

# 5G: Technology That Will Release The Full Potential of FWA

Fixed wireless access is set to become a key driver in current and future 5G deployments, offering greater bandwidth and better spectral efficiency than LTE networks.

By Keith Russell / *Nokia Fixed Networks*

Everyone is excited about the potential of 5G to transform a range of consumer and industrial sectors. However, unlike 3G and 4G, mobile services might not be the most valuable market for the technology initially. Instead, fixed wireless access (FWA) will be a key use case in terms of 5G deployments in 2020 and beyond.

As the World Economic Forum reports a 30 percent increase for internet use worldwide and networks grapple with the increased pressure due to the COVID-19 pandemic, addressing consumer demand has never been more important. Users paying for ultrafast, reliable internet expect faster and better services. The appetite for high-quality and enhanced services will remain after the pandemic subsides.

5G, with its 10–25 times increase in capacity over 4G, will change the face of FWA forever with speeds that truly compete with fixed broadband services and deliver consumers unprecedented wireless connectivity. Fortunately for operators, 5G FWA offers a multitude of services and revenue opportunities beyond commodity broadband pricing in the same way other services, such as mobile broadband, do today.

## MOBILE COST CEILING REACHED?

Typically, mobile services have benefited most from the introduction of the successive Gs, or generations, of wireless technology. With 4G,

the benefit was mobile broadband at speeds that enabled mobile video and social media use along with increased broadband revenues. The situation in 2020, however, looks quite different from 2010, when 4G was introduced. Many mobile operators face the challenge of eroding mobile broadband revenue. In some European markets, mobile broadband pricing dropped to as little as 7 euros for 50 gigabits of data per month, and the GSMA reported that new smartphone purchases dropped by 2 percent in 2019. The good news, also from GSMA, is that where 5G is already being deployed, new handsets supporting 5G are being designed and built. Twenty new models were launched already this year.

However, mobile data use is expected to rise fourfold over the next five years, but annual revenue growth is expected to increase by only 1 percent in the same time period, as consumers demand faster and better services but appear unwilling to pay more for them. Operators have their return on investment (ROI) work cut out for them if they focus on mobile broadband alone. The answer to early 5G ROI lies in FWA.

A recent Omdia survey of communications service providers shows that they rate FWA as the top 5G use case after enhanced mobile broadband (eMBB), with 47 percent of respondents rating it in the top two. COVID-19 made it no longer acceptable to have unconnected or underserved households

in which adequate broadband suddenly became inadequate for critical needs such as work, education and social interaction. But before we consider the business case, we must first consider 5G FWA capabilities.

### 5G, FWA GO HAND IN HAND

With 5G, FWA becomes the tool it was always meant to be, providing solutions for different operators based on their unique needs. 5G offers mid-band spectrum at 2.5 and 3.5 GHz and up to 100 MHz of channel bandwidth and better spectral efficiency. That means it delivers 10–15 times more capacity than long-term evolution (LTE) networks. This is great news for FWA because households and businesses typically have multiple simultaneous users using video, gaming and Wi-Fi connected devices consuming 10 times more data than a typical single smartphone user.

A mid-band 5G base station with three sectors can provide more than 500 terabytes of data per month, supporting hundreds of FWA users. With this capacity, operators can offer gigabit peak speeds to subscribers with sustained speeds in the 50 Mbps range, providing a solid, mid-grade service compared with traditional fixed networks. The added advantages of 5G in the mid-bands are cost and time to market. Signal range at these frequencies is still good, meaning network densification is not required and the existing mobile footprint can simply be upgraded to support both mobile broadband and FWA.

Because the radio network is still shared with mobile broadband, care must be taken to ensure that FWA, with perhaps a take rate of 10–20 percent, maintains residential sustained speeds without impacting mobile broadband services. This challenge can be overcome with capacity management tools to identify and control congestion points in the network, making it possible for operators to support service level agreements with subscribers.

But the higher frequencies provide the greatest opportunity for FWA. Millimeter wave (mmWave) 5G,

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operating in the 24–39 GHz spectrum range with as much as 800 MHz available to an operator, is capable of multiple gigabit speeds with sustained speeds that rival that of fiber – but only over short distances. This requires network densification, which comes with increased cost. However, mmWave is still an attractive alternative for operators in specific regions where other spectrum options are limited or the cost to deploy FTTH is too great.

### NEW REVENUE STREAMS

Consumer attitudes toward 5G FWA broadband relative to price are similar to consumer attitudes for mobile 5G. Consumers appear to have reached the limit of what they are prepared to pay for broadband, but still want faster and better services. A recent survey commissioned by Nokia showed that although three-quarters of people like the idea of 5G FWA and two-thirds would happily subscribe to 5G FWA, they would only do so if the price stayed the same. But FWA offers more advantages to consumers than cost per bit. With no tether to a physical network, FWA is easy to install, eliminating the need to wait for an installer. In fact, the same consumer survey showed that 83 percent of respondents valued the FWA do-it-yourself install.

There is a clear opportunity for operators to look beyond mobility by connecting all new subscribers with enhanced FWA while adding value through services or by monetizing partnerships as distributors of streamed content and other digital home applications. FWA also provides an opportunity to create more average revenue per user and reduce churn by

offering a sticky bundle of home and mobile 5G services.

FWA provides a compelling alternative to fiber in areas where it is too costly, complex or time-consuming to deploy. It can be set up more quickly than a fiber installation, which makes it a valuable alternative to maintain customers while a fiber network is being built. Subscribers then can move to fiber when it's available, freeing spectrum for other use cases in the future. These fixed operators already understand what a powerful revenue generator the home can be through broadband subscriptions, service partnerships, or services beyond basic broadband, which subscribers can tailor and bundle together. For providers, the advantage of FWA is that it brings connectivity to all subscribers in their service areas quickly and at a comparatively low cost.

5G FWA can be the broadband solution for small and medium-sized businesses, too. For larger enterprises, it can connect remote buildings or provide backup connections if fixed connections fail.

### CONSUMER IS KING

The technological potential of 5G is sky high. But however innovative and life-enhancing connected vehicles, telemedicine, cloud-based robotics and the like will be, they can become ubiquitous only if consumers see their utility and are willing to pay for them. 5G FWA offers the opportunity to bring superfast broadband to homes and businesses and open people's minds to the full potential 5G represents. ❖

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