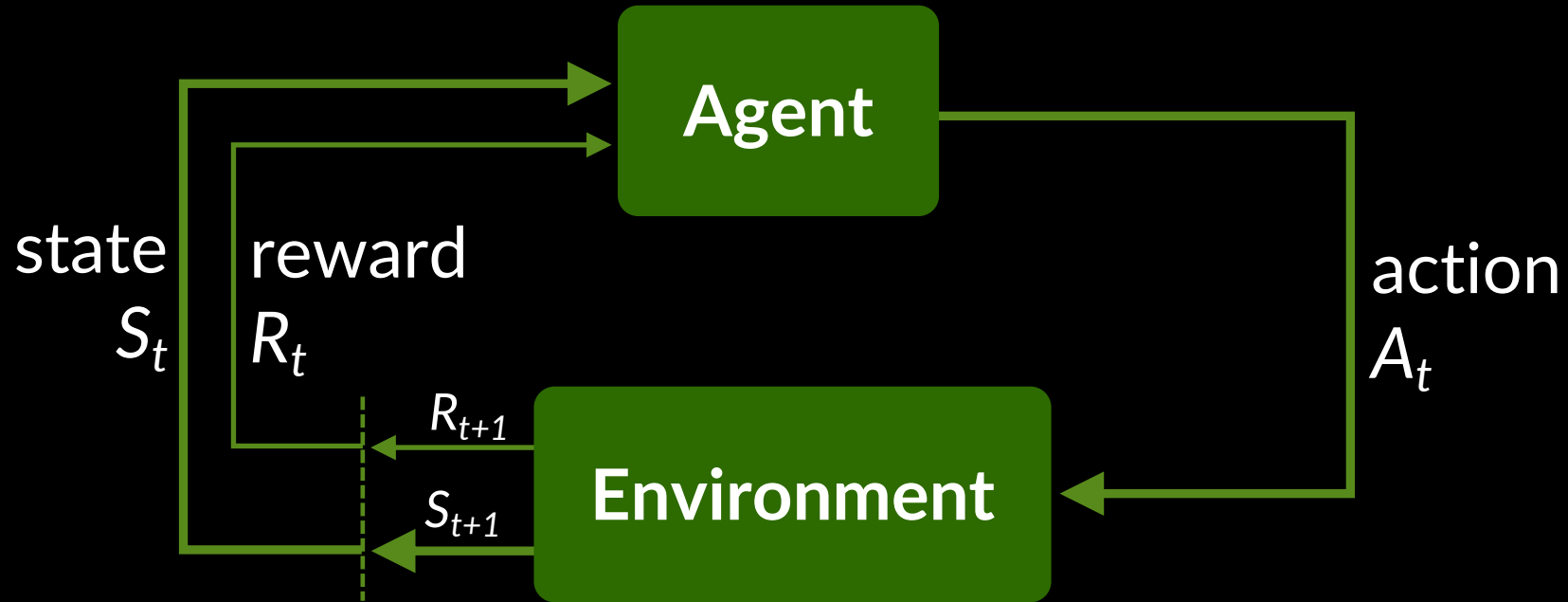


Digital Transformation with traffic flow Insights





Delivers Amazing User Experience



AI Driven Radio Resource Management



Improves IT Operations Experience

GENERATIVE AI

Conversational AI Interface

Natural Language Processing/ Understanding (NLP/NLU) transforms how IT interacts with the network.

Streamline operations and boost operator experiences.

Provide deeper understanding of issues with correlation across domains.

Knowledge base / documentation queries (using GenAI/LLM).

The screenshot displays the Mist network management interface. On the left is a navigation sidebar with options like Monitor, Marvis™, Clients, Access Points, Switches, Gateways, Location, Analytics, Network, and Organization. The main area shows a 'Monitor' dashboard for 'Wireless' with various performance metrics and line graphs. A 'MARVIS' chat window is overlaid on the right, titled 'Troubleshoot ap Deeyo AP 1'. The chat contains a message: 'Checking Deeyo AP 1. Here is what I found between September 1st - September 2nd:'. Below the message are three diagnostic cards: 'Slow Association' (Clients of the AP had slow association due to transmission failure), 'AP Disconnect' (The AP was disconnected from cloud for a total of around 15 minutes), and 'Poor Coverage' (Due to weak signal strength). At the bottom of the chat are buttons for 'Troubleshoot device', 'Troubleshoot site', 'Device Search', 'Documentation', and 'Marvis Actions'. A small AI chatbot icon is visible in the bottom right corner of the interface.

Mutual Information

SLE Feature Discovery
Anomaly Scope Cause Analysis
Zoom Root Cause Analysis

Logistic Regression

AP Health, Switch Health
Port Stuck, High CPU.

XGBoost Decision Tree

Zoom Prediction
Switch Uplink Detection.

Domain Expertise Classification

Service Level Metrics, Event Timeline.

LSTM- Neural Network

PreConnection Anomaly Detection,
Wired Anomaly.

K-Means Clustering

Scope failure analysis

Decision Tree

AP / Switch Health, DHCP Health,
Coverage Hole, bad cable.

Bayesian Inference

Anomaly Root Cause Analysis
Persistently Failing Clients
Auto Placement of AP.

SUPERVISED LEARNING



GAI / LLM / Transformers
Marvis Conversational Assistant

GENERATIVE AI

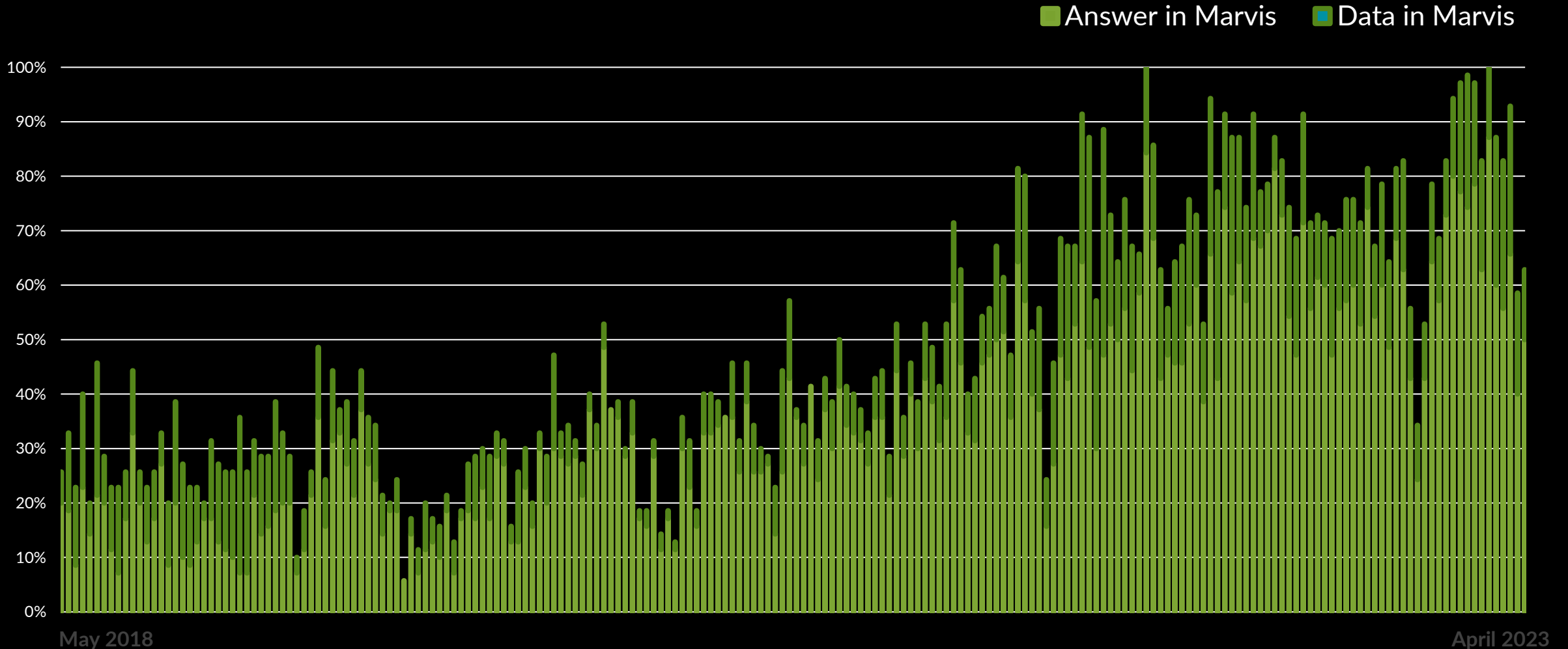
Unsupervised Learning
Location

UNSUPERVISED MACHINE LEARNING

Reinforcement Learning
AI Driven RRM

REINFORCEMENT LEARNING

Continuously Validate Your AI Engine: Historical Efficacy for Wireless Troubleshooting



Example network assistant: <https://www.juniper.net/us/en/products/cloud-services/marvis-virtual-network-assistant.html>

We empower **exceptional** experiences for operators, end users, and the business.



Save money

“One hour shaved off the installation of 2000 access points is the equivalent of a full-time employee for a year.”

Gap Inc.

Save time

“Juniper’s always measuring. If there’s a deviation, they help our operation team rapidly identify the problem.”

servicenow

Save effort

“When we first implemented Juniper, we saw a 90% drop in user generated trouble tickets.”

And we deliver unparalleled assurance driven by the **AI-Native Networking Platform**



Self-configuring

Up to

9x

Faster time to deploy

Gap Inc.

Self-healing

Up to

85%

Fewer truck rolls

servicenow

Self-detecting

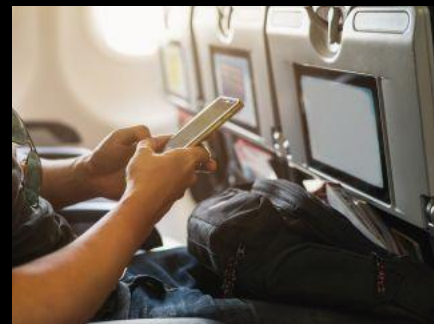
Up to

90%

**Fewer network-related
trouble tickets**



We make every connection count.





Welcome to the NOW Way to Wi-Fi



JUNIPER[®]
NETWORKS



Manish Gangey

Executive President - HFCL.

Embracing Wi-Fi 7 – Future of Enterprise Wi-Fi



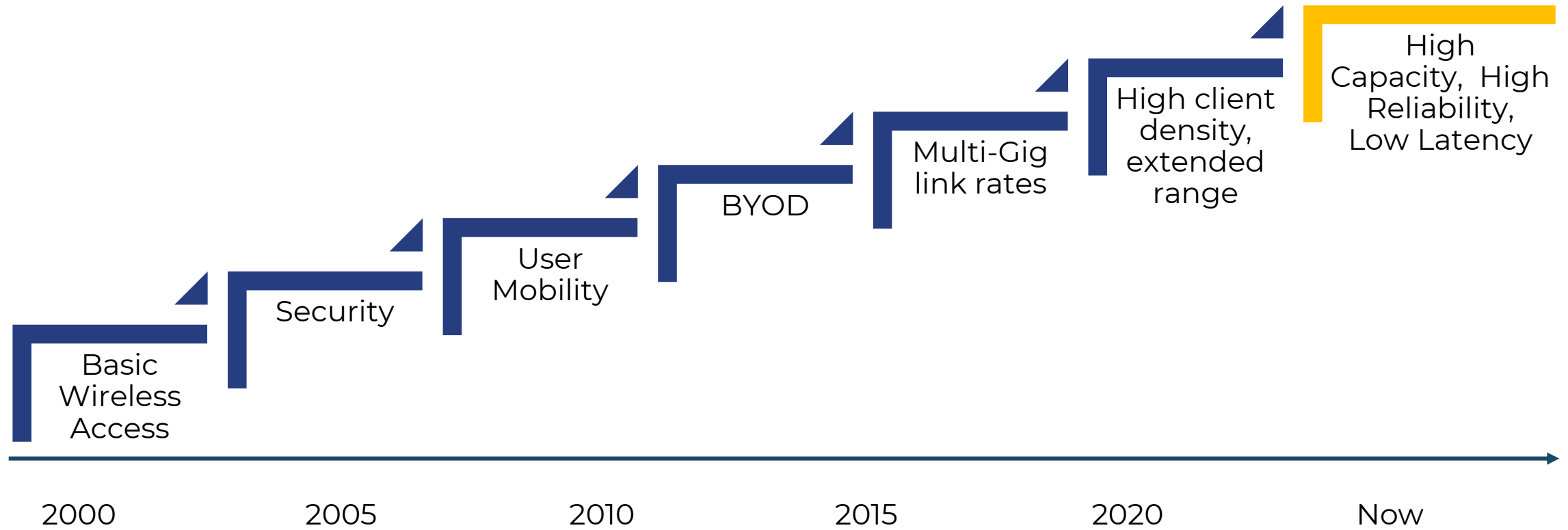
Embracing Wi-Fi 7

Future of Enterprise Wi-Fi

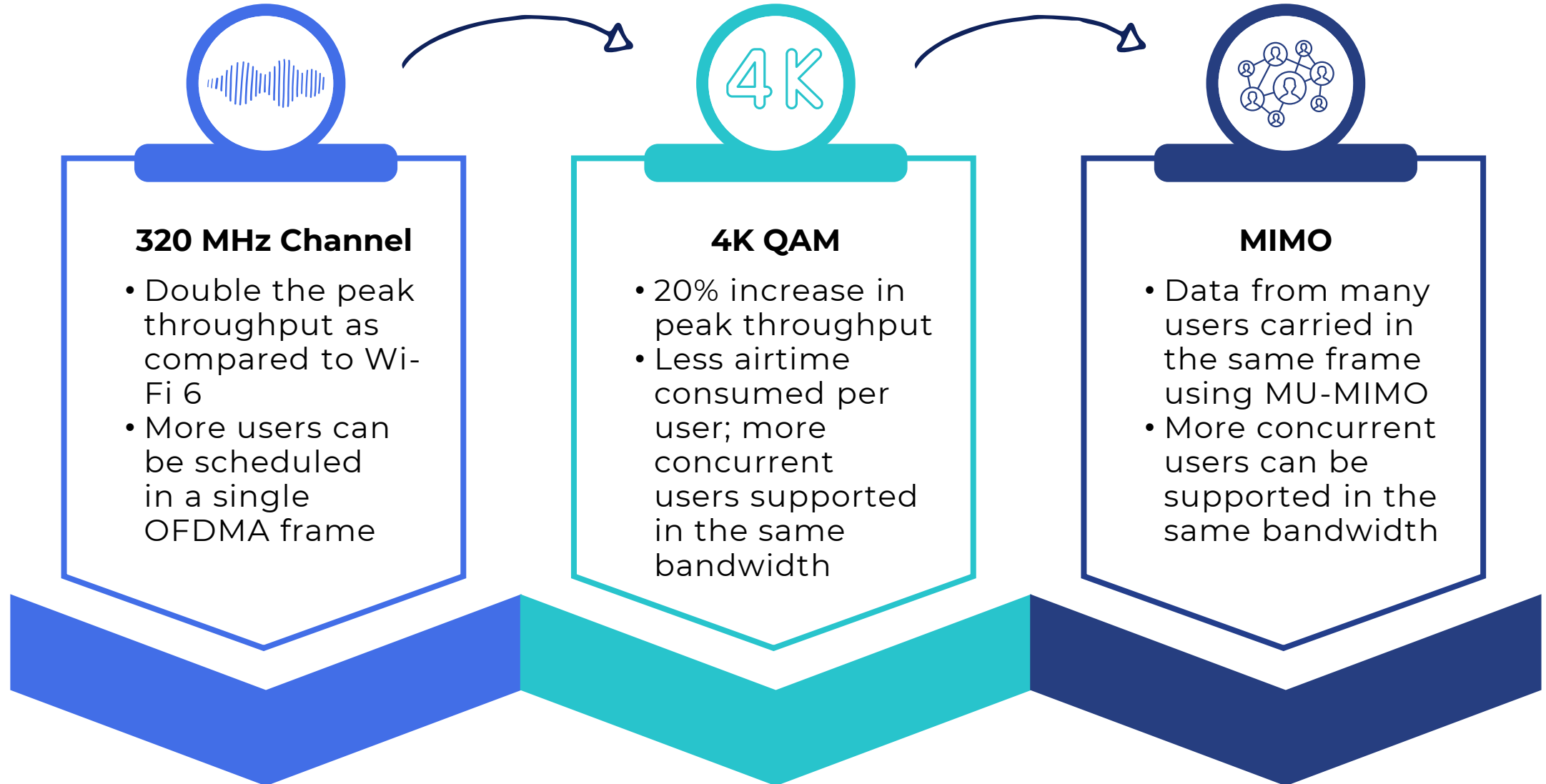
Manish Gangey, Executive President, HFCL



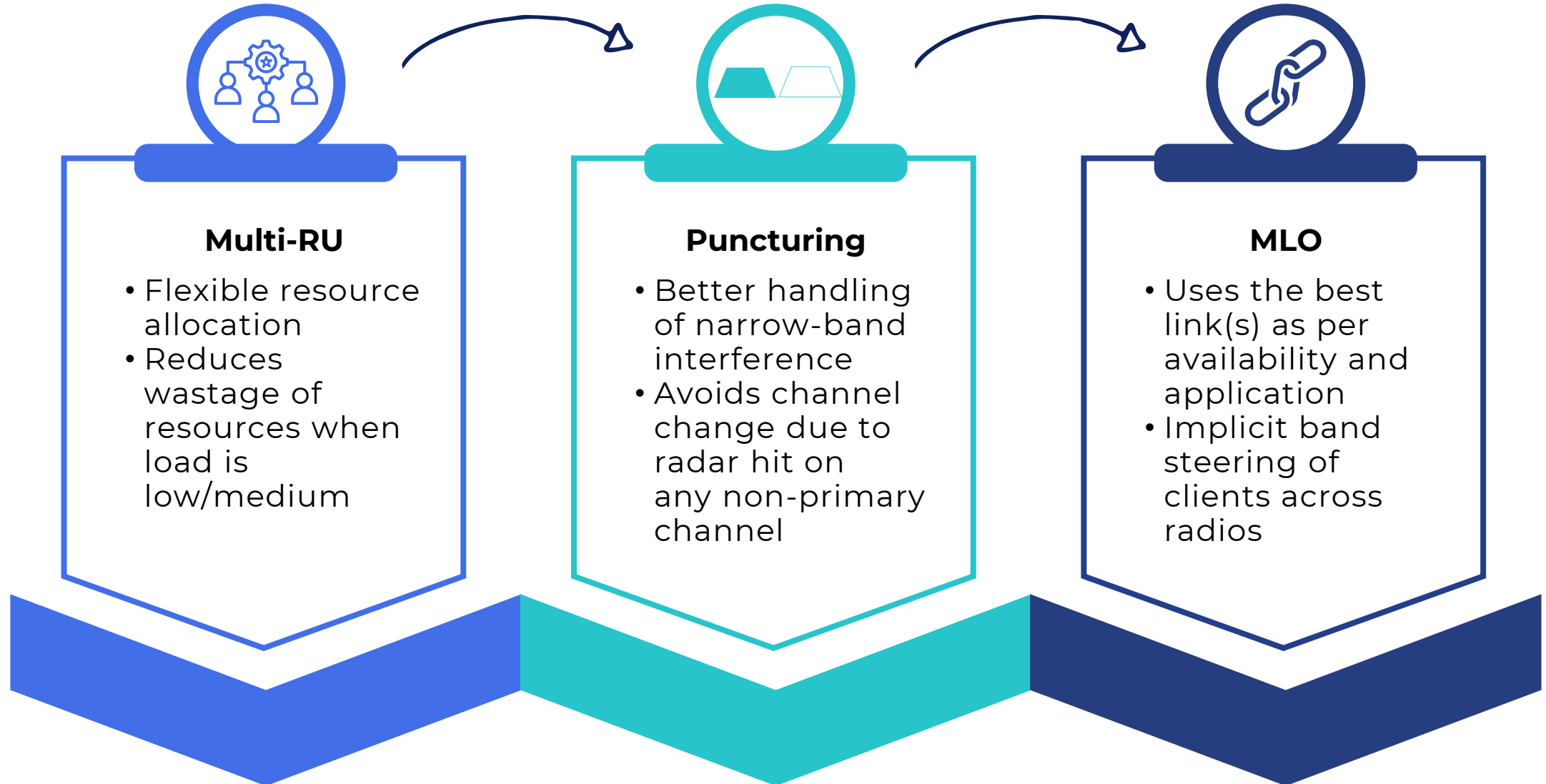
Enterprise Wi-Fi: Functional Requirements



Wi-Fi 7 for Enterprise: High Capacity and Client Density



Wi-Fi 7 for Enterprise: High Efficiency and Reliability



Wi-Fi 7 for Enterprise: Low Latency



320 MHz Channel

- Dynamic resource allocation using OFDMA + M-RU to match app latency requirements



4K QAM

- Less airtime required per unit data, resulting in lower round-trip times



MIMO

- More users multiplexed in the spatial domain, reducing the overall latency



MLO

- Faster channel access when multiple links are available
- Uses best link as per latency requirements

Applications: Wi-Fi 7 in Enterprises



01

Cloud-based productivity applications

- Large number of concurrent sessions
- Low Latency



02

Collaborative working with rich telepresence

- High throughput
- Low latency



Immersive learning using XR

- Very high throughput
- Bounded latency
- Power efficiency

04

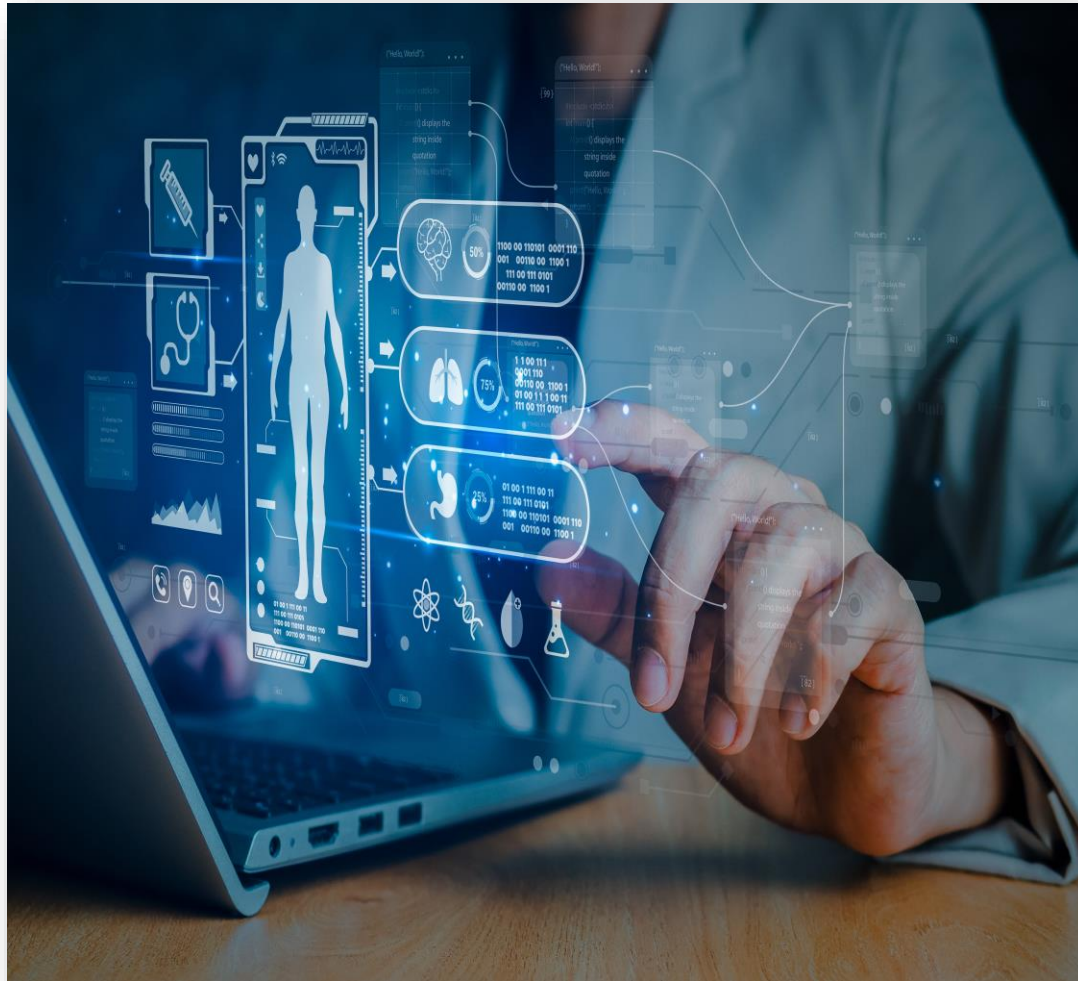
IoT integration

- High density
- Low power consumption



03

Applications: Wi-Fi 7 in Healthcare



01

In-building communication for hospital staff



- High density
- Low latency
- Seamless mobility

02

Patient telemetry

- High throughput
- High reliability



AR/VR-based medical applications

- High throughput
- Deterministic latency

04

Health sensors for monitoring

- High density
- High reliability
- Low power consumption



03

Applications: Wi-Fi 7 in Industries



01

Autonomous Mobile Robots & Guided Vehicles

- Deterministic latency
- Seamless Mobility



02

Process monitoring and control

- Deterministic latency
- High reliability



AR/VR/XR for design & manufacturing

- High throughput
- Deterministic latency

04

Industrial IoT

- Extended range
- Low power consumption



03

Applications: Wi-Fi 7 in Campus



01

Digital Classrooms



- High density
- Low latency
- High throughput

02

Hostels and Auditoriums

- High capacity
- High density
- High reliability



AR/VR/XR for virtual labs

- High throughput
- Deterministic latency

04

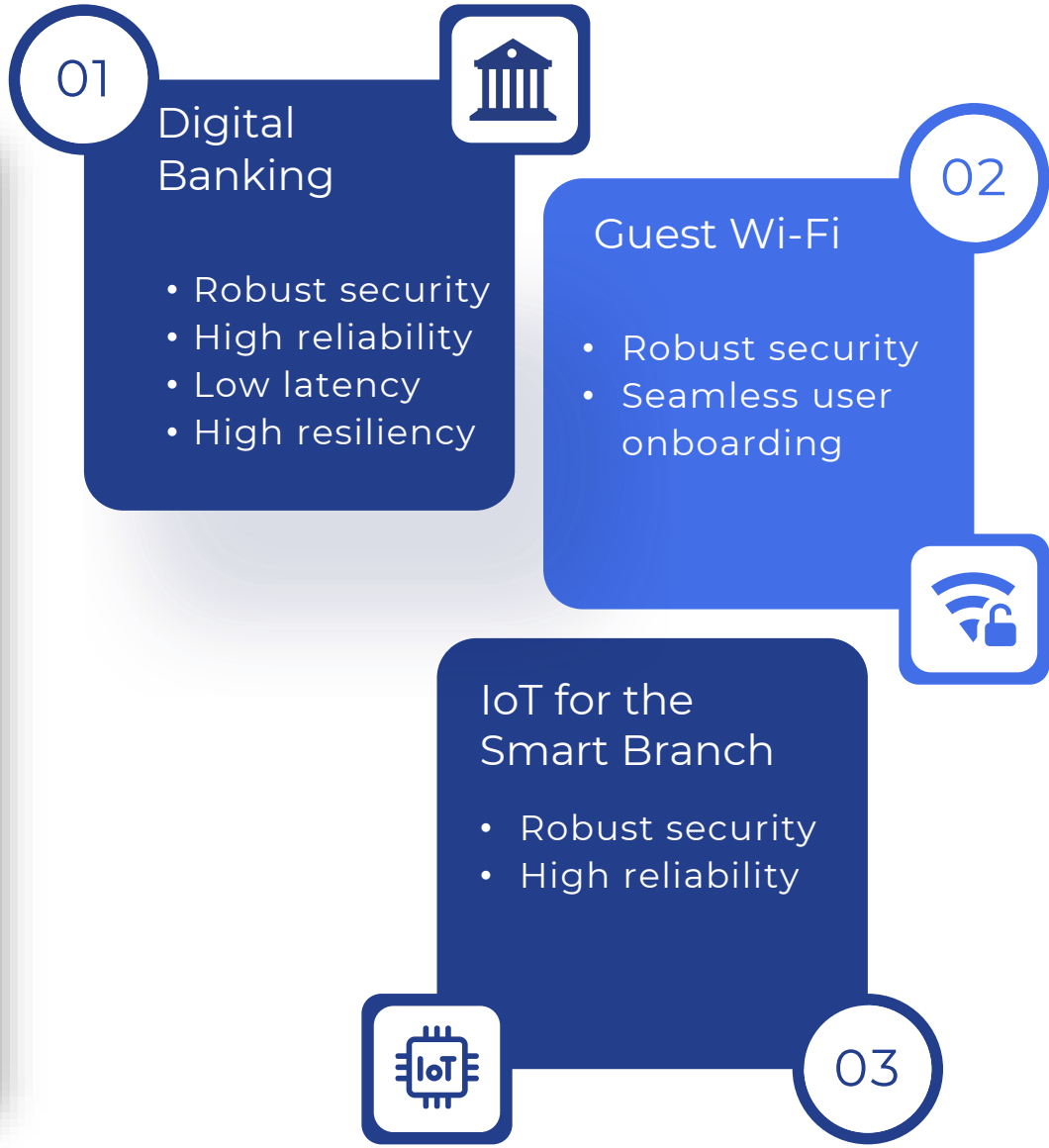
IoT for Smart Campus

- Higher density
- Extended range
- Low power consumption



03

Applications: Wi-Fi 7 in Finance



Panel: Panel: Innovation and Operation for Enterprise Wireless



Shrinath Keskar

Vice President - Global Sales and
Business Development,
Morse Micro.



Christian Gilby

Senior Director Product Marketing,
Juniper Networks.



Christopher Hols

Senior Technical Manager,
Telekom Deutschland.



Manish Gangey

Executive President, Product
Strategy, HFCL.

About Morse Micro

Founded in 2016 in Sydney, Australia

- Largest fabless semiconductor company in Australia
- Strong investor base & government support
- Over A\$200M funding
- Largest non-public Wi-Fi chip company with world-class team of 180+ Wi-Fi experts

Morse Micro's Wi-Fi HaLow silicon

- Smallest, fastest & lowest power Wi-Fi HaLow chip
- FCC-certified, Wi-Fi CERTIFIED HaLow™
- Flexible host interface

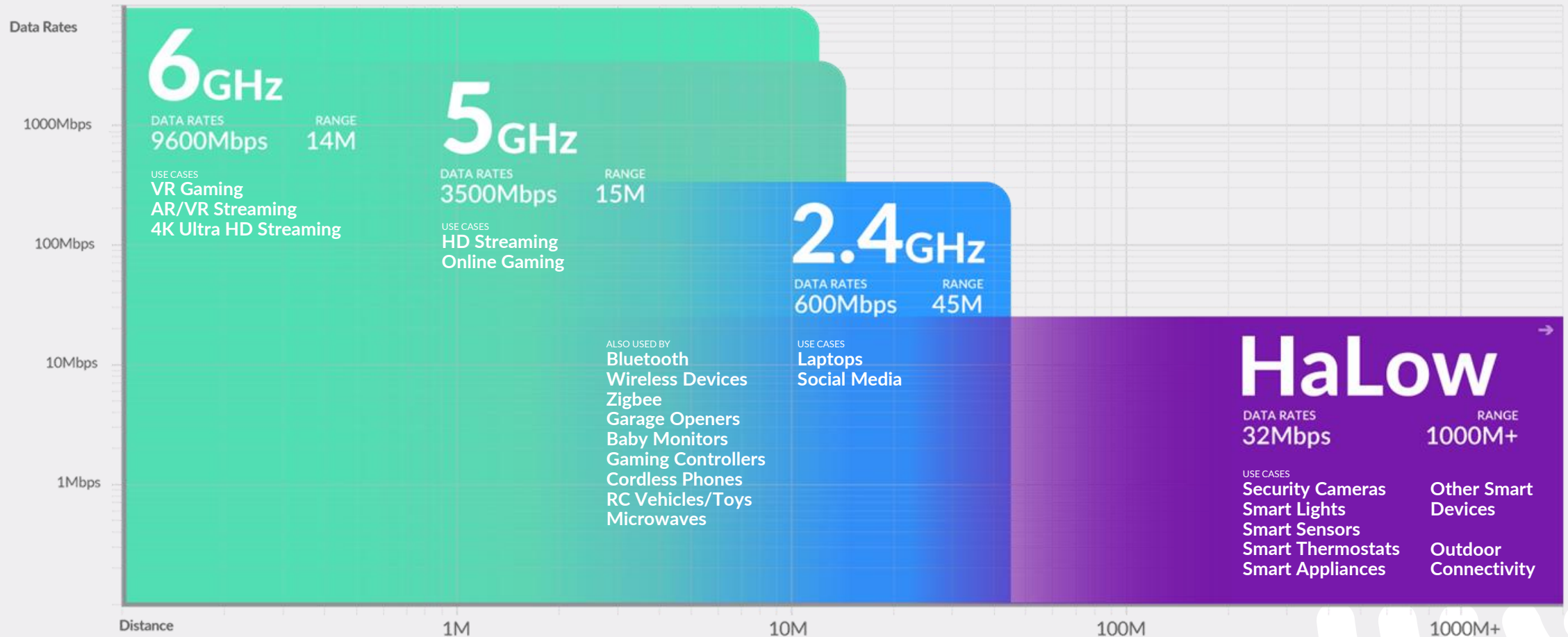
Vision

**#1 wireless IoT
chip vendor**

**Official Wi-Fi HaLow
testbed vendor**



Scaling Wi-Fi with Wi-Fi HaLow



Wi-Fi HaLow for the enterprise



Extended range for large environments



Better signal penetration



Highest data rates for long range wireless



Wi-Fi HaLow is Wi-Fi



Multiple power saving features



WPA3 Secure



High scalability (up to 8,191 devices)



OTA firmware updates

Morse Micro Wi-Fi HaLow

opens up a world of IoT possibilities for the enterprise



Unprecedented Wi-Fi reach

Both Wi-Fi HaLow's range and penetration mean our signal reaches much farther



Highest data rates for long range wireless

No other wireless technology boasts the data rates of Wi-Fi HaLow



Wi-Fi HaLow is Wi-Fi

All the features and benefits of the most well established wireless protocol



Plus many more built-in features

Morse Micro have developed the most feature rich Wi-Fi HaLow chip with countless use cases and possibilities

Panel: Panel: Innovation and Operation for Enterprise Wireless



Shrinath Keskar

Vice President - Global Sales and
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WBA INDUSTRY AWARDS



WELCOME TO THE 12TH

WBA INDUSTRY AWARDS

CATEGORY

**BEST WI-FI
NETWORK OPERATOR**

WINNER!

BEST WI-FI NETWORK OPERATOR



LG U+

LG U+ Wi-Fi services & the first
commercial launching of "True Wi-Fi 7"

CATEGORY

**BEST WI-FI
NETWORK TECHNOLOGY**

WINNER!

BEST WI-FI NETWORK TECHNOLOGY



Qualcomm

Qualcomm Inc.

Taking Wi-Fi to new heights: FCC's advancement of Standard Power and Automated Frequency Coordination with Qualcomm's AFC Suite

CATEGORY

BEST IN-HOME
WI-FI NETWORK

WINNERS!

BEST IN-HOME WI-FI NETWORK


Türk Telekom
Değerli Hissettirir


QUANTWIFI

Türk Telekom & QuantWiFi

Wi-Fi Mercek : Türk Telekom
End-to-End Wi-Fi Monitoring
System by QuantWiFi

CATEGORY

BEST ENTERPRISE WI-FI NETWORK

WINNER!

BEST ENTERPRISE WI-FI NETWORK



HUAWEI

HUAWEI

Huawei Intelligent AP Energy-Saving
Solution Helps Stride into the
Low-Carbon Era

CATEGORY

BEST WI-FI FOR SOCIAL IMPACT

WINNERS!

BEST WI-FI FOR SOCIAL IMPACT

COGNITIVE 

 **electronic
caregiver**

**Cognitive Systems Corp.
& Electronic Caregiver**

Introducing Truly Personal, Accessible
Eldercare: CareAware

CATEGORY

BEST WI-FI
INNOVATION

WINNER!

BEST WI-FI INNOVATION



Morse Micro

Morse Micro Wi-Fi HaLow Solutions:
Redefining Connectivity for the IoT Era

CATEGORY

BEST WI-FI
CUSTOMER EXPERIENCE

WINNER!

BEST WI-FI CUSTOMER EXPERIENCE



Boingo Wireless

Transforming the Customer Experience
at Grand Central Madison



CONGRATULATIONS TO ALL
OUR WINNERS!

THANK YOU AND SEE YOU NEXT YEAR

THANK YOU TO OUR SPONSORS



EVENT PARTNER



Disruptive Analysis

Don't Assume

EVENT PARTNER



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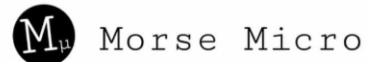
















 **WAA** 世界无线局域网应用发展联盟
WLAN Application Alliance



DRINKS RECEPTION: OCT 09, 6:15 PM
VENUE: VIP & Speakers' Lounge, Hall 7.3

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**See You Tomorrow at
WGC EMEA at 9 a.m. (CET)**