

5G Top Stocks for the \$12 Trillion Data Revolution

Contents

Top Stocks for the \$12 Trillion 5G Data Revolution	3
What's The G?	4
How To Invest In The 5G Future	7
The Hardware Play	10
Bottom Line	12

Top Stocks for the \$12 Trillion 5G Data Revolution

Most people have a relatively simple relationship with their cellular data network. Most of the time, a little icon mentioning “4G” or “4G LTE” is present in the upper portion of their smartphone, and when that’s the case, their device connects to online applications about as fast as it ever does.

Other times, only a disappointing “3G” symbol—or perhaps, no symbol at all—is present, and that usually coincides with a slower connection.

But what do these words mean, anyway? And better yet, what’s this fancy “5G” thing that folks on TV commercials are starting to talk about?

You’ve come to the right place if you want answers to these questions. In this report, we will examine the technology behind mobile networks and what it means for a connection to meet 3G, 4G, or even 5G standards.

Moreover, this report will explore the investment opportunities that are present with the impending rollout of 5G networks. If you’re interested in profiting from budding new technologies, or if you’re simply curious about the mobile networks you interact with on a daily basis, read on.

What's The G?

Defining the key terms in a literal sense here is relatively easy. The “G” in this context is short for “generation”—5G is short for “5th generation,” which naturally follows “4th generation,” and so on.

The standards for what constitutes a specific generation of mobile networks are set by units within the International Telecommunication Union (ITU), an agency of the United Nations that handles information technology. The ITU reviews submissions from groups such as the Organizational Partners of the 3rd Generation Partnership Project (3GPP), a collaboration of regional telecom associations, and ultimately approves new standards.



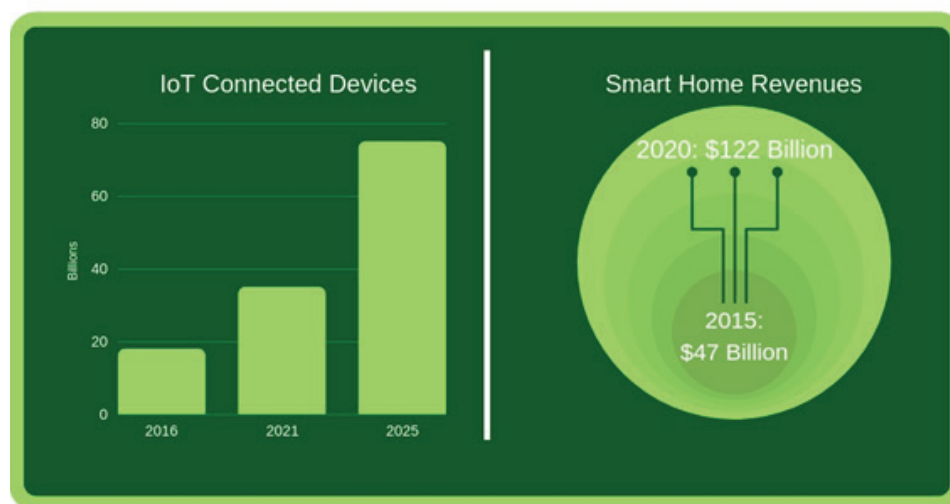
(Source: Shutterstock)

It is important to update networking standards because the purpose of mobile communication adapts over time. Whereas 3G was suitable for the early days of smartphones and 4G was designed with near-instantaneous human-to-human communication in mind, 5G is helping to usher in the next wave of human-technology interaction.

If “human-technology” interaction sounds like a foreign concept, try to think about what people have begun communicating with over the past few years. There are now trash bins that alert municipal works when they’re full. Home security systems send push notifications to smartphones. Health tracking wearable devices can page doctors when a user is displaying irregularities. Folks are chatting with their personal speakers as if their homes just added a new resident.

These are all examples of Internet of Things (IoT) applications, and IoT technology goes hand-in-hand with 5G. The number of connected devices worldwide is skyrocketing, and a new networking standard is needed to facilitate that

communication. Of course, the updated standard also promises faster speeds for online surfing on smartphones.



(Source: Global X Funds, "What the Future Might Hold for the Internet of Things," March 2017)

For an interested investor, it might be worth exploring the basics of what makes up the new standard in order to understand the maneuvering of certain companies that will dominate this transition.

To satisfy modern needs, 5G's performance is hoping to improve data transfer rates, latency, energy efficiency, and device capacity. The ITU has already said it will require speeds up to 20 gigabits per second—equivalent to 125 megabytes per second and about *20x the speed of 4G*. The exact standards for 5G have not been finalized yet, however.

5G networks will use low frequency waves below the 6 GHz band and bands in the millimeter waves (mmWave) above 15 GHz.

The latter of those two sets of radio frequencies is probably the key factor for investors to understand, as it has already become a battleground for telecom providers. Whereas low frequency bands have been used for previous standards, millimeter wave (mmWaves) is a relatively new spectrum for communication purposes, and companies are already jostling for position in it.

mmWaves haven't been utilized in the past because they are relatively low-range frequencies. This band becomes absorbed by gases in the atmosphere quickly, so it can only be used for communication over a short distance. However, they have a higher bandwidth and should be able to power the close-knit web of connections that an Internet of Things community would present.

In 2016, the Federal Communications Commission issued the Spectrum Frontiers Proposal, which doubled the amount of mmWave unlicensed spectrum and created four times the amount of flexible, mobile-use spectrum than was available previously.

The race to license as much of this 5G-ready spectrum as possible has led to some interesting activity in the telecom business. For instance, AT&T (T) in early 2017 announced that it was buying Straight Path Communications, which held a portfolio of spectrum licenses, for a \$95 per share, or a 160% premium to its per-share value at the time.

Straight Path was an attractive 5G takeover target, as its portfolio included a lot of usable 5G millimeter spectrum. As a point of reference, telecom companies measure their networks' reach with a figure called "megahertz-POP (MHz-POP)," which is calculated by multiplying the amount of bandwidth by the potential number of people covered. Straight Path had 39.7 billion MHz-POP of 28 GHz spectrum and 175.9 billion MHz-POP of 39 GHz spectrum.

AT&T's interest in Straight Path sparked an industry bidding war that ultimately resulted in Verizon (VZ) acquiring the company for \$184 per share—nearly double AT&T's original offer—in an all-stock deal valued at \$3.1 billion. Through July 2018, Verizon owned about 40% of the total 39 GHz spectrum and 53% of the 28 GHz spectrum. AT&T held roughly 27% of the 39 GHz spectrum and T-Mobile (TMUS) had 7% of the 28 GHz. Entire slates of spectrums such as 47 GHz, 37 GHz, and 24 GHz can still be auctioned by the FCC.

How To Invest In The 5G Future

Beyond the basic terminology and important trends to follow, investors will need to know exactly where to put their cash if they'd like to profit from the 5G boom—and oh, what a boom it is going to be.

According to IHS research, the global economic impact of 5G will be fully felt by 2035. By then, about \$12.3 trillion worth of goods and services will be enabled by 5G networks, nearly 22 million jobs will be created by new demands in the labor force related to 5G, and the rollout of 5G will add approximately \$3 trillion to the worldwide GDP.

That's a heck of an opportunity from an investing perspective. But what are the best places to focus on finding stocks that should benefit from this remarkable growth? Well, there are basically two schools of thought. It's obvious that there will be a massive opportunity for telecoms to seize 5G's momentum, and the other major area of potential lies with the hardware makers that will put the power of 5G in the hands of users.

The Telecom Play

As for now, **Verizon** looks like the smartest bet on the telecom side. The industry behemoth is determined to lead the 5G push and—sort of—activated the first commercial 5G network in the United States in October 2018.

Verizon's "5G Home" launch isn't quite a full rollout, as it hit only four U.S. cities—Houston, Indianapolis, Los Angeles, and Sacramento—and relies on pre-standards gear. The service costs about \$70 per month and will need to be updated to standards-compliant 5G once that is settled in the future. As part of the deal, Verizon is offering customers a chance to be first in line for new services such as mobile 5G.

Beyond this rush to first-to-market branding, Verizon has huge plans for the 5G future. The company's [website](#) describes 5G as a part of the "4th industrial revolution" that will "enable giant advances in VR, AR, AI, robotics, and totally new technologies.

Verizon also has commercial applications for 5G on both the home and business sides. Its limited in-home offering currently relies on small additions to existing towers and sleek new routers. Verizon's "Business Ready" 5G is not yet commercially available, but the company has teamed with Ericsson (ERIC) on the project.



(Source: Shutterstock)

Verizon will now be ready to publicly test and even debut a few 5G handsets in the next few weeks (through a partnership with Samsung), and Wall Street analysts are getting on board with its first-mover advantage.

In the follow-up to a recent earnings announcement, Oppenheimer described Verizon as “laser-focused on building and monetizing its 5G network.” The firm even read between the lines to highlight some other areas that Verizon could spread its 5G power. Citing the company’s test of a “cloud gaming system,” Oppenheimer reminded investors that gaming data “has been long touted as a possibility for

5G” and said “Verizon could gain a first mover advantage as it bundles the service to areas in which it is first with 5G.”

Other analysts are showing a bit more patience on Verizon’s 5G plans. In the wake of the aforementioned report, Morgan Stanley said it would like to wait for late February’s analyst day presentation for a better idea of how Verizon will monetize 5G moving forward.

Still, with shares trading at around 10x estimated 2019 free cash flow—a discount to its historical multiple, as Raymond James analysts recently pointed out—Verizon presents value right now. The company also has a long-term expected EPS growth rate of 4% and trades at a respectable 11.5x earnings.

Verizon is a proven company with a vision for the 5G future that is quite ambitious. It has first mover advantage and is fully committed to investing in 5G. It will have

exposure to consumer and enterprise 5G applications. While no one can be sure who will eventually win the 5G race, Verizon certainly checks a lot of boxes.

Other Telecoms to Consider

AT&T (T), Sprint (S), and T-Mobile (TMUS) also have 5G in their sights. Each of these companies owns 5G spectrum licenses and should be rolling out various services in the first half of 2019. AT&T has a 5G-branded network up already, but it has caught some flak for marketing 4G Advanced power as “5G Evolution.”

This is a fair criticism and is likely to confuse users as 5G smartphones start to debut soon. Getting real 5G phones in the hands of customers will be the big test, and although Verizon has turned on home services first, all of the telecoms look to be on similar schedules when it comes to mobile compatibility.

We’ve explored the strengths of Verizon, but all of the telecoms could impress with their mobile 5G networks. Sprint and T-Mobile might soon be one powerful third-place wireless company, and AT&T is no slouch—marketing gimmicks aside.

The Hardware Play

Talking about 5G mobile phones in the context of telecoms leaves out a massive force making that technology a reality: chip manufacturers. These companies are just as excited about 5G as telecoms, as the rollout of updated networks demands an entirely new generation of compatible semiconductors to connect smartphones, tablets, and IoT devices.

According to the IHS, chipmakers are spending a combined \$200 billion a year on investments in 5G technologies, so it's clear that these businesses have committed to this as the next stage of industry growth.

With this in mind, the safest pick on the hardware side is **Qualcomm (QCOM)**. If Verizon is the first mover for the telecoms, Qualcomm is truly the king of the first for the chipmakers. The company started foundational research for things that would later be used in 5G development all the way back in the early 1990s, and it has since completed a number of historic achievements in the lead-up to a full commercial rollout.

In 2015, Qualcomm demonstrated an mmWave design that would eventually result in prototypes the next year. Qualcomm went on to complete the world's first 5G data connection on a 5G chipset in October 2017, reaching speeds of 1.24 gigabits per second. Less than a year later, the San Diego, California-based company leveraged its partnership with Ericsson to deliver the first standards-compliant 5G NR mmWave call on a smartphone.

Qualcomm now expects that 2019 will be the year that "mobile form factor mmWave devices will finally hit the market." It has taken years of investments, research, and collaboration, but Qualcomm should be out of the gate as a leader.

QCOM also holds its own from a valuation and earnings perspective right now. It has a long-term expected earnings growth rate of nearly 10% and trades at just 13x EPS, which is a discount to its industry average of 20x. Earnings estimates for its fiscal year ending September 2019 have added 12 cents in the past month and now call for 5% year-over-year growth. Estimates for the following year are also up, with EPS growth expected to pick up an additional 15%.

Other Hardware Makers to Consider

While Qualcomm certainly feels like a 5G pioneer, the other major semiconductor manufacturers are hardly sitting idly by.

Intel (INTC) is forging its path through collaboration on standards protocols, as well as the development and deployment of new technologies, such as its Network Function Virtualization and Software-Defined Networking architectures.

We've also mentioned communications equipment giant Ericsson getting busy with the partnerships and collaborations, so look for that to be a name that pops up in these conversations. Industry rival Nokia (NOK) is also in the midst of building and debuting prototypes and initial models.

Bottom Line

5G has quickly progressed from something that's "definitely coming soon" to a technology that is "just about here." It's a necessary evolution, too; the Internet of Things and other revolutionary new tech concepts need faster, more reliable networks to truly succeed.

It's also clear that 5G is going to be a big business for several different types of companies. This makes it the perfect cocktail for investors. There's money to be made here, so long as one understands which businesses will benefit and why.

It is our belief that first movers such as Verizon and Qualcomm will get out to a lead in their respective corners of the 5G market. These are also fundamentally sound stocks. Competitors will be on their tails, no doubt, and in an individual were to land on a different 5G-focused company as their preferred investment right now, it would be understandable.

The real key right now is getting into the 5G game by understanding the technology, the thinking behind it, and where it is headed next.

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