



19 JAN - 8 FEB, 2021  
ASIA TELECOM SUMMIT

# WELCOME & INTRODUCTION

By Chris Bruce  
27<sup>th</sup> Jan 2021

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#WGC | #wifirevolution | #lovewifi | #openroaming





# ASIA TELECOM SUMMIT

We would like to thank all our sponsors!



# Asia Telecom Summit

## Full Program Agenda

3<sup>rd</sup> – 4<sup>th</sup> February – WBA Members Only Working Sessions

Start time: 10:00 ET; 07:00 PT; 23:00 Singapore; 15:00 GMT

4<sup>th</sup> February – WBA Members Only Working Sessions: **Briefing for Asia-based members**

Start Time: 08:30 PST – 11:30 EST; 16:30 BST – 17:30 CET

### ASIA TELECOM SUMMIT OPEN CONFERENCE

Start time 16:00 Singapore; 08:00 GMT; 03:00 ET; 00:00 PT

Tuesday 19<sup>th</sup> January

WBA Executive  
Plenary



Wednesday 27<sup>th</sup> January

OpenRoaming—  
Transforming  
Public & Guest  
Wi-Fi

Thursday 28<sup>th</sup> January

Next Generation of  
Wi-Fi

Tuesday 2<sup>nd</sup> February

Wi-Fi & 5G: The Path  
To Convergence

16:00PM Singapore

Wi-Fi & 5G: The Path  
To Convergence

12:30AM Singapore

Monday 8<sup>th</sup> February

Next Gen Wi-Fi  
&  
IoT





# How OpenRoaming is Transforming Public & Guest WiFi



**Chris Bruce**

Board Advisor  
GlobalReach  
Ex-Chair, WBA



**Vasudevan  
Venkatakrishnan**

Business  
Development  
Director, Asia Pacific  
CommScope



**Moath Almanea**

Director, Spectrum  
Planning and  
National  
Cooperation  
Communications  
and Information  
Commission (CITC)  
of Saudi Arabia



**Mark Grayson**

Distinguished Engineer  
And  
WBA OpenRoaming  
Standards Group Chair  
Cisco





## How OpenRoaming is Transforming Public & Guest WiFi



**Bernard Herscovici**

Founder & CEO  
NetExperience



**Bart Brinckman**

Principal Engineer  
Cisco



**Mauricio Socias**

Entrepreneur,  
Founder & CEO  
Wiongo



**Steve Namaseevayum**

Director,  
Membership &  
Industry Alliances  
Wireless Broadband  
Alliance

# OpenRoaming: Transforming Public & Guest WiFi



TODAYS AGENDA	
08:00am (GMT)	<b>Introduction &amp; Welcome</b> Chris Bruce, Board Advisor GlobalReach, Ex-Chair WBA
08:05am (GMT)	<b>Why is OpenRoaming needed for venues, operators and access providers providing WiFi Connectivity</b> Vasudevan Venkatakrishnan, Business Development Director, Asia Pacific – CommScope
08:25am (GMT)	<b>Public Wi-Fi initiative in Saudi Arabia</b> Moath Almanea, Communication & Information Technology Commission (CITC) Saudi Arabia
08:45am (GMT)	<b>Fireside chat: How OpenRoaming addresses WiFi privacy</b> Mark Grayson, Distinguished Engineer, Cisco
09:05am (GMT)	<b>OpenRoaming with Open Wi-Fi</b> Bernard Herscovici, Founder & CEO, NetExperience
09:25am (GMT)	<b>Smart Cities: Automatic connectivity for tourists with OpenRoaming in Spain</b> Mauricio Socias, Entrepreneur, Founder & CEO, Wiongo, Bart Brinckman, Cisco;
09:45am (GMT)	<b>Live deployments and case studies for OpenRoaming</b> Steve Namaseevayum, Director, Membership & Industry Alliances.
10:00am (GMT)	<b>Close</b> Chris Bruce, Board Advisor GlobalReach, Ex-Chair WBA





## Introduction & Welcome

**CHRIS BRUCE**

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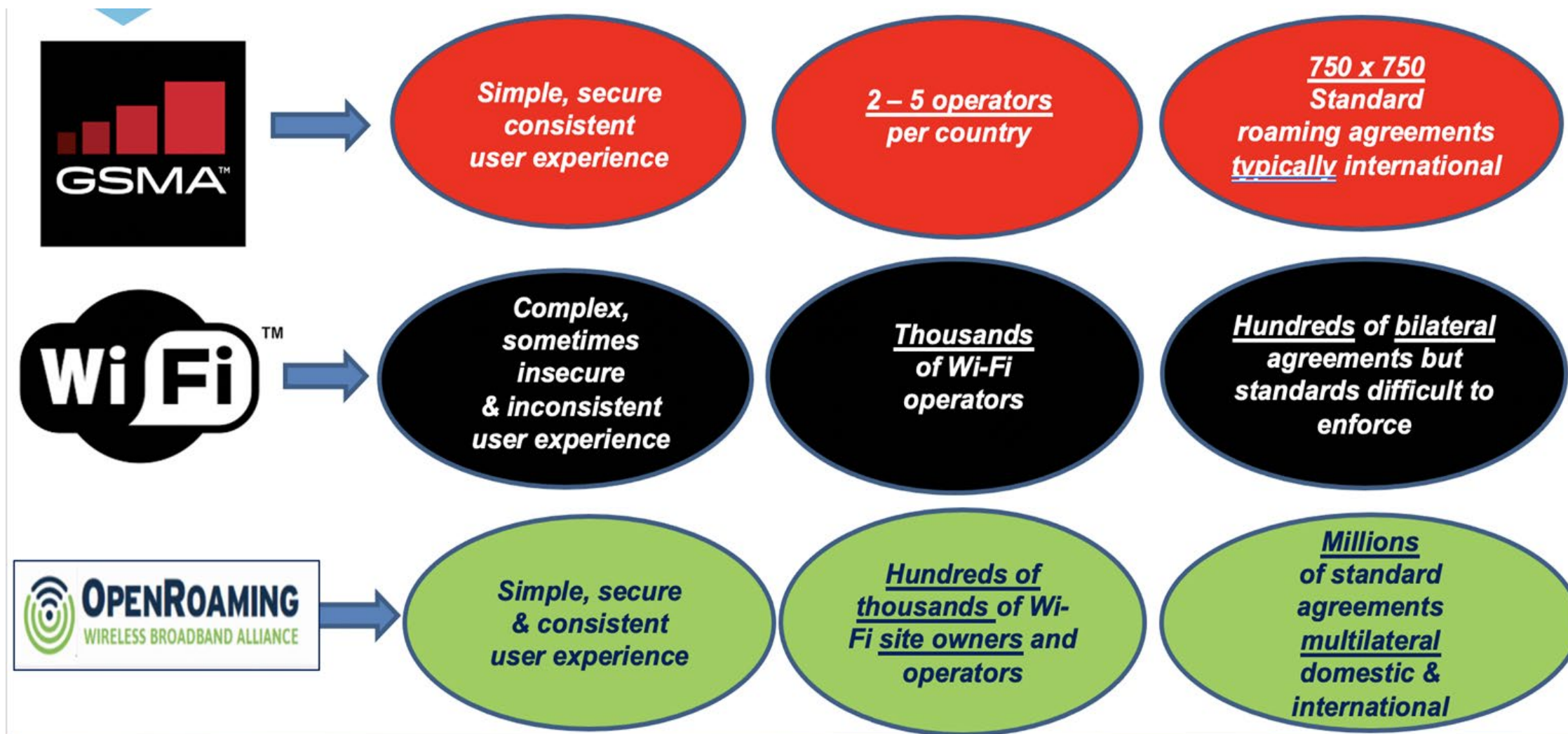
BOARD ADVISOR GLOBALREACH, EX-CHAIR WBA





- **Radically lowers the barriers to entry and adoption :**
  - *Builds on existing WBA programs and resources*
- **Creates methods and business incentives**
  - *for standardization and automation to scale*
- **Extends roaming to the enterprise Wi-Fi owner**
  - *with policy control*
- **Addresses operator needs**
  - *Augments cellular coverage, reach and capacity*
  - *Helps smooth costs of 4G / 5G roll out*
  - *Recognizes the value of identity*
  - *Enforces key security measures*
  - *Protects user data privacy*
  - *Offers policy control*

# Why Now? - History of GSM vs WiFi Roaming





Why is OpenRoaming needed for venues, operators and access providers providing Wi-Fi Connectivity

**VASUDEVAN VENKATAKRISHNAN**

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BUSINESS DEVELOPMENT DIRECTOR, ASIA PACIFIC, COMMScope

COMMScope®





27 January 2021

## Why is OpenRoaming needed for venues, operators and access providers providing WIFI Connectivity

Presented by: Vasudevan Venkatakrishnan  
Business Development Director, APAC



# Historical Past



# CONNECTING

1

2

3

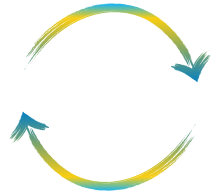
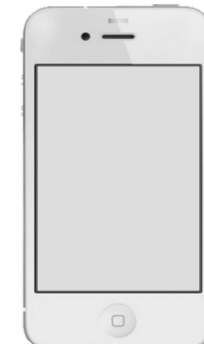
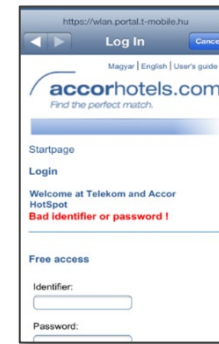
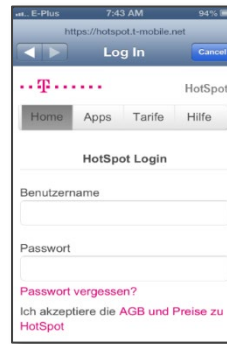
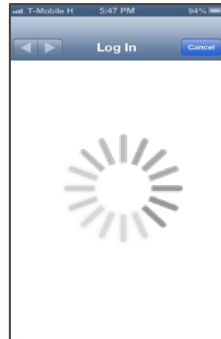
4

5

6

7

8



Manually scan for SSIDs, pick “open” or “free” from long list of SSIDs

Trying to connect (cross fingers)

Launch browser & wait for redirection (keep fingers crossed).

Additional steps required (CWP, username/ password, cost, language)

Pay, and/or enter username/ password.

Connected. Use network if it's acceptable.

Phone goes to sleep, disconnects from Wi-Fi.

Repeat from Step 1. If any step from 1-7 fails, return to Step 1



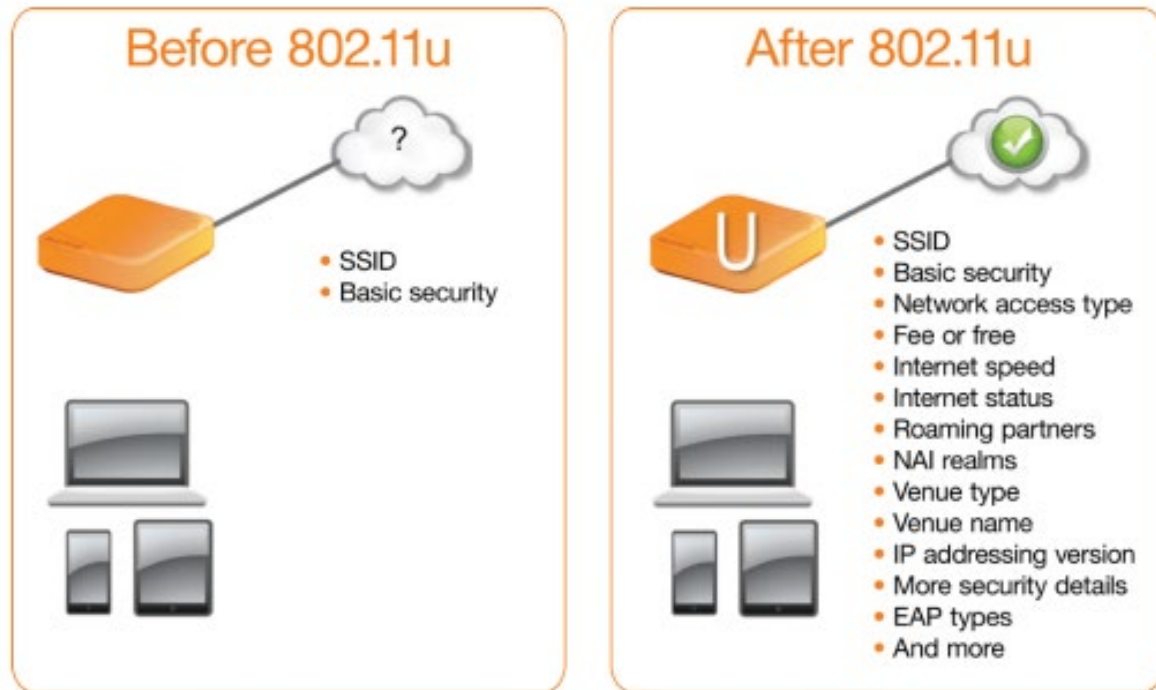
A group of four young adults are gathered together, looking at a smartphone held by a woman in a yellow top. They are all smiling and appear to be in a social setting. The background is slightly blurred, showing other people and warm lighting.

# Recent Past / Present

Passpoint HS2.0

# Wi-Fi HS 2.0 (Passpoint)

## Network Discovery: With and Without 802.11u



## With Hotspot 2.0: Everything Automated

	Today's Hotspot	Hotspot 2.0
Network Discovery/Selection	Manual (SSID)	802.11u
Subscriber Authentication	Captive Portal, WISPr	802.1X
Over-the-Air Encryption	none	AES-CCMP (802.11i)
Mutual Authentication	none	EAP-SIM/AKA, EAP-TLS, EAP-TTLS
Rogue/Hijacking Protection	none	Yes (802.1X/EAP)

# Wi-Fi HS 2.0 (Passpoint)

## Challenges



Establishing Roaming Agreements:  
Long and tedious process



Individual Agreements  
MSO, MNO, Enterprises & Venue Operators



Commercial arrangements with all parties  
Takes Time



# Upcoming Enhancements

OpenRoaming™



# Introduction: OpenRoaming™



## Open Roaming™ – Global Wi-Fi Roaming

### Pan-Industry Engagement: Grow Wi-Fi Roaming

- MSO, MNO, Enterprises, Roaming Hubs, Certificate Authorities, Infrastructure Vendors

### Seamless Secure Onboarding User Experience

- Cellular like Wi-Fi Roaming Experience
- Secure– PKI/Radsec Ecosystem
- Tiered “Settlement” Policies

### Vendor / Venue/ Service Provider Agnostic

- Truly “open” – enable broad acceptance

### IS...

- Industry effort facilitated by WBA
- Based on a set of business & technical components
- Built on HotSpot 2.0/Passpoint
- Focused on Wi-Fi Data Offload

### IS NOT...

- A new IEEE Std / WFA Program
- Cellular Offload for Voice Calls
- Competing with any other Industry Initiatives

# OpenRoaming<sup>T</sup><sub>M</sub>

## What's in it for CommScope?

### Wi-Fi Leadership: Responsive to Industry trends

- Enhance relationships with Charter, Comcast, Marriott, Hyatt, Boingo, Single Digits, Global Reach, etc.

### Key Value Proposition

- Still flexibility for Venues
- Deliver “consistent user experience: improving customer satisfaction”. Regardless of venue & the home MNO of the client's device.



# Value Proposition: OpenRoaming™



- **END-USER / CONSUMER: SEAMLESS & SECURE ONBOARDING**

- Eliminate SSID: password guessing, insecure login credentials & constant reconnects
- Automatic & secure connected experience on Wi-Fi



- **VENUE / ENTERPRISE: IMPROVES CONSUMER SATISFACTION**

- Best coverage & cost-effective options with guest/Public Wi-Fi access
- Eliminate 'bill shock' (overseas cellular roaming data)
- Consistent, Ubiquitous User Experience
  - Paid subscriptions or Loyalty programs



- **INDUSTRY IMPACT: GROWTH & GLOBAL REACH**

- Clear policy & standards for entire Wi-Fi Roaming ecosystem
- Eliminates the need for 1-to-1 business contracts (e.g., Hub <> Service Provider)
- Scalable automatic & secure connections: Billions of devices to millions of Wi-Fi Networks
- Unprecedented reach: Wi-Fi Hotspots worldwide
- New growth opportunities: Wi-Fi Roaming & Offload

# Benefits by Partner Type



## WBA OpenRoaming™



### ECOSYSTEM BROKERS

- Connect network & identity providers: providing an off-the-shelf solution
- Enhancing customer relationships & promoting business/revenue growth
- Adding customer value with interconnection services, identity creation & other added value services
- Enhance & Increase innovative service offerings portfolio



### OPERATORS & IDENTITY PROVIDERS

- State-of-the-art Wi-Fi experience: automatic & secure connectivity to Wi-Fi networks
- Global reach to millions of Wi-Fi Hotspots for customers in venues which are supported by WBA OpenRoaming™ partners. (Operators, enterprises, cities, etc.)
- Increase relevancy of services which add value for customers
- Increase customer satisfaction via innovative services which enable WBA OpenRoaming™
- Reductions in operating expenses (Wi-Fi offload) when customers are connected to WBA OpenRoaming™

# Benefits by Partner Type



## WBA OpenRoaming™



### NETWORK PROVIDERS & VENUES

- Solve Wi-Fi authentication challenges for customers & visitors (providing automatic & secure Wi-Fi)
- Provide Wi-Fi access onsite: Billions of Wi-Fi devices can be supported by WBA OpenRoaming™ members
- Grow business opportunities with Wi-Fi Roaming & Offload
- Prepare Wi-Fi networks for convergence: with 5G & used by any device with a cellular SIM-Card & services
- Provide a better Wi-Fi experience with innovative services to ease the life of your customers / visitors



### END USERS/CUSTOMERS

- Increase consumer satisfaction across the world with guest & public Wi-Fi access  
(Delivering automatic & secure Wi-Fi experiences)
- No matter where you go.... End users can now connect to all type of Wi-Fi networks  
(e.g. Coffee-shops, restaurants, malls, retail, cities etc.)



# WI-FI ROAMING



## ▪ **END-USER / CUSTOMER**

- Seamless & Secure Onboarding



## **VENUE / ENTERPRISE**

- Improves Consumer Satisfaction



## **INDUSTRY IMPACT**

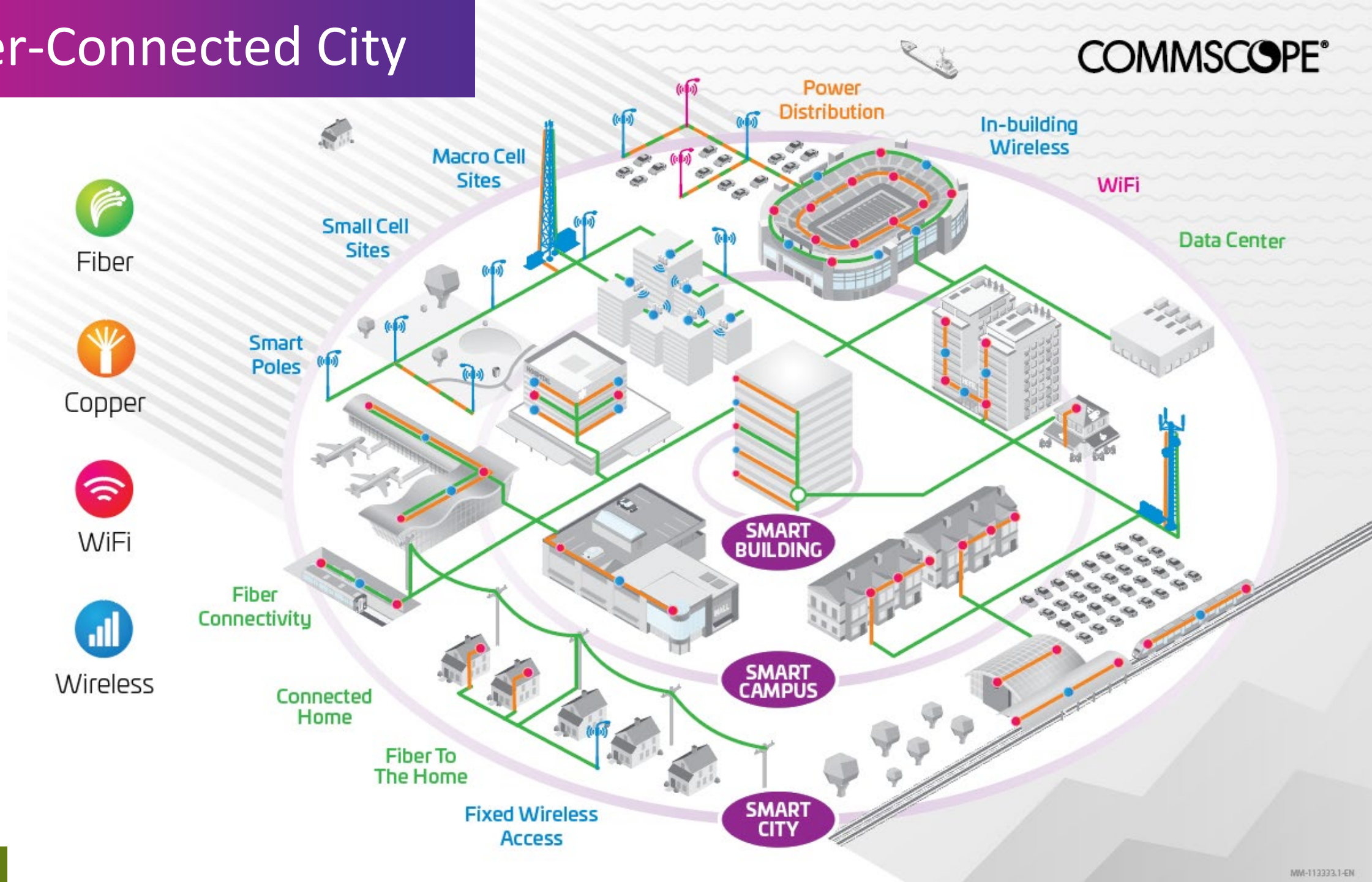
- Growth & Global Reach



**RUCKUS** has a long history of industry leadership in Wi-Fi Roaming

# Better-Connected City

COMMScope®







COMMScope<sup>®</sup>

now meets next





## Public Wi-Fi initiative in Saudi Arabia

**MOATH ALMANEA**

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DIRECTOR, SPECTRUM PLANNING AND NATIONAL COOPERATION  
COMMUNICATION & INFORMATION TECHNOLOGY COMMISSION (CITC), SAUDI ARABIA







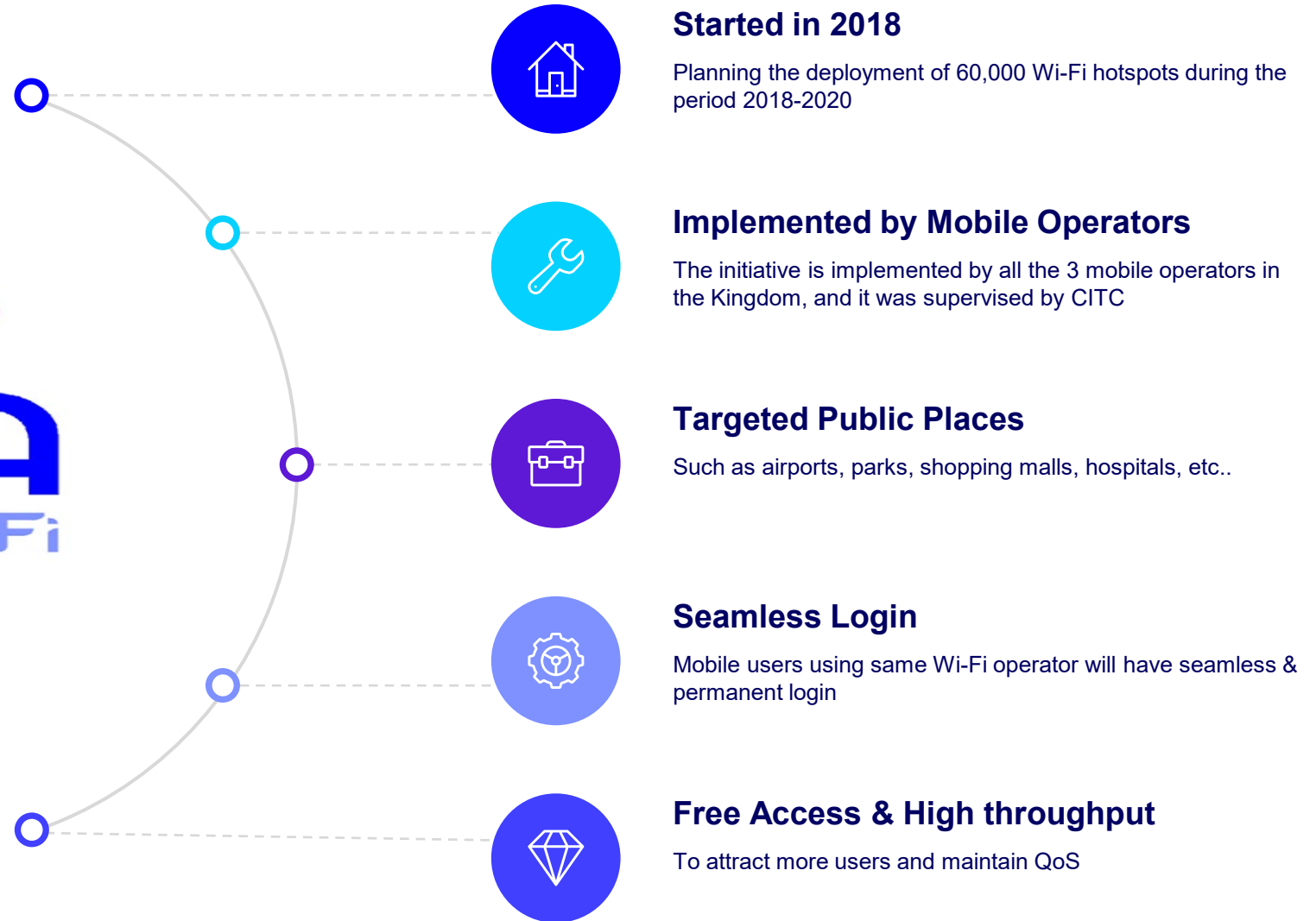
هيئة الاتصالات وتقنية المعلومات  
Communications & Information  
Technology Commission

# Public Wi-Fi Initiative in Saudi Arabia

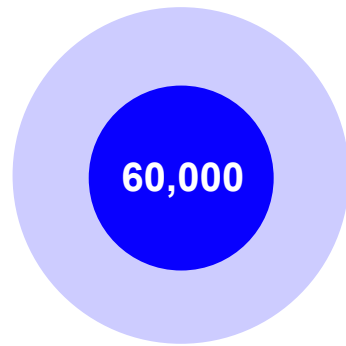
Jan 2021

- Public Wi-Fi Initiative
- Benefits and Features
- Future of Public Wi-Fi in Saudi Arabia

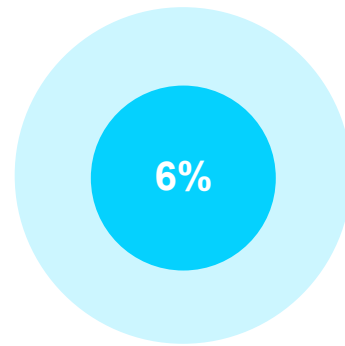




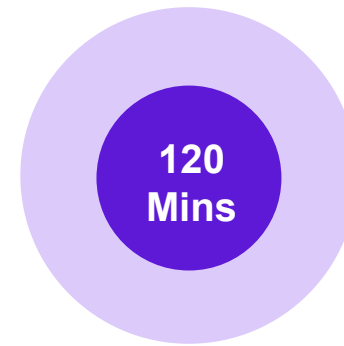




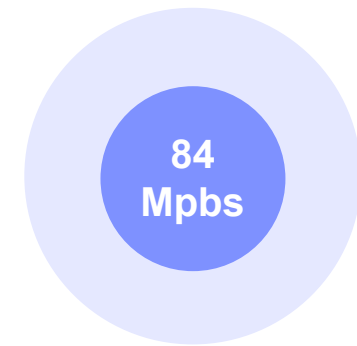
**Wi-Fi Hotspots**



**Monthly users growth**



**Minimum Daily  
duration/user**



**Average throughput**



**Seamless Login for same network subscribers**



**Mobile Traffic Offloading**



**Utilization of Fiber Backhaul Networks**



**Better Indoor Coverage**

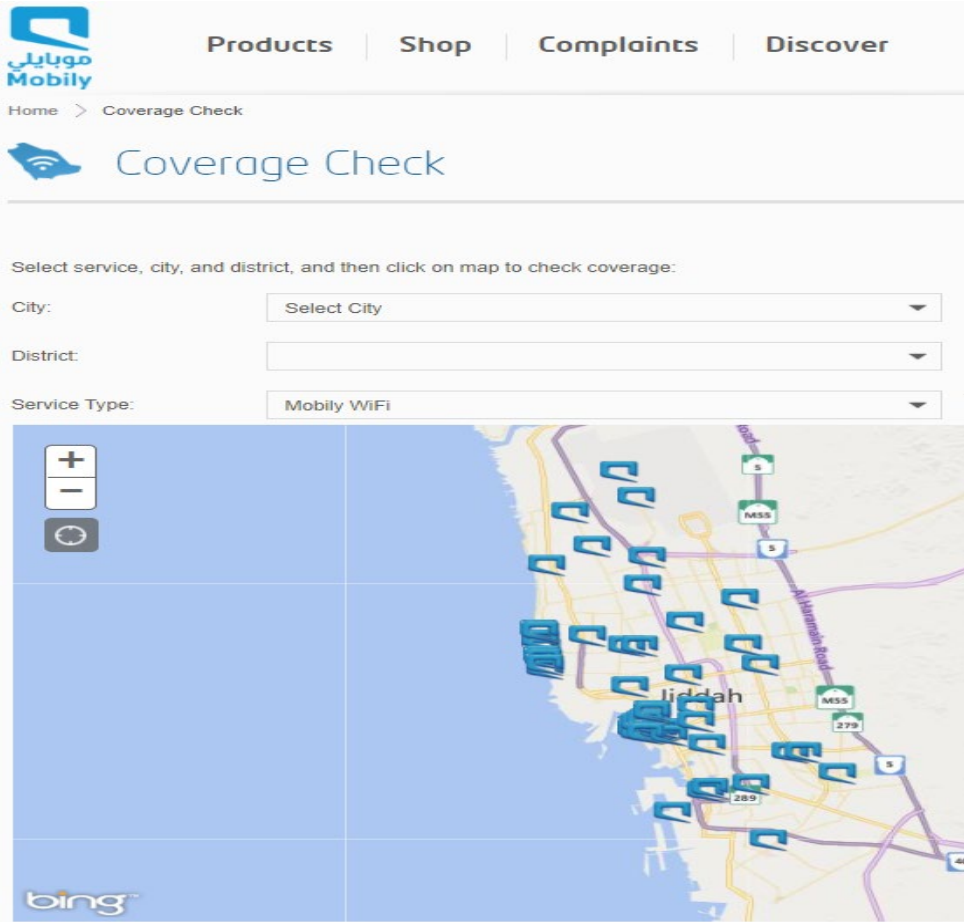


**Online Coverage Maps**



**Better Customer Satisfaction**

## Wifi







**Collaboration between CITC and WBA in enabling trials for OpenRoaming and WiFi 6 / 6E in the Kingdom.**



**Interoperate networks (e.g. of Owners and Mobile Operators)**



**Seamless connection for all users**



**Enabling IoT applications (PoS, Cameras, etc...)**

- Releasing more than 20 GHz
  - More Unlicensed Spectrum (e.g. 6GHz band for Wi-Fi 6e)
  - Spectrum release plan for IMT 2020 & NR-U
  - Smart spectrum management approaches
- 
- Publishing Date: 28 Jan 2021
  - Deadline 28 Feb 2021





هيئة الاتصالات وتقنية المعلومات  
Communications & Information  
Technology Commission

**Thank you**





# Fireside chat: How OpenRoaming addresses WiFi privacy

**MARK GRAYSON**

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DISTINGUISHED ENGINEER, CISCO

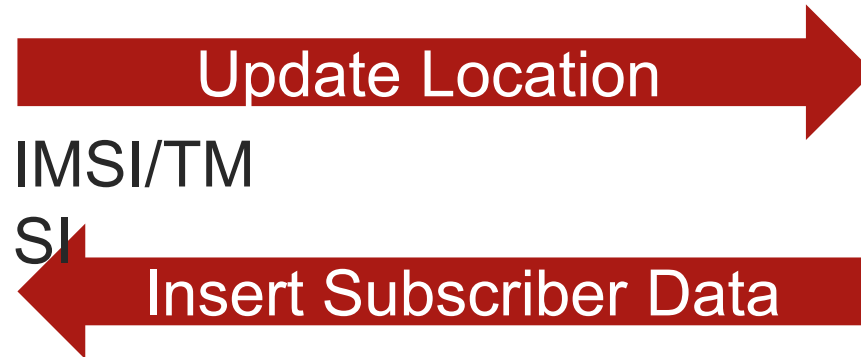


# Cellular Roaming: Exposing your ID



Roaming agreement prohibits sending of “roaming customer targeted communications” unless authorized by home network

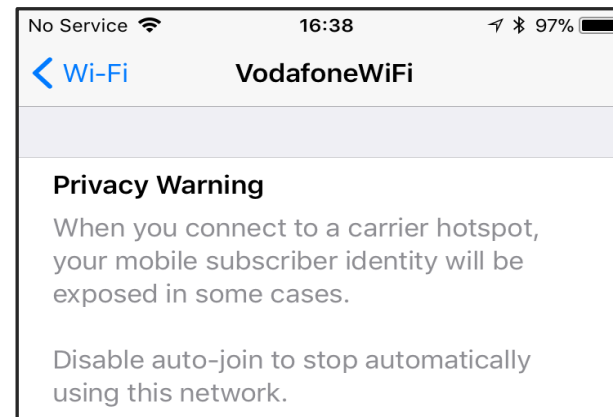
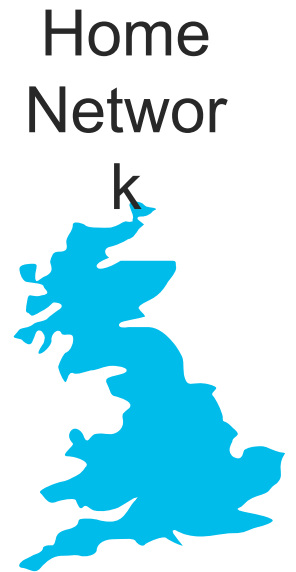
Restrictions on use of Personal Identifiable Information for any other purposes is not standardized



IMSI/TM

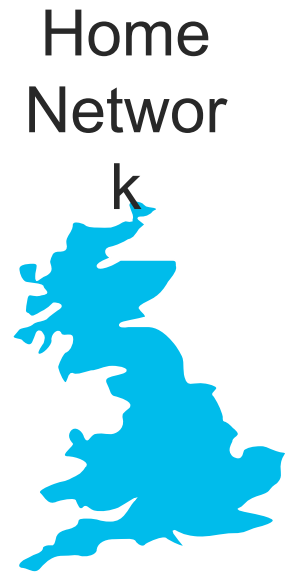
SI

IMSI, MSISDN, Forwarding Numbers, Call Barring Information, APN Information, ..



When you connect to **any** cellular network, your mobile subscriber identity & telephone number will **always** be exposed to the visited network!

# OpenRoaming: Keeping you anonymous



EAP-Response/Identity

anonymous@home-network

EAP-Method

EAP-Success

Chargeable-User-Identity: an opaque string/identifier

OpenRoaming baseline privacy policy restricts the use of all subscriber Personal Identifiable Information for provision of the service, troubleshooting and compliance with the law.

Visited network is prohibited from selling, renting, releasing, disclosing, any PII.

When you connect to **any** OpenRoaming network, the use of your PII is **always** protected



# OpenRoaming

## No issue with MAC Randomization

Conventional Wi-Fi



Randomized MAC Address



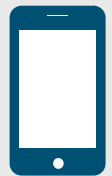
Visited Network  
k



No guarantee of user identifier  
Home Network  
k



OpenRoaming



Randomized MAC Address



Visited Network  
k



Mandatory Chargeable User Identity as user identifier



Home Network  
k

# OpenRoaming Release 2 - Roadmap

1. OpenRoaming-Settled
2. Silver and Gold QoS Tiers
3. Automated compliance testing and troubleshooting toolset
4. Enhanced scalability enabling easier adoption by aggregators/other federations
5. Expand OpenRoaming applicability to IoT and private 5G







# OpenRoaming with Open Wi-Fi

**BERNARD HERSCOVICI**

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FOUNDER & CEO, NETEXPERIENCE



# Open Roaming with Open Wi-Fi

January 27, 2021

Bernard Herscovici – CEO

[www.netexperience.com](http://www.netexperience.com)







## NetExperience

- Provide Open Wi-Fi platform for service providers
  - Supports OpenRoaming
  - Multi Vendor Hardware
  - SaaS or licensed
  - Software, support, upgrades, services
- Company
  - Team with extensive Wi-Fi and networking experience
  - WLAN, Cloud
  - Ottawa, Canada

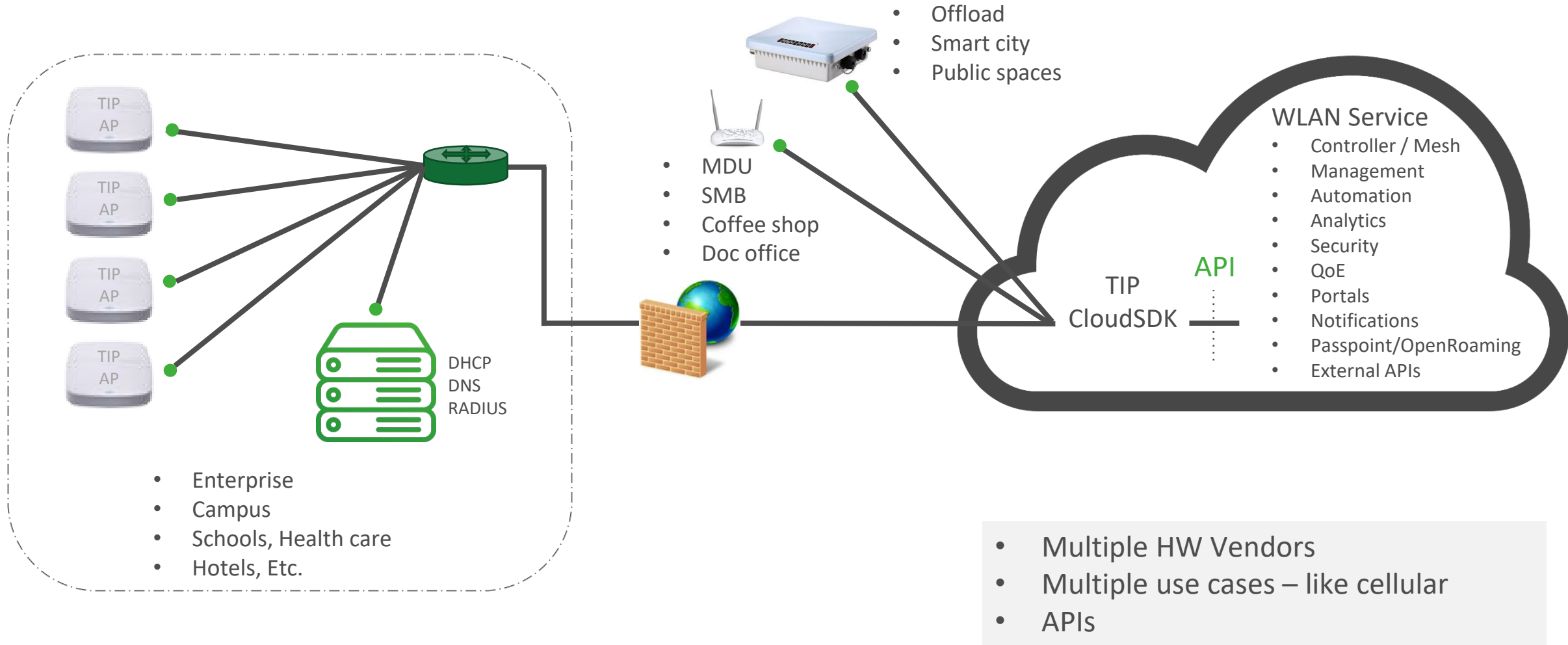


## When 2 Eco-systems collaborate...

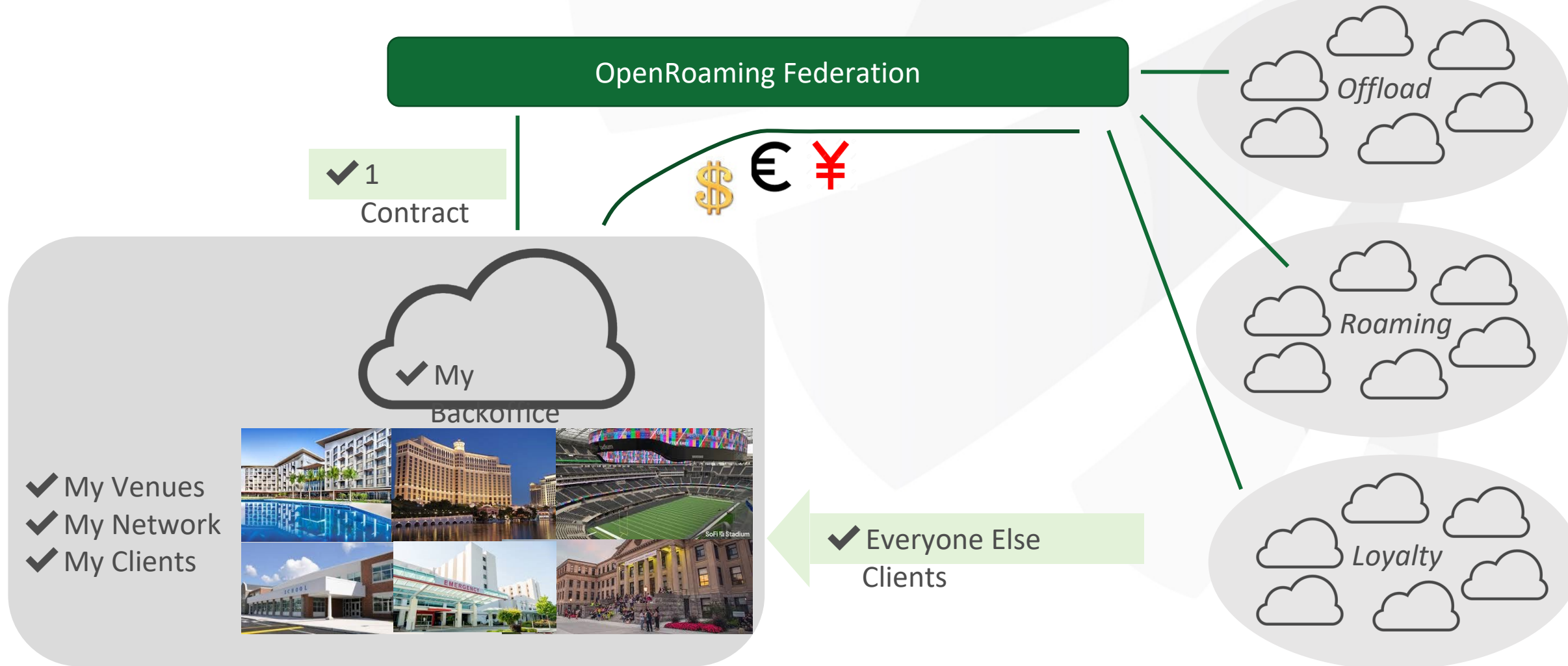
- Both driven by service providers and technology companies
- Telecom Infra Project
  - Open Wi-Fi
  - Disaggregated networks
  - Network Architecture
- Wireless Broadband Alliance
  - OpenRoaming
  - Roaming Federation
  - Roaming Architecture



# OpenWi-Fi WLAN Architecture



# OpenRoaming for the “Wi-Fi Focused Service Provider”





# The winner is the “Wi-Fi focused SP” business case

- Access to billions users
- Strong use cases
  - Roaming
  - Offload
- Efficient (star architecture)
- Seamless onboarding
- End to End Security
- Wide Adoption

OpenRoaming ... REVENUE

## Wi-Fi Focused Service Provider

- Higher Revenue from roaming
- +
- Lower cost from disaggregation
- =
- Improved profitability!

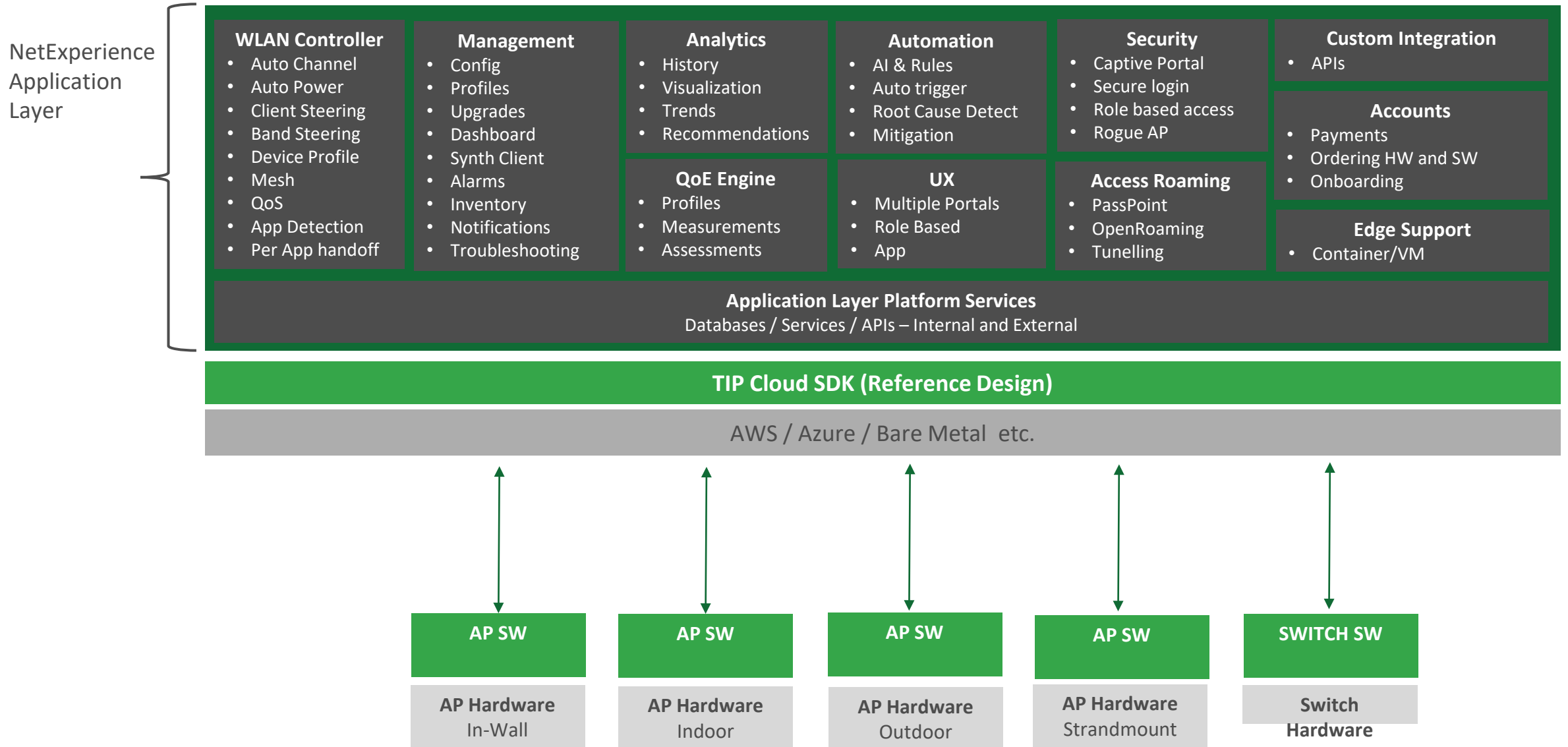
Open Wi-Fi ... LOWER COST

- One platform
  - All hardware vendors and models
  - All use cases: MDU, SMB, Hospitality, Education, Enterprise
  - All functions: controller, management, automation, analytics
- Vendor flexibility
- Low TCO: capex, opex

# Hardware Compatibility drives use cases

- Common set of requirements
  - Amount / type of memory, etc.
- Superset portfolio
  - Wi-Fi5 / 6 / 6E
  - Indoor / Outdoor
  - Units / embedded cards
  - Specialty (such as in-wall, combined CBRS with Wi-Fi etc.)
  - “Bring your own vendor”
  - “Bring your own HW”
  - “Bring your own type of HW” – for example an embedded AP in a hub/smart pole
- Can mix in the same network HW from multiple providers and still the Controller/Management/etc. will operate across vendors

# NetExperience – Full Stack for OpenWi-Fi



# NetExperience Platform Differentiation

- One platform from MDU residential to big Enterprise
- Compatible with multivendor HW
- Automation
  - Industry best features for remote IT support and avoiding tech support truck rolls
  - Auto-detection, Auto-diagnostic, Auto-mitigation using ML/Rules engines
  - Network history
- SaaS or Licensed
  - When licensed, the service provider holds the data (in country, according to own criteria)
- Lowest TCO of a Cloud service delivering enterprise WLAN
  - Lowest Initial Cost
  - Lowest Operating Cost



## In Summary....

- Open Wi-Fi lowers the cost to acquire and operate Wi-Fi networks
- OpenRoaming increases revenue and monetization
- When used together, the winner is the Wi-Fi Service Provider
  - Profitability, Addressable Market
- NetExperience provides a full commercial suite based on Open Wi-Fi
  - Help create the TIP Wi-Fi solution
  - Provides an end-to-end service platform for managing enterprise WLANs

[www.netexperience.com](http://www.netexperience.com)

[bernard@netexperience.com](mailto:bernard@netexperience.com)





# Smart Cities: Automatic connectivity for tourists with OpenRoaming in Spain

**MAURICIO SOCIAS**

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ENTREPRENEUR, FOUNDER & CEO,  
WIONGO



**BART BRINCKMAN**

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PRINCIPAL ENGINEER,  
CISCO





# Smart Cities

Automatic connectivity for tourists with OpenRoaming in Spain

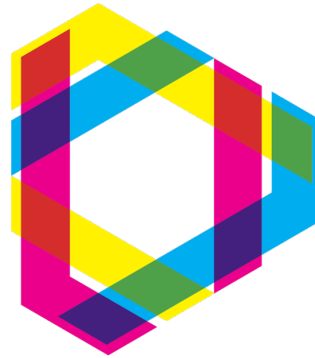


WBA Asia Telecom Summit  
January 21st, 2021



# About us

- ▶ **WIONGO**, an industry leader with more of 20 years of experience in Wi-Fi Services and SmartCity development in Spain, member of the Spanish DTI (Smart Tourism Destinations National Network).
- ▶ **WIONGO**, before COVID time, connected more of 20 million unique devices to its networks annually, across more than 300 deployments (beaches, ports, transportation hubs, malls, stadiums, hotel chains, big resorts and leisure venues), including 18 major city / tourism destinations from Spain, like Barcelona, Valencia, Palma de Mallorca, Ibiza, Gandía, Salou, Benidorm...



WIONGO  
miembro colaborador  
**Red DTI**



# Cisco Partner

- ▶ **WIONGO**, implements its city/tourism destinations exclusively with Cisco Meraki access points, including new Wi-Fi 6 technology.
- ▶ **WIONGO**, has been working with Cisco for the last 14 years with some common customer case studies since 2014.
- ▶ **WIONGO**, is now a pioneer, in the use of the new Cisco DNA Spaces platform and reinforces its status as a partner with the adoption of the OpenRoaming standard in all its majority deployments.

 Meraki

Case Study | City of Palma de Mallorca

## City of Palma de Mallorca

Providing free and accessible WiFi to millions of users along the beaches has revolutionized the tourist industry for this Spanish city




- One of Europe's most popular vacation spots with tens of thousands visitors annually
- Deployed Meraki APs over 5 km of beaches in 3 months along with custom tourism apps
- Segmented SSIDs, splash pages, and Facebook login for customized authentication

# WBA Partner




- ▶ **WIONGO**, has been an active collaborator of the WBA, supporting the World Wi-Fi Day initiative since its inception, was named shortlist in the 2016 Awards in the Best Wi-Fi Deployment to Connect the Unconnected in an Urban Environment categorie.
- ▶ **WIONGO**, also was named shorlist for the Best Connected City Deployment categorie in the WBA Industry Awards 2018 alongside KT and the City of London.
- ▶ **WIONGO**, is now a pioneer, to provide Secure, Auto-Connected Wi-Fi with first Spanish deployment of WBA OpenRoaming.

We are pleased to announce that we have been shortlisted for the WBA Industry Awards 2018

 **WIRELESS BROADBAND ALLIANCE** **WBA INDUSTRY Awards 2018** **CELEBRATING ECOSYSTEM EXCELLENCE**

Shortlist category:  
**Best Connected City Deployment**

**SHORTLISTED**  
4. Best Connected City Deployment

 <b>City of London</b> <b>Corporation &amp; CTIL</b> City of London Gigabit Wi-Fi & Small Cell Network	 <b>KT</b> "Passion, Connected" Pyeongchang Olympic 2018	 <b>WIONGO</b> Smart Tourist Destinations
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# WBA OpenRoaming

- ▶ **WIONGO**, begins the year 2021 with an active participation in the WBA OpenRoaming flagship trials, establishing the OpenRoaming service in several Spanish cities, including Barcelona, Valencia, Palma, Salou, Gandia and Benidorm.
- ▶ **Mauricio Socias, Entrepreneur, Founder and CEO of WIONGO**, commented “The Smartcity concept is more important today than ever before. It must obey the maxim of making life easier, safer, more efficient and better connected. Cisco and WBA OpenRoaming helps us reach several of these key milestones, massively enhancing the city experience for tourists, consumers and residents alike”.



## OPENROAMING GLOBAL TRIALS PROGRAM



### Flagship Trials

The logo for the WIFI4EU program, featuring a yellow Wi-Fi symbol and the text "WIFI4EU" in blue.

9,000 Municipalities across Europe with multiple vendors

A photograph showing a street scene in a city, likely one of the Spanish cities mentioned in the text.

6 Spanish Cities, including Barcelona and Valencia from Wiongo Networks

A map of Japan with several locations marked, representing the trial locations in Japan.

Japan Cities with Cityroam and multiple vendors

A photograph of a scenic landscape in Switzerland, showing mountains and a lake.

Switzerland, IoT use case of Wi-Fi &amp; LoRaWAN



### Call for Participation

Join OpenRoaming trials and make Wi-Fi easier, secure and safer for everyone

# Thank you !

- ▶ Partnership Contact:  
msocias@wiongo.com
- ▶ <https://www.wiongo.com>
- ▶ [Facebook](#)
- ▶ [LinkedIn](#)



WBA Asia Telecom Summit  
January 21st, 2021



# Open roaming in smart city use cases

With Wiongo

Bart Brinckman

Principal Engineer - Cisco

27/01/2021



# One Global Wi-Fi Network

**VISION:** Provide Automatic & Secure Wi-Fi Everywhere to Everyone

**MISSION:** Create an open framework for all types of players to develop their Wi-Fi services and business



**PRIVATE**  
**SECURE**  
**SEAMLESS**

# PRIVACY built-in

1

## Authentication is private

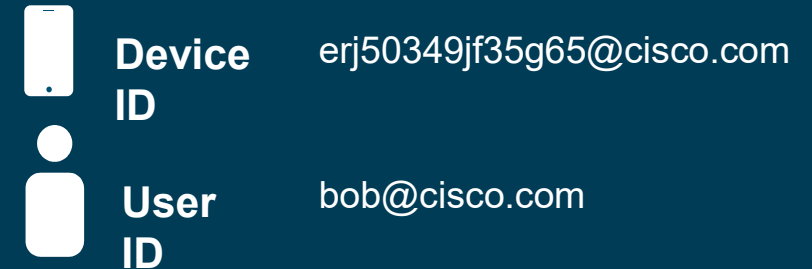
Secure and private authentication between user's device and IDP



2

## User and device are identified in context

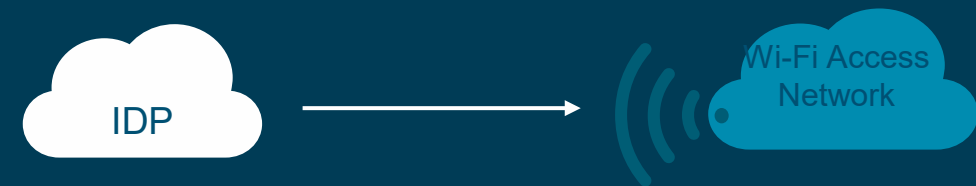
Identified with persistent Device ID and User ID with IDP context



3

## IDP shares identities on the user's behalf

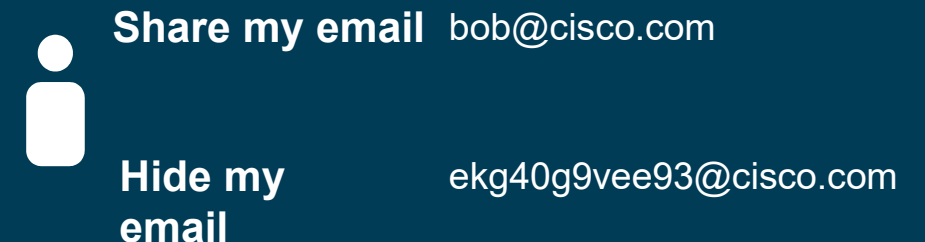
IDP manages identity and privacy for the user



4

## Privacy with user consent

User controls privacy, identifiers are always persistent



Cisco has **Developed, Standardized & Adopted**

Industry standards & partnerships delivering  
a Next Generation Onboarding Experience

HotSpot 2.0  
OpenRoaming  
Carrier offload  
Mobile and IoT  
SDK's

## Next Gen. Onboarding



1

Seamless, Secure & Private Onboarding ▶

2

Enhance carrier indoor coverage with WiFi ▶

3

Simplified & secure Enterprise onboarding ▶

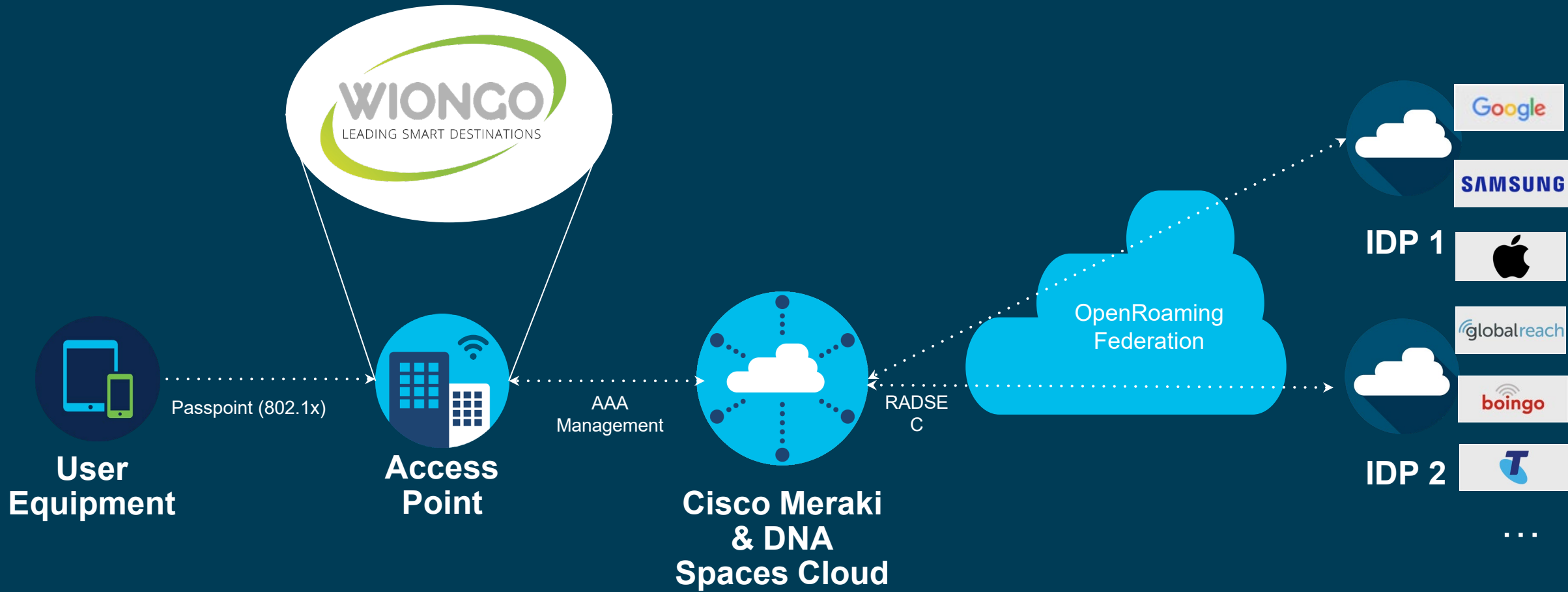
4

Customer Acquisition & Loyalty experience ▶

5

Automated IoT onboarding ▶

# WIONGO Meraki deployment





# It's so **EASY...** 10 min to set up

*All you need is...*

## 1 Set up an SSID

Openroaming

enabled

[rename](#)

[edit settings](#)

802.1X with custom RADIUS

None

unlimited

Local LAN

yes

no

n/a

Disabled

no

n/a

## 2 Decide who you want to accept

Please Select your OpenRoaming Policy

☒ I will accept all authenticated OpenRoaming members (default)

☐ I will accept all authenticated OpenRoaming members that present a real identity

☐ I will only accept certain Identity types

OpenRoaming Policy Wizard: Configure identity types

Drag and drop the identity types (able to move both sides)

Available credential types:

- All
- All with real-id
- All paid members
- Device manufacturer real id only
- Cloud/Social real ID
- Enterprise Employee real ID
- Enterprise Customer real ID
- Enterprise Customer ID
- Loyalty Retail ID
- Loyalty Retail real ID
- Loyalty Hospitality ID

Selected credential types:

- Device manufacturer all id
- Cloud/Social ID
- Enterprise Employee ID

Preferred credentials:

☐ I do not have any preferred credentials

☒ I have preferred credentials, which I want to be used before any other:

Preferred Credentials:

+ Add Domain

cisco.com

comcast.com

## 3 Connect !

15:17 50%

< Wi-Fi

On

Current network

OpenRoaming Connected

Available networks

- B Very fast
- blizzard
- BS
- DIRECT-0f-HP M477 LaserJet
- Openroaming
- BT
- + Add network

# CISCO OpenRoaming



&  
*Easy!*



# Live deployments and case studies for OpenRoaming

**STEVE NAMASEEVAYUM**

---

DIRECTOR OF MEMBERSHIP & INDUSTRY ALLIANCES, WIRELESS BROADBAND ALLIANCE





## Live Deployments & Case Studies

Steve Namaseevayum  
WBA, Director Industry Alliances & Membership



# WBA OPENROAMING IN ACTION



6 Spanish Cities, including  
Barcelona and Valencia,  
Wiongo and Cisco

*100+ networks globally*





# WBA OPENROAMING – GLOBAL TRIALS STATUS



# WBA OPENROAMING ECOSYSTEM PLAYERS



## Growing Ecosystem of Brokers / Identity Providers / Network Providers



- *More than 60 organizations involved*
- *Exemplative*




# WBA OPENROAMING FOR DIFFERENT MARKET SEGMENTS



## Communities & Smart Cities / Retail / Enterprise / Hospitality / Transportation etc, etc





**One Global Wi-Fi Network**  
WBA OpenRoaming™ creates the framework to connect billions of users and things to millions of Wi-Fi networks globally

**OPENROAMING FOR CITIES & PUBLIC SECTOR**

The use of Wi-Fi across cities and the public sector has grown in popularity since the early noughties/2000's, reinforced with the recent COVID19 Pandemic. From outdoor public spaces, to indoor municipal use in areas such as libraries and public spaces in offices and education, society's increasing reliance on staying connected at all times and wanting constant access to information on the move demands a great customer experience. That is without mentioning smart city enablement!

Residents, students, visitors and businesses want a seamless and secure experience when connecting to Wi-Fi but all too often they get a poor first-time user experience when trying to connect to networks. This manifests itself through a frustrating and repetitive user authentication process and ongoing concerns about security.

Today, security and privacy in Public Wi-Fi is critical for all responsible decision makers who are looking to avoid open access Wi-Fi and/or share passwords that create an unrealistic sense of security for users. Additionally, while many networks continue to rely on MAC identification, the industry as a whole is moving towards MAC Randomization, implying that new security models and user identification must be put in place. For this reason, WBA members have been working on this matter to ensure that better and more secure Wi-Fi is available to all.

WBA has created a roaming federation service called OpenRoaming™ which addresses these issues by providing all the building blocks necessary to enable a Smart City for public Wi-Fi and other public services. Citizens are able to stay connected in virtually any location across the city while not having to worry about potential security risks, ensuring cities and public spaces are more friendly to businesses, visitors and residents alike, enabling a city of innovation.

[FIND OUT MORE: OPENROAMING.ORG](#)





**One Global Wi-Fi Network**  
WBA OpenRoaming™ creates the framework to connect billions of users and things to millions of Wi-Fi networks globally

**WHAT IS WBA OPENROAMING™?**

WBA OpenRoaming™ is a roaming federation service enabling an automatic and secure Wi-Fi experience globally. With WBA OpenRoaming™, we are creating an open connectivity framework for all organizations in the wireless ecosystem to power new opportunities in the 5G era. It encompasses three key elements:

- Cloud federation**  
Creates a federation of networks and identity providers to enable automatic roaming and user onboarding on Wi-Fi. Based on WBA's Wireless Roaming Intermediary Exchange (WRIX) standards to scale and facilitate different business models under a harmonized framework.
- Cyber security**  
Enables simple, secure and scalable Wi-Fi connections amongst different organizations that are part of WBA OpenRoaming™. Allowing automatic and secure roaming between millions of networks, nationally and globally with secured interconnection and encrypted communications.
- Network automation**  
Defines an automated roaming consortium codes framework (RCO) to support policy provision on devices and networks. Organizations that manage a Wi-Fi CERTIFIED Passport-enabled network may become part of the WBA OpenRoaming™ federation.

WBA OpenRoaming™ transforms the Wi-Fi experience for consumers and businesses and ultimately opens up opportunities for broadband and the Internet of Things (IoT) connectivity across business verticals, including retail, hospitality, education, smart cities, automotive and aviation, among many others. Devices simply connect automatically and securely on to the WBA OpenRoaming™ network.

[FIND OUT MORE: OPENROAMING.ORG](#)





**One Global Wi-Fi Network**  
WBA OpenRoaming™ creates the framework to connect billions of users and things to millions of Wi-Fi networks globally

**OPENROAMING FOR HOSPITALITY**

In recent years, Wi-Fi availability is rated as one of the top 3 factors why a guest will choose to stay at a hotel. For hotels around the world, providing a great guest Wi-Fi experience is not optional, it's essential.

To that end, what defines a great guest Wi-Fi experience, and are you delivering it? Your guests may have great connectivity in their bedroom or in the hotel bar, but what about in the conference center with many people trying to simultaneously connect? Are your staff required to be connected to Wi-Fi in order to better serve your customers?

Common issues such as friction in different parts of the hotel, concerns about security, high data demands, and now MAC Randomization is disrupting how many brands are managing user identification. This can have a negative impact on the guest's experience and by association their loyalty to your brand and compliance to your brand standard. If this experience could be addressed throughout their holiday or business trip across different venue types and different transport modes, satisfaction levels and customer experience can reach new heights.

OpenRoaming provides seamless, secure access throughout the property, to other properties and other places your guests visit throughout their journey and OpenRoaming can enhance your loyalty proposition.

[FIND OUT MORE: OPENROAMING.ORG](#)





**One Global Wi-Fi Network**  
WBA OpenRoaming™ creates the framework to connect billions of users and things to millions of Wi-Fi networks globally

**OPENROAMING FOR GROUND TRANSPORTATION**

**Trains, Buses, Underground and Road**



What happens when our day is paused? The majority of people on different modes of public transportation – such as a train or bus – will immediately reach for their smartphone or tablet – whether it's to check messages, to do some work or just to enjoy some entertainment while having some downtime.

However, problems can arise the moment you attempt to connect to the transportation's Wi-Fi network. How do I connect? Do I need a username or password? Will the network recognize me from my previous connection? Should I worry about security risks?

Companies responsible for deploying these networks are also concerned about delivering a good experience for passengers, and staff and need to be aware of any necessary operational guidelines or experience. Additionally, MAC Randomization is threatening to disrupt how user identification is managed.

This is where WBA OpenRoaming comes in. It is designed to drastically simplify how passengers and staff connect to the network, with no lengthy and repetitive sign-up or connection process required. From carriage to platform to subway and beyond, connecting to the network happens simply and securely without any further actions needed from the user.

[FIND OUT MORE: OPENROAMING.ORG](#)



**One Global Wi-Fi Network**  
Wireless Broadband Alliance & Wireless Broadband Alliance members create an open connectivity framework for all types of devices to deliver their Wi-Fi services and business

View latest WBA OpenRoaming™ resources by clicking on the tabs below

**WBA OPENROAMING™ RESOURCE HUB**

- WHITE PAPERS
- PRESENTATIONS
- ARTICLES
- INTERVIEWS
- BROCHURES

Wireless Roaming Intermediary Exchange (WRIX) Overview  
Next Generation Network (NGN) Wi-Fi Roaming Guidelines  
IoT Interoperability Dynamic Roaming

[DOWNLOAD THE BRAND GUIDELINES](#)

**JOIN**  
[LEARN MORE](#)

**HOW IT WORKS**  
[LEARN MORE](#)

**CONTACT US**  
[LEARN MORE](#)

<https://wballiance.com/openroaming/resources/>



## Call for Participation



# CALL FOR PARTICIPATION

## One Global Wi-Fi Network

VISION: Provide Automatic & Secure Wi-Fi Everywhere to Everyone

MISSION: Create an open framework for all types of players to develop their Wi-Fi services and business



STEP 1



Sign up for WBA OpenRoaming™  
(Inclusive for WBA Members)

STEP 2



Adopt the WBA OpenRoaming™ framework and standards

STEP 3



Choose the interconnect model and technologies

STEP 4



Select your business model and partners that are members of WBA OpenRoaming™

STEP 5



Configure your network and/or customer devices

STEP 6



You are now part of the WBA OpenRoaming™ brand and are ready to ROAM! **Congratulations!**



OpenRoaming r1 launched



Call for Participation

<https://wballiance.com/openroaming/join>

Engage on projects - <https://wballiance.com/newsroom/contact> -

<https://wballiance.com/wba-openroaming-opens-the-door-to-create-one-global-wi-fi-network>

<http://openroaming.org>

[steve@wballiance.com](mailto:steve@wballiance.com)



CLOSING

CHRIS BRUCE

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BOARD ADVISOR GLOBALREACH & EX-CHAIR WBA







# WI-FI CONNECTS THE WORLD

Creating new possibilities in a virtual society

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Thank you to our sponsors







# THANKS FOR ATTENDING

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Next event:

**January 28<sup>th</sup> – Next Generation of Wi-Fi**

Register: [wballiance.com/asia-telecom-summit/](https://wballiance.com/asia-telecom-summit/)