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Choosing An Internet Service Provider In BC

There are two main telecommunications companies with Province-wide networks that can provide connections to the Internet. Telus is based in Vancouver and Shaw is based in Calgary.

There are over 80 companies that deliver regional systems to connect to the Internet in British Columbia.

The Canadian Government have an online search tool available at [National Broadband Internet Service Availability Map](#).

Some municipalities and village councils have also assumed that responsibility due to a lack of private investment or interest in delivering connectivity services in their jurisdiction.

In rural areas, many communications dealers represent Telus, either as independent dealers or as agents. The roots of this arrangement lie in the history of the introduction of cellular phone services across the Province with local regional dealers selling product to consumers while BC Tel maintained their traditional product lines – telephone landlines and business data lines. Telus then centralized the sales and delivery of services as the Internet became the service backbone for all service and are now re-introducing local service support using local dealers, phasing out regional Telus offices.

Shaw's background is in delivering a coaxial cable- based TV system to all areas of the Province that made economic sense. The introduction of Internet technologies in the 1990's was the stimulus for the Canadian Cable TV systems to add those services, followed by IP telephone service. Now cell services are being added in urban areas. These now all ride on the same fibre IP (Internet Protocol) backbone network at higher speeds, replacing the original coaxial cable system. Shaw also expanded their network of dealerships as their range of products has increased.

While Shaw has added services to TV, Telus has been transitioning from DSL (Digital Subscriber Line, a legacy telephony technology) to a fibre- based IP network, successfully adding TV service and Internet data services to their product lines.

Voice Communications Choices In BC

The telephone must work well and reliably at all times as it is the main access to Emergency Services covering the community and remains one of the main direct communications channels for a public library to their patrons. As little as 10 years ago, this meant that Telus (formerly BC Tel - except in Prince Rupert) would deliver telephone service on copper cable to a branch telephone switch in your location or directly to the desks.

This is another area of connectivity change driven by the adoption of Internet technology. Telephone communications and branch telephone systems are now mostly sold using Voice- over -IP (VOIP) technology that provides telephone service over the Internet connection. Your telephone numbers need not change, so service to the patrons and community remain the same through the transition. VOIP switches can be installed onsite to replace the older digital system or service can be delivered remotely from almost anywhere in the world.

VOIP systems are most often sold as a low-cost monthly subscription service with long distance calls

that are much cheaper than on traditional landlines. The cost saving in telephone service that VOIP offers represents a budget opportunity to investigate improvement of the Internet Service speeds for the branch location. If your Internet connection is low in capacity, variable in quality or just unreliable, this may not be the correct choice for your Library. A VOIP system may display quality issues in call establishment or call quality when the quality and speed of the Internet service is low.

Another area to look at is the age of your LAN infrastructure, which may be too old to handle the requirements of VOIP. If you have any reservations about the reliability or capacity of your Internet service, the current recommendation is still to maintain one real landline telephone and a physical telephone instrument on branch library premises, specifically for access to emergency service access. Since the purpose is local, you should limit calls for long distance and international destinations.

If you need to order a real landline phone from Telus, be aware that this is not a service they encourage. You may experience some reluctance to comply. Telus is in the process of decommissioning the technology platforms and regional offices that deliver landline telephone services in favour of Internet based VOIP phone service servers located in central data centres rather than distributed (local) offices.

Basic Network Speed

The current Canadian government target for adequate Internet speed to all residential and organization addresses in Canada is a combined download and upload measurement of 50 Megabits per second/ 10 Megabit per second. This target is found at <https://www.budget.gc.ca/2019/docs/nrc/infrastructure-infrastructures-internet-en.html> and is higher than the US government's 35/8 target level and lower than European targets.

These numbers are known as bandwidth measurements and are typically the way Internet service contracts are sold to consumers and businesses by Internet Service Providers (ISP's). The higher the bandwidth, the higher the cost is the way it usually goes.

However, the performance measurement as stated is incomplete. A 3rd measurement - latency - is required for any real accuracy in defining Internet quality. Latency is the measurement of the delay in Internet traffic for any data packet transmission. Typically measured in milliseconds, the measure is currently referred to as round trip delay rather than one-way. Too long a delay will often result in either painfully slow changes and transactions or failure of the connection to sustain the purpose resulting in breakup of telephone conversations, stop and go video, long transaction responses and even stoppage of the entire link into the premises. High latency is the major drawback to Satellite-based data network services.

For general browsing and streaming, any latency measure under 100ms is fine; however, less than 30ms would be ideal for high quality service for all purposes.

Note that using WIFI typically will reduce both bandwidth and increase latency for a specific device because the radio service WIFI uses is both more complicated and slower than most modern networks on cables. So the fastest way to use and test Internet services on your network is always on a computer that is connected by an Ethernet cable. Similarly, these test sites typically use an Internet browser such as Chrome, Firefox, Safari or Edge to deliver the application to the end client conducting the testing. Not all browsers run quickly on all computers and may result in considerable delays being recorded and displayed. This could result with an inaccurate understanding of the actual Internet

service being reached.

Speed Testing

There are lots of choices now to test the speed of your Internet connection at no charge. In Canada, the CIRA provides a non- commercial option that accurately reflects the performance of Internet service regardless of your location or Internet Service Provider (ISP).

- <https://performance.cira.ca/> - Canadian Internet Registration Authority
- Speedtest.net - OOKLA (USA) most used test site
- Fast.com - Test created and run by Netflix, easy to use

Note that use of any of these free testing services may result in the test results being sold as data to interested commercial organizations. The CIRA data collection is used in part by Canadian governments to create an overall picture of how well Canada is progressing in bridging the digital divide.

Other External Network Services

If fast fibre Internet is not being offered, you may have choices with more regional service companies based on other technologies that will provide adequate levels of reliability and capacity to support the branch locations.

Future Internet Service Possibilities

Rapid advances in space and radio technologies have resulted in a USA company, Starlink, recently being given a permit to deliver satellite- based Internet data service that covers the entire Canadian geographic area. Early tests indicate this will deliver 100Megabit per second download speeds, 40Mb Uploads with latency in the acceptable range over under 30 milliseconds. The service may start beta trials in early 2021. The current area covered by the 800 satellites deployed so far only cover up to 52.8 degrees North Latitude, so most of the north of BC will need Starlink to launch more satellites into their 'constellation'. Since this is a commercial venture, timing is currently unknown. More information can be found at [What Is Starlink Internet?](#)

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