

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

February 11 2019, by Mae Anderson And Tali Arbel



In this Jan. 9, 2019, file photo a sign advertises 5G at the Qualcomm booth at CES International in Las Vegas. 5G is a new technical standard for wireless networks 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. (AP Photo/John Locher, File)

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.

The technology is one of the issues expected to take center stage at the MWC mobile conference in Barcelona, Spain, this month. The interest goes well beyond engineers: In Washington, there are fears that China could take the lead in developing the technology and sell equipment that could be used to spy on Americans.

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. The phone you have today won't work with a 5G network.



In this Jan. 24, 2019, file photo Richard Yu, CEO of Huawei Consumer Business Group, unveils the 5G modem Balong 5000 chipset in Beijing. 5G is a new technical standard for wireless networks 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. (AP Photo/Andy Wong, File)

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?

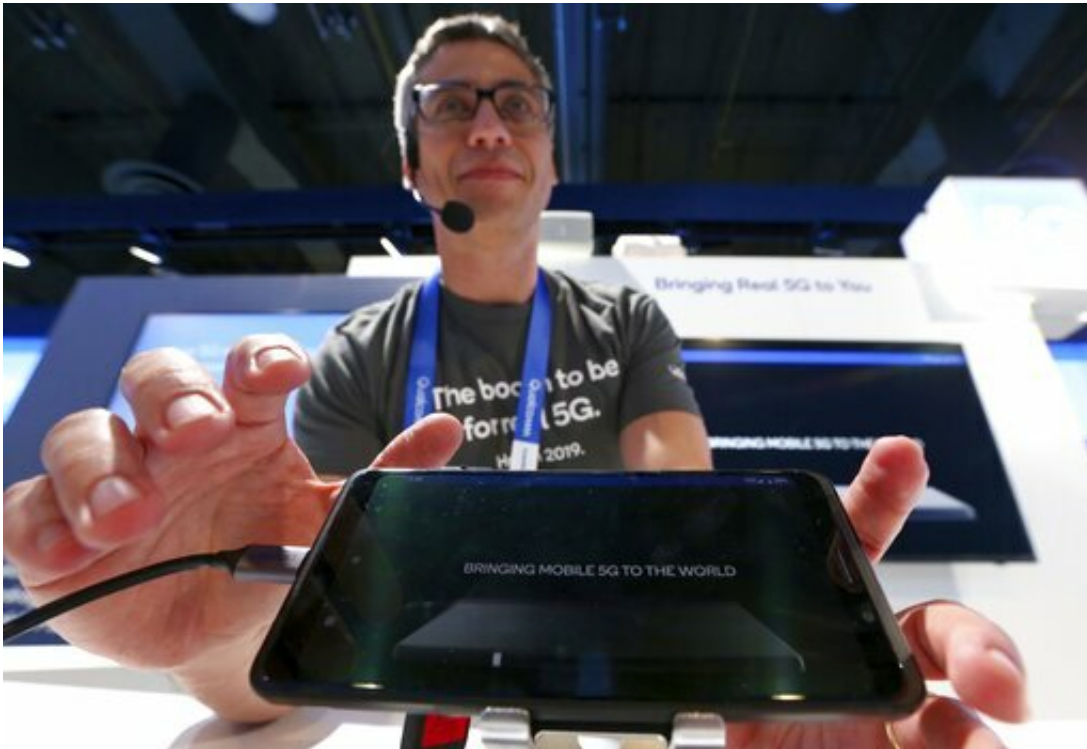
A true U.S. mobile rollout will start in 2019. It will take a few years to go national, and even then more rural areas of the country will not be

covered in the "millimeter wave" frequencies that promise the highest data speeds and capacities, said Michael Thelander, CEO of wireless consultancy Signals Research Group.

Thelander predicts that China may lag the U.S. by a year in its initial rollout, but will ultimately have the biggest deployment, while European countries will build out more slowly.

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. (Sprint, upset, then sued its larger rival.)

Once the network is ready, you'll need a 5G-enabled phone to connect to it. The first ones should be available in the first half of 2019, but a 5G iPhone isn't expected until 2020. 5G phones will most likely be more expensive than current 4G phones. Don't worry, even when 5G turns on, you can keep using 4G phones, just not at 5G speeds.



In this Jan. 9, 2019, file photo Ignacio Contreras, of Qualcomm Technologies, talks about the new Qualcomm 5G platform network at CES International in Las Vegas. 5G is a new technical standard for wireless networks 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. (AP Photo/Ross D. Franklin, File)

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, YouTubes or Snapchats. We don't know what yet," Benedict Evans, a partner at Silicon Valley venture capital firm Andreessen Horowitz, wrote in a January blog post .

The most immediate impact on consumers 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 has warned U.S. companies not to use Chinese telecom technology in communications networks due to security concerns, and is pressing 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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