WINDOWS AND USER PRODUCTIVITY

Empty Offices, Full Homes: Covid-19 Might Strain the Internet

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(Bloomberg) -- With more people working from home to avoid coronavirus, will the internet break? The short answer is probably not. The longer answer is that there will be disruptions.

To protect workers and help stem the spread of Covid-19, companies like Twitter Inc. and JPMorgan Chase & Co. are telling employees who can work from home to stay home. In all, 42 million Americans, about 29% of the U.S. workforce, are able to work from home. And as schools close to keep kids out of harm's way, the pressure on home networks will grow.

"The weak link in the chain, where the system could get overloaded, is going to be the home broadband network," said Lisa Pierce, a network expert with Gartner. "People will hit congestion, just like a highway, where the speed goes from 60 miles an hour to 20."

Residences and neighborhoods served by lower bandwidth cable and copper-wire connections will be among the first affected. Whole families sharing a single Wi-Fi

signal, all logging in at once to work or firing up TVs and tablets to stay connected and entertained, should also expect delays.

Strong Backbone

On the whole, the big networks of fiber-optic cable that crisscross the country will continue to operate, hauling internet traffic between cities, according to U.S. phone service giants AT&T Inc. and Verizon Communications Inc.

"As an engineer, I will tell you that we will have the capacity in our system that employees and customers need access to, at times like this," said Jeff McElfresh, chief executive officer of AT&T Communications, which oversees landline, wireless and TV services. "We can provide the ability to work where customers need to work and help them continue to be productive. It's something I'm proud of. This is something we do right."

The phone companies' underlying confidence in their networks is due, in part, to the fact that the volume of traffic won't necessarily change. What will change are the patterns. Traffic will originate less from offices with powerful connections and more from residential areas. Cable and phone companies that provide home broadband might develop bottlenecks at network nodes where multiple lines converge.

Among the biggest network cloggers, or bandwidth hogs, will be popular video and social-media services, like Netflix, YouTube, Facetime and Skype, according to Roger Entner, an analyst with Recon Analytics.

"Video is already 70% of all network traffic," he said. "The moment you add in videoconferencing to all the shows the kids are watching because schools are closed, it could be a problem if everyone is trying to get on at the same time."

Diffuse Impact

Problems are likely to range from dropped connections to slow downloads or loss of video feeds. These are familiar conditions in climates where snow days keep folks at home and can test the limits of home broadband capacity.

They'll vary by region and time of day, depending on traffic patterns, unlike single events that we all experience, for example the disruptions caused by the recent launch of Walt Disney Co.'s Disney+ or glitches on Amazon Prime Day.

Even if home connections are robust, not every company is ready to handle a sudden surge of employees trying to log in to the office network from outside.

Many employers use virtual private networks, or VPNs, as secure, dedicated channels for remote users to access the same network they normally have at work.

Typically businesses allocate enough network capacity to accommodate the everyday needs of a small number of employees working remotely, but a large-scale shift could cause temporary trouble. Adding VPN capacity could take hours or days or maybe even weeks for some companies, according to networking experts.

Preparation can help. For a decade or more, big employers have been developing contingency plans and business-continuity strategies. Information-technology departments have developed checklists or backup procedures and employees have been briefed, or even participated in mock emergencies, to test remote connections at home or in temporary offices.

"We're in a far better place than we were five or 10 years ago, in terms of network preparedness," Pierce said.