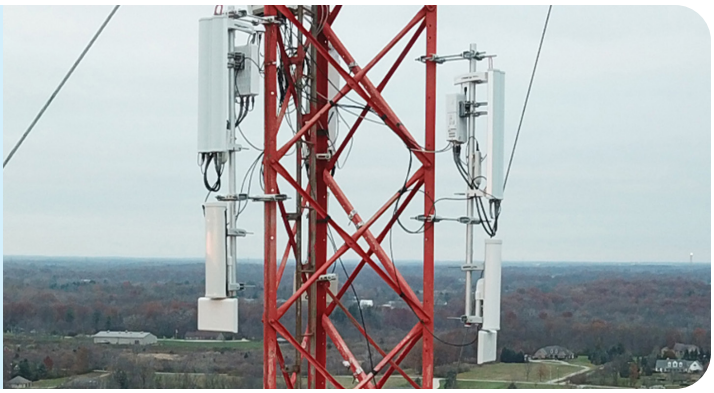
2020 Annual WISP Survey Results

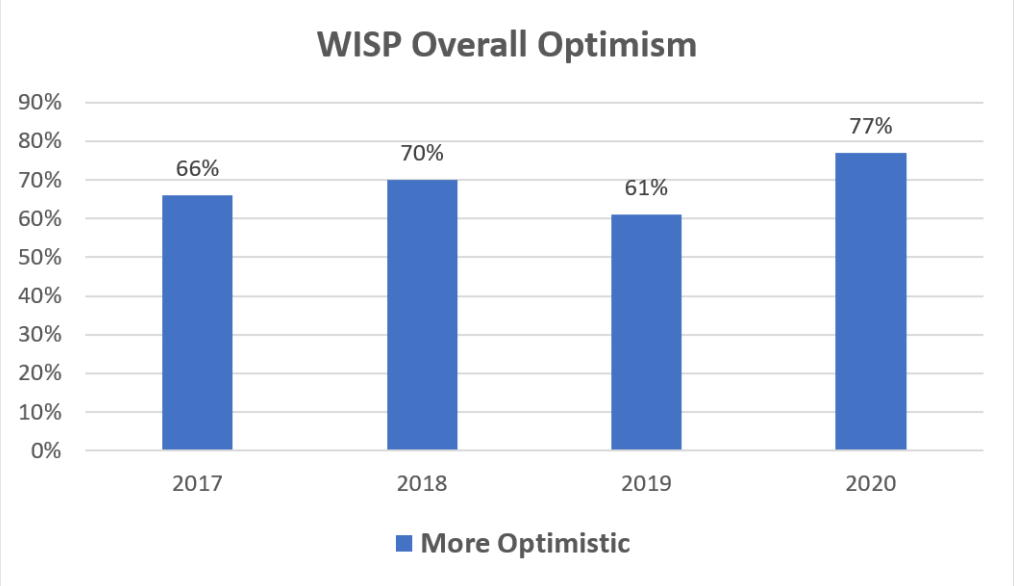


ALL OVER THE WORLD, WIRELESS INTERNET SERVICE PROVIDER NETWORKS BRING CONNECTIVITY TO COMMUNITIES AND ENABLE LOCAL AND REGIONAL ECONOMIES IN THE PROCESS. AS AN EQUIPMENT PROVIDER, CAMBIUM NETWORKS CONDUCTS AN ANNUAL VENDOR-NEUTRAL WISP GLOBAL SURVEY TO LEARN MORE ABOUT THE STATE OF THE MARKET.

WIRELESS INTERNET SERVICE PROVIDERS (WISP) provide high-speed connectivity to business and residential customers around the world. WISPs typically serve their local community and may extend to regional or even national network footprints. WISPs provide reliable streaming video, data, voice and IT services in a competitive market to their enterprise and residential customers. For the fourth year in a row, Cambium Networks, a leading technology supplier to the global WISP market, has conducted a vendor-neutral, 42-question survey in July and August of 2020, collecting insights from 433 WISPs located in 58 countries.

In addition to providing broadband connectivity, WISPs are finding business success in leveraging their skills to provide additional services, particularly to business customers. As their business customers accelerate outsicing of their IT needs the survey found that 26% of WISPs reporting to the survey are providing Managed Wi-Fi services, and 20% providing general IT support.

Despite the COVID-19 pandemic and uncertainty in the economic climate, optimism among WISPs is at the highest level in four years. The details show underlying confidence in their ability to acquire and retain satisfied business and residential customers by offering reliable service at reasonable prices.



WISP Growth

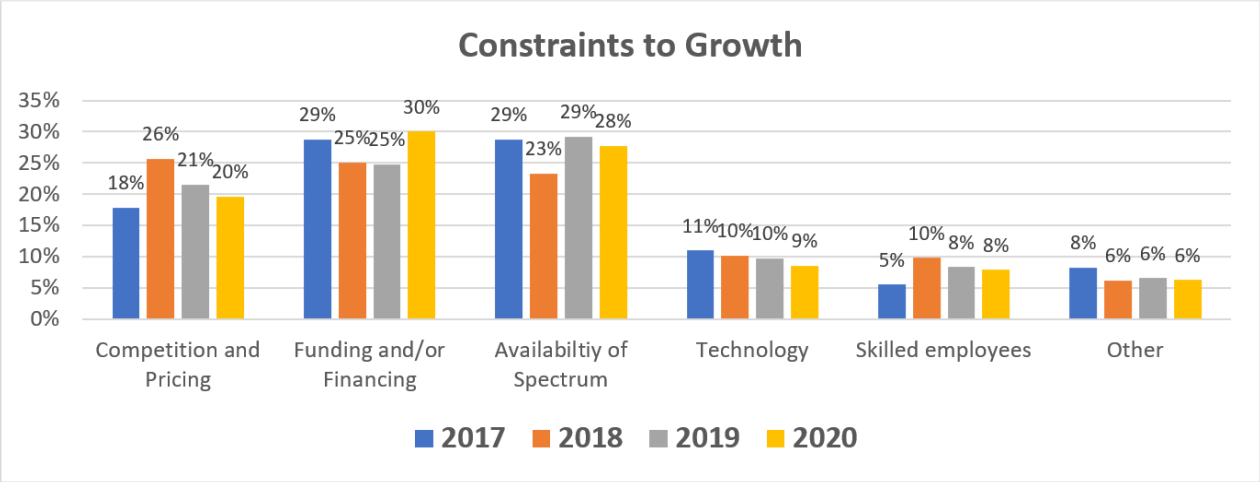
Economic uncertainty affects the WISPs and their business and residential customers, but the essential nature of broadband given the Work, Learn, and Play-From-Home environment and the need for connectivity for business continuity does favor service providers who deliver reliable connectivity at reasonable prices. End customers are indifferent to the technology used in the

network, and WISPs have chosen technology with a favorable cost structure over the long term. This bears out in the sequential decline of their view of competition as being a constraint to growth. While competition exists, they feel that they know how to focus on their target customers and win.

Among the challenges which may affect growth, funding and financing rank as the highest concern with RF spectrum availability close behind.

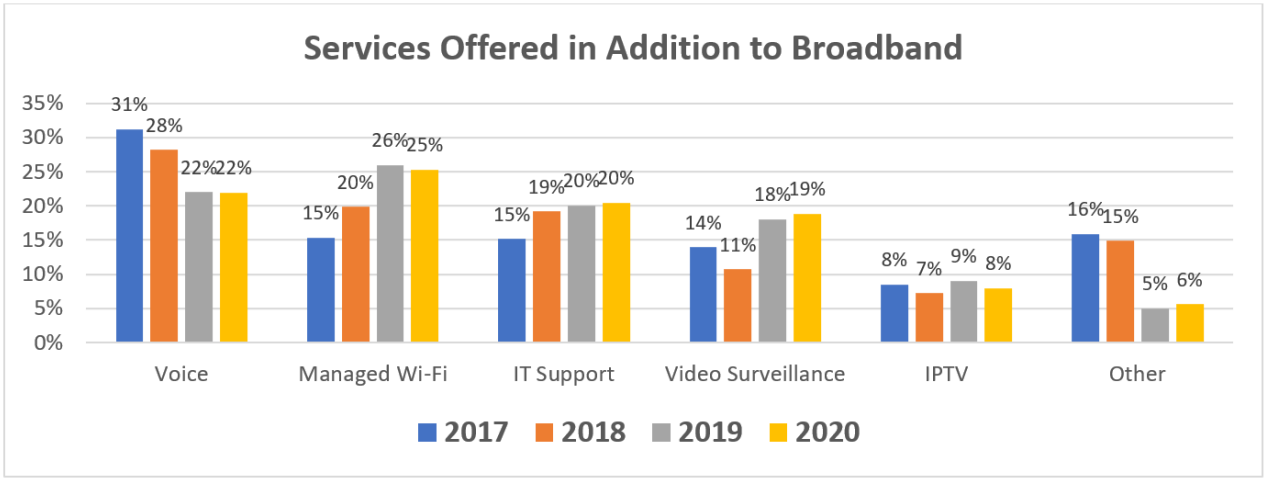
RF spectrum is a limited resource and essential to operating a wireless network. Recent announcements of opening the 6 GHz spectrum will provide more channel availability than is currently available in the 5 GHz spectrum, currently the most popular among the WISPs. In addition, regulatory agencies are experimenting with new spectrum management plans, as evidenced by the FCC's model for the CBRS spectrum in the U.S.A. Opening new spectrum and improved management will enable all service providers to better meet the needs of increasing demand for connectivity.

It is also interesting to note the sequential decline in technology as a constraint to growth. Manufacturers serving the WISP industry have continued to innovate and provide technology solutions that allow WISP to economically and technically meet the needs of their growing business and customer base. The advent of wireless gigabit networking at the edge using 60 GHz spectrum is a good example of the industry's innovative spirit.



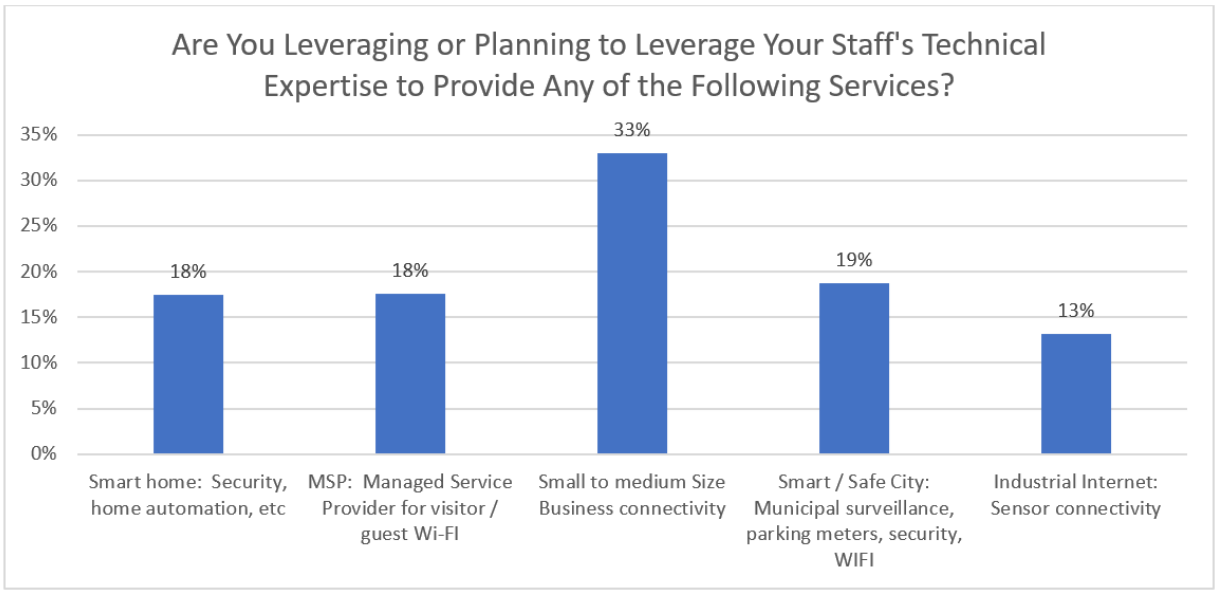
Service Offerings

WISPs are finding success in expanding service offerings to satisfied customers. 26% are offering Managed Wi-Fi, with approximately 20% offering voice, IT support and video surveillance services. A logical extension to offering a "naked" broadband connection, WISPs are extending their experience and value to additional key broadband applications, providing their customers one-stop shopping.



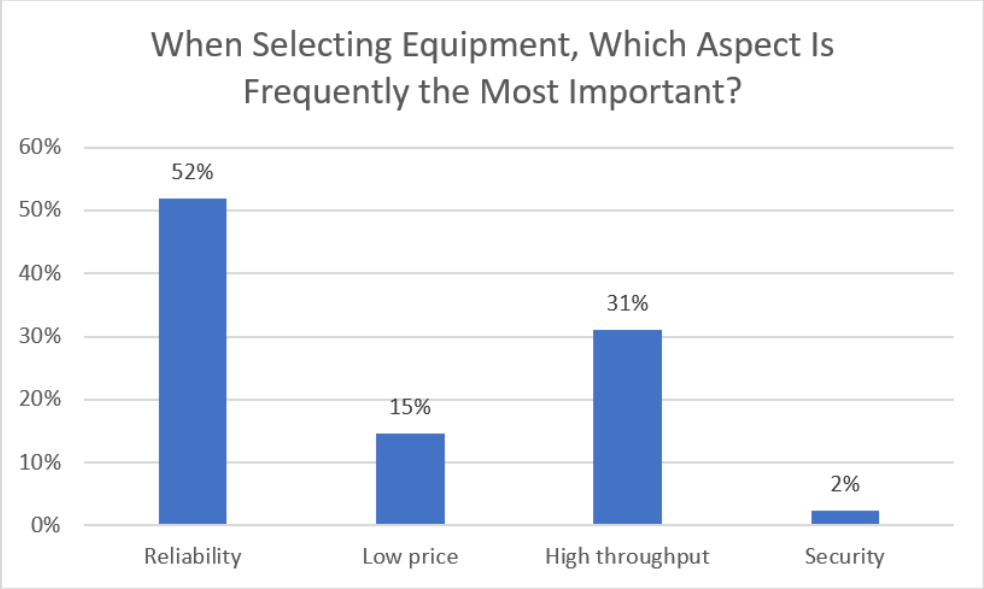
40% of WISPs find that offering Managed Wi-Fi services is relatively easy to provide or the customer prefers working with one communications service provider.

Looking forward, WISPs are planning to expand into small and medium businesses as a priority and then leverage their skills and services into smart home applications, Managed Services, smart city and industrial internet applications. Their efforts will most likely match the opportunities in their geographic coverage areas.



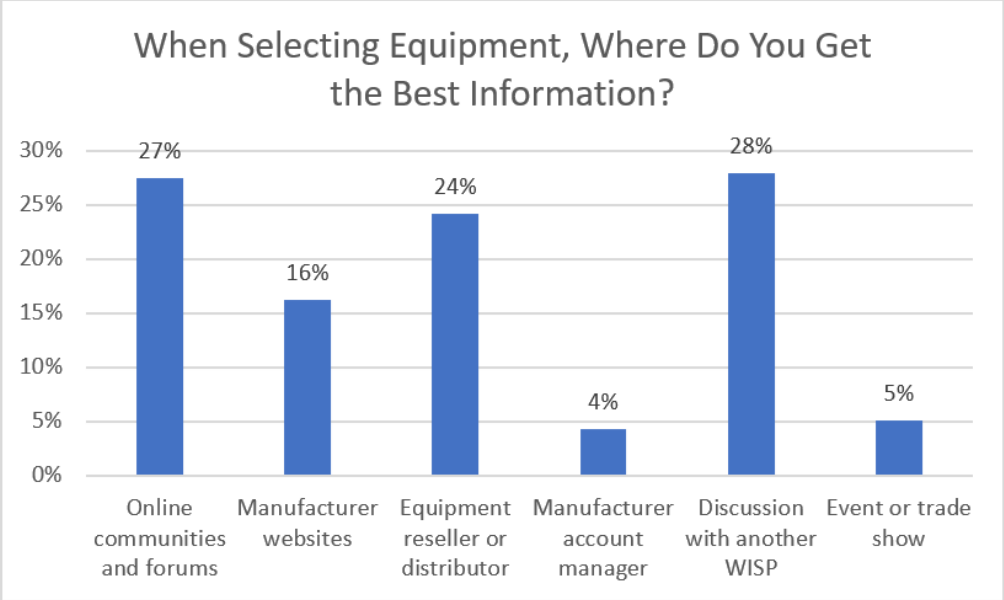
Equipment Selection

As their customers are indifferent to technology but place a high priority on reliable connectivity, one of the WISP's core competencies is selecting the correct equipment. They seek solutions that fit their business model of offering reliable service at affordable prices. The majority state that reliability is the most important, with high throughput in second place for 30% of the WISPs.



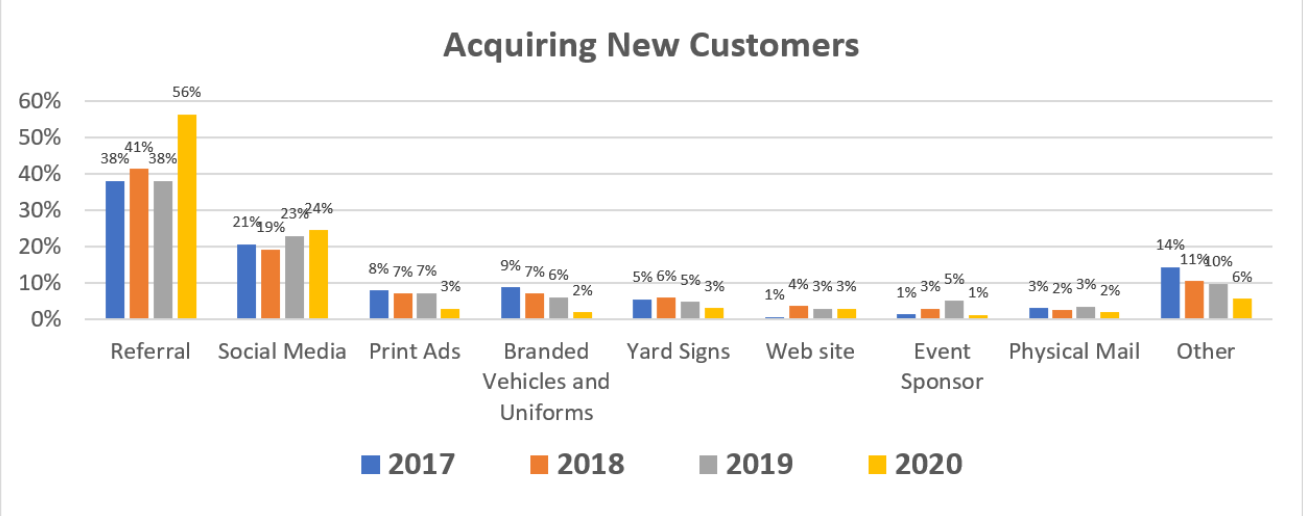
The importance of reliability speaks to the recognition that Total Cost of Ownership, not the initial purchase price, is the primary variable in the purchase decision by WiSPs. Poor reliability leads to higher maintenance and support costs and subscriber churn – both eat away at profitability.

As with many industries, WISP rely on their peers and community forums for advice on equipment selection. Manufacturers are best served by ensuring comprehensive documentation is readily available and their community forums are professionally moderated.

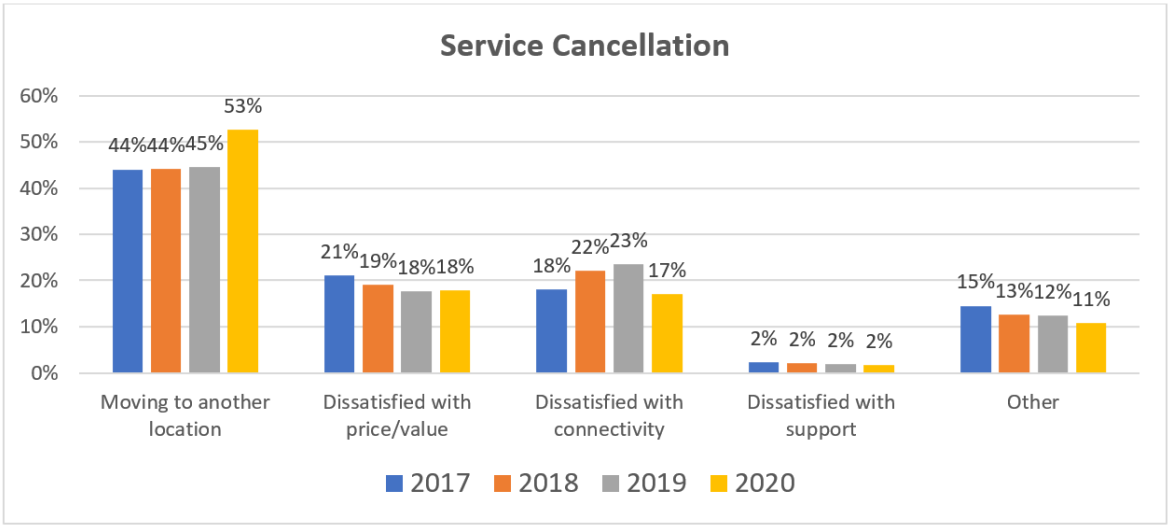


Customer Acquisition

Referrals are the majority's method of acquiring new customers. When combined with social media, these methods account for 90% of new clients. This is a testimonial to the level of customer satisfaction that the WISPs are able to deliver. Also noteworthy is the fact that these are both very cost-efficient means of marketing, which enables WISPs to invest their time and effort on growing their coverage area or implementing new technologies to further outpace competition.

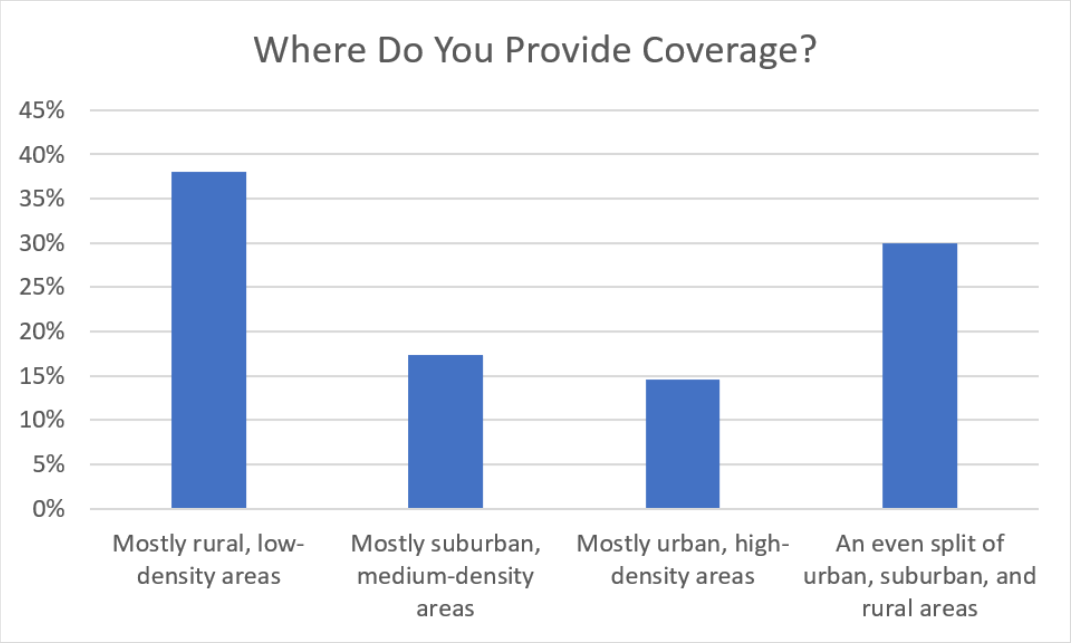


The other end of the customer service timeline also shows customer satisfaction. For the first time in four years of monitoring, the majority of customers cancelling service do so because they are moving to another location. Savvy WISPs are able to offer an incentive to new residents moving into a previous customer's connected home, maintaining the revenue stream and eliminating the cost of removal and installation.



Markets and Customers

- While 38% provide coverage in rural, low-density areas, 30% provide services in areas with an even split of urban, suburban and rural communities. This should be worth watching as millimeter-wave technology becomes available in late 2020.



Looking Forward to 2021

WISPs are evolving to include fiber in the network backbone and Wi-Fi in the access network. While fixed wireless broadband is commonly the first technology that they launched their business with, many are finding success as broadband service providers serving business, industrial and government end customers in addition to their legacy residential services.

WISPs also serve a key role to the communications industry as a whole. Given their in depth knowledge of their local customer base and aptitude for understanding the nuances of RF technology, they are comfortable with being on the leading edge of testing and adopting new technologies. In 2020 alone, WISPs in North America have been first to deploy equipment in the CBRS band, and around the world WISPs are at the leading edge of deploying 60 GHz mutli-gigabit wireless solutions.

In 2021, we would expect to see WISPs leading deployment in both of these technologies, while continuing to expand their services in their coverage areas. Cambium Networks anticipates seeing the average number of both business and residential subscribers grow, as WISPs continue to provide reliable connectivity at affordable prices.

ABOUT CAMBIUM NETWORKS

Cambium Networks empowers millions of people with wireless connectivity worldwide. Its wireless portfolio is used by commercial and government network operators as well as broadband service providers to connect people, places and things. With a single network architecture spanning fixed wireless and Wi-Fi, Cambium Networks enables operators to achieve maximum performance with minimal spectrum. End-to-end cloud management transforms networks into dynamic environments that evolve to meet changing needs with minimal physical human intervention. Cambium Networks empowers a growing ecosystem of partners who design and deliver gigabit wireless solutions that just work.

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