

5G

Everything you want to know.

Chris G | April 2022

5G Companies

- AMD / nVidia / Apple
- The big telecom providers
- Ericsson
- Qualcomm
- Nokia
- Foxconn
- Siemens

Should you invest???

It's either that or GameStop!

What is 5G?

- The successor to 1G, 2G, 3G, 4G (LTE)
- Designed to handle more MANY more devices, avoid bottlenecks in the same way IPv6 has done.
 - Less tower congestion.
- Like previous cellular protocols, it uses a system of cell sites that divide their territory into sectors and send encoded data through radio waves.

Explanation of 5G

- 5G is a unified platform (no more separate protocols, e.g. CDMA, LTE, GSM, EVdO, WiMax)
- 5G can also natively support all spectrum types (licensed, shared, unlicensed) and bands (low, mid, high), a wide range of deployment models (from traditional macro-cells to hotspots), and new ways to interconnect (such as device-to-device and multi-hop mesh).

Explanation of 5G

- **Enhanced Spectrum**

5G is designed to get the most out of every bit of spectrum across a wide array of available spectrum regulatory paradigms and bands—from low bands below 1 GHz, to mid bands from 1 GHz to 6 GHz, to high bands known as millimeter wave (mmWave).

- This allows it to be **fast!** Delivering up to 20 Gigabits-per-second (Gbps) peak data rates and 100+ Megabits-per-second (Mbps) average data rates.
- Increased capacity supporting a 100x increase in traffic capacity and network efficiency.
- Significantly lower latency to deliver more instantaneous, real-time access: a 10x decrease in end-to-end latency down to 1ms.¹

5G vs 4G

- 5G is significantly faster than 4G
- High device capacity than 4G
- 5G has significantly lower latency than 4G
- 5G is more unified than 4G

Frequency of 5G

- Up to 95 GHz depending on band. E.g. low, high, mmWave.
- Example: Verizon uses 28 GHz and 39 GHz mmWave (Millimeter wave)
- Should you be scared of these waves? No because you can't stop it anyway.

Practical Uses of 5G

- Better speeds on cell phones.
- Self driving cars.
- Wireless internet for your home.
- “The Internet of things”.
- More smart devices.

5G in Cars

- Self driving.
- Accident prevention.
- Infotainment / Traffic.
- Weather.
- Emergency.

5G in Phones

- Faster internet on your phones.
- New ways for phones to communicate together.
- Enhanced ways for phone to communicate with other smart devices.

What phones have 5G?

- iPhone 13, 13 Pro and so on.
- Latest Samsung Galaxies.
- Latest Android devices.

Future of 5G

- Can it deliver on its promise of providing faster internet service and be used as a home internet provider?
- Yes but it will take some time!

Drawbacks of 5G

- Throttled by telecom companies. Big time.
 - Limited global coverage.
- If you have a weaker signal you're likely to get bad performance.
 - Higher speed = Less distance traveled.
 - Most cell towers max out at 1,500 feet vs. 4Gs 10 mile range.
- Price (infrastructure and devices).
- Rollout (infrastructure).
- Batteries / Power.

Summary

- 5G is not some mysterious and revolutionary thing like media and wall street wants you to think, it's simply an evolution of cellular technology that has the ability to enhance your life far into the future.
- It will be the future (until 6G) and it will grow and become more usable and practical.