# Fiber and Wireless Infrastructure Trends to Watch

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Every industry feels the effects of the pandemic, including the need to change the status quo to adapt and overcome the struggles that surfaced during COVID-19. Specifically, the telecommunications industry experienced accelerated demand for reliable connectivity and major digital shifts as the world suddenly transitioned to virtual. To accommodate the connectivity shift from major metro areas to suburban and remote areas, the telecommunications industry has made thoughtful and strategic leaps to provide reliable connectivity, which has evolved into new trends for 2022.

Growing demands for wireless and fiber infrastructure

More time at home and on devices

In February and March 2020, there was a sudden shift in utilization: an increase in residential demand for fiber broadband services. While this change was significant, it was not surprising. [Recent findings from the Bureau of Labor Statistics](#) show that in 2020, 42 percent of people worked from home, compared to just 22 percent the year prior. People are spending more leisure time on Internet-connected devices, video games, and streaming services. Similarly, we have also seen a spike in how much time people spend on their smartphones and other mobile devices.
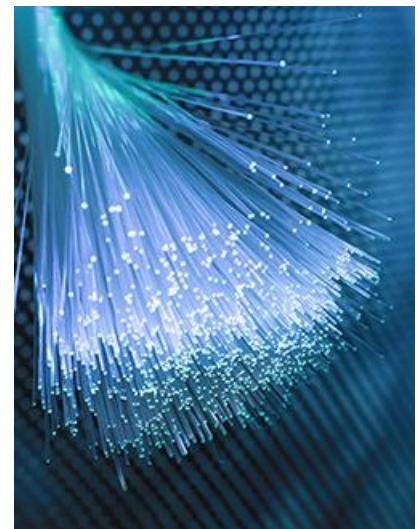
Everything in our temporarily virtual lives— from virtual classes, working from home, telehealth, and leisure activities—requires high-speed connections to send and receive data. This virtual shift drove increased demand from carriers who serve residential markets to increase their demand from network and infrastructure providers. Many carriers and cell towers in the midwestern United States have seen significant increases for mobile services firsthand. In the past, cell towers had standards of 50, 100, or 500 Mbps, but now are seeing 1 and 10 Gbps, which is far more common to account for this heightened demand.

As people continue to spend more time at home and their daily lives become intertwined with the need for fast and reliable Internet connectivity, we see not only increased demand for broadband and mobile services, but also a shift from large metro areas to residential and more remote communities.

Migration from metro areas to suburban and underserved communities

Another major shift affecting the telecommunications industry is the number of people moving away from major metropolitan areas. In fact, 82 percent of urban centers reported people moving away from large, urban markets and 91 percent of suburban counties saw more people moving in than out. Remote work opportunities mean people are no longer tied geographically to their employers. Because of this migration, there is a heightened demand for broadband infrastructure in suburban and underserved communities rather than fiber-dense metro areas. Income has become a factor nationwide during the pandemic, causing families to move out of urban, highly populated areas and into the suburbs for more affordable housing. This shift makes sense: as remote work is now an option for employees at businesses both large and small, families in high-cost housing markets have new mobility, and others may no longer need to commute to work in metro areas.

Trending toward disaggregated services

Despite the increased demand for connectivity, we're seeing a trend of services becoming disaggregated. Data center ownership and mid-sized networks are largely offering these services separately rather than combining them for customer efficiency. These disaggregated services cause customers to go to different providers and data center operators to acquire what they need to meet digital demands. Combining services simplifies solutions for customers, allowing them to accomplish more through one service provider. Companies that aggregate services such as data center services and fiber infrastructure can differentiate themselves in the market, becoming more competitive and, most importantly, a one-stop-shop for their customers.

Exponential growth of communications infrastructure

The pandemic has not just shifted the trajectory of the industry but has also accelerated growth and innovation. In the years ahead, we will see communications infrastructure continuing to grow at a consistent rate from the previous years to continue supporting ever-growing

demands. It's already clear that infrastructure— whether wireless or fiber—needs to be brought closer to the end user. However, the need for continued expansion becomes both a solution and a challenge. As a solution, expansion allows businesses, organizations, and users to lead better lifestyles with increased reliable connectivity. However, a major issue arises when businesses don't see a profit from an expansion, most common in rural communities like the Midwest in the United States. If businesses find there is little profit in an infrastructure expansion, it simply will not get done. This is one of the major challenges to overcome: finding the balance of expansions to benefit both users and the companies providing the service.

The danger of overbuilding

Building and expanding infrastructure, as mentioned above, is a solution to connectivity issues in residential and remote communities. However, it can easily become a slippery slope toward overbuilding, beyond the demand when government funding is involved and not more carefully regulated.

But why and how is overbuilding even an issue when there is as much increased demand as there is today? Well, the government only considers the presence or absence of fiber when distributing funds for infrastructure development. Instead of expanding broadband access to underserved regions, government funding is used to build where broadband is already present, creating the issue of overbuilding in fiber-dense areas and not expanding and strengthening connectivity in underserved areas. In short, the fiber builds are not carefully allocated to the regions that need them the most.

For example, in October 2020, the FCC announced its creation of the 5G Fund for Rural America. This fund will distribute up to $9 billion over the next decade to bring 5G wireless broadband connectivity to rural areas in the United States. The 5G fund will allow the United States to advance 5G and help close the digital divide by bringing economic opportunities to rural areas. With this fund now in place, doing so will require careful regulation to avoid overbuilding.

Regulators will need to keep a close eye on determining eligible areas and ensuring that funding and building target parts of the country where densification is most needed. If government funding for infrastructure expansion is not carefully regulated, this will likely cause much higher traffic levels, a spike in population, and negative environmental impact in a fiber-dense area.

Strategies to meet increasing demands and challenges

For data center companies focusing in residential and underserved markets, this means staying the course. Over the past year, the real focus of demand has been on the residential customer, which lies outside of scope. Instead, these companies continue to sit at the forefront of what is pushing fiber to the edge with low latency, low jitter, and low packet loss. Already well-established to handle the changes, wireless companies and other service providers have turned

to these data center companies as a solution when they need more bandwidth at their towers. Beyond increasing the physical number of towers, pushing fiber and best fiber practices to the edge is another solution to the accelerated increase in demand.

As trends continue to emerge, challenges will not just demand solutions but also strategic innovation. To keep pace with demand in 2022, we'll find that some companies will continue or start to combine services because it simplifies their solutions, making it more efficient for their customers. It's likely that big industry players will find themselves coming to these midsized networks to help foster digital transformation targeted more in residential and remote communities.