AN INTRODUCTION TO

FIXED WIRELESS

THE IDEAL BUSINESS INTERNET SOLUTION

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FIXED WIRELESS WHITEPAPER
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INTRODUCTION: FIXED WIRELESS

For those in the communications industry, "fixed wireless internet" is a well-known method of connectivity.

For those on the outside, fixed wireless is something of an unknown.

Commercial and residential buildings alike benefit from the secure, high-speed connection synonymous with fixed wireless. But unfortunately, it rarely receives the recognition it deserves. So often, fixed wireless is banded together with other wireless connections like satellite or even cellular.

We're here to support the cause of fixed wireless!

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CHAPTER 1: WHAT IS FIXED WIRELESS?

FACT
8.1 million subscribers are expected to be using fixed wireless by 2021

WHAT IS FIXED WIRELESS?

Fixed wireless is a type of high-speed internet access. Utilizing a clear line of sight, a transmitter radio sends microwave radio signals to a receiver radio at another fixed location.

This growing method of connectivity represents a reliable alternative to traditional cable and wired solutions. The lack of equipment required makes fixed wireless a viable option for organizations and consumers seeking a cost-effective internet service.

As we touched upon earlier, fixed wireless is often mistakenly confused with satellite. Unlike satellite, a fixed wireless signal never travels outside of the atmosphere meaning time lags or weather interruptions are less likely.

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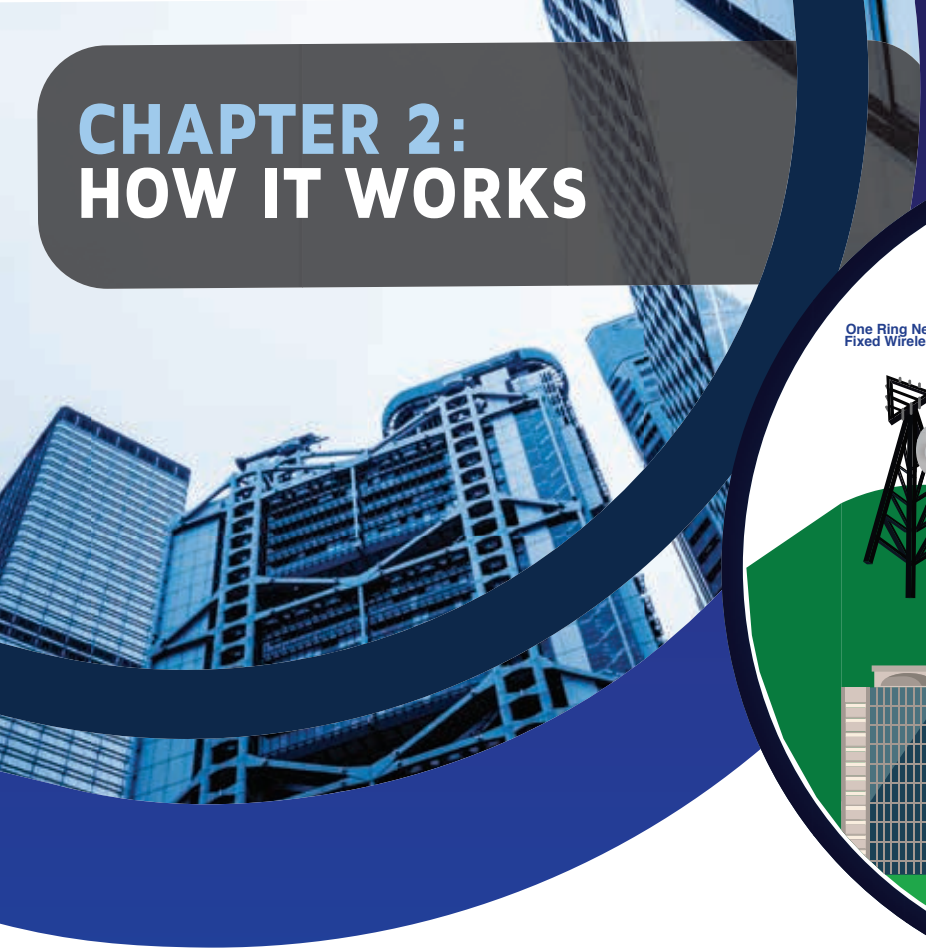
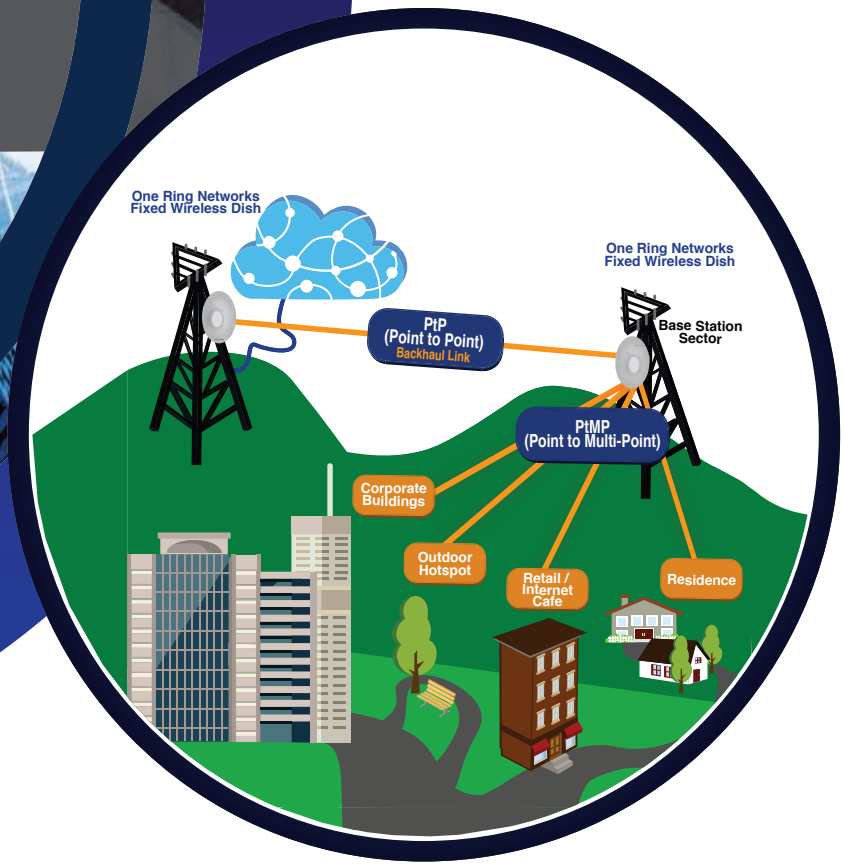
CHAPTER 2: HOW IT WORKS





A fixed wireless radio transmitter is placed at the top of a tower, tall building, or mountaintop. These locations are called PoPs, meaning for Point of Presence. The elevated position provides the PoP with the perfect location to achieve a line of sight to buildings in the vicinity.

At the other end, lies a receiver radio that is configured to point directly at the PoP. This dedicated link allows data to be transferred at speeds up to 10Gbps.

Fixed wireless internet service providers (WISPs) make the most of two types of connections to achieve this link - point-to-point (PTP) and point-to-multipoint (PTMP). Point-to-point, as you can imagine, involves connecting one transmitter to one receiver.

This option is perfect for businesses that need to transfer considerable amounts of data and require a single, secured pathway. Yep, it's really that simple!

The second type of fixed wireless connection is point-to-multipoint. This involves a link between a single transmitter and multiple receivers. Within this method, a PoP casts a net over an area below. The service provider deploys receivers on buildings within the PoP's line of sight. And voilà... Internet for everyone!
This is an excellent way to distribute bandwidth to more recipients.

And that is pretty much it. Fixed wireless networks consist of multiple point-to-point and point-to-multipoint links that facilitate high-speed internet connections for businesses in the region.

CHAPTER 3: THE BENEFITS

By now you might have recognized that fixed wireless internet is a solid method of connectivity. If not, allow us to influence your perspective with a list of the benefits associated with fixed wireless.

QUICK INSTALLATION

The majority of fixed wireless ISPs have their network in place. This means that an installation only requires the addition of a receiver radio to an organization's building (if it doesn't already have one) and some simple reconfiguration. In some instances, turning up a new circuit can take place in less than a day.

WIDE CATCHMENT

All that's needed is a clear line of sight (LOS) between the PoP and the receiver's location. As long as the WISP can configure a transmitter radio at an elevated location, buildings in the surrounding areas can be serviced with ease. This is ideal for businesses in both rural and urban environments.

LOW LATENCY

A fixed wireless signal travels from one radio to another. There's no traveling into the atmosphere or through wires. This allows for a streamlined, reliable connection. Good news for businesses handling calls using VoIP, downloading large files or streaming online video.

RELIABILITY

Fixed wireless is not impacted by the issues that affect wired or satellite connections. There is no risk of a cable being cut or interfered with, nor is there a worry that the weather in a neighboring state can impact the signal quality.

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FACT
the average US-based WISP serves an average of approximately 1,200 customers[1]

SECURITY

Wireless technology has been tagged with the misconception that it is incapable of being secure. However, as the industry has grown, engineers have developed comprehensive security protocols that ensure radio encryption, data privacy and a demand for authentication and access control.

PRIMARY AND FAILOVER CAPABILITY

Fixed wireless can be bundled with a wired method of connectivity to provide a redundant solution. This diversity ensures that even if the chosen primary solution experiences unexpected downtime, the failover solution is prepared to act as a backup allowing the organization to continue with mission-critical operations.

ADJUSTABLE TERMS

While fiber and other wired solutions tend to offer fixed terms of 24 or 36 months, fixed wireless is available for short-term and temporary projects. Similarly, no fixed address is needed, making it a fantastic alternative for festivals, construction sites, and production sets.

SCALABLE BANDWIDTH

Bandwidth speeds can be turned up or down based on the needs of an organization. This allows businesses the opportunity to future-proof against changes in employee numbers and data demand.

LOCAL SUPPORT

The majority of fixed wireless WISPs operate on a regional basis. As a result, these providers understand the local area leading to an emphasis on customer support and personalized service.

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CHAPTER 4: HOW DOES FIXED WIRELESS COMPARE TO OTHER CONNECTIVITY SOLUTIONS

74%
of American addresses have only one local provider of broadband connections that can meet the FCC's broadband speed standard of 25 Mbps download and 3 Mbps upload consistently and at attractive prices

Fixed wireless is just one of a handful of connectivity solutions available to businesses across the U.S. There's fiber optic internet, satellite, cable, and even DSL. We've done the hard work of explaining each type of connection and how they compare to fixed wireless, so you don't have to!

DIGITAL SUBSCRIBER LINE (DSL)

CABLE

FIBER

SATELLITE

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DIGITAL SUBSCRIBER LINE (DSL)

DSL is advertised as a high-speed internet service. It provides a connection over ordinary phone lines but unlike dial-up, the broadband modem technology allows for both internet and telephone service to be used at the same time. Maximum download speeds vary between 1.5Mbps and 8.5Mbps although these speeds are affected by the quality of the telephone wiring.

DSL has been around for quite some time, however, there are several problems associated with this type of service. To start with, it only works over a limited distance and is reliant on the local telephone infrastructure. This means that while DSL offers download speeds of up to 8.5Mbps, customers' actual experience can vary greatly depending on their location. In fact, a lot of regions don't even offer the service anymore.

In contrast, fixed wireless provides adjustable speeds of up to 10Gbps. This towers over what DSL can offer.

"But I don't need 10Gbps download speeds," I hear you thinking to yourself. That's okay, you can receive speeds as slow as 5Mbps, all via a secure connection that doesn't rely on aging infrastructure.

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CABLE

Cable internet draws its name from the coaxial cable that connects a modem on the user's end to a cable modem termination system (CMTS) at the operator's facility. This cable is a traditional analog wire that is used to transmit cable television to end users.

While television signals are a one-way connection into your living room, a cable internet connection requires two-way data transmission. The user's modem decodes incoming signals, while the service provider's CMTS handles data traveling in the other direction. Today's modems are rumored to be able to support download speeds of up to 400Mbps for business connections with upload speeds of more than 20Mbps.

In almost all cases, neighboring businesses and residences share a large pool of bandwidth stemming from a single node in the area. This means that unless you choose to pay for more data, bandwidth available can be restricted if several neighbors access the internet at the same time. A cable connection can also be held back by:

- a service glitch
- an individual data cap
- a misconfigured device
- a poor connection between the router and modem

Cable is popular, particularly as a residential service, but is it right for businesses? There is a lot that could go wrong with cable internet - relying on neighbors to abstain from accessing the internet throughout the working day seems like a bit of a risk.

Fixed wireless speeds run true. If you sign an agreement for a symmetrical 25Mbps circuit, a 25Mbps symmetrical circuit is what you will receive.

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FIBER

Fiber internet involves access through fiber optic cables. Unlike DSL and cable services that transmit data through copper wires, fiber lines transfer information as light packets through glass.

This technology facilitates a faster, more efficient data transfer even across significant distances. In addition, fiber cables offer improved insulation meaning the connection is unaffected by electromagnetic interference. On the downside, fiber is associated with high installation costs, considerable monthly fees, and is not widely available across the country yet. Additionally, typical fiber outages could last many hours due to the time it takes to dig and splice fiber repairs.

Fiber offers super-fast speeds but for a higher price than fixed wireless or other traditional broadband services. If your company requires speeds of 1Gbps or more and are fortunate enough to be located in an area with a built-out fiber network, it's a decent time to jump on the bandwagon. If you're seeking a more cost-effective, fixed wireless can certainly fit the bill.

SATELLITE

Fixed wireless is often confused with satellite internet but there is a distinct difference between the two. While a fixed wireless signal is simply from a transmitter to a receiver, satellite involves the addition of an orbiting satellite into the middle of that equation. The enormous distance that the satellite signal travels provides a delayed connection.

Further to this, satellite internet can be affected by weather systems as the signal beams from the earth to the atmosphere and back again. Nonetheless, download speeds can reach up to 25Mbps. Not too bad for residential locations and smaller businesses but bare-in-mind that providers also tend to enforce data caps that can result in reduced speeds - a major inconvenience.

In almost all cases, fixed wireless costs less than a comparable satellite plan. With lower setup and recurring costs, and the offer of flexible contracts, fixed wireless has the edge over its satellite rival.

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CHAPTER 5: CONCLUSION

So there you have it. You've completed "An Introduction to Fixed Wireless" and now have the knowledge to understand just what fixed wireless is, how it works, and how it compares to other more prominent methods of connectivity. Fixed wireless is a fast, secure, and affordable solution but each method of connectivity that we covered earlier has its own benefits, so we encourage you to come to your own conclusion on the right solution for you business.

Thanks for reading!

If you've already come to the conclusion that fixed wireless is ideal for your business and you're ready to find a local wireless internet service provider, you're in luck!

One Ring Networks services businesses across Georgia, Texas, California, Maryland, and Arizona. Visit our website at www.oneringnetworks.com, call us today at 855-663-7464, or email our team at sales@oneringnetworks.com.

If you're in a region outside of those listed above and seeking a local provider, visit the Wireless Internet Service Providers Association at www.wispa.org/Find-a-WISP

According to a 2017 Broadband Wireless Access Industry Report:
http://www.wispa.org/Portals/37/Docs/Press%20Releases/2017/TCG%27s_2017_BWA_FINAL_REPORT.pdf

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