Covid-19 has proven that Internet needs complete rehaul

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By Sudha Madhavi Dastrala and Rajeev R. Tripathi

Times of upheaval, such as war and pandemics, are always times of radical changes. During World War II, with men away to war, many works were opened up for women that were previously being carried out by men. Women proved that they could do the so called "men's work".

Women never looked back after that. The global Spanish flu of 1918, one of the deadliest pandemics in human history, revolutionized national health policies in many European countries. The world right now is fighting a war against the Covid-19 pandemic.

The novel coronavirus is here to change the world in multiple dimensions. One of these dimensions is – the Internet as infrastructure. With nation-wide lockdowns, people have been asked to stay indoors and initiatives such as work-from- home (WFH), online teaching and learning, digital payments, online health care, etc. are being taken and implemented.

With a majority of the population at home and no access to outdoor entertainment avenues, data from over-the-top (OTT) media service players such as Netflix, Amazon Prime, YouTube etc., shows an unprecedented surge in content consumption.

Some questions that come to our mind are: Will the novel coronavirus break the Internet? How should the Internet Service Provider (ISP) trade between the need for essential digital services versus streaming the content of OTT players?

What if work-from-home or online teaching and learning become regular activities for a majority of the population even after the pandemic subsides?

Will coronavirus bring a radical change in the Internet as infrastructure? Many believe it will. Cellular Operators' Association of India (COAI) has urged the government, to instruct the OTT players to take up measures that would ease the network infrastructure in times of lockdown.

Subsequently, players such as Netflix, YouTube, Amazon Prime started tweaking the bitrates of their videos to reduce the network congestion. Additionally, content providers can further help by not adding new content, by removing content that consumes higher bandwidth and by putting across content which is relevant to the crisis.

In this way, content providers can retain their customers and can help the society at large by spreading relevant information. The content providers can also leverage their experience in transmission of digital content and can carry out essential services such as online education and online healthcare through their existing networks.

Differential pricing in order to manage the load on the network can also be beneficial, in terms of maximum utilization of the available bandwidth. Currently, there is a need for the ISPs to cater some amount of bandwidth to the essential digital services.

Given the crisis, should ISPs prioritize their bandwidth based on the services they are providing? Does this lead to a violation of "net-neutrality"? Technically speaking, ISPs can differentiate the contents based on their application type, routing information, available resources, sponsored data and so on.

Net-neutrality policies restrict ISPs in doing so, and therefore ISPs give equal treatment to all the legal contents flowing through the internet. However, equal treatment might not be justified when essential digital services are the need of the hour.

There is a need for temporary prioritization policies and adhoc networks, so that utilization of the network is maximized as per the given crisis. In doing so, the content providers may get affected for a certain period and the network may appear to be non-neutral.

However, in times of scarce bandwidth and the need to meet necessities such as work-from-home, online healthcare etc., rationing network resources may not be net-neutral, but seems important and fair, similar to rationing food or shelter or hospital services provided to the potential Covid-19 patients.

ISPs can avail this option of rationing their capacity based on time of usage and through pricing. 2 Looking ahead, ISPs may have to co-operate with other ISPs, through infrastructure sharing to ensure connectivity and uninterrupted services.

Not just during disaster, but this may be a way out for better utilization of spectrum considering the ongoing issue of spectrum scarcity across the globe. ISPs may have to ration their available capacity amongst the essential services and at the same time, may have to look at network sharing or network slicing options.

ISPs may also consider capacity upgrades, substitutes for the congested service, capacity rationing, demand management through pricing, service loss among others. ISPs can provide network enhancement to specific essential services and thus differentiate these services from others.

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