



-WHITE PAPER-

THE 5G DISRUPTION AND THE OPPORTUNITY FOR SERVICE DELIVERY

Today's most significant tech disruption is arguably the introduction and rapid expansion of 5G connectivity technology. From the demands a global pandemic put on homeschooling and remote learning to the sociological benefits of remote health care or work from home, the burden on connectivity has changed forever. From improving accessibility and performance of existing mission-critical applications to evolving the platform to account for new and exciting applications like AI and VR, the promise of 5G is on pace to open up whole new worlds for consumers and enterprises alike.

5G will undoubtedly change every consumer's experience. Enterprises will soon reap the benefits of more computing at the edge. We will see the transformation of commonplace tools, such as vehicles, to a world where microsecond computations can substitute for inherently flawed and certainly slower human decision-making. We are entering a whole new era where we expand the metaverse to hundreds of billions of connected devices. Soon we will have a solutions world with advanced applications where we move from being reactive to proactive as we obtain data from the edge with increasing accuracy and speed.

5G will have an impact similar to the introduction of electricity or the car, affecting entire economies and benefiting entire societies.

Steve Mollenkopf, CEO, Qualcomm

But how did this era begin, and what is different in a 5G network compared to the legacy networks of the past. First, the table stakes have changed. Where 1G to 4G networks were primarily designed for consumer-focused applications like talk, text, and light streaming, computing at the edge, with low latency and high throughput has been designed into 5G from the start to accommodate more enterprise-focused solutions and applications. Mobility fixed wireless access to homes and businesses with mobile edge computing will soon become synonymous with 5G. In fact, between just T-Mobile and Verizon alone, their projected home-fixed wireless business will grow to over 20 million customers by 2024. What will these new customers notice in terms of improved 5G performance, you ask? In addition to the 10x throughput (consider downloading a two-hour movie in 10 seconds vs. 7 minutes for 4G), we will also see capacities dramatically jump from 100,000 devices/square mile to over 1.5M devices/square mile.

As the channel looks to capitalize on the 5G wave, consider some of these service areas as you build an effective and differentiated 5G practice. All are expected to have a lasting impact on the market. If constructed robustly to become a core competency, they will position your organization as thought leaders for years to come.

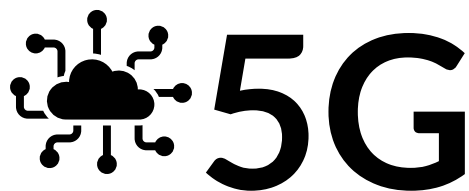


- **Controls and Automatization.** As companies prepare for the advent of 5G networks, many are beginning to explore the potential benefits of automating business processes. 5G will allow real-time communication and control between devices and systems with higher bandwidth and lower latency. This will create opportunities for the channel to streamline operations and improve efficiency. In particular, automating tasks that rely on human interaction, such as customer service or sales, could provide

significant benefits. In addition, automated processes can improve accuracy and speed up response times by reducing the need for manual input. As 5G becomes more widely available, the channel should investigate implementing solutions to improve enterprise operational services.



- **Fixed Wireless Access and Data Solutions.** As we move into the 5th generation of cellular technology, service providers will find new and innovative ways to provide access to wireless services and data. One such solution is fixed wireless access (FWA), which offers high-speed internet connectivity to customers without a physical connection to the network. FWA can be delivered through several technologies, including millimeter-wave (mmWave) broadband, offering speeds up to 10 times faster than traditional broadband connections. In addition to providing high-speed access, 5G also enables a variety of new data-intensive applications and services, such as virtual reality (VR) and augmented reality, all in places where these applications have previously been limited due to bandwidth or accessibility constraints.



- **High-Performance Edge Computing.** The next generation of cellular technology offers significantly faster speeds and improved reliability at the

edge of the network. With so many applications and services moving to the cloud (*think Amazon Web Services and Microsoft Azure*), 5G will be critical for ensuring that users have a smooth, high-performance experience. High-performance edge computing can help to further improve performance by bringing compute resources closer to the user. This can reduce latency and ensure that data is processed as quickly as possible. By combining 5G with high-performance edge computing, businesses can deliver a truly exceptional experience for their customers across a whole array of applications and new services that depend on information at the edge.

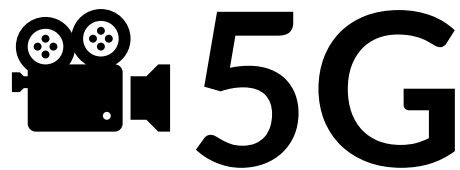


- **Location Tracking & IoT Communications.** Ubiquitous 5G will allow for levels of communication and coordination that were once unthinkable. One such application is location tracking. With new levels of speed, throughput, and device density, businesses can accurately track their assets and personnel to optimize workflows and allow for even more robust and accurate location tracking capabilities. Street-level millimeter wave (mmWave) base station deployments will be crucial in providing exact positioning. These features will open up new opportunities for businesses and consumers alike. For example, imagine tracking IoT sensors and asset movements in real-time or receiving alerts if they stray too far from a designated area. The integration of GPS and 5G will further allow for accurate positioning down to centimeters, making it easier, for example, to maneuver drones or robots into tight or dangerous positions.

Drones are a force multiplier for first responders.

Cecilia Murtagh, Project Manager, First Responder Robotic Operations System Test (FRROST) program

One example of this would be for first responders utilizing drones to keep track while assisting with relief efforts. The use cases continue to expand when we look further at how technology like fused GNSS (Global Navigation Satellite System) plus 5G may provide decimeter level accuracy during emergency response times allowing these airborne assets greater utility by providing them capability not just near but far away from challenging terrain or other obstacles preventing ground-level access. The solution services possibilities are endless!



- **Video.** 5G connectivity will be a game-changer for the video industry, and we expect the channel to be actively involved. It will affect us most with new AR/VR technologies and increased data speeds, which mean less time waiting around on loading screens or buffering glitches while watching videos online, equating to improved Quality of Service (QoS). That means faster uploads when filming something live! 5G connectivity is the ideal solution for high-quality power video. The promise of more capacity, lower latency, and virtual networking principles will allow 5G communications networks to provide an even better experience for watching videos online or on your phone! With the reliability that comes from 5G, broadcasters and content producers can capitalize on the internet as a trusted distribution channel. They also can establish their own contribution networks, creating fast, efficient production infrastructures. 5G means faster delivery, which in turn expedites filming to post-production.

In the end, 5G is much more than just an improved enterprise or consumer solution. Just imagine the broad societal benefits that broadband creates and how it might finally live up to the hype as the great equalizer; bringing the productivity across the digital divide to all corners of the business and consumer world,

enabling affordable accessibility and practical applications to half of the world's population not currently accessing the internet.

