



WHITEPAPER

**SECURE, SEAMLESS GUEST WI-FI FOR RETAIL**



## INTRODUCTION

Wi-Fi at retail outlets - be they shopping malls or stores themselves - can be frustrating and it's a major source of customer dissatisfaction. Customers complain about becoming disconnected between visits and about the added pain of having to reconnect at every store within the same chain and at every visit. GlobalReach thinks it shouldn't be this way. The technology exists now to build connected, secure and seamless Wi-Fi experiences for customers and staff.

Making sure that customers and staff are 'always on' is key to enabling a high quality user experience. Continuing the current practice of asking each customer to enter an email address or phone number each time they want to use the Wi-Fi, in each store, on each visit introduces unnecessary barriers, can damage the customer experience and affect loyalty.

Upgrading existing Wi-Fi infrastructure and services to the Passpoint standard\* provides the opportunity to allow customers (and staff) to connect with minimum friction and with added security via an encrypted radio link.

Choosing to upgrade your Wi-Fi can also reap other benefits. As some of the retail brands we work with have already done, your customers can be encouraged to sign up to your loyalty app via the Wi-Fi service. From there they can choose to be automatically connected to the guest Wi-Fi service at every store, outlet or shopping centre.

If they agree, they download a Passpoint profile to their devices. This simple, one-time online sign up server securely and seamlessly connects them each and every time they return to that store - or to any one of your stores.

The standard is mature. Passpoint-ready Wi-Fi access points have been widely available from leading hardware manufacturers for many years. Passpoint also allows consumers to transfer seamlessly between 5G and Wi-Fi, making the user experience 'cellular-like.'

Not only does it increase customer satisfaction, but it also gives retailers a direct channel to engage with customers via personalised, relevant communications and product information.





It's also an opportunity for retailers to differentiate their service by partnering with other ecosystem partners like nearby entertainment, transport, food and drink partners, and allowing customers to connect seamlessly with these places. You and your partners also benefit by being able to send personalised offers, and it provides customers with a wider connected experience.

This seamless, secure experience should be today's benchmark for retail Wi-Fi services.

*\*Passpoint specification (also known as Passpoint™ by the Wi-Fi Alliance) is based on IEEE standards for Wi-Fi network and user devices.*



## HOW Passpoint CAN IMPROVE THE CUSTOMER EXPERIENCE

### SECURE:

Secure Wi-Fi service protects customers and staff from in-air & man-in-the-middle attacks.

### SEAMLESS

- Provision devices onto Passpoint Wi-Fi services in seconds.
- Online sign up server supplied through the retail app, or a web link delivered via on-site QR codes or NFC chips, allows easy online and offline sign up.
- One-time provisioning removes the complexity of being connected and enables in-pocket connection across all stores, outlets or shopping centres.
- Single sign on allows customers to automatically and securely connect at any store, and to roam onto different Wi-Fi networks and ecosystem partners.
- Provides an in-store cellular-like experience.
- Supports retail staff or multi-tenant support with hidden SSIDs (Wi-Fi network identifier).
- Enables separate use of the Wi-Fi network by all user groups eg: staff, security staff and contractors.

### LOYALTY

Retailers can differentiate their service by allowing customers to roam between stores, outlets or shopping centres, thus improving their shopping experience, to access personalised or location-specific information, and being able to roam onto the Wi-Fi networks of partners by making commercial agreements.

### MONETISE

Retailers can also offer their Passpoint networks to third party telco partners, who are looking for high quality Wi-Fi services to increase their coverage footprints for roaming and for traffic offload. Commercial agreements with these carriers, aggregators and service providers, extends service use, and can provide service operators and brands with new revenue opportunities which can in turn, pay for upgrades to the Wi-Fi service.





## DETAILED RECOMMENDATIONS

Research identifies that the availability of high quality Wi-Fi is one of the top priorities for improving the customer experience.

Without reliable Wi-Fi, a significant channel for improving the in-store experience through engagement and communication is lost.

A single sign-on experience across stores and properties is the way forward. Once the customer has the Passpoint profile on their device, their device is 'remembered' by the Wi-Fi service, removing the need to re-enter credentials when they return or roam to another part of the network or onto a partner network.

This is made possible by providing customers with a straightforward one-time online sign up process with your loyalty app, or through email communication. Imagine how the customer experience is transformed when they find that their device is automatically connected as soon as they take it out of their pocket.

Passpoint is an 'over the top' service which is delivered as an enhancement to existing Wi-Fi hardware. Most hardware, like access points, are Passpoint ready and integration is straightforward via changes to the network configuration. The maturity of the technology is such that customers, staff and contractors can easily benefit from seamless and secure connectivity to mirror today's cellular experience today.

### SECURITY

Legal compliance is ensured as the subscriber's connection is authenticated using credentials provisioned by the mobile operator on the user's SIM or via online sign up validation - this allows greater traceability of who is on the Wi-Fi and where, balancing GDPR and security responsibilities. Hence, Wi-Fi service providers can meet all CSP (Communications Service Provider) and ISP (Internet Service Provider) regulations for providing the service.

Each device receives a one-time provisioning file to automatically configure Wi-Fi settings and encryption without manual intervention. When registered, the customer is provisioned with a Passpoint credential which allows them to automatically and securely connect.

For users with devices without a mobile SIM, the onboarding sequence can be shortened further using QR codes or NFC tags which direct customers to the online signup server (OSU). This can be embedded in booking confirmations and other marketing collateral to drive greater customer awareness.

Some Wi-Fi operators have used an authentication method for seamless login using the MAC (Media Access Control) address of a previously connected device. Communications between the device and the access point are unencrypted in this situation. Moreover, the latest mobile handset operating systems updates are randomising MAC authorisation on many devices for other security reasons, meaning that returning customers may have to re-authenticate each time. Passpoint overcomes this issue by using encryption between the Wi-Fi access point and the device and is therefore more secure.

## BRAND CONTROL & CUSTOMER ENGAGEMENT

Using Wi-Fi on a consistent basis may reduce the need to The latest Passpoint Release 3 standard also supports location-aware, personalised customer communications. The GlobalReach solution includes rich presence and location analytics, which give retailers full control of the policies that can trigger these location- or event-specific customer interactions like rewards or special offers.

These can be triggered by who the customer is (type), where they are (store / shopping centre location), and time (e.g. as they step into the store or property).

Passpoint R3 makes it possible for retailers to determine the experience that they want each customer type to have, and to put engagement programmes in place, that use their Wi-Fi services both surprise and delight their customers.

For example, loyalty card holders could be rewarded. Using Passpoint Wi-Fi services and related communications that are fully controlled by the retailer.



## ROAMING & DATA OFFLOAD

Passpoint can be used to provide enhanced roaming services. This may enable an integrated roaming service that could deliver frictionless access across all Passpoint Wi-Fi networks at stores, outlets, shopping centres and other partners, regardless of the network operator, by providing single sign on (SSO) nationwide. This could transform the overall experience by reducing the frustrations that customers feel by having to login each time.

The opportunity exists to create a seamless roaming experience across all partners. Using commercial agreements customers can roam seamlessly without the need to reconnect or re-enter registration details.

## WI-FI ROAMING

Wi-Fi service providers across the network retain their existing SSID, portal and user experience and use a roaming realm or RCOI (roaming consortium ID) which allows all parties to roam across different Wi-Fi networks. This would require a policy to be accepted by participating Wi-Fi operators and may involve a commercial roaming agreement between the Wi-Fi service providers and network operators.

Passpoint would enable network providers to further monetise their Wi-Fi footprints through commercial roaming agreements and working with roaming partners to seamlessly offload traffic. This in turn may help fund the infrastructure needed to provide an adequate user experience.







## MOBILE DATA OFFLOAD

The mobile-like, Passpoint connection increases the appeal of these Wi-Fi networks to mobile operator roaming partners. By leveraging carrier grade Wi-Fi networks the mobile operators can grow their service coverage including 'hard to reach' locations, where cellular network performance may be poor. This can open up a significant new revenue stream for the Wi-Fi network provider and help fund the investment needed to support an improved customer experience.

It may be more cost effective in many cases for a mobile operator to implement Wi-Fi 'offload' in this manner and pay fees to the Wi-Fi network provider than to attempt to carry the traffic direct and invest in greater capital spend.

## ENABLING IOT

Research estimated that 25% of all M2M SIMs deployed in Europe were exclusively supporting roaming use cases (source: Machina 2015). The use of Wi-Fi remains the most prevalent means of connectivity for IoT devices because of the existence of large networks, relatively low cost and ease of deployment.

IoT can be used to improve the customer experience through a number of use cases, and by both connecting customer and in-store staff services. Simple use cases such as tracking local inventory to stocktake and manage security and loss.

To understand and benchmark IoT network activity, demands carrier-grade network authentication and logging as a minimum. It is key to spotting abnormal operations and traffic patterns over these devices.

A cloud-based AAA / RADIUS platform is required that delivers fit-for-purpose IoT authentication, access, policy and audit solution for tens of millions of 'traditional' and Internet of things (IoT) devices.



## CONCLUSION

The consistent use of the latest Passpoint Wi-Fi technology including secure authentication and policy management tools across retail brands will enhance the customer and staff experience, improve loyalty and open new revenue channels. Through roaming agreements it will also create an equitable way of contributing to the funding of a world class Wi-Fi network.

To achieve this vision will require a holistic approach, across retailers and wider retail groups, to create a user experience that keeps customers connected securely without the need to re-authenticate as they move between stores and affiliated partners.

The latest Passpoint technology makes this possible without the different retailers and brands losing their individual identities (and SSIDs).







## ABOUT GLOBALREACH TECHNOLOGY

We are the experts in helping global operators, venues and enterprises to connect their people and customers safely and securely to Wi-Fi, to create a better user experience and loyalty.

Our solutions and services are the result of 16 years of development and expertise, combining three different proprietary software platforms and our unmatched experience of designing and deploying high performance Wi-Fi. Major enterprises and cities trust GlobalReach to deliver automatic secure Passpoint onboarding, Wi-Fi roaming and cellular offload. We are a Board member of the Wireless Broadband Alliance, and our senior team have co-written industry whitepapers and contributed to the development industry standards for Passpoint Wi-Fi.

With a background in large-scale, complex Wi-Fi services, we are behind Wi-Fi for shopping centres, retail banks, major food and beverage chains, including 8,000 stores in a major USA coffee chain, and more.



## GLOSSARY

ACRONYM	MEANING
AAA	Authentication, Authorisation and Accounting
CoA	Change of Authorisation
CPE	Customer-premises equipment
DHCP	Dynamic Host Configuration Protocol
HTTP	Hypertext Transfer Protocol
PAS	Portal Aggregation Service
UE	User Equipment
URL	Uniform Resource Locator
VSA	Vendor Specific Attribute
WAG	Wireless Application Gateway
WLC	Wireless LAN Controller





 globalreach

[sales@globalreachtech.com](mailto:sales@globalreachtech.com)

+ 44 20 7831 5630