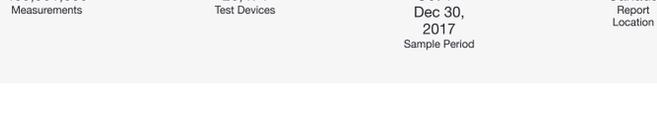


State of Mobile Networks: Canada (February 2018)

Canada has become quite the LTE powerhouse, especially in terms of speed. Some of the fastest speed measurements we're seeing globally are now coming out of the North American country. But raw speed isn't the only thing Canada can brag about. Access to LTE signals is excellent, and the country is laying a solid foundation for 5G. OpenSignal examined more than 405 million mobile measurements collected in the 4th quarter to see how Canada's big 3 operators stacked up.

Report Facts



Highlights

Telus jumps to a big lead in LTE speed

A year ago Bell and Telus were evenly matched in OpenSignal's 4G speed metric, but no longer. Telus has stepped into the lead position with an astonishing LTE download average of 44.5 Mbps, making it one of the fastest operators in the world, according to our tests.

Bell, Rogers and Telus match each other signal for signal in 4G

Canada's already close contest in 4G availability, got even closer. Our testers on Bell, Rogers and Telus were all able to find a 4G signal more than 86% of the time, resulting in a three-way tie in our availability metric.

4G speed and reach are improving across Canada

The good news for Canadian consumers is that LTE speeds and access to LTE connections have increased significantly over the last year. Canada not only has a high level of 4G availability overall, but it's one of the fastest 4G countries in the world.

Telus breaks the 70 Mbps barrier in Toronto

Telus impressed with its national 4G speed score, but it outdid itself in Toronto, averaging LTE download speeds of 70.4 Mbps. That's 60% faster than its national average.

Awards Table

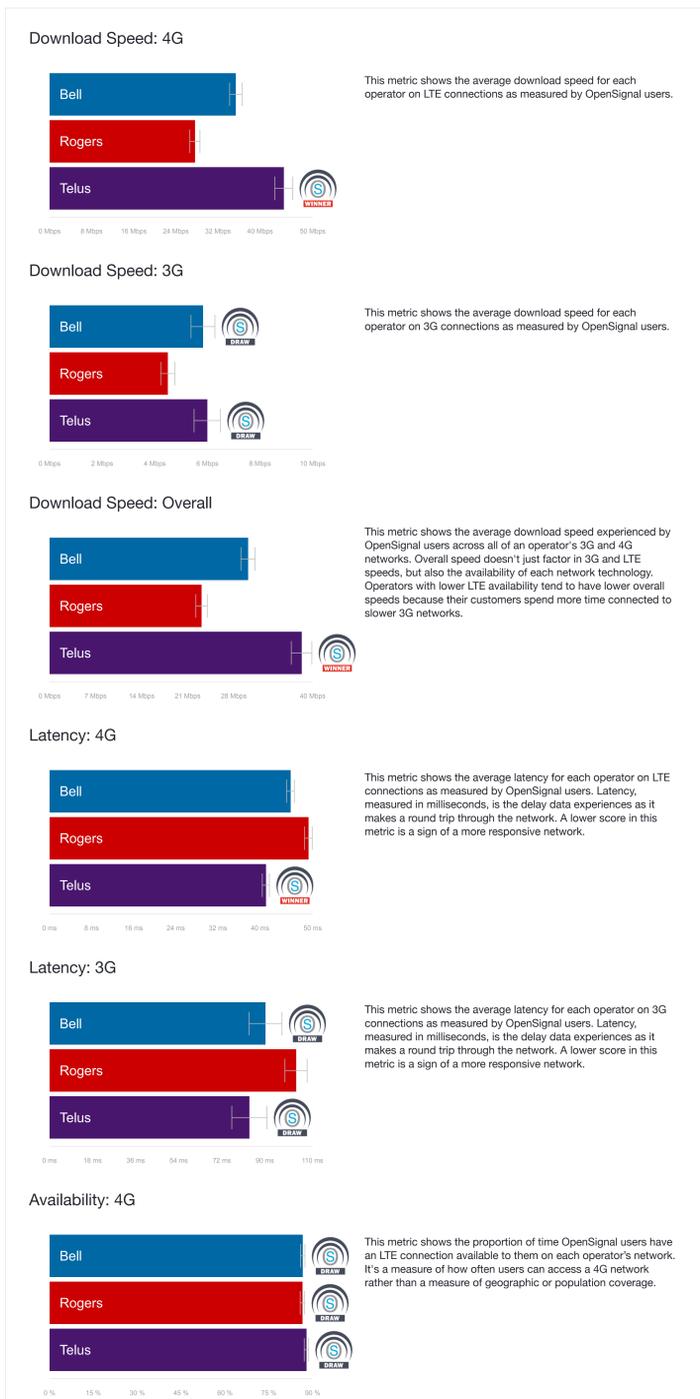
	Download Speed: 4G	Download Speed: 3G	Download Speed: Overall	Latency: 4G	Latency: 3G	Availability: 4G
Bell						
Rogers						
Telus						

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Performance by Metric



Regional Performance

This chart shows the regional winners in each category OpenSignal measures. Click on the icons to see a more detailed graph showing each operator's metrics in a particular region.

Legend: Bell Rogers Telus

Region	Download Speed: 4G	Availability: 4G
Montreal		
Toronto		

Analysis

When OpenSignal published its first [State of Mobile Networks: Canada report](#) in 2016, we found that Canadian mobile consumers already enjoyed fast 4G speeds and a high level of LTE access. In the ensuing two years, Canada's has only improved its status in our measurements. Not only has 4G availability increased, but we now see some of the fastest LTE speeds in the world on Canadian networks.

In our third report on Canada, we parsed more than 405 million datapoints collected from 20,474 mobile users between Oct. 1 and Dec. 30, 2017. We compared the 3G and 4G experience offered by Bell Canada's Bell Mobility, Rogers Communications and Telus on the national level. We also examined 4G services in Canada's two largest cities, Montreal and Toronto, to see how the big 3 as well as regional providers Freedom Mobile (formerly Wind) and Vidéotron fared.

Telus is just plain fast

In our 4G speed tests, Telus not only established a commanding lead over its competitors, it demonstrated some truly remarkable results. Our average 4G download for Telus was 44.5 Mbps, which is among the fastest individual operator results we've measured on a nationwide level. But when we drilled down into our speed results for Toronto and Montreal, Telus's speeds only increased. In Montreal, Telus's average tested download topped 62 Mbps, while in Toronto we measured its speed at an exceptional 70.4 Mbps.

That's not to say Telus's competitors aren't fast as well. Bell averaged 4G download speeds of 35.4 Mbps in our results, while our tested average for Rogers was 27.6 Mbps. Both scores were well above the global 4G average of 16.6 Mbps as measured in our most recent [State of LTE report](#). Bell's and Telus's individual results represent significant improvements over the 4G speeds we measured on their networks in our [2017 Canada report](#). Telus's 4G speed score jumped 50% in 12 months, while Bell's LTE speed score increased 25%. Rogers's LTE speeds, however, held steady between reports.

Canada's operators large and small also made impressive showings in our Montreal and Toronto speed tests. Bell's 4G speed score in both cities topped 45 Mbps. Meanwhile in Montreal, Rogers and regional operator Vidéotron both averaged LTE downloads of about 30 Mbps in our measurements. In Toronto we found Freedom Mobile's new 4G service averaged speeds of 35.5 Mbps, while Rogers's average download was 27.2 Mbps.

In 3G speed we tracked a close race between Bell and Telus. Both operators averaged HSPA download speeds just below 6 Mbps in our tests, resulting in a statistical tie. Given Telus's huge lead in our 4G speed metric, it easily won our overall speed award with a score of 38.3 Mbps. But all three operators had exceptional results in our overall speed metric, which accounts for both 3G and 4G download speeds as well as the time users spend connected to each type of network. The typical mobile data connection in Canada is much faster than the average 4G connection of most countries. Our next metric explains why.

The big 3 have big 4G reach

OpenSignal's 4G availability metric tracks the proportion of time our users spend connected to the LTE networks of each operator. Here Canada's nationwide operators all performed very well — so well that they were deadlocked in the metric. Bell, Rogers and Telus all had 4G availability scores just above or below 87%, meaning our testers were able to connect to an LTE network in nearly nine out over 10 attempts. The result was a three-way statistical draw. Given Telus and Bell have an infrastructure sharing agreement, we would expect them to line up fairly evenly in 4G availability. The two operators are essentially using the same tower footprint though as our results show, that certainly didn't preclude them from differentiating on speed. Rogers is the odd operator out in that relationship (it does, however, have a regional infrastructure sharing agreement with Vidéotron), yet its 4G service managed to match its competitors' services signal for signal in our nationwide test results.

In Montreal and Toronto, we found that all three national operators' availability results improved over their national scores. Again we had a multi-operator draw in both cities. In Montreal's case it was a four-way tie with Vidéotron joining the Big 3 in sharing our availability award. In Toronto, we also included Shaw Communications' Freedom Mobile in the results, though it scored well below the big 3. Freedom's network, however is still relatively new, having [launched in November of 2016](#).

Overall we see 4G availability in Canada improving, especially among the nationwide operators. All three saw their availability scores increase by at least 6 percentage points in our measurements [over the last year](#). Bell saw the biggest improvement of 8 percentage points, which is why it is now vying for the 4G access crown with Rogers and Bell. At this pace, it won't be long before Canadian operators cross the 90% nationwide 4G availability threshold, propelling them into the upper echelon of global operators in this metric. That high level of LTE reach explains why overall speeds in Canada were so high: Consumers spent relatively little time connected to slow 3G connections.

Our final set of metrics measured latency, which is essentially a network's response time. Latency is a key factor in real-time communications apps like VoIP and video chat — the lower the score the better. Telus won our 4G latency award with a response time of 41.1 milliseconds, but we recorded a two-way draw between Bell and Telus for our 3G latency award.

Paving the way for 5G

It's no accident that we're seeing such big improvements in speeds from Canadian operators. Most of them have been investing heavily in their networks over the past year. Both Bell and Telus began offering 4G services [over four separate frequency bands](#) in the last year, piling more and more capacity into their networks. They've also [deployed LTE-Advanced technologies](#) like multiple antenna arrays (4x4 MIMO) and more sophisticated frequency modulation techniques (256 QAM) to boost their speeds and their signal reach. In high-traffic zones, Telus has even gone so far as to adopt [a new hybrid LTE technology](#) called Licensed Assisted Access, which combines its dedicated 4G spectrum with frequencies in the unlicensed Wi-Fi bands to create extremely powerful connections. As many of these upgrades apply primarily to urban areas, it's no surprise we're seeing some of the biggest boosts in speed in Montreal and Toronto.

All of these upgrades still fall firmly in the 4G category, but like many of their global peers, Canadian operators have begun to [look ahead to 5G](#). It will take years before those first 5G services become available, but the foundations of 5G will be laid on the 4G infrastructure being built now. There's no question Canada is a global 4G superpower today. That likely means there are few other countries better prepared than Canada to deploy the 5G networks of the future.

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