





# 5G & WIFI 6 FOR CORE

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With the onset of the COVID-19 era, and more and more people working remotely, strong WiFi is more important than ever. Great news for those craving truly untethered ultra-mobility and/or less data latency with faster downloads, less buffering, and more reliable wireless connectivity! Two new wireless technologies have come to market that will help address these issues: WiFi 6 and 5G. While similar, they have different approaches to speedier, more resilient wireless connections. Both are likely to improve anything that requires connectivity, including our devices and our real estate, both residential and commercial.

So, let's break it down. First up is WiFi 6.

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## WiFi 6

This next level of Wifi is the latest wireless standard to be commercialized and scaled for global use. WiFi 6 is projected to be three to four times faster than the previous generation of wireless—up to 9.6 gigabits per second (Gbps). This new standard follows prior wireless standards which includes: 802.11g (17-year-old technology); 802.11n (10 years old); 802.11ac (six years old and three times slower than the new WiFi 6 routers); and the more recent 2.4GHz and 5GHz wireless devices—not to be confused with 5G, but more on that later. Keeping up with these seemingly inconsistent wireless standards has recently been addressed by the “WiFi governing body.” They decided on a new naming convention that simply uses a number. For example, 802.11ac will now be known as WiFi 5.

Wireless bandwidth capacity—and thus throughput, speed, and performance—can vary significantly depending on the number of devices connected at any one time. If you are experiencing slowness or buffering at home or work, it is likely time for a WiFi 6 router. If you are experiencing these issues at your favorite coffee shop, hotel, or airport lounge, they need WiFi 6 as well!

WiFi 6 routers cost approximately \$200 to \$400 each, but the price should come down over time or in conjunction with multi-node commercial deployment, with some low-end devices already being offered for under \$100—about the same price as your last WiFi router. WiFi 6 mesh routers—which comprise multiple units and thus offer even more reliable, speedy wireless connectivity—are recommended for large homes and commercial spaces due to such robust performance and expanded coverage.

Most of the name-brand WiFi router companies have already launched WiFi 6 products with a range of price points and performance specs. Expect the improvement to happen more gradually than you might prefer. For maximum adoption, devices need to build in the WiFi 6 capability to sync up with WiFi 6 routers, although they are, by definition, “backwards compatible.” Such a backwards compatible connection is limited to the speed and specs of the lesser device. So, as your devices improve when connected to a WiFi 6 router, you will finally experience noticeable and consistent improvement worth having.

With an explosion of cloud-based services and devices intended to help us gain efficiency, improve security, and enhance “experience”—such as Netflix, Amazon Alexa, smart doorbells, security cameras, more powerful smart phones, and IoT in our commercial buildings, all competing for precious bandwidth, WiFi 6 is here to help bridge the gap to WiFi 7—whenever that comes—or more likely, 5G.

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## 5G

5G is another wireless technology promising blazing data processing and throughput at the precise location where the data is actually generated and consumed. This location—often referred to as “the edge”—is away from centralized, remote hyperscale data centers, without the latency of having to “travel” to and from such mega data centers before arriving at your device for your use.

The promise of wireless data speeds 10 to 20 times faster than any previous standard could unleash smart and autonomous “everything.” This could in turn usher in an era of new real-time hyper-connected devices, vehicles,



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communications, computing power, jobs, even new industries.

But all in good time.

Here is the near-term reality: the hype surrounding 5G has already arrived as new phones and other gadgets that support this tech are aggressively touting their respective 5G capability and market leadership. However, there are three different versions of 5G competing to be the chosen one. Eventually, the network architecture will work together, but for now, expect modest performance gains and a bit of inconsistency.

In the meantime, the four major U.S. wireless companies—AT&T, Verizon, Sprint, and T-Mobile—each have independent plans for rolling out 5G with scale, including advanced infrastructure and more in-ground fiber, which is necessary to achieve the fastest performance. You can expect AT&T and Verizon to offer businesses "mmWave high-band 5G" which should be about 10 times faster than 4G LTE, but only if you happen to be very close to a 5G tower or transmitter. Sprint is going with "mid-band 5G," which should be about six times faster than 4G LTE. T-Mobile—and AT&T for consumers—will offer "low-band 5G" at speeds about 20% faster than 4G LTE. Also worth watching is the 5G integration that results from the pending merger between T-Mobile and Sprint. But don't forget: the connected devices have to be 5G compatible as well.

It should be noted that 5G wireless operates at a much higher bandwidth and does not travel nearly as far as

other broad-spectrum (albeit slower) wireless standards. As a result, several smaller "micro" data centers, towers, and transmitters will be needed on "the edge" in order to achieve a truly seamless mobile 5G experience with no loss of connection or dropped service. Such micro data centers are often no bigger than a few parking spaces, so most commercial properties should be thinking about having such edge computing infrastructure on site or nearby, perhaps in conjunction with their neighbors. It would almost certainly be owned and operated by an expert third party on a long-term lease with the property owner(s). Those with large commercial portfolios may consider entering into a multi-property agreement with such operators.

So as COVID-19 and Wifi collide in ways previously not anticipated, upgrades are in order. An ancient Chinese proverb states, "May you live in interesting times." The modern adjunct to this proverb is more like "May you live in ever-changing wireless connectivity." Sit back, relax, and enjoy the extra bandwidth! ♥

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