

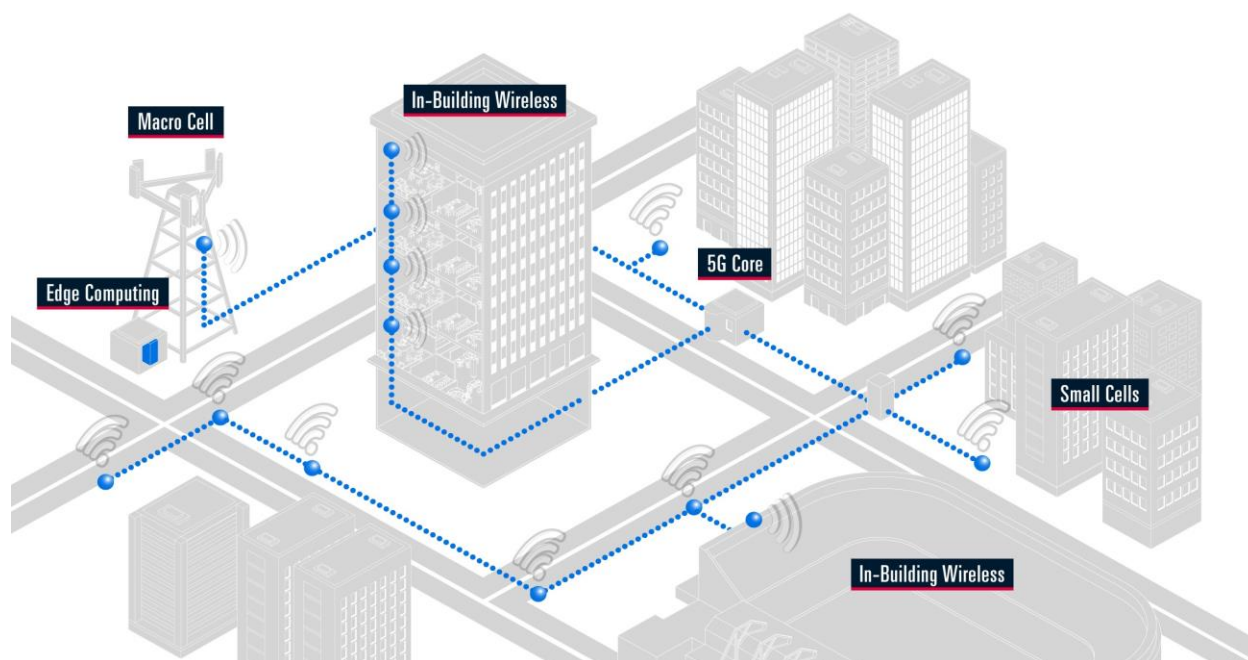
5G Technology

This 5G information is to provide an overview of the 5G technology involved. DDB Unlimited offers a variety of 5G enclosure solutions.

Please visit our website at www.DDBUnlimited.com or contact one our sales representatives at 1-800-753-8459 for additional information.

In telecommunications, 5G is the fifth-generation technology standard for broadband cellular networks, which cellular phone companies began deploying worldwide in 2019, and is the planned successor to the 4G networks which provide connectivity to most current cell phones. 5G networks are predicted to have more than 1.7 billion subscribers worldwide by 2025, according to the GSM Association. Like its predecessors, 5G networks are cellular networks, in which the service area is divided into small geographical areas called cells. All 5G wireless devices in a cell are connected to the Internet and telephone network by radio waves through a local antenna in the cell.

The main advantage of the new networks is that they will have greater bandwidth, giving higher download speeds, eventually up to 10 gigabits per second (Gbit/s). Due to the increased bandwidth, it is expected the networks will not exclusively serve cell phones like existing cellular networks, but also be used as general internet service providers for laptops and desktop computers, competing with existing ISPs such as cable internet, and will make possible new applications in internet of things (IoT) and machine to machine areas. 4G cell phones are not able to use the new networks, which require 5G enabled wireless devices. **The figure below shows a typical 5G network.**





5G Network Pros

1. Uses small-cell technology.

4G networks rely on large towers strategically mounted a few meters apart. In return, this makes sure communication between the towers is efficient. However, 5G networks will not rely on massive towers but small cell technology for data transmission. Here, the data will be denser and fit in a smaller space, making it comparable to data in 4G networks.

2. Uses high-frequency signals.

Unlike other technologies, 5G will make use of high-frequency signals that travel faster than low-frequency signals from other networks.

3. High-speed internet.

Among other pros, the 5G network will also have a faster connectivity speed. Surely, this will considerably change the speed of mobile internet due to the boost in connectivity speed. In addition, downloading data using 5G is several times faster than using other networks. More precisely, that took you about 10 minutes to download will now only take about one minute via 5G.

4. Minimal latency.

Interestingly, the 5G wireless network has minimal to zero latency. This means that delays due to using other networks to acquire information will be non-existent. With that, video buffs for gamers will be a thing of the past.

5G Network Cons

1. Requires the use of different frequencies.

For a 5G network to work efficiently, it will require the use of different types of frequencies. As a result, the frequencies will then use different carriers. Even more, the use of different kinds of frequencies will ultimately increase the levels of radiation. Therefore, there will be a need for increased EMF protection. For now, tech companies have not yet figured out how to stitch and synchronize the different frequencies together.

2. Short travel distance.

The high-frequency signals used in 5G might be faster than low-frequency signals. However, they can only travel for a short distance. Therefore, 5G will require several antennas, input, and output, both spread out at short distances.



3. Multiple access points for story buildings.

Initially, to achieve a stable connection, there will be a need to set up multiple access points in a facility. The number of access points is not as relevant, considering the 5G network speed is the ultimate necessity for connectivity.

4. 5G network is a bit expensive.

Most companies have not yet released the cost of using the 5G network. But it is safe to say that the more advanced innovations always come with a big price tag. Because of that, the price will likely be higher than that of the 4G network.

5. Limited availability.

Currently, 5G is not yet available internationally, and it is not available in most parts of the world. In short, the number of access points will also be a defining factor, especially in low population areas. Thereafter, carriers will probably be reluctant to drastically change to 5G in all its customer locations. This is mostly due to the number of infrastructural changes involved in the process.

6. Device compatibility.

Most devices are currently compatible with 4G and 3G networks, with a few still using the 2G network. Therefore, even if 5G enters force today, most devices, if not all, will not be able to use this network. Moreover, companies will have to manufacture new models, to be compatible with the 5G wireless network and its frequencies. That said, the power and speed of the 5G network will probably drain most devices' batteries. The issue will be thereafter mended with manufacturers upgrading the batteries to match the power of the network.

7. Health Issues. Various studies revealed that 5G will probably increase the levels of radiofrequency radiation in locations near the antennas. For instance, the 2011 IARC RF electromagnetic field research reviewed the radiofrequency effects in human and animal research. In addition, the review confirmed that RF radiation is carcinogenic to humans ([Miller, 2018](#)). Basically, 5G as a rich source of radiofrequency radiation can pose harmful effects to humans, animals, and the environment.