



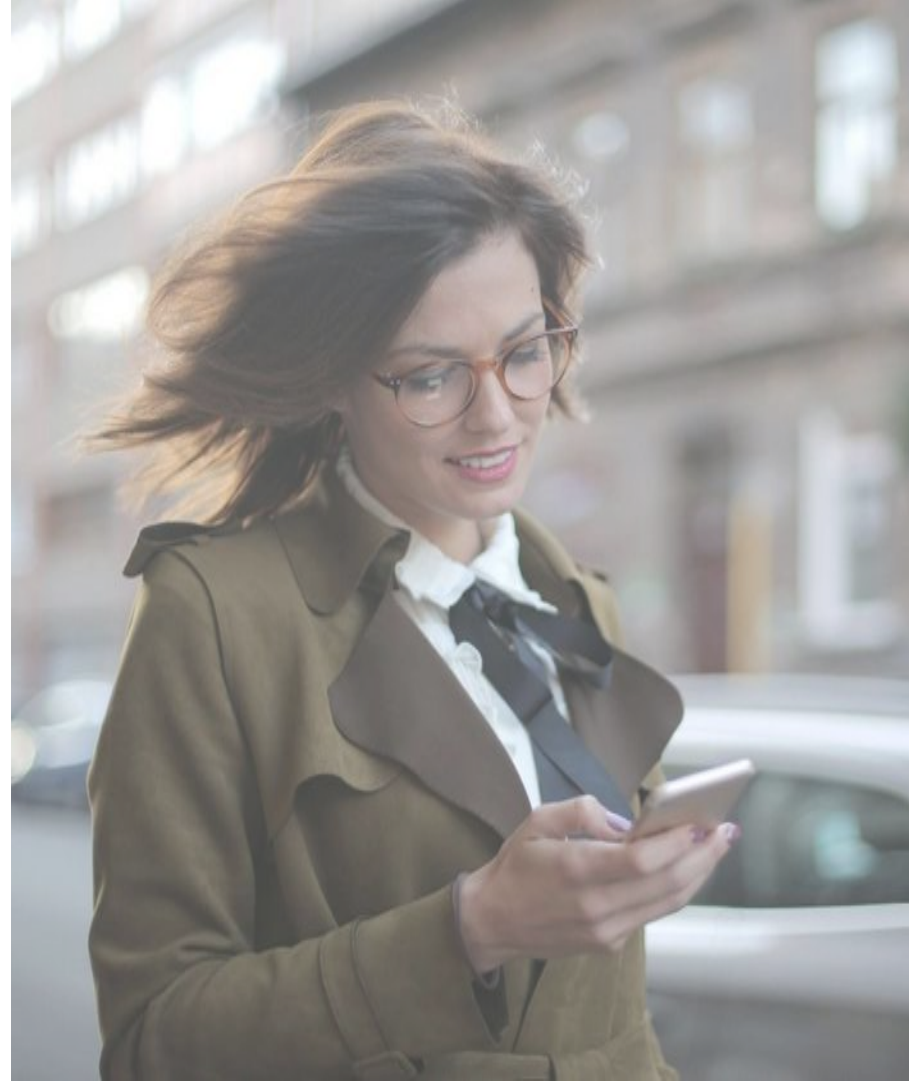
HOW WI-FI CAN HELP CREATE CONNECTED PLACES

Mark Carter, Chief Product Officer, 8 September 2020



ABOUT US

- ✓ **Leaders** in seamless authentication (Passpoint™).
- ✓ **Specialists** in identity and access management.
- ✓ Our **customers** are global service providers & international branded venues.
- ✓ In the connected places, travel & transport, retail, large venue, enterprise **sectors**.
- ✓ Our high-performance Wi-Fi software and service **solutions** handle billions of authentications every year.



OUR TECHNOLOGY



**Global distributed
cloud-based
architecture**



**Proprietary high
capacity Wi-Fi AAA and
captive portal platform**



**Enables high footfall
Wi-Fi venues**



**Provides high-volume
mobile data offload &
roaming with Passpoint**



**Data security
management
accreditation**



**Processing billions of
authentications every
year**

CREATING A CONNECTED PLACE: CHALLENGES



**IMPENETRABLE
MATERIALS**



**DENSE, HIGH RISE
BUILDINGS**



**INFRASTRUCTURE
COST & SETUP**

WI-FI & HYBRID NETWORKS



Wi-Fi 6 or 5G?



The Passpoint Experience™



Roaming and offload

Wi-Fi 6 OR 5G? CONSIDER THE USE CASE FIRST!

Wi-Fi 6 better for:

- Higher traffic capacity
- Faster user data rates
- Lower latency

Wi-Fi 6 and 5G NR good for:

- Connection density
- Spectrum efficiency

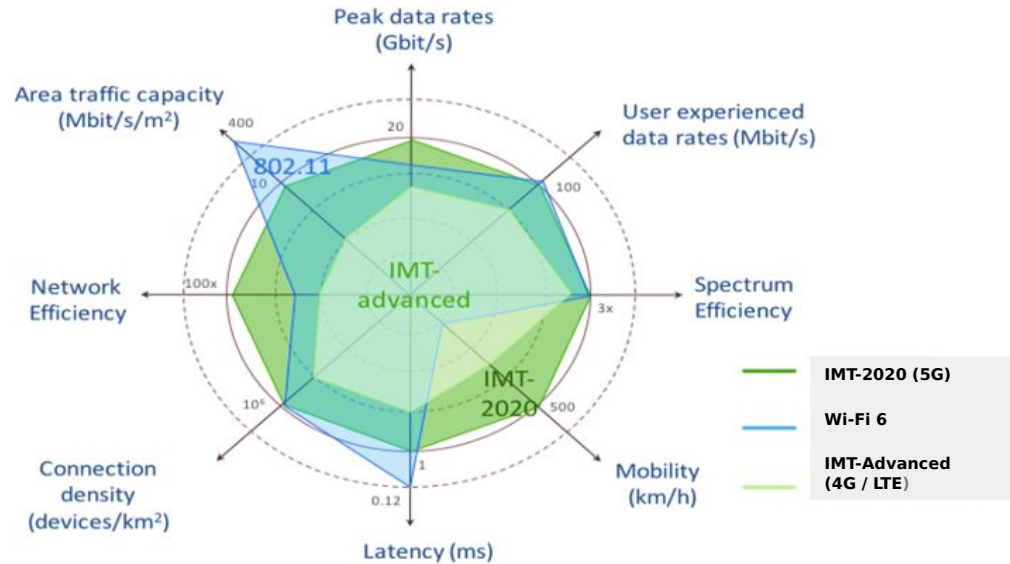
5G New Radio better for:

- Mobility
- Network efficiency
- Peak data rates

6 Ghz and Wi-Fi 6E

High reliability access to wider channels –

- Security
- Surveillance
- Healthcare



Source: WBA 5G Work Group

THE PASSPOINT™ EXPERIENCE

- ✓ Seamless authentication and connection to property Wi-Fi
- ✓ Credentials provisioned to user device via loyalty app, mobile sim profile or self-download (e.g. weblink, NFC chip or QR code).
- ✓ In-session messaging to retain guest engagement (CapPort and Release 3).
- ✓ Enables mobile offload and roaming by operators and other identity providers, as permitted by the brand.
- ✓ Passpoint™ / Hotspot 2.0 overcomes MAC randomisation which can disrupt the returning user journey.

ROAMING & OFFLOAD

- ✔ Service providers want to expand into **new territories**, and **hard to reach locations** like dense cities and indoor venues to improve their value proposition and brand loyalty.
- ✔ **Offloading** to a Wi-Fi network is more practical and cost effective - attractive to service providers.
- ✔ Consider letting consumer traffic from other networks **roam** across your city or enterprise networks.
- ✔ It's about stitching the patchwork quilt together.



VALUE PROPOSITION FOR THE VENUE / NETWORK OPERATOR

- ✓ Incremental revenue over sunk costs.
- ✓ An exponential increase in verifiable Wi-Fi unique users.
- ✓ Provide anonymised site analytics by Location.
- ✓ Passpoint technology has been pre-enabled in user devices and leading Wi-Fi network equipment vendors.
- ✓ Deploy on Wi-Fi Passpoint ready networks without field 'truck roll'.

VALUE PROPOSITION FOR THE MOBILE NETWORK OPERATOR

- ✓ Addressing urban network capacity and coverage challenge.
- ✓ Improve coverage and capacity & therefore experience across cellular and Wi-Fi
- ✓ Delay cellular CAPEX spend ahead of 5G rollout
- ✓ 5G topology increases coverage gaps (small cells mean more cells).
- ✓ Seamless user experience – cellular and Wi-Fi convergence to cut churn.
- ✓ Move mobile traffic off the radio and improve performance

USE CASE: USER EXPERIENCE

- Link kiosks: Replacing payphones to provide public Wi-Fi in NYC since 2016. 1,700 rolled out to date.
- Provides free superfast, free public Wi-Fi, phone calls, access to city services. Funded through advertising.
- Citizens, commuters and visitors connect to high speed Wi-Fi with Passpoint profile - via sim, app or registration.
- GlobalReach provides RADIUS / AAA, custom captive portal, Passpoint online sign up server (OSU) and offload and roaming.
- More than 15 TBs of data offloaded from cellular networks to Link NYC daily.



USE CASE: SOCIAL INCLUSION

- OurCalling, Dallas County provides the homeless with food, shelter and washing facilities.
- Track & protect: Email and mobile numbers captured on login. Volunteers can stay in contact to provide service, health and safety information.
- Social inclusion: No other channel to the homeless
- Life-saving: With people hospitalised due to extreme heat, the team was able to get contact about water sources, medical help etc.
- Via roaming, there's potential to connect homeless users to other public city networks.
- GlobalReach provides the public Wi-Fi service.





OpenRoaming enables brands and operators to give their users automatic and secure access to multiple Wi-Fi networks.



For public venues and cities, it will securely connect citizens and visitors without passwords and landing pages.



We are one of the first Wi-Fi SaaS providers prepared to serve as an identity provider (iDP) for OpenRoaming, giving low touch, automatic and secure access.

OPENROAMING OBJECTIVES

- Grow Wi-Fi roaming business
- Build mass – more players doing Wi-Fi Roaming
- Promote operator/service provider – enterprise convergence
- Solve secure auto-onboarding for the industry
- Promote Passpoint deployment



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!*

THE CONNECTED JOURNEY



Enabling the journey



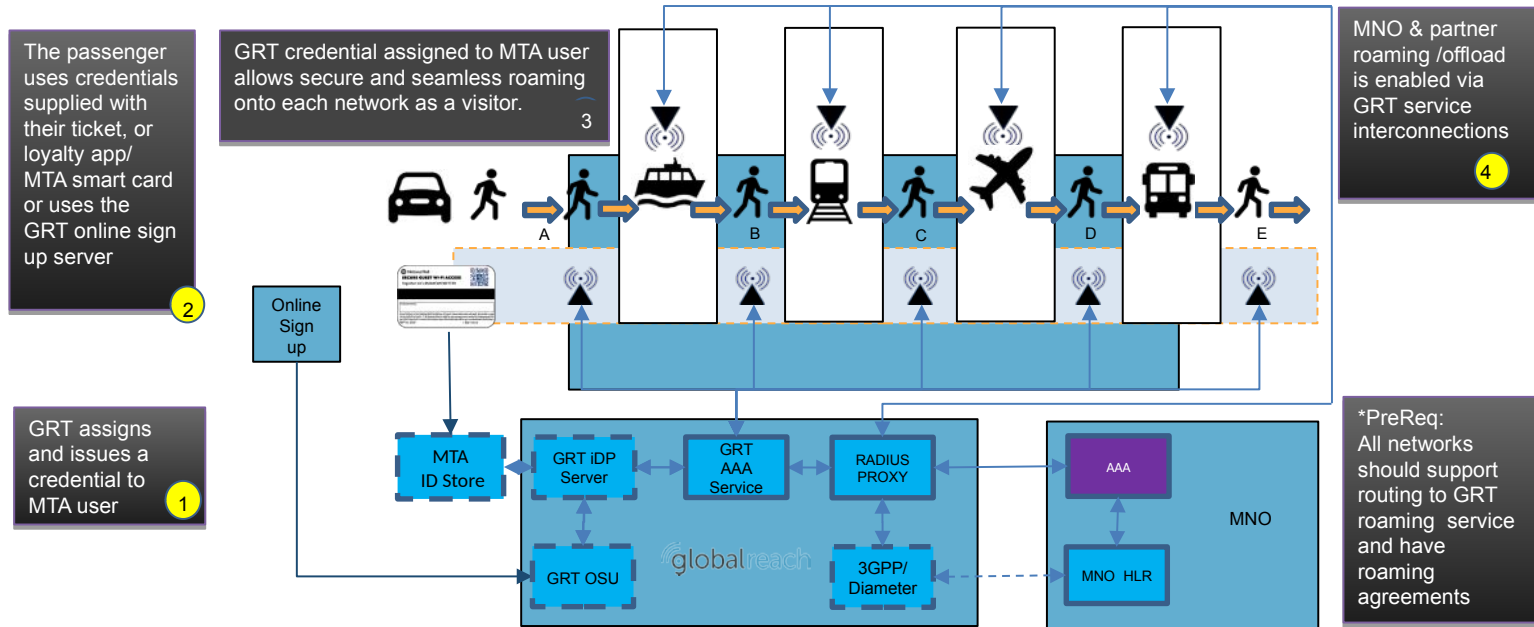
Productivity & learning



Connected vehicles

ENABLING THE CONNECTED JOURNEY

GlobalReach can deliver secure access across all stations, ports and transport hubs* based on a single sign on (SSO) and credential management capability to provide an enhanced passenger user experience.



* Illustrative example to shown potential

PRODUCTIVITY/LEARNING

- US school children can spend > three hours per day on a school bus.
- Lack connectivity causes low productivity (homework), lack of communication and entertainment.
- Wi-Fi with 4G backhaul is the technology of choice today.
- Significant issue in outlying, rural neighbourhoods.
- Satellite communications will also have a significant role to play going forward.



CONNECTED VEHICLES

- Vehicle telematics
- Social inclusion
- Journey analytics
- Monetisation
- Roaming and offload



TO RECAP

Towards a Connected Place



Dense cityscapes are difficult environments for cellular coverage.



Wi-Fi and cellular - hybrid networks are the solution for a better UX & CAPEX.



Wi-Fi roaming and offload allows enterprises & cities to monetise.



A better-connected city supports public services, social inclusion & enfranchisement.



OpenRoaming offers a low touch to stitch the quilt together.



Considering the connected journey is key.



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