Managing Networks in Unprecedented Times

May 25, 2020

The COVID-19 pandemic has altered the lives of Canadians. It has changed the way we work, interact, and access critical services. It also highlights how vital telecommunications services are to our health and safety, and to sustaining economic and social activity.

To provide further insight into Canadians' consumption of telecommunications services during the current health crisis, CWTA has collected data from some of Canada's leading facilities-based network operators; the companies that build and operate Canada's telecommunications networks.

While CWTA's traditional focus is the wireless industry, facilities-based carriers' efforts in responding to customer needs during this health crisis encompass all forms of connectivity. In order to provide a fuller picture of this response, we have collected information regarding wireline and mobile traffic, for broadband and voice, measured against a pre-COVID-19 baseline.

Data Highlights

- Wireline home internet traffic increased by as much as 48.7% for download traffic and 69.2% for upload.
- Mobile data traffic varied widely with increases ranging from 28.9% to -36.7% for download and 26.6% to -23% for upload.
- Mobile voice call minutes increased as much as 60%.

Network Resiliency and Quick Action

In a previous post, we outlined some of the measures that Canada's facilities-based telecommunications providers have taken to help customers transition to working from home, including the lifting of wireline home internet data caps and the reduction or waiving of some fees. These measures also include helping customers facing financial hardship, as well as the provision of services, devices, and financial contributions to vulnerable communities.

However, these measures would have had minimal impact had Canada's telecommunications networks not been able to manage the seismic shift in usage patterns and increases in traffic resulting from the COVID-19 crisis. As detailed in a *The System That Actually Worked* in *The Atlantic* (an article about the U.S. but the premise of which applies equally to Canada), being able to keep citizens connected during a period of such rapid change was not a given.

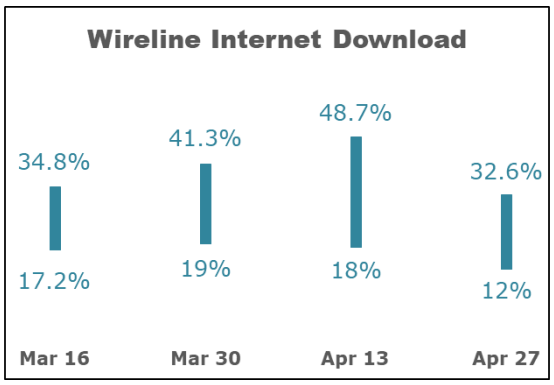
Governments, healthcare centres, and other critical sectors required new services and additional capacity was required overnight. Much of the traffic that would typically be carried

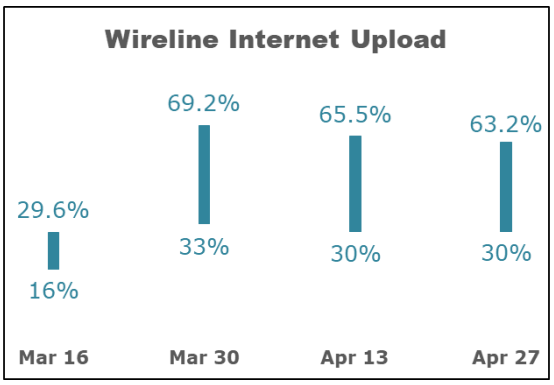
on enterprise, education, and public WiFi networks crowded onto consumer wireline and wireless networks. Peak traffic times that were typically restricted to one or two hours, now extend throughout long periods of the day. In short, Canada's facilities-based network operators had to react quickly, and in some cases retool parts of their operations, to meet new customer requirements.

These quick actions and the resiliency of Canada's telecommunication networks have helped Canadians successfully transition to remote work. Aternity's analysis of data from over five hundred Global 2000 companies found that Canadians experienced a 170% increase in remote work since work from home measures were implemented, which resulted in an overall increase in productivity of 25%. Europe and the Unites States experienced the opposite effect, with a decline in productivity of 8.2% and 7.2%, respectively. Increased consumption and new usage patterns resulting from remote work and other changes in customer habits is reflected in the data we have collected.

Home Internet

It should come as no surprise that home wireline internet use (e.g. cable, DSL, fibre) has experienced large increases following the implementation of work from home measures. As shown in the charts below, for the periods surveyed, wireline internet download volumes increased by as much as 48.7%. Importantly, the increase in traffic is not restricted to download traffic, as survey participants reported upload traffic increases as high as 69.2%.





*The above charts show the range of increase in data volume among participating carriers compared to their pre-COVID-19 baseline average. Each carrier's baseline average was determined using their averages for February 24, March 2 and March 9.

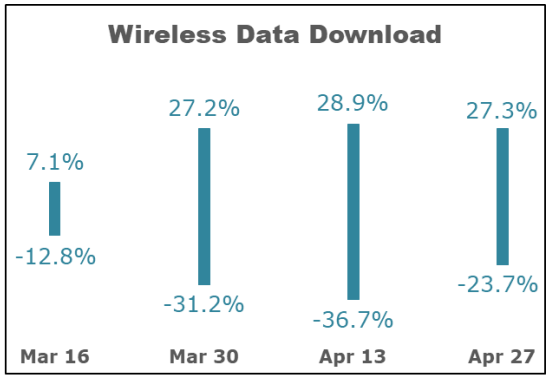
A major contributor to the increase in upload traffic is the growing adoption of data-intensive on-line collaboration tools by businesses whose workers must now meet virtually.

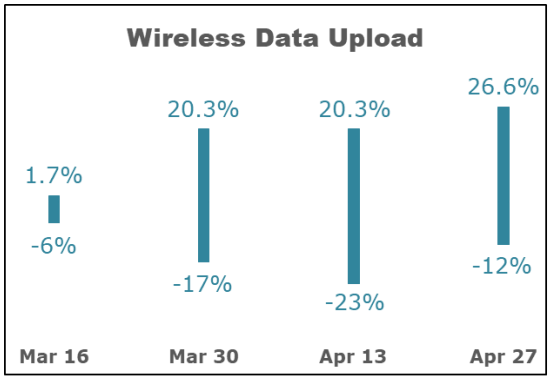
In a recent report, Aternity found that among its enterprise customer base, use of Skype for Business, the most commonly used collaboration tool, increased as much as 200% from its "base" usage prior to the COVID-19 outbreak. The second most-used collaboration tool, Teams, saw a peak increase in usage of nearly 500%, while a relative newcomer to the enterprise world, Zoom, had a peak increase in use of 574%.

Outside the business community, video conferencing tools have also been widely adopted by schools and universities, as well as individuals wanting to say in touch with friends and family.

Mobile Wireless Data and Voice

During the COVID-19 crisis, the change in volume of mobile wireless data varies across carriers surveyed. For many carriers, mobile data traffic has decreased as Canadians limit their movements outside the home and use more wireline services to connect to the internet. Even when using mobile devices, OpenSignal has found that Canadians have increased their average time connected to WiFi. However, mobile data traffic did not decrease for all carriers, with download and upload increases of up to 28.9% and 26.6% reported in our survey.





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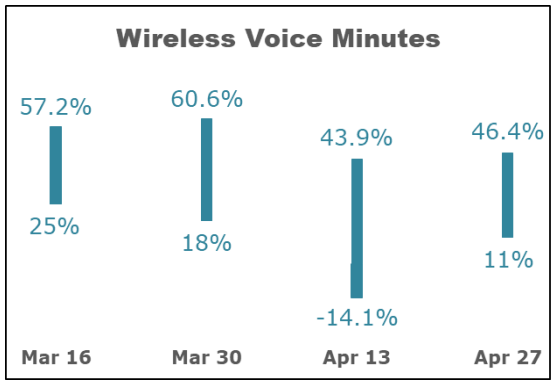
Mobile voice call minutes have increased across all carriers surveyed. Even when many Canadians are sheltering at home, mobile voice calling has proved to be an important service for Canadians during the pandemic.



*The above chars shows the range of increase in calling minutes among participating carriers compared to their pre-COVID-19 baseline average. Each carrier's baseline average was determined using their averages for February 24, March 2 and March 9. The low call minutes for April 13 is likely due to it being Easter Monday, resulting in less use of mobile calls for work purposes.

The Path Forward

During the current crisis, Canada's facilities-based service providers remain focused on ensuring Canadians can continue to rely on the high-quality networks and services to which they are accustomed. Years of investing in network infrastructure and operations have resulted in networks that are incredibly resilient in the face of intensified traffic and altered use patterns. Just as today's network performance is the result of past years' planning and investment,

securing Canada's telecommunications future requires similar foresight and significant levels of additional investment.

While the duration of the current health crisis is uncertain, we know that the demand for, and importance of, our country's telecommunication services will continue to grow. That is why, working in partnership with governments at all levels, Canada's facilities-based carriers are continuing to expand and upgrade all forms of telecommunication infrastructure, including in underserved areas.

On the wireless side, Canada's mobile wireless services have long been regarded as world class, with download speeds ranked fastest in the world and more than twice as fast as countries such as the United States, U.K., Germany, France, and Italy. But facilities-based mobile wireless carriers are not resting on their past successes. They are introducing the next generation of wireless technology, known as 5G, to unleash a new wave of innovation across Canada, bringing with it new jobs, economic growth, and improving the way Canadians work and live.
While it is sometimes difficult to see past the challenges of today, Canada's future remains bright. We are proud of our members' role in keeping Canadians connected, and we are excited to see the fruits of their investments in tomorrow.

Note: Network operators surveyed were Bell, Rogers, TELUS, Shaw/Freedom, Videotron, SaskTel and Tbaytel.