



Seize the 5G FWA Opportunity with Inseego

Discover how 5G Fixed Wireless Access solutions are opening new mobile service provider and enterprise revenue opportunities

Sponsored by

inseego

Published by

MOBILE
WORLD LIVE

Executive Summary

When most people think of 5G, they think consumer mobile services. However, 5G is much more.

5G enables mobile services to be provided with high-speed, reliable and low latency performance. This opens a whole range of new use cases and revenue opportunities for mobile service providers and enterprises. The 10 times increase in download speeds provided by 5G makes Fixed Wireless Access (FWA) a compelling alternative for access connectivity. The ease of installation and setup of 5G FWA, as well as its applicability in a range of use cases, means that 5G FWA could become the preferred access connectivity choice.

5G FWA is ideal for providing access connectivity in areas where fiber or cable deployment cannot be justified, such as rural connectivity and for temporary sites. However, with 5G FWA speeds, reliable and low latency performance, 5G FWA is also a compelling wireline alternative for urban connectivity in both homes and enterprises, smart factories, private campuses and entertainment venues. It not only provides connectivity, but also opens the door to new types of services supporting private networks and targeted marketing.

But 5G is not one service or radio spectrum. It spans a broad range of frequencies and options that requires an equally broad portfolio of access connectivity products. As a pioneer in this field, Inseego provides the most comprehensive portfolio of 5G FWA solutions that can support mobile service providers and enterprises, in a range of use cases to take full advantage of the new revenue opportunities that 5G and 5G FWA provides.



The 5G FWA Opportunity

Today, broadband access is dominated by wired technologies like xDSL and cable. It is hard to envisage alternative technologies usurping this dominance. However, just like mobile phones, the appeal of wireless broadband connectivity cannot be denied. There are inherent advantages in providing immediate connectivity without the need for costly digging to lay copper cables or

fiber such as that required for the wireline technologies. The concept of wireless broadband connectivity is as old as mobile itself and yet has struggled to find the same appeal as mobile phones.

However, with the introduction of 5G, this is all set to change. The higher throughput and lower latency that 5G provides will finally establish

wireless broadband connectivity as the dominant paradigm for years to come. Fixed Wireless Access (FWA), in particular, can be expected to become the preferred form of broadband connectivity for homes and businesses.

5G download speed is now faster than Wi-Fi for smartphone users in seven leading 5G countries

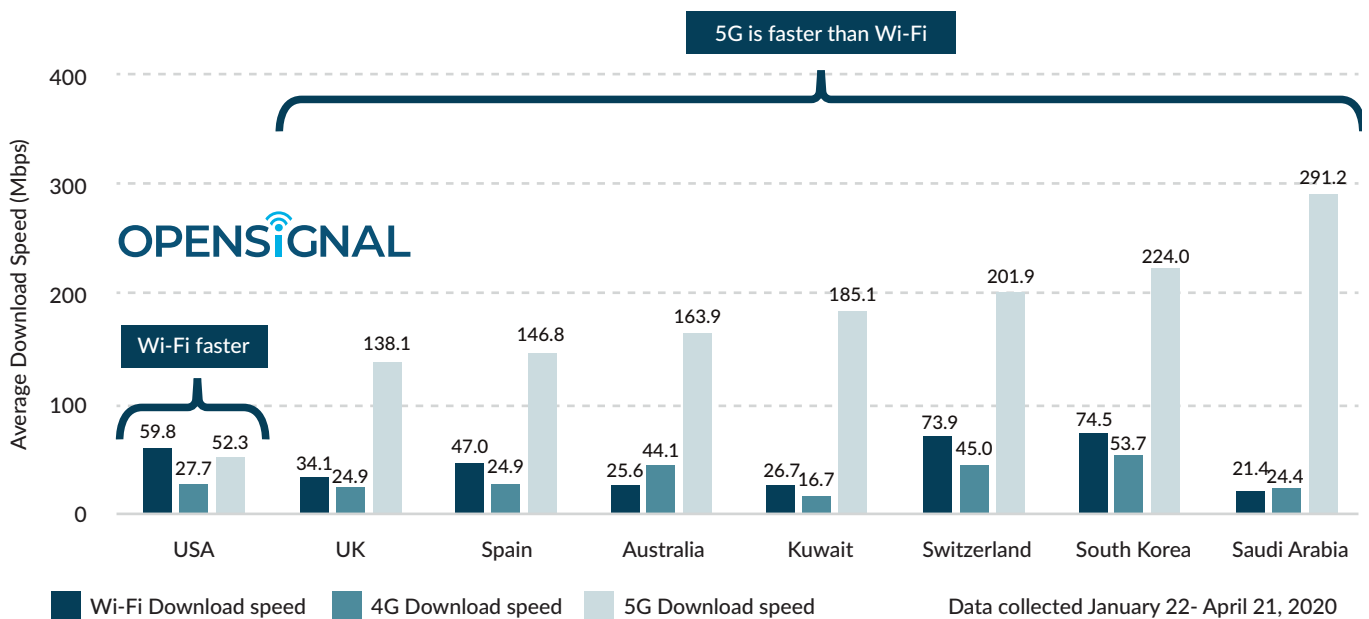


Figure 1: Comparison of Wi-Fi and Mobile Performance in Leading 5G Countries

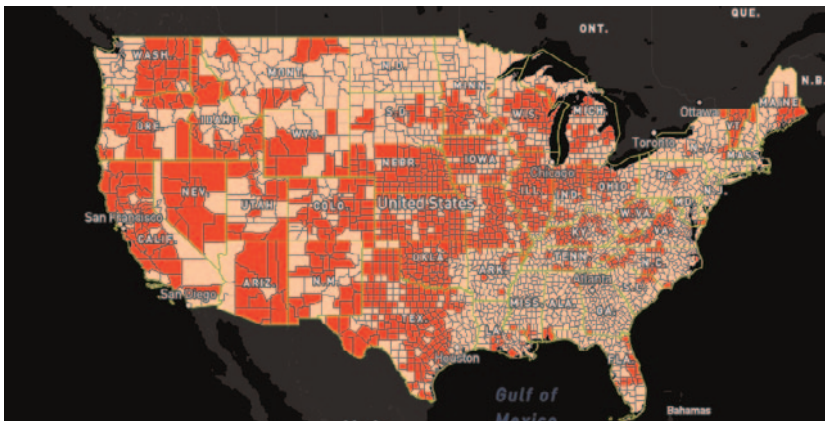
Source: <https://www.opensignal.com/2020/05/06/5g-download-speed-is-now-faster-than-wifi-in-seven-leading-5g-countries>

5G makes Fixed Wireless Access competitive

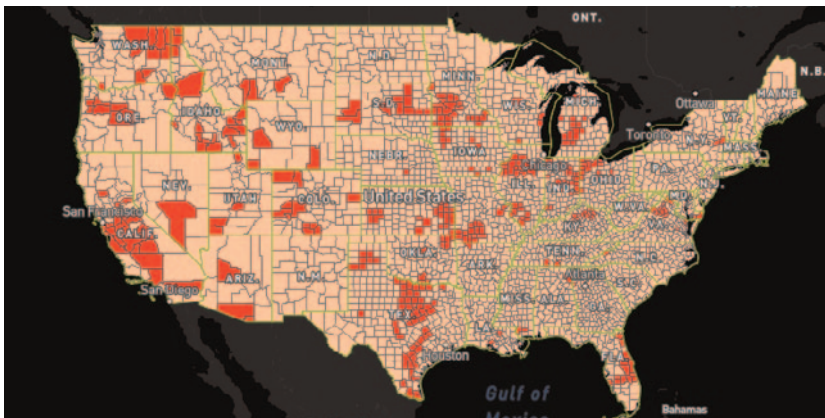
FWA is a decades old concept and there are over 2000 Wireless Internet Service Providers serving 4 million customers in the U.S. alone. FWA has been mainly used to serve rural areas or provide temporary communication facilities in the event of disasters. The big advantage of

FWA is that wireless connectivity can be deployed extremely quickly without the need for cables. However, the relatively low data rates that could be delivered in the past hampered adoption of FWA for other applications and thereby resulted in expensive solutions.

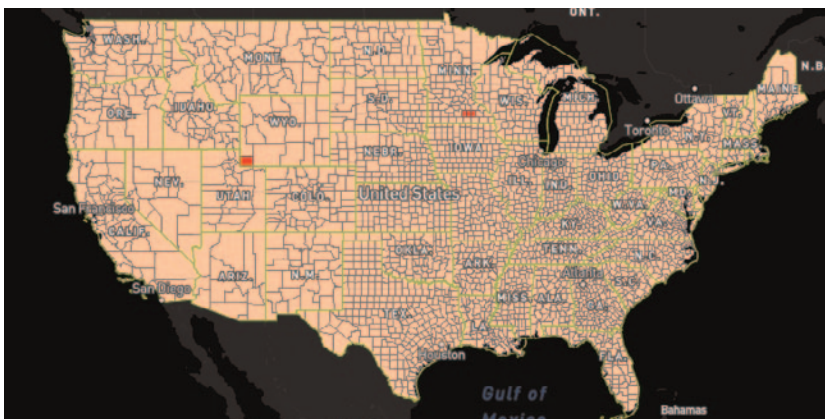
This can be seen in the availability of FWA services in the U.S. today. While there are many FWA residential broadband providers in the U.S., the data rates they offer are very low. Only very few providers are currently capable of offering connectivity rates comparable to xDSL and cable.



FWA residential broadband availability for 0.2/0.2 Mbps and above



FWA residential broadband availability for 25/3 Mbps and above



FWA residential broadband availability for 250/25 Mbps and above

Figure 2: Fixed Wireless Access Availability
Source: <https://broadbandmap.fcc.gov> based on U.S. data from 2019

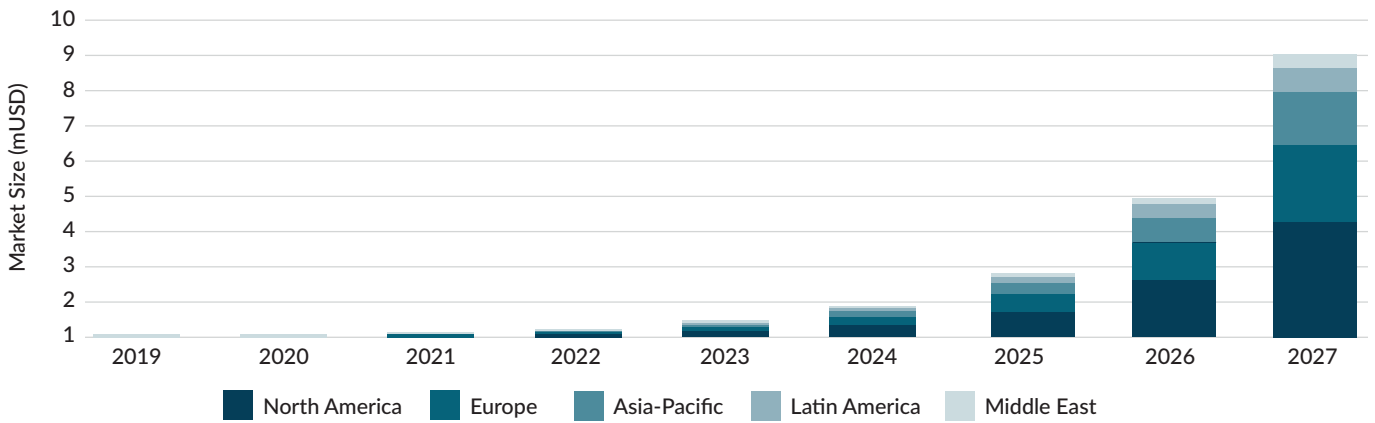
The introduction of 5G is now changing the perception of FWA as it addresses the shortcomings of earlier generations. 5G offers 10 times the bandwidth with 10 times lower latency across a broad range of radio frequencies. In a recent survey of 3000 people in the U.S., U.K. and South Korea, Nokia found that 76% of all respondents saw FWA as the most appealing 5G use case. 66% indicated that they would subscribe to 5G FWA if it cost the same as their

current broadband offering and could deliver the same performance.

Part of the appeal of FWA for consumers in the report was the fact that 41% of the respondents currently have only one broadband provider choice in their area with many resenting this lack of choice. In addition, the easy Do-it-Yourself installation without the need for an engineer was especially appealing with 80% indicating that this was a valuable benefit.

This is driving global growth in 5G FWA adoption. According to a recent report by Polaris Market Research, the global 5G FWA market is expected to reach \$88.5 billion in 2027 with a compound annual growth rate of 99.3%. As can be seen below, there is a healthy distribution of investment across all regions.

5G Fixed Wireless Access Market Size, by Region, 2019-2027 (USD Million)



Source: Polaris Market Research Analysis

Figure 3: 5G FWA Market Size Forecast

Source: <https://www.polarismarketresearch.com/press-releases/5g-fixed-wireless-access-market>

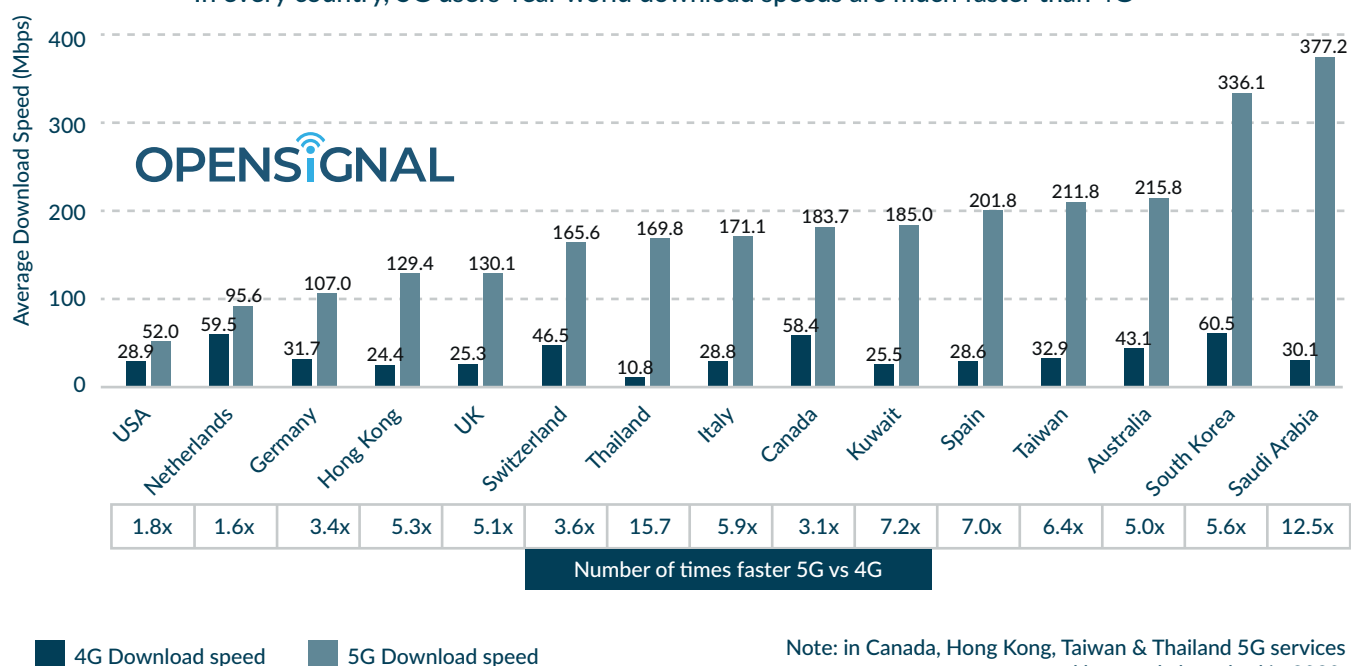
What to expect from 5G FWA

The key question is whether 5G FWA can deliver performance similar to current broadband access technologies. As seen in Figure 1, 5G is providing faster download speeds than Wi-Fi, where the majority of connections are supported by fixed

line technologies, such as xDSL, Cable or fiber-to-the-home (FTTH). The figure also shows that 5G has improved download speeds compared to 4G, making FWA a more attractive alternative to fixed broadband access.

According to recent data from Opensignal, in leading 5G markets users see average download speeds many times faster than 4G.

In every country, 5G users' real-world download speeds are much faster than 4G



Note: in Canada, Hong Kong, Taiwan & Thailand 5G services are very new and have only launched in 2020.

Figure 4: Comparison of 4G and 5G speeds
Source: <https://www.opensignal.com/2020/10/13/benchmarking-the-global-5g-user-experience-october-update>

The large difference in performance improvement is due to the availability of spectrum or specific carrier strategies. For example, in the U.S., Opensignal notes that the “modest 5G Download Speeds in the U.S. are due to the combination of a limited amount of new mid-band 5G spectrum available now and the widespread use of low-band spectrum by operators. For example, T-Mobile’s 600MHz and AT&T’s 850MHz offer excellent availability and reach but lower average speeds than the 3.5GHz mid-band spectrum

used as the main 5G band in every country outside of the U.S. However, in our recent U.S. report we found that Verizon’s mmWave-based 5G service offers a very considerably faster average 5G download speeds of 494.7 Mbps, which is faster than the average 5G download speeds Opensignal has seen on any operator, or in any country to date, including Saudi Arabia.”

Mobile service providers across the globe have chosen different paths to market and made specific choices on

which types of 5G services to offer first. Some, like T-Mobile and AT&T, have leveraged low-band spectrum with wider range and availability, while Verizon has chosen mmWave spectrum to offer faster download speed, but with more limited range. However, the FCC has recently auctioned 20,000 mid-band spectrum licenses and major U.S. mobile service providers plan to use several frequency bands to offer both high-speed data upload and download as well as broad range and coverage with their 5G service offerings.



5G FWA for a broad range of applications

The broad range of spectrum available in 5G enables FWA solutions that can be optimized for many different applications, leveraging 5G infrastructure and services to serve a variety of new markets. 5G Radio Access Networks (RANs) are now being virtualized, enabling functions to be flexibly deployed to meet specific speed, latency and reliability requirements. 5G network slicing ensures that each customer receives the performance they need without impacting others. This enables 5G FWA services to be offered with precisely the performance profile to achieve the right balance between throughput, coverage, latency and reliability.

This means that 5G FWA can be used to meet a variety of broadband access needs, with flexible, cost-effective, high-performance solutions. But, in addition, it means that 5G FWA can address a broad

range of new applications with a cost-effective, high-performance solution. This has already led to a vibrant ecosystem of 5G FWA solution vendors and partnerships that is driving down costs, enabling more applications to be profitably addressed. As 5G matures, we can expect 5G FWA to not only address more use cases, but potentially become the preferred access method for consumers, enterprises and governments.

From rural extension to urban meshes

Current discussions on 5G FWA focus on the potential extension of broadband access to remote rural communities that cannot be profitably addressed with landline alternatives. It is estimated that only 1.2 billion or 60% of global households have a broadband connection*. When you consider

that 56% of the world's population lives in urban areas, one can see a clear indication that providing broadband connections in rural environments is a major opportunity for 5G FWA.

However, 5G FWA can also be used in urban environments. One of the challenges of deploying 5G services in urban environments is connectivity to each cell or antenna. Ideally, this should be a fiber backhaul solution, but the expected increase in the number of micro-cells, particularly for services based on mmWave 5G, poses a practical issue of providing fiber connectivity to each micro-cell. A mmWave 5G micro-cell could be installed on top of a bus-stop or on a light pole or the side of a building, which makes it difficult to get fiber to the antenna.

One of the solutions is to use microwave backhaul, which operates in

*Source: <https://datareportal.com/reports/digital-2020-global-digital-overview>

the same frequency as mmWave 5G. Because microwave signals need line-of-sight connectivity to avoid interference, a mesh-architecture can be used to provide multiple connectivity paths for backhaul.

At this point, it is fair to ask if we are still talking about fixed wireless access or are we discussing fixed wireless backhaul. In the past, there was a clear delineation between the two as the technologies and spectrum used for access and backhaul were different. However, with 5G and the use of mmWave spectrum, the line between fixed wireless access and backhaul has blurred. It is now possible to use the same technology and spectrum to both provide access and backhaul, at the same time.

One example is the upcoming Integrated Access and Backhaul (IAB) feature introduced in 3GPP release 16. IAB provides multi-hop backhauling based on 5G mmWave radio spectrum.

IAB nodes can act as both backhaul and access nodes by using the

directionality of MIMO antennae to direct radio signals to the right receivers. Relaying of backhaul signals can be in-band using the same frequency for the access and backhaul links or out-of-band where separate frequencies are used.

What IAB and similar concepts enable and support is the establishment of mesh architectures in urban environments for mmWave 5G services. 5G mmWave services will require a magnitude increase in the number of micro-cells deployed and the mass deployment of antennae. This will include new locations, such as bus stops and lamp-posts, some of which will have access to fiber backhaul, but where most will not. Rolling out fiber to all these locations or even providing connectivity to existing fiber could be cost-prohibitive. Therefore, the ability for the access antennae to also act as its own backhaul solution is extremely attractive.

Each IAB node can have multiple paths to other neighbouring IAB nodes allowing redundant backhaul links. Conversely, a service can be

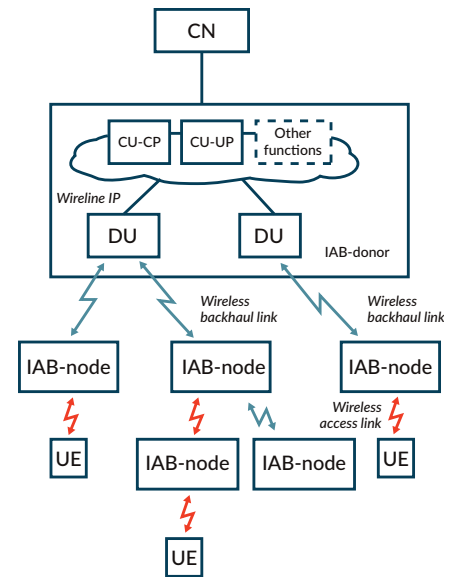


Figure 5: IAB Architecture: Source: "Innovations in 5G backhaul technologies", 5G Americas, June 2020

delivered via multiple IAB access nodes ensuring a redundant and reliable access service.

The ability of FWA solutions to function as IAB nodes therefore provides new opportunities for offering competitive broadband connectivity solutions not only to residences, but also to enterprises.

Directional beamforming antennae ensure there is no cross-interference

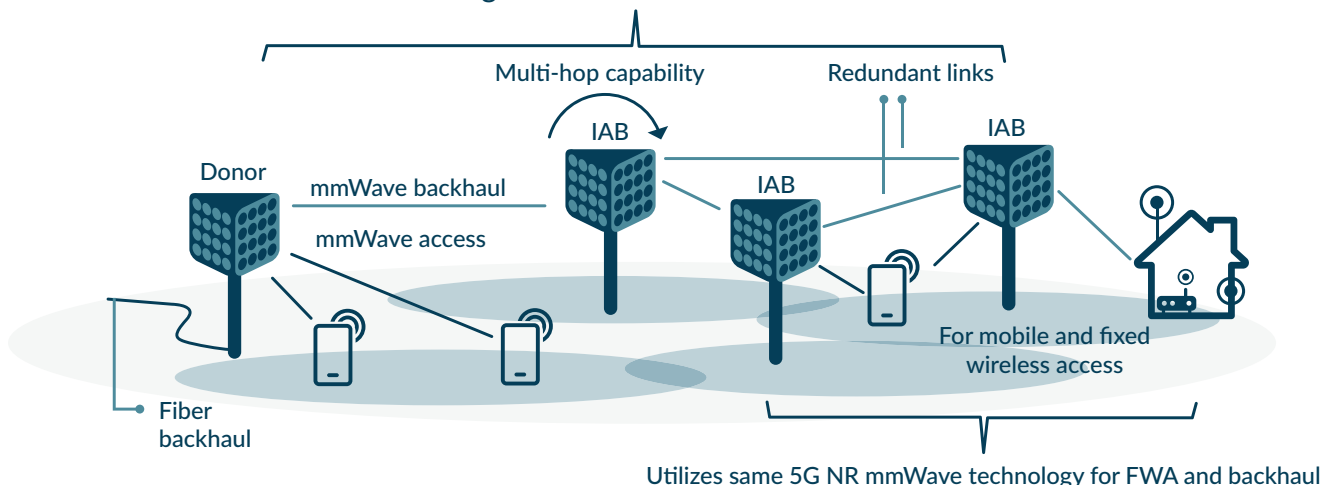


Figure 6: IAB mesh based on 5G mmWave (adapted from Qualcomm presentation "Breaking the wireless barriers to mobilize 5G NR mmWave", January 2019.)

5G FWA for enterprise

In previous generations, mobile technology was almost exclusively associated with smartphones. Very few considered mobile services such as FWA as a viable alternative for enterprise connectivity. However, this is now changing with the enhanced throughput, latency and reliability that 5G FWA can offer. It opens a range of new opportunities in addressing enterprise use cases that were previously unviable.

In fact, in many discussions on FWA, it is considered a “use case” synonymous with residential access rather than an access or connectivity alternative that has the potential to support multiple use cases, including a wide range of enterprise use cases. It is therefore time to broaden the scope of the FWA discussion.

Enhancing enterprise connectivity

Just as many residential broadband access consumers have limited choices in terms of connectivity providers, so are enterprise clients limited in their choices of cost-effective connectivity. Enterprise connectivity is expensive due to the higher bandwidth and availability requirements that enterprises require. However, with COVID-19 work-from-home practices, enterprise-class connectivity now extends to residential environments. This challenges conventional thinking on residential needs versus enterprise needs when it comes to connectivity. It also opens new opportunities for 5G FWA solutions.

Supporting alternative enterprise connectivity

Most enterprises already have a primary connectivity service, often based on Multi-Protocol Label Switching (MPLS) services or even legacy leased lines, in order to ensure reliable, always available connectivity. However, these services are complicated and expensive and can be difficult to update in response to new requirements or adaptation needs.

It is for this reason that Software-Defined Wide Area Network (SD-WAN) solutions were introduced. SD-WAN solutions allow enterprises to choose the most appropriate connectivity service for a specific application. Traditionally, MPLS connections have been used as these provide the most reliable connectivity. However, as Internet services delivered over broadband connections, both fixed and mobile, have improved, enterprises are increasingly using these lower cost connections.

SD-WAN enables all available connectivity options to be managed by a single controller effectively separating the application layer from the connectivity layer. This allows new connectivity options to be introduced and managed by the SD-WAN controller. 5G FWA can thus be introduced as a new, reliable, high-speed and cost-effective connectivity option for connecting enterprise locations. The flexibility of 5G enables FWA solutions to be tailored to the specific needs of the enterprise, finding the right balance between throughput, latency and reliability.

The big advantage of 5G FWA for enterprise access is that connectivity can be provided to new locations quickly and at very low cost.

This provides carriers with an opportunity to extend their services to enterprises with an offering that can keep pace with their needs.

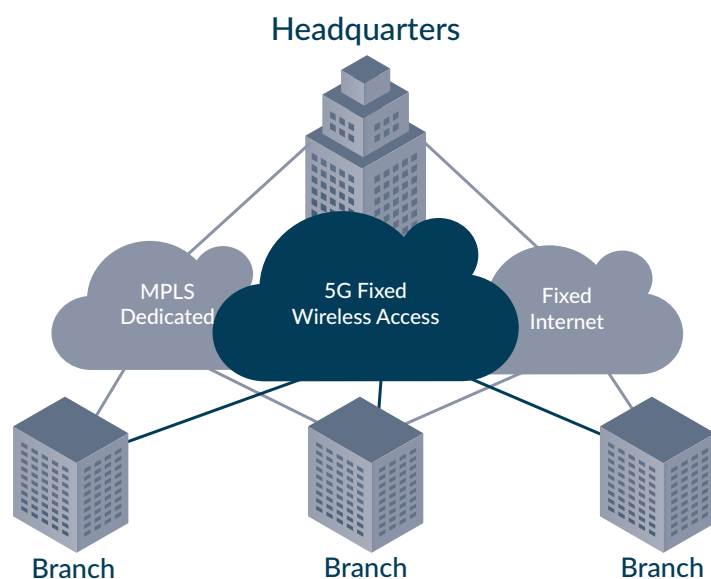


Figure 7: 5G FWA provides a new alternative for SD-WAN primary and failover connectivity

Supporting temporary enterprise connectivity

An extension of the 5G FWA enterprise connectivity use case is the provisioning of temporary connectivity. There are many industries where temporary work locations are required, such as building sites or temporary office space or disaster-response situations where emergency facilities need to be set up quickly. In the worst-case scenario, this can be in the event of a catastrophe where communications need to be re-established as a matter of priority.

With 5G FWA, it is possible to establish reliable, high-speed connectivity quickly with a minimum of installation effort and cost. This makes 5G FWA ideal for temporary connectivity use cases and a valuable extension of services offered to enterprises by carriers.

Supporting connectivity for entertainment venues

Entertainment venues often face the challenge that while events are

underway, there is a massive need for high-capacity connectivity. However, when the event is over, that demand falls to almost zero. This leads to the dilemma of investing in a permanent solution with the capacity to meet peak demands or finding a temporary solution that can increase capacity when required. Obviously, the latter option is the more attractive option and 5G FWA provides the potential to make that option a reality.

In fact, the venue can use a solution with a combination of permanent and temporary installations. The low cost of 5G FWA devices without the need for wired connectivity means that it is feasible to install permanent 5G FWA antennae at strategic locations in the entertainment venue. This can enable a certain level of capacity sufficient for most events. This capacity can then be enhanced with temporary 5G FWA installations both outside and inside the venue to increase capacity when required. This could be as simple as vans with 5G FWA antennae parked outside the venue.

This is a use case that lends itself well to carriers who provide communication services to entertainment venues and need to respond quickly to event needs.

From public to private networks

One of the more interesting opportunities that 5G FWA enables is the potential to support private enterprise networks. With 5G FWA, the cost of deploying and maintaining private networks is dramatically reduced, making it an attractive proposition for manufacturers, enterprises, college campuses, shopping malls and entertainment venues. 5G FWA provides connectivity, but also provides access to the full spectrum of 5G services and capabilities that can be applied in a private network environment. This can enable rich experiences for the private network users whether they are employees, clients, students, patients or consumers.

Supporting private campus networks

One of the challenges of campus environments is that connectivity needs to be provided between buildings as well as within buildings. This is where 5G FWA combined with Wi-Fi 6 can provide a compelling alternative.

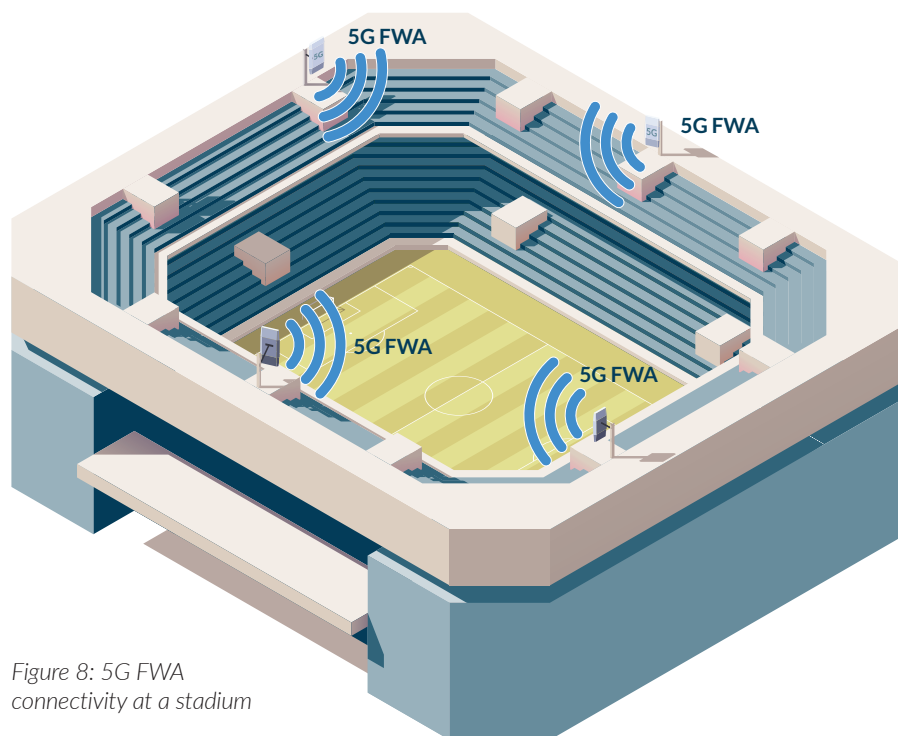


Figure 8: 5G FWA connectivity at a stadium

5G FWA can provide the signal to the building where Wi-Fi 6 distributes the signal within the building. In the future, we can expect even greater convergence between 5G FWA and Wi-Fi 6, which opens carrier opportunities to offer managed private campus network services.



Figure 9: 5G FWA connectivity for a campus private network

Once a private network is established, it is possible to offer a range of IP services that are confined to that network enhancing the value of the campus to employees. There is also the additional benefit of security, allowing sensitive information to be confidentially shared across the campus.

The same concept can be extended to other types of private campus, such as college campuses, hospital campuses, government offices, ports or even military installations.

Supporting manufacturer digital transformation to smart factories

Manufacturing firms are in the midst of a major digital transformation to smart factories, often referred to as Industry 4.0. The smart factory vision is to enable a fully automated

production where the factory itself can detect and resolve issues via intelligent processing of data from a network of Industrial Internet of Things (IIoT) sensors and robots.

5G FWA can provide connectivity to factory buildings that is tailored to the needs of manufacturing networks with respect to capacity, latency and reliability. IIoT sensors do not require a large amount of bandwidth, but there can be millions of them leading to a different capacity profile compared to typical modern networks. For smart factories requiring real-time automated response based on IIoT input, latency and reliability become critical requirements. 5G Ultra-Reliable Low-Latency Communications (URLLC) capabilities were designed with precisely these needs in mind. The flexibility in 5G with respect to

frequency spectrum used and the locations of virtual RAN functions closer to the network edge means that a 5G FWA solution can be provided that matches the specific capacity, latency and reliability needs of the smart factory.

Supporting targeted marketing in shopping malls and entertainment venues

When 5G FWA connectivity is provided as a private network in entertainment venues and shopping malls, it opens up new possibilities for those venues to interact with their customers. In the first instance, this could be by providing valuable information that enhances their experience at the venue. For entertainment venues, this could be access to online maps and background information on the teams or acts performing. For both venues and shopping malls, it could be offers and discounts for a limited time that drive visitors to stores on site. It also serves to establish a trusted relationship with visitors that will allow effective marketing of new events and offers that can attract them back to your venue or shopping mall.

Carriers can thus enhance their 5G FWA connectivity offering to shopping malls and entertainment venues with advanced cloud services enabled by 5G and delivered over 5G FWA.

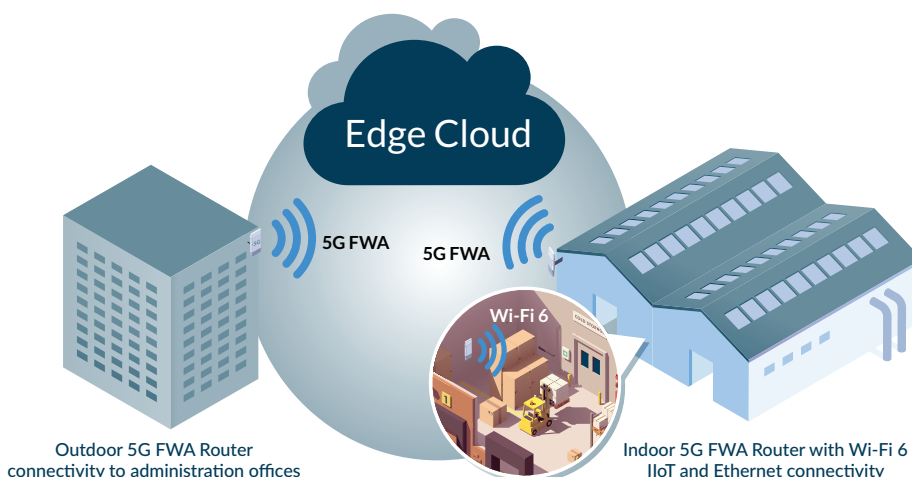


Figure 10: High-capacity, low-latency 5G FWA can bring powerful new capabilities to factory automation

Supporting a broad range of requirements

In summary, there are a broad range of use cases that can be supported by 5G FWA, opening many new revenue opportunities for carriers and enterprise customers, as well as greater choice, reliability and affordability for consumers.

However, all of these use cases have specific needs that require solutions that are tailored to deliver exactly what is required within the budget agreed. The broad-spectrum range of 5G as well as the virtualized functions and network slicing that 5G

provides enables service providers to meet specific needs for bandwidth, latency and reliability. By providing a broad range of 5G FWA devices, it is possible to support all of these options allowing the various use case requirements to be met.

Use case requirements	Capacity requirements		Range requirements	Latency requirements	Reliability requirements
	Speed	Connections			
Rural residential broadband connectivity	Low to medium	Few	Long range	Relaxed to moderate	Relaxed
Urban mesh broadband connectivity	Medium to high	Many	Short range	Relaxed to moderate	Relaxed
Enterprise SD-WAN connectivity	Medium to high	Few	Short range	Moderate to strict	Strict
Temporary connectivity	Medium to high	Few	Short to long range	Moderate	Moderate
Shopping mall and entertainment venue connectivity	High	Many	Short to long range	Relaxed to moderate	Moderate
Private campus connectivity	Medium to high	Few	Short to long range	Moderate	Moderate
Smart factory connectivity	Low to medium	Many	Short to long range	Strict	Strict

As can be seen above, each use case has a different combination of requirements with respect to overall capacity or throughput, range, latency and reliability. Even within certain use cases there can be different needs. For example, temporary connectivity can require short- or long-range coverage depending on the location. In the

real world, each customer will have specific requirements that may challenge these categories.

It is therefore essential that a comprehensive portfolio of 5G FWA devices is available that can support a broad range of frequency spectra and connectivity options so the right solution can be provided to the customer.

The top of the page features a dark blue background with a network of glowing blue nodes and lines. On the right side, there are images of several white Inseego Wavemaker routers of different sizes and shapes. The Inseego logo is visible on the devices.

inseego

Wavemaker™ 5G

Fixed Wireless Access Portfolio

Inseego portfolio of 5G fixed wireless access solutions

Inseego is an industry leader providing intelligent 5G device-to-cloud solutions for operators, enterprise customers and consumers. From providing the first 2G modems for mobile broadband to inventing the MiFi® category with the first mobile hotspots for 3G, 4G and most recently, 5G, Inseego continues to innovate with a broad portfolio of multi-gigabit 5G FWA solutions.

Inseego Wavemaker™ 5G FWA product portfolio

The Inseego Wavemaker series of 5G FWA indoor and outdoor routers and CPEs provides one of the industry's broadest range of 5G FWA products. Wavemaker FWA routers and CPEs provide market-leading performance equal to, if not better, than wireline broadband access alternatives.

Both the indoor and outdoor Wavemaker FWA routers and CPEs are designed using Qualcomm® Snapdragon X55 5G modems and Inseego high-performance RF and antenna designs providing high gain and signal strength for outstanding connectivity in almost any environment.

The Wavemaker FG2000 and FX2000 indoor routers support dual-band Wi-Fi 6 technology with connectivity for 128 and 32 devices respectively. Supporting both sub-6 GHz and mmWave 5G connectivity, these versatile indoor routers cover a broad range of deployment scenarios from apartments and small businesses to branch offices requiring primary or failover communications and enterprise-grade security. Installation is made easy with the Inseego mobile app that enables users to find the best location for their router.

The Wavemaker FW2000 and FW2010 CPEs are designed for outdoor installation supporting sub-6 GHz and mmWave 5G connectivity respectively. The Wavemaker FW2000 is designed for installation in remote areas with high-gain antennae that can deliver strong, focused signals to any location, extending the network's edge. Dual-SIM connectivity is also supported and the router is ruggedized with IP67-rated durability providing ultra-reliable connectivity to remote homes, businesses or branch offices.

Both the Wavemaker FW2000 and FW2010 can be used in urban environments using either mmWave or sub-6 GHz spectrum. The Wavemaker FW2010 leverages the throughput capacity of 5G mmWave to offer high-power, high-speed connectivity to both homes and enterprises along with ultra-reliable low latency. The Inseego mobile app can be used by professional installers to provide clear and simple steps for ideal placement and installation of either Wavemaker outdoor CPEs.

For enterprises, Inseego has also announced the upcoming availability of the Inseego Wavemaker PRO series of 5G routers, CPEs and industrial gateways. The Wavemaker PRO series will provide dual-SIM support with multi-carrier, software defined switching, which will enable business and enterprise users to switch to the best available network at any given place and time ensuring business continuity. The Wavemaker PRO series is designed to support enterprise use cases, such as Industrial IoT and 5G private networks, with device-to-cloud connections and control.

Additional gigabit-class 5G products

The 5G MiFi® M2000 series of mobile hotspots provides multi-gigabit connectivity for up to 30 Wi-Fi connections, including Wi-Fi 6 devices. It protects connections with enterprise-grade security, including advanced encryption, hacker prevention, password protection, VPN pass-through, Open VPN and Guest Wi-Fi networks. The 5G MiFi

M2000 mobile hotspots are an excellent solution for both in-home connectivity and enterprise users working in the field.

The 5G MiFi M2000 is complemented by a wide range of Inseego 5G FWA products supporting indoor and outdoor installation across a range of 5G radio spectrums. The indoor FWA products also support Wi-Fi 6.

Whatever your home, enterprise or industrial need, Inseego has a secure 5G multi-gigabit connectivity solution that can meet your needs.

5G Portfolio Multi-Gig Access



M2000
Mobile MBB



FX2000
Indoor FWA



FG2000
Indoor FWA



FW2000
Outdoor FWA



FW2010
Outdoor FWA

	M2000 Mobile MBB	FX2000 Indoor FWA	FG2000 Indoor FWA	FW2000 Outdoor FWA	FW2010 Outdoor FWA
5G NR mmWave	●	●	●		●
5G NR Sub 6 GHz	●	●	●	●	●
Ethernet		●	●	●	●
Power over Ethernet				●	●
Extended Range Internal Antennas				●	●
Wi-Fi 6 Enabled	●	●	●		
4G LTE Fallback (CAT22)	●	●	●	●	●
Remote Management	●	●	●	●	●
Multi-Lingual	●	●	●	●	●

Conclusion

5G is a game changer for FWA. It provides the throughput that makes 5G FWA a compelling alternative for residential and enterprise connectivity not only in rural locations, but also in urban environments. It provides the reliability and latency performance that enables 5G FWA to address new opportunities such as supporting private networks and smart factories.

5G FWA provides carriers with the means to compete in use cases and locations where they previously have not been able to offer superior solutions. The growing and vibrant ecosystem of 5G vendors and partners ensures the availability of lower cost 5G FWA equipment, thus changing the economics and basis for competition.

The inherent advantages of wireless broadband connectivity that 5G FWA provides, along with the low cost and ease of installation, not only makes 5G FWA competitive to alternative forms of connectivity, but has the potential of making 5G FWA the preferred form of connectivity for residential, business and government organizations.

To successfully exploit this emerging opportunity, carriers need to support a broad range of options. This enables carriers to deliver exactly the performance, reliability and cost profile required.

With Inseego's range of secure, 5G FWA solutions, carriers can take advantage of the most comprehensive portfolio of 5G FWA solutions available on the market today safe in the knowledge that Inseego is committed to providing the latest advancements and standard requirements.



Inseego Corp. (Nasdaq: INSG) is an industry leader in smart device-to-cloud solutions that extend the 5G network edge, enabling broader 5G coverage, multi-gigabit data speeds, low latency and strong security to deliver highly reliable internet access. Our innovative mobile broadband and fixed wireless access (FWA) solutions incorporate the most advanced technologies (including 5G, 4G LTE, Wi-Fi 6 and others) into a wide range of products that provide robust connectivity indoors, outdoors and in the harshest industrial environments. Designed and developed in the U.S., Inseego products and SaaS solutions build on the company's patented technologies to provide the highest quality 4G and 5G connectivity for service providers, enterprises, and government entities worldwide.

Find out more at inseego.com

#Putting5GtoWork



Mobile World Live is the premier destination for news, insight and intelligence for the global mobile industry. Armed with a dedicated team of experienced reporters from around the world, we are the industry's most trusted media outlet for breaking news, special features, investigative reporting, and expert analysis of today's biggest stories.

We are firmly committed to delivering accurate, quality journalism to our readers through news articles, video broadcasts, live and digital events, and more. Our engaged audience of mobile, tech and telecom professionals, including C-suite executives, business decision makers and influencers depend on the unrivalled content and analysis Mobile World Live provides to make informed business decisions every day.

Since 2016, Mobile World Live has also had a team of in-house media and marketing experts who work directly with our brand partners to produce bespoke content and deliver it to our audience in strategic yet innovative ways. Our portfolio of custom work - including whitepapers, webinars, live studio interviews, case studies, industry surveys and more - leverage the same level of industry knowledge and perspective that propels our newsroom.

Mobile World Live is published by, but editorially independent from, the GSMA, producing Show Daily publications for all GSMA events and Mobile World Live TV - the award-winning broadcast service of Mobile World Congress and home to GSMA event keynote presentations.

Find out more at www.mobileworldlive.com

Disclaimer: The views and opinions expressed in this whitepaper are those of the authors and do not necessarily reflect the official policy or position of the GSMA or its subsidiaries.

© 2021