IDC PlanScape

IDC PlanScape: 5G Fixed Wireless Access Connectivity for Business Agility and Operational Resilience

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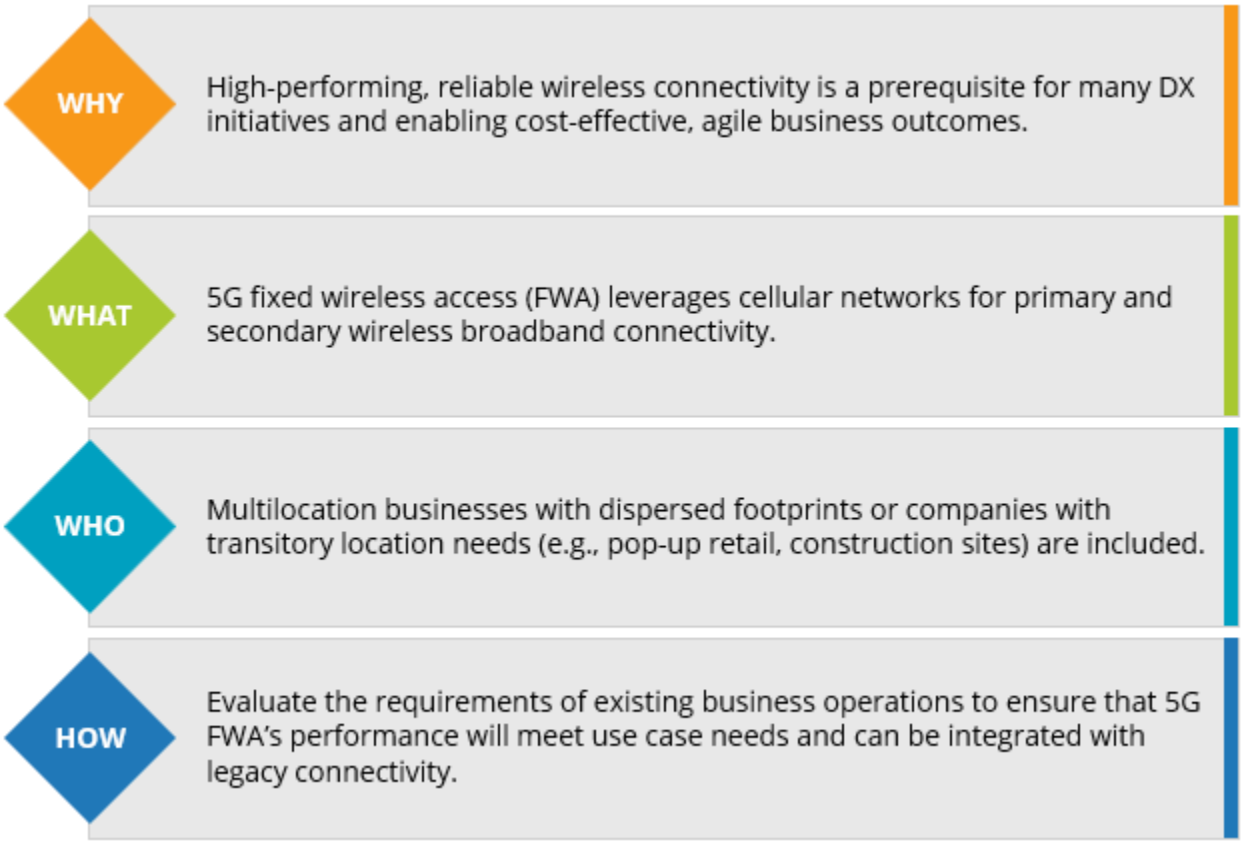
IDC PLANSCAPE FIGURE

FIGURE 1

IDC PlanScape: Executive Summary of 5G Fixed Wireless Access Connectivity for Business Agility and Operational Resilience



Source: IDC, 2022

July 2022, IDC #US49377922

EXECUTIVE SUMMARY

One of the enduring lessons of the COVID-19 pandemic is the importance of connectivity for both individuals and businesses. Without a diverse mix of readily available connectivity options, economies around the world would have ground to a halt under the public safety lockdowns used to combat the spread of COVID-19.

The need for more connectivity emerged just as mobile operators were standing up high-performing 5G networks. While early development of 5G networks focused on enhanced mobile broadband, one of the most accessible, near-term use cases for 5G is fixed wireless access (FWA) for primary and backup connectivity. Though initially thought of as a means of connecting the unconnected consumer in rural and underserved areas, FWA has real, meaningful benefits for business operations and companies' broader digital transformation (DX) initiatives.

This IDC study lays out a road map for businesses to assess the viability of fixed wireless access (FWA) in fulfilling operational and strategic connectivity needs.

"5G fixed wireless access brings the performance and reliability of wired broadband to business operations far from the confines of the corporate headquarters and enables companies to grow and expand with fewer constraints on deployment timelines and costly infrastructure installations," says Jason Leigh, research manager, 5G and Mobile Services. "Leveraging 5G FWA as part of a comprehensive future of connectedness and digital transformation (DX) strategy requires companies to take a thoughtful, programmatic approach to ensuring connectivity meets the performance requirements of existing operations while simultaneously being an integral consideration in the organization's long-term growth strategy."

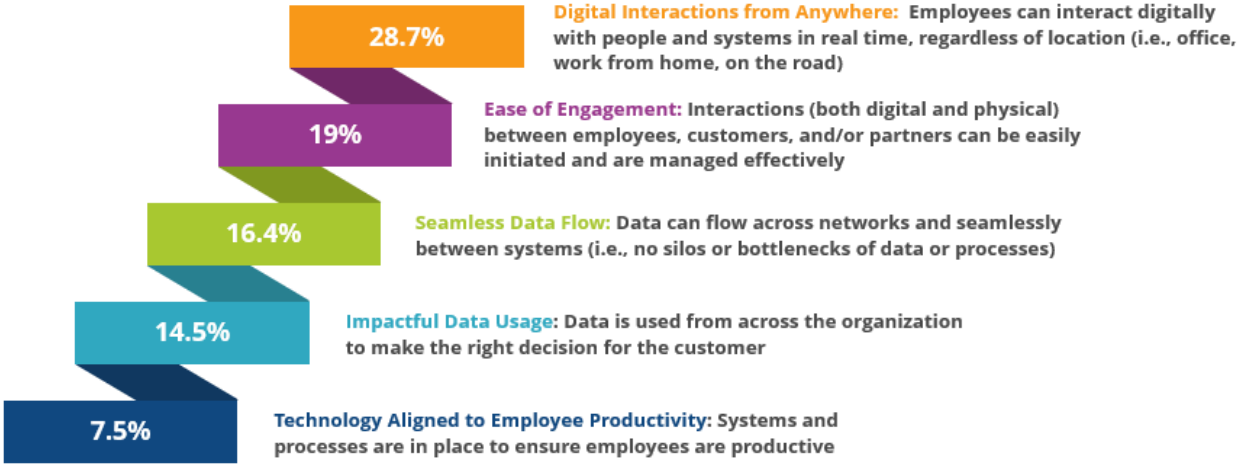
WHY IS 5G FIXED WIRELESS ACCESS IMPORTANT?

The accelerated and volatile business climate brought on by the pandemic has resulted in companies seeking — no, needing — to adapt to the new future of connectedness framework, which requires seamless, secure access to critical business resources from any location and via any device. To thrive in this new future of connectedness, companies must demonstrate a resilient, agile response to changing external conditions, whether a natural disaster, the new hybrid work paradigm, or futureproofing the organization for the integration of other new technology advancements into day-to-day operations. This can materialize in the form of increased automation to offset labor challenges or improved worker safety and predictive maintenance, which can reduce downtime and improve productivity. Beyond internal, operational dynamics, successful organizations aspire to earn customer trust by being "reachable" 24 x 7 through a variety of different interfaces to resolve concerns and provide high-quality customer service. Finally, companies can secure their longevity by using the experiences, data, and insights that come from connecting the people, things, processes, and applications to drive a vigorous digital transformation agenda (see Figure 2).

FIGURE 2

What Does Connectedness Mean to the Enterprise?

Q. In your opinion, which of the following statements best describes the term "connectedness"?



n = 607

Source: IDC's *Future of Connectedness Survey,* July 2021

Foundational to those grand aspirations for the enlightened organization is a strategic, integrated response to connectivity, beginning within the four "walls" of its operations. Most companies have familiarity with broadband connectivity of the wired ilk. While a conduit of reliable, high-speed connectivity, wired connectivity has its limits in terms of the ability to service dispersed and highly mobile resources. Experience with wireless has revolved mostly around Wi-Fi, again another workhorse connectivity modality, albeit one with its own set of limitations.

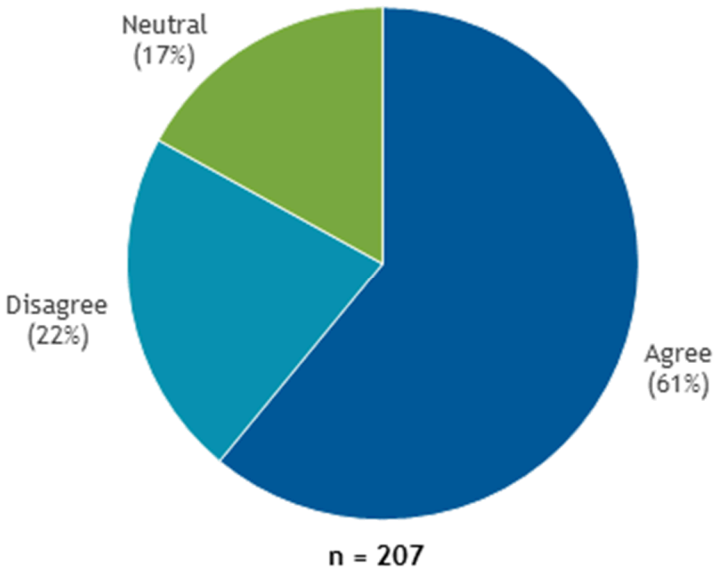
The concept of a fully wireless-enabled business has largely been aspirational due to the variability and best-efforts performance of cellular networks. That is until the emergence of 5G and the ability of cellular networks to wirelessly provide high-performing connectivity with guaranteed quality of service (QoS) and service-level agreements (SLAs). Now as mobile operators have expanded efforts to monetize 5G beyond enhanced mobile broadband (eMBB) to new revenue-generating use cases, fixed wireless access is taking center stage as critical enabler of real-time insights, pervasive digital experiences, and business continuity achievable in the new future of connectedness.

Figure 3 shows U.S. companies' perspective on a wireless-first approach to connectivity.

FIGURE 3

U.S. Companies' Perspective on a Wireless-First Approach to Connectivity

Q. We will adopt a wireless-first approach for local access and wide area connectivity in all facilities (office, branch, industrial) in the next two years.



Source: IDC's *Future Enterprise Resiliency and Spending Survey (FERS) – Wave 8,* September 2021

While FWA's biggest initial benefit is its ability to deliver cost-effective broadband connectivity to rural and underserved markets, its impact is much more diverse, particularly for businesses. It provides the ability to stand up high-performing wireless connectivity without onerous infrastructure installations and lengthy deployment timelines. Connectivity and, subsequently, business operations are no longer restricted to areas with extensive wireline infrastructure but can be deployed on demand quickly, wherever and whenever the customer or business needs require.

Beyond base connectivity, FWA has other benefits. It offers a shorter deployment cycle than wired broadband, with companies able to stand up robust connectivity within hours instead of days or weeks for wired connectivity. In addition, FWA requires less infrastructure to deploy, providing companies with greater agility to build out new locations and accelerate growth. That additional agility takes the form of being able to utilize FWA for more transitory operations, such as pop-up retail and construction sites, where companies must easily have the ability to turn connectivity on or off on demand.

And though driving new innovation and operational efficiency garners much of the 5G FWA headlines, a less glamourous but equally important role for FWA is to serve as a secondary broadband connection that can be used to supplement network operations and provide back-up connectivity for business continuity.

WHAT IS 5G FIXED WIRELESS ACCESS?

FWA is a connectivity service that provides broadband/internet service to a business location. However, unlike the wired options, such as DSL, cable, and fiber (aka fiber to the premise [FTTP]) that most businesses have experience with, FWA delivers that broadband connection wirelessly.

In its simplest terms, FWA operates much like the mobile broadband service on the traditional smartphone that most business leaders are familiar with. Unlike a smartphone, tablet, or hotspot, which comes with an implied level of mobility, FWA's connection is specifically intended for stationary – or fixed as the name implies – locations. This allows for a stable signal necessary to provide consistent, reliable performance for a business' needs.

To be clear, by itself, FWA is not a new technology. There are thousands of small wireless internet service providers (WISPs) across the United States, and even the large carriers themselves have offered FWA as a connectivity of last resort for many years. However, with LTE and other shared spectrum deployments, the performance of FWA was highly variable and difficult to consistently rely on for data-intensive, mission-critical business functions.

With the emergence of 5G, FWA is experiencing somewhat of a renaissance due to 5G's ability to deliver much faster performance than DSL and legacy LTE-based wireless broadband. Its download speeds compete with many tiers of cable and fiber broadband services.

That being said, there are nuances in how 5G FWA services are being deployed and marketed. The first nuance hinges on the spectrum being used for the 5G networks. Generally, providers are leveraging three types of spectrum for FWA service: low band, mid-band, and millimeter wave (mmWave). The low-band spectrum provides wide geographic coverage with only a modest speed improvement over LTE – somewhere in the range of 50-200Mbps. At the opposite end of the spectrum (pun intended), mmWave is a much higher-frequency tool for providing connectivity and capable of 1Gbps+ that 5G headlines are made of, but it comes with severe limitations on the amount of space it can cover and is more susceptible to interference than lower spectrum bands. Mid-band spectrum is often deemed a bridge between the two, with a more meaningful improvement in download performance over the low band with speeds in the 200–800Mpbs range, but without the coverage limitations of mmWave. To provide some simplicity in product marketing and buyer decision making, most providers are bundling their mid-band and mmWave-based FWA services under a combined service.

Another element to consider with FWA is determining the availability and the business' eligibility for service. With 5G networks being relatively new, and providers having differing portfolios of spectrum, most are taking a very deliberate approach to scaling their FWA service. T-Mobile, which acquired a swath of mid-band spectrum through its merger with Sprint in April 2020, recently made its FWA service – branded as T-Mobile Business Internet – available nationwide. Verizon purchased a large chunk of mid-band spectrum in an FCC auction in 2021 and claims its 5G Business Internet is available at 2 million locations and is scaling to 14 million locations by 2025. Providers are gradually adding FWA to the network in order to better understand the impact on network operations and preserve capacity for their mobile subscribers. AT&T has been markedly less vocal in its FWA availability.

Though 5G is bringing more robust performance to FWA, its newness still leaves a bit of maturing to do. For instance, FWA cannot currently provide the symmetrical upload/download performance of

fiber. While this is not a deal breaker for many businesses, it is a notable distinction that a buyer needs to be aware of. Network performance can also widely vary depending on the end-user's location within the cell sector. The maturing of 5G networks will bring a new level of performance and reliability to FWA as it seeks to solidify its impact on business operations. Eventually, the performance of FWA over 5G networks will allow providers to offer quality-of-service and service-level agreement guarantees not previously possible under LTE versions of FWA. And as 5G networks mature, FWA also will provide a conduit to 5G's ultra-reliable low-latency (URLLC) features.

WHO ARE THE KEY STAKEHOLDERS?

There are a number of individuals and groups within the organization that will need to be involved in a company's consideration and evaluation of FWA as a connectivity technology.

C-Suite

Connectivity is front and center in an organization's digital transformation strategy, operations, and financial management, and as such, sits squarely in the C-suite's remit. Ensuring that the company is constantly innovating to drive value for the end customer and improving operating margins are critical outcomes that leadership looks at. To the extent that FWA can deliver reliable, low-cost, high-performing connectivity, it will need to garner interest from senior leadership. In addition, the ability to stand up FWA connections faster than wired options and accelerate the time to market for launching new locations is a key differentiator that may be extremely appealing to company leadership, especially if it can be done so in a cost-effective manner. Finally, companies' embrace of new technologies such as FWA can create reputational currency that allows an organization to improve its reputation for business agility and differentiate from its peers.

IT Operations

Unsurprisingly, the corporate IT function plays the biggest role in adopting and deploying FWA throughout the organization. They will be intimately involved in the planning and deployment and can provide detailed feedback on where the greatest impacts on efficiency and margin improvement can be realized. IT is responsible for stress testing an organization's connectivity capabilities and business needs and must ensure the performance of FWA will sufficiently support the software and use case functionality deployed throughout the organization. In addition, in-house IT will be responsible for any potential security issues that arise from shifting to a new means of primary connectivity, so their involvement is critical.

Human Resources

Human resources (HR) can be a somewhat surprising stakeholder in the FWA journey. Its role comes in establishing the policies around the use of business broadband. With some of the LTE versions of FWA and wireless broadband services coming with qualifiers that limit the types of activities that can be done on an FWA connection — live streaming, web hosting, and a few other activities that consume a lot of capacity — having strong, enforceable policies around company-owned technology and social media usage can prevent an organization from running afoul of any FWA restrictions. In addition, for companies looking at FWA to further enable hybrid workplace strategies, HR policies around home office enablement may be enhanced by having a company-provided FWA option. Carriers are beginning to scale FWA service nationwide, creating opportunities for companies to leverage a single vendor for all employees' remote connectivity needs, which in turn, drives opportunities for additional

bundling and volume discounts. Company-provided FWA may also be more efficient and cost effective than home broadband reimbursement processes.

HOW CAN MY ORGANIZATION TAKE ADVANTAGE OF 5G FIXED WIRELESS ACCESS?

The most important thing when considering 5G FWA, which is no different from any other technology investment, is aligning its use to solve existing business problems. Simply deploying FWA because it is the latest thing is shortsighted and will all but guarantee disappointment across the organization's stakeholders. Ensuring that the specific benefits of FWA align to pressing business needs is the fastest and safest route to a meaningful ROI.

Enable Faster Growth

Companies that are in growth mode can leverage FWA to stand up new locations faster and with less disruption than traditional wired broadband options. The wait times to receive FWA hardware can be as little as two days, and most providers offer self-install options that are suitable for many SMBs. Branch offices, seasonal retail, and construction sites all can be up and running with a business-grade broadband connection in a matter of hours. And if a pop-up retail store needs to be retired or a construction site sunset, the FWA equipment can be moved and repurposed for the next job (with the provider's approval, remembering the "fixed" element of FWA).

Manage Costs

Geographically dispersed companies must navigate different pricing regimes based on the size and number of broadband providers in their markets. Currently, in markets where there is a singularly dominant wired provider, the cost of broadband services tends to be markedly higher than in other areas where there might be two, three, or more broadband companies. With at least two FWA providers scaling toward a nationwide footprint, the greater transparency and increased competition will create downward pressure on broadband service pricing, which benefits a company's overall margins. In addition, the current deployment models for FWA often include self-install options, which eliminate costly installation fees and can further reduce deployment timelines for the end customer. And many operators, in an effort to encourage adoption, are offering heavy discounts and subsidies on CPE equipment for FWA.

Ensuring Business Continuity

Let's say the organization isn't ready to ditch its commitment to wired broadband. Another, less intrusive use of FWA is as a failover solution in the event the company's primary broadband connectivity experiences an outage. A secondary, backup broadband connection provides better business continuity and resiliency in the face of unexpected challenges. It can also serve as a platform for experimentation on how to use wireless connectivity in different ways without disrupting current operations.

Enable Hybrid Work

Reliable, high-performing connectivity is a prerequisite for any conversation about the emerging hybrid work paradigm. With more organizations making hybrid work the norm, employees must be able to seamlessly and securely access company resources. Company-provided FWA service from a single nationwide provider can ensure that every employee has the same, consistent connectivity as their peers. It can also be deployed in tandem with the employee's existing broadband service without any disruption to their home life. In addition, centrally deployed FWA broadband can utilize homogenous

security polices and controls to insulate corporate systems from intrusion. And the ability to tap into a single FWA provider to serve a dispersed workforce can result in economies of scale that make company-provided broadband more affordable than managing reimbursement programs.

ADVICE FOR TECHNOLOGY BUYERS

There are a number of elements that should be considered when evaluating the appropriateness of FWA for use in a company's operations.

Know Your Needs

To determine if FWA is right for the organization, companies should conduct a "connectivity inventory" to understand how connectivity is currently being used across the company. What existing connectivity modes are being used (e.g., wired, Wi-Fi, cellular, LPWAN) and which equipment and personnel need to be connected? What level of connectivity performance — 1Gbps? 500Mbps? 100Mbps? — is necessary to maintain or enhance existing business operations? What connectivity options are available? For instance, companies with operations in rural areas that lack existing broadband connectivity make excellent candidates for FWA. Do your operations have specific latency requirements? Organizations utilizing autonomous operations will have less tolerance for variable performance and may benefit from the lower latency provided by 5G FWA service. Ascertaining whether the performance of FWA will meet the current functional needs of the organization is paramount.

Leadership also needs to align the technological features of FWA with the company's strategic agenda and the role that connectivity plays in realizing that agenda. FWA connectivity will streamline the establishment of new locations and support a growing workforce in a hybrid work environment.

Don't Make FWA an Either-Or Decision

As noted previously, most organizations have already invested in some connectivity modalities. It is important that FWA complements and integrates with those existing connectivity investments. FWA should only be considered as a replacement for legacy technologies if there is a material benefit to be gained.

Think Beyond Base Connectivity

When considering FWA vendors, look beyond the FWA service itself. Connecting business operations is but the first step. Consider the security, collaboration, and analytical solutions that an FWA provider can bring to bear that will maximize the benefits of having a single provider.

RELATED RESEARCH

- *U.S. Mobile Consumer and Business Services Forecast, 2022-2026* (IDC #US47949622, May 2022)
- *Impact of Global and Economic Disruptions on the Enterprise Road Map to Connectedness* (IDC #US49147422, May 2022)
- *Future of Connectedness: 5G's Role in Fueling Education's DX Journey* (IDC #US47943222, April 2022)
- *Top 5 Trends to Watch in 5G in 2022* (IDC #US47943322, February 2022)

- *The End of the 3G Era - Implications and Opportunities for Mobile and IoT Connectivity Providers* (IDC #US47294821, January 2022)
- *Making the Case for 5G in Healthcare* (IDC #US48382021, December 2021)

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