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Improving Indoor Connectivity with Wi-Fi 6

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Despite the emergence of 5G, Wi-Fi will continue to play a critical role in enterprises' indoor connectivity strategies thanks to the new robust solutions based on Wi-Fi 6E and Wi-Fi 7 standards. In this article, we discuss the importance of seamless and secure Wi-Fi to enable use cases for successful enterprise engagement with customers and partners.

Wi-Fi 6/6E rapid adoption

The Global System for Mobile Communications Association (GSMA) reported nearly 200 operators in more than 70 countries have deployed 5G networks, [connecting](#) almost a third of the world's population in 2022. Despite the massive 5G deployments, Wi-Fi remains the dominant technology enterprise used indoors.



There are more than [18 billion Wi-Fi devices in use today](#), and Wi-Fi generates an [economic value of \\$3.5 trillion](#). Wi-Fi remains the dominant indoor technology and is driven by a combination of three factors that include:

- The impact of the pandemic on Internet usage (Wi-Fi traffic doubled).
- The game-changing worldwide addition of the 6GHz spectrum band.
- The rapid commercial availability and market adoption of Wi-Fi 6.

Adoption of Wi-Fi 6 is growing broadly, and Wi-Fi 6E (the 6GHz extension of Wi-Fi 6) is making its way among enterprises. We expect the great adoption of Wi-Fi 6/6E to continue in 2023—despite the gloomy economic environment—driven by many features of Wi-Fi 6 generation and its ability to access additional 6GHz spectrum. The huge increase in heavy traffic applications and low latency requirements puts new burdens on capabilities required of a commercial Wi-Fi network, and these user requirements will drive investment in next-generation Wi-Fi.

Guest Wi-Fi drives customer engagement

Most people use their smartphones in customer-facing business locations such as stores, hotels, restaurants, and public transport, and Wi-Fi technology plays an essential role in guests' experiences in

these locations. As people use mobile devices for comparing prices, researching products, and accessing social media while in these customer-facing locations, businesses must facilitate users' onboarding to secure Wi-Fi. As they do so, enterprises have the opportunity to deliver relevant and timely content—such as the latest promotions—straight to their customers. As a result, guest Wi-Fi will increasingly become integrated into the business sales and marketing processes.

Enterprises that have guest Wi-Fi can provide customers with a superior digital welcome and give an end-to-end mobile experience. For the enterprise, a significant benefit of guest Wi-Fi can be opt-in marketing lists with information collected when guests access the Wi-Fi service for the first time. Customers can select the log-on option they prefer, such as an email address or social media account. The result is a marketing list other businesses cannot purchase and is of great value for future sales and marketing initiatives.

or requiring too many steps to access the Internet. Thankfully, Passpoint and WBA OpenRoaming™ can address some of the top challenges IT leaders face by automatizing time-consuming Wi-Fi onboarding and management processes.

WBA OpenRoaming momentum

WBA OpenRoaming is an open industry standard promoted by the Wireless Broadband Alliance (WBA). Based on Wi-Fi CERTIFIED Passpoint standard, WBA OpenRoaming automates secure device onboarding and roaming between different Wi-Fi networks. Effectively, WBA OpenRoaming brings together a federation of trusted identity providers and lets users join any network managed by a federation member.

The network can authenticate devices automatically by using established identity providers, such as a service provider, device manufacturer, cloud ID, and loyalty memberships.

WBA OpenRoaming supports a certificate-based Passpoint onboarding. The Passpoint Profile can be installed via a mobile app, Wi-Fi software defined kit (SDK) or downloading a file from a web page that can be reached through multiple channels, such as email, SMS, QR code, or captive portal.

WBA OpenRoaming simplifies the onboarding process without compromising security. It uses 802.1X for subscriber authentication. 802.1X is a network authentication protocol that opens ports for network access when an organization authenticates a user's identity and authorizes them to access the network. A user's identity is based on their credentials or certificate and is confirmed by the radius server. WBA OpenRoaming uses one Extensible Authentication Protocol (EAP)-TLS, which supports certificate-based authentication—the gold standard of authentication.

For the customer-facing business, a significant benefit of WBA OpenRoaming is the increased Wi-Fi adoption rate. Thanks to the seamless and automatic Wi-Fi onboarding process, more customers access the Wi-Fi services and are willing to share their information, such as an email address or phone number. In 2023, the WBA anticipates WBA OpenRoaming will reach 5 to 6 million hotspots—from one million in Q1 2022—spanning a wide variety of public venues and already involving 2,000 companies. Deployments of Passpoint and WBA OpenRoaming continue to rise as more brands and identity providers recognize the value of the federation to enable seamless connectivity access across different networks.

Passpoint enables operational efficiency

The practice of bringing your own device (BYOD) has been around for years in office spaces and the shift to hybrid work around the world has accelerated the trend. However, staff and visitors face several problems when connecting to traditional enterprise Wi-Fi, such as needing or losing a password, losing connectivity when logging back into a computer, or onboarding unsecured devices into the network—

thus putting the enterprise network at risk. It can reflect poorly on a company's image if it's difficult for visitors or employees from other branches to connect to the office network. Unfortunately, Wi-Fi issues put an additional burden on chief information officers (CIOs) and their teams who are already struggling to deal with emergency issues and troubleshooting for an exponential number of endpoints resulting from bring your own device policies.

A [2021 study](#) found that 42 percent of IT professionals spent too much time troubleshooting the network and that 43 percent struggled to find time to work on strategic business initiatives. Another [report](#) found that “59 percent of IT pros were frustrated by the time spent on routine infrastructure activities and 84 percent agreed that they could bring more value to their organization if they spent less time on routine tasks.”

The result can negatively affect IT staff morale and an enterprise's ability to implement a long-term digital transformation strategy.

Fortunately, Passpoint technology solves these onboarding issues. By automating Wi-Fi onboarding in a secure way, Passpoint can have a positive impact on IT employees' morale by reducing service calls and complaints, and providing overall troubleshooting associated with Wi-Fi connectivity. By enabling seamless and secure onboarding for visitors and colleagues, Passpoint can free up tremendous time and energy for network managers and IT staff so they can focus on strategic tasks that add value to the organization in the medium and long term.

Enabling indoor connectivity

Despite all the headlines about 5G, Wi-Fi will remain the dominant indoor access technology among enterprises in the near future. Passpoint and WBA OpenRoaming remove the last barriers to a seamless and secure Wi-Fi experience while helping enterprises with their digital transformation, empowering employees, and increasing overall operational efficiency.