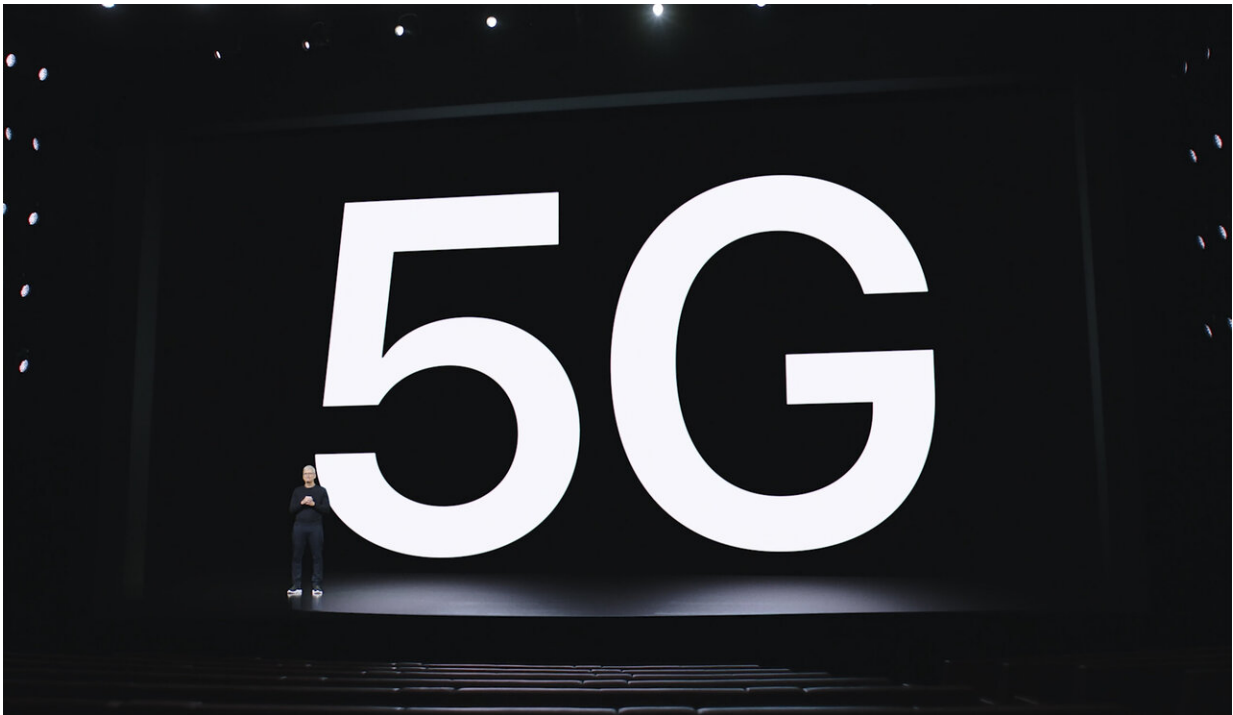


The promise of 5G wireless - speed, hype, risk

October 14 2020, by Mae Anderson and Tali Arbel



This image provided by Apple shows Apple CEO Tim Cook making a presentation on 5G and the new iPhone 12, which was unveiled Tuesday, Oct. 13, 2020. A much-hyped network upgrade called "5G" means different things to different people. To industry proponents, it's the next huge innovation in wireless internet. To the U.S. government, it's the backbone technology of a future that America will wrestle with China to control. To many average people, it's simply a mystery. (Apple via AP)

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What, exactly, is 5G wireless—and will you even notice when it comes online?

WHAT IS 5G?

5G is a new technical standard for [wireless networks](#)—the fifth, naturally—that promises faster speeds; less lag, or "latency," when connecting to the [network](#); and the ability to connect many devices to the internet without bogging it down. 5G networks will ideally be better able to handle more users, lots of sensors and heavy traffic.

Before we can all use it, [wireless companies](#) and phone makers have to upgrade. Phones need new chips and radio antennas to work with the new network.

Wireless companies have been getting ready. They've been revamping their network equipment, buying up chunks of radio spectrum for carrying 5G signals, and installing new 5G antennas on cellphone towers, utility poles and streetlights. Wireless providers will invest \$275 billion in 5G-related networks in the U.S., according to CTIA, an industry trade group.

WHEN WILL IT BE AVAILABLE?

A true U.S. mobile rollout began in 2019, but significantly faster networks are still sparse. It will take a few years to go national, and even then more rural areas of the country will not be covered in the "[millimeter wave](#)" frequencies that promise the highest data speeds and capacities, said Michael Thelander, CEO of wireless consultancy Signals Research Group.



In this Sept. 17, 2020 file photo, visitors wearing mask to protect from the coronavirus walk past a 5G sign at the China Beijing International High Tech Expo in Beijing, China. A much-hyped network upgrade called "5G" means different things to different people. To industry proponents, it's the next huge innovation in wireless internet. To the U.S. government, it's the backbone technology of a future that America will wrestle with China to control. (AP Photo/Ng Han Guan, File)

Beware of confusion, though. Wireless carriers have a history of rushing to slap the latest-and-greatest label on their networks, and this time is no different. AT&T has already applied the name 5G on a service that's not really 5G.

Once the network is ready, you'll need a 5G-enabled phone to connect to it. Android versions have been out for a while, and on Tuesday Apple launched its first 5G iPhone. But you can keep using 4G phones. They just won't connect to 5G speeds where those are available.

WHAT CAN 5G DO?

There's a considerable amount of hype over the promise of 5G. Industry groups say it will promote smart cities by connecting sensor networks that could manage traffic and quickly identify streetlight outages. 5G could connect self-driving cars and fuel new applications in virtual and augmented reality. Its high-speed connections could enable better remote surgery and other telemedicine, help companies automate their factories and offer businesses dedicated high-speed internet lanes.

"5G speeds, and ever-faster home broadband, will mean that existing applications will get richer, and also that new applications will emerge—new Flickr's, YouTube's or Snapchat's. We don't know what yet," Benedict Evans, a partner at Silicon Valley venture capital firm Andreessen Horowitz, wrote in a 2019 blog post .

The most immediate impact on consumers is far smaller. There will be faster download speeds for movies and other video. Thelander says your phone's internet will work better in crowded locations such as stadiums.

WHAT ARE THE SECURITY CONCERNS?

The 5G network is one front in rising tensions between the U.S. and China. The U.S. government is rooting out Chinese telecom technology in communications networks due to [security concerns](#), and has pressed other countries to ban Huawei, a Chinese telecom company, from 5G network buildouts.

U.S. officials have suspected for years that the Chinese government could use Huawei network equipment to help it spy. Huawei has rejected such accusations.

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