



# GOVERNMENT AGENCIES AND 5G

## 6 Questions (and Answers)

Wireless communications are on the cusp of the 5G revolution, which is widely touted as a boon for business and consumers. Change is coming, and that heralds significant challenges for government and its use of both fixed and mobile wireless networks. Here are six things agencies should know now about 5G.

### 1. What is 5G?

The fifth generation of cellular communications, known as 5G, will change the game for many wireless services. It will be much faster—most projections put it at about 10 times faster—than current 4G service. It will take advantage of a wider range of frequencies and more carriers moving data with less latency, delivering stronger signals and better coverage both in remote areas and in dense, cluttered settings. Better, faster service will enable more devices and applications.

It will greatly expand and enhance the Internet of Things (IoT), adding processing power and greater autonomy to devices at the edge of the network. It will, among other things, provide leaps forward for self-driving cars, wearable devices and medical services such as remote surgery tools. It will allow for better quality of surveillance video from drones and other sources, as well as faster downloads of everything. Sending someone a video could be as quick as sending a text message; a full movie could download in seconds as opposed to minutes.

## 2. What will it take to implement 5G?

5G won't appear in a snap of the fingers. The 3rd Generation Partnership Project, a global group that sets wireless standards, approved the first 5G standard in December 2017 and has been hammering out subsequent standards since. Though the full standard isn't finished, wireless carriers are moving ahead with plans for 5G networks and devices, which are beginning to appear. Verizon has rolled out 5G service in 70 cities, and AT&T has 5G in more than 38 cities today. The lists are growing every day. T-Mobile has the most coverage; over 141 cities now have 5G services.

5G networks will be able to ride on 4G LTE infrastructure to a point, as operators make upgrades to accommodate the new services, but some significant upgrades and additions will be required eventually. A significant change is that 5G also will rely on a myriad of small-cell antennas attached to street poles or buildings. Rather than relaying everything via tall cell towers, the antennas will support millimeter-wave transmissions (stronger signals over shorter distances) enabled by 5G New Radio technology.



### 3. Why should government embrace 5G?

One of the most appealing features of 5G is its substantially lower latency, which is the delay between giving an instruction to transfer data or carry out an action and when it actually occurs.

Currently, anything less than 100 milliseconds is considered good latency, though games and simulations work better with less than 50 or even 30 milliseconds latency.

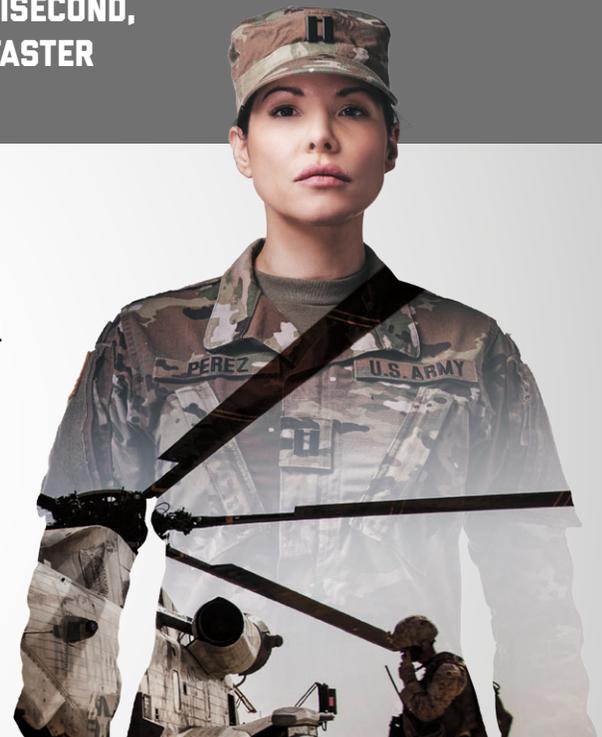


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#### FOR THE MILITARY

5G will enhance the data streaming from drones, sensors and wearable devices, and improve virtual and augmented reality applications for training. It will bring other benefits as well, such as better real-time data transfers for deployed units, additional mobile features in aircraft cockpits, real-time inventory and maintenance updates, and monitoring applications covering everything from supply chain management to medical treatments.



**5G's latency can be as low as 1 millisecond, which would be about 60 to 120 times faster than average 4G performance.** The improved latency and greater bandwidth can enhance smart city applications such as public transit, public safety, water and power management, and any number of other services that employ IoT. It will help critical applications that require quick response, such as driverless car operations—which could improve traffic flows—quicker analysis of video surveillance footage by law enforcement to track criminal suspects, receiving clearer drone feeds

of wild fires for faster firefighting response or quicker delivery of EMS services where seconds could make the difference in saving lives. Citizen services, which are increasingly conducted via smartphones or other mobile devices, also will improve. 5G will allow for much faster transmission of files, which could involve everything from emergency services to reporting code violations. School safety programs, social services and a range of other services—from road maintenance to bridge inspections—also will likely benefit.

## 4. How does 5G impact IT modernization?

The government's IT modernization efforts, which are geared toward cloud computing, open data, analytics and mobile operations—as well as developing a “future-ready workforce” equipped with the latest tools—will all benefit from 5G.



### FOR PUBLIC SAFETY

The new technology will enhance projects such as FirstNet®, the nationwide first responder network for public safety. AT&T, which is building and operating FirstNet, began upgrading cell towers last year to accommodate FirstNet and enable the shift to 5G via a simple software upgrade. The company has said that the move to 5G service could come as early as this year.



## 5. What about cybersecurity?



The considerable expansion of wireless services that will come with 5G presents new security challenges. As the number of sensors and devices increases with new 5G applications, so will the attack surface for cyber threats. All of those devices have to be protected. The good news is that the greater speeds of 5G will allow for higher levels of encryption, and the virtualization of systems will mean more authentication between networks and devices. Artificial intelligence monitoring of networks will also become more important.

## 6. What should agencies do to prepare?

The White House has directed the Commerce Department to develop a national spectrum strategy in preparation of the arrival of 5G, which will include developing ways to manage and share increasingly scarce spectrum resources.

The Federal Communications Commission has instituted a 5G FAST Plan aimed at making spectrum available, improving infrastructure and updating regulations. Federal, state and local agencies will need to keep pace.



**MEANWHILE, INDIVIDUAL AGENCIES NEED TO BE PREPARED TO TAKE ADVANTAGE OF 5G SERVICES, BECAUSE THAT'S WHERE THE REST OF THE WORLD—INCLUDING CONSTITUENTS, COMMERCIAL PARTNERS AND OTHER STAKEHOLDERS—IS GOING.**



## Getting started

As the commercial sector prepares for the launch of 5G networks and devices, government has the opportunity to be leaders in this network evolution by rolling out the technology and then providing new or improved services to its citizens. IT modernization in any capacity can be a challenge for agencies when faced with overwhelming workloads, limited budgets and legacy systems, but agencies don't have to do

this alone. Panasonic has been an industry leader in rugged mobile solutions for the last 20 years, serving government customers from the beginning. As agencies embrace 5G, Panasonic can help guide public sector leaders in making smart decisions on how to evolve their mobile strategy to transform how citizens interact with government.

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