Mass market broadband with fixed wireless access solutions

An easy path to broadband speed and reliability that meets tomorrow’s user needs
End-user bandwidth hunger continues to grow... how to keep up?

Home user bandwidth demands are increasing. This is the result of the growing uptake of, for example, video streaming, cloud applications, gaming and security cameras. In homes everywhere, several people may be doing different things on a single network at any time, especially with the ongoing proliferation of home working. The need for bandwidth will grow even further, driven by the internet of things, 4K/8K UltraHD TV, virtual and augmented reality, and smart buildings and grids. Consumers expect seamless and immediate interaction with applications, games and video streams as well as the immediacy of fast, uninterrupted downloads.

In short, consumers need high-speed, low-latency, “always on” connectivity that will effortlessly keep up with future developments. What’s more, they want it to be easy to install, easy to use, and affordable.

Fiber offers the required multi-gigabit bandwidth potential but requires major investment to run fiber to every home and premise. Installation is time consuming, with challenges around right of way, access and cost. However, fiber is not the only solution for last-mile access.

**Fixed wireless broadband access**

For years, fixed wireless access has been successfully used in areas underserved by wireline broadband services. The distances involved required the use of expensive outdoor CPE with line of sight to the cell site, and needed to be installed by trained technicians, which added cost and time. To date, these factors limited the use of the technology in urban areas. However, that’s no longer the case...
Bringing fixed wireless access from rural applications to mass market

Thanks to recent developments in LTE, CBRS and 5G wireless, broadband access is now a viable alternative to wired broadband connections. Sub-6 GHz 5G NR wireless connectivity can provide a quality 50-200 Mbps service, while 5G NR mmWave offers the potential of low latency and fiber-like speeds. That means you can offer broadband access over a mobile network without compromising on quality or reliability.

There is now a strong business case for fixed wireless access (FWA) to address urban and suburban areas using indoor, non-line-of-sight broadband gateways that can be installed by the consumer. These devices, which use internal antennas, can be shipped to the consumer, who can simply plug in the device and get started—there’s no need for a technician install. That means fast, low-cost installations.

**Key benefits**

- Competitive broadband services
- Easily connect new customers to provide instant connectivity
- CPE installation and management are fast and easy and can be taken care of by the end user
- A “pay as you grow” model allows you to leverage existing mobile infrastructure and scale up capacity in line with subscriber growth
- New capacity faster and at lower cost than fiber
Competitive broadband services for mobile operators

Mobile operators are well placed to use FWA to offer competitive broadband services in urban, suburban and rural geographies.

An LTE network already in place may offer enough capacity for an initial FWA service—especially in suburban areas where cell sites are often underutilized. Once capacity begins to fill up, mobile operators can increase it by upgrading the radios (such as MIMO) or adding more sectors to base stations. New macro or small cell sites can be added to increase capacity further.

As mobile operators invest in rolling out 5G, FWA will provide a solid business to deliver a return on that investment with the economics to compete with fiber services.

FWA—an alternative to fiber for new build

If new wireless infrastructure is needed, the wireless option is still some 40 percent less costly to install than fiber.

Connecting customers with fiber requires each subscriber to be individually connected. This involves significant investment per customer, with challenges related to right of way, digging, civil works planning, and entering subscriber property. With FWA, however, right of way and civil works are required for a new cell site; but, once completed, each cell site provides coverage for a large number of potential customers. All operators need to do to get customers online is provide the home gateway and enable management and billing systems.

With fiber, consumers are often asked to enter into long-term contracts, which are necessary to recover the investment in a fiber connection to the individual home. With a wireless connection, the investment is spread across multiple customers, and contracts can be shorter.

FWA for Fixed Line service providers

FWA is not just for mobile operators; it can also be an attractive alternative to fiber for telcos and cable operators. Lower cost and rapid deployment of FWA can complement a fiber strategy, particularly when faced with competitive pressure to deploy broadband service quickly. New spectrum availability is opening up the opportunity—for example, in the 3.5 GHz North America CBRS network.

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40% less

If new wireless infrastructure is needed, FWA can cost 40% less than installing fiber.

Source: Omdia 5G Wireless Home Broadband: A Credible Alternative to Fixed Broadband, 2018
The benefits of self-install CPE

- Indoor FWA gateways with internal antennas transform the business case of FWA in urban and suburban areas where the distances allow for non-line-of-sight connections.
- The cost of the devices is much lower than outdoor CPE, as a single unit can be used instead of two boxes (one outdoor, one indoor for the home network or Wi-Fi). With outdoor CPE, additional cables, mounting brackets and power supplies are required—and one unit needs to be ruggedized and weatherproofed.
- Installation costs are slashed and there is no need for a technician to visit, except in unusual circumstances.
- Where additional performance is required, external antennas are an option that may also be installed by the consumer.

The consumer experience

Customers do not need to wait for service. They can visit the store to pick up their gateway, or receive it by mail. With the SIM pre-installed and provisioned on the network, they simply insert the SIM, plug in the device, and they are online. It’s as easy as buying a mobile phone.

There’s no waiting for a technician appointment, no waiting at home while the technician works, no drilling holes in walls for cables and brackets, and no need for unsightly equipment on the side of the house.
Introducing CommScope’s FWA solutions: supporting at every step

**Customer premise equipment**

CommScope’s fixed wireless access gateways deliver managed voice, video, data and IoT services. The gateways offer options for Wi-Fi (including tri-band Wi-Fi 6 and Wi-Fi 6E) and are CommScope HomeAssure™ enabled. When used with our Wi-Fi extenders, HomeAssure delivers high-performance Wi-Fi to every corner of the home. A consumer app and cloud management platform brings ease of use to the consumer and reduces OpEx costs.

**Quality gateways**

Our NVG558 family of advanced multiservice gateways delivers managed voice, video, data and IoT services over fixed wireless broadband access networks, with options for use on 4G LTE/LTE-A/LTE-A Pro, 3.5 GHz CBRS, and sub-6 GHz 5G NR, with mmWave 5G NR in development. The range supports primary line telephone services using VoIP/IMS or VoLTE, is optimized for IPTV, is a cost-effective alternative to wireline networks, and can be installed and configured rapidly and easily by end users.

Internal antennas make these gateways ideal for urban and suburban applications. Installation doesn’t require a technician, so end users can connect it out of the box (plug and play). This means cost savings and ensures the consumer is online faster. Cost-effective options for installing indoor or external antennas to improve signal are also available. Both options can easily be carried out by the consumer, which means avoiding the cost of a technician.

CommScope offers ready-for-market products as well as bespoke solutions for major services providers supported by professional services. The use of high-quality components and thorough testing reduces failure rates and extends life, and we react quickly to issues.

Find out more about our Customer Premise Equipment portfolio here!

Go to CommScope
Based on proven technology and years of practical experience, CommScope has developed a fully integrated range of RAN solutions. These include macro cell products that enable fast upgrades and deployments to boost capacity; small cell solutions for fast, cost-effective network densification; and everything to support the required fiber backhaul.

We can leverage CommScope's long-standing experience in all things wireless. And, because the company offers everything to expand the network—from power and cabinets to masts and antennas—we support operators as they expand network capacity and deploy 5G.

Find out more about our Radio Access portfolio here!

Go to CommScope
Delivering the ultimate connected home

Avoiding bottlenecks to provide the best customer experience

Today, consumers expect higher speed broadband services, but Wi-Fi performance determines their experience. If Wi-Fi isn’t reliable and ubiquitous, it results in consumer dissatisfaction and increases support costs. What’s more, the number of wireless connected devices per network will keep growing enormously in years to come. That’s why CommScope devices deliver quality Wi-Fi, with a range of options right up to tri-band Wi-Fi 6. The emerging availability of Wi-Fi in the 6 GHz spectrum, Wi-Fi 6E, will provide an ultra-reliable gigabit wireless backbone in the home.
CommScope HomeAssure enabled

The CommScope HomeAssure managed Wi-Fi solution helps providers differentiate their broadband service offering while reducing support costs and customer dissatisfaction arising from unreliable Wi-Fi. With the addition of Wi-Fi extenders to ensure Wi-Fi coverage throughout the home, intelligent software optimizes the performance of the network. Devices are directed to the Wi-Fi access point with the best signal or to an alternative connection when an access point is congested.

HomeAssure cloud management provides visibility, diagnostics, and analytics tools for the service provider to proactively manage the home network and empower the help desk to resolve calls, should they arise.

The HomeAssure consumer app assists in installation and gives subscribers the tools to manage their home network, such as parental controls and the ability to change Wi-Fi passwords.

A platform for new services

The gateway has become the hub of service delivery in the home. CommScope gateways support Docker® containers to simplify and accelerate the introduction of new applications, such as enhanced security or smart home services. Our gateways offer the option of IoT radios for wireless connected devices. Adding radios such as ZigBee®, Z-Wave® and Bluetooth® LE makes the gateway an ideal platform for delivering IoT services in the home.
CommScope NVG558 fixed wireless broadband gateways

- High-performance home gateway supporting voice, video, data and IoT services
- Modular platform offers choice of LTE, 3.5 GHz CBRS, or sub-6 GHz 5G NR access networks (mmWave 5G NR in development)
- Internal antennas for fast and easy installation by consumers
- Built on CommScope 9.x gateway firmware: a mature, proven platform with over 17 years of development and more than 20 million devices deployed. We also work with other software platforms, such as RDK.
- Support for deep packet inspection to identify device types and applications. This information may be used to enhance Wi-Fi performance or implement parental controls.

**Features**
- Primary line VoIP or VoLTE telephone service
- TR-069/TR-098 remote management
- x USB 3.0 ports
- Four-port Ethernet
- Support for Docker containers to accelerate application deployment
- HomeAssure enabled

**Options**
- Optional external antennas
- Choice of Wi-Fi 5 or Wi-Fi 6, dual-band or tri-band
- IoT support: ZigBee®, Z-Wave® and Bluetooth® LE, DECT ULE radios. Capable of running multiple IoT software stacks.

**Security**
- Extensive hardware and software security features protect data, content and hardware integrity.
- Application environment for installation of security software of choice.
Why CommScope?

CommScope pushes the boundaries of communications technology with game-changing ideas and groundbreaking discoveries that spark profound human achievement. We collaborate with our customers and partners to design, create and build the world’s most advanced networks. It is our passion and commitment to identify the next opportunity and realize a better tomorrow.

As the global front-runner in home network devices, service providers around the world trust CommScope to deliver quality products when and where these are needed. We provide gateways and modems that reliably deliver bandwidth to the devices in the home, through multi-gigabit Ethernet or Wi-Fi connectivity.

CommScope offers decades of wireless and wired know-how and end-to-end expertise, covering all technical areas and market developments. A fully integrated portfolio covers everything from headend to home network. We have a solid reputation when it comes to quality products: CommScope is the global number one in cable gateways—and number one for telco gateways in North America. Our comprehensive service includes everything from consultancy and system integration to customization and software development. We are happy to work closely with service providers to deliver complete solutions that exactly meet their business goals.

Let CommScope help you stay ahead

Would you like more information on any of the topics discussed in this ebook? Want to discuss how our solutions could benefit your business cases and network? Chat with one of our specialists?

Don’t hesitate to get in touch! We’re happy to help.

Contact CommScope
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