

Canada is a member of the G8 and like other leading industrialized nations it offers relatively high speed and stable internet access to the majority of its urban population. As with other G8 citizens, Canadians benefit from all of the modern services that the high speed internet access can provide. Among many other real-time services on the internet, voice-over-IP (VoIP) is quickly becoming a preferred way for Canadians and Canadian businesses to access telephone services. VoIP telephone service offer many benefits compared to traditional landline service. However, VoIP services also come with some unexpected caveats to the end users. These “Canadian VoIP issues” can generally be placed into 2 categories:

1. VoIP calls can suffer from call quality issues relating to higher network latency (jitter), packet loss, and slow performance.
2. Due to how the Internet’s core routing protocol BGP, calls to Canadians from Canadians often take unintended routes over the internet which pass through the USA.

CloudPBX is a Canadian VoIP service provider to offers infrastructure to business VoIP service provider across the Canada. CloudPBX provides VoIP service to business users at over 500 unique locations in Canada from Victoria, BC to St-John’s, NL.

In order to offer the best possible call quality experience of VoIP, CloudPBX maintains the most diverse possible core network with core data centres in Vancouver, Toronto and Montreal. In addition to providing VoIP services from these geographically optimized locations, CloudPBX also maintains the diverse IP transit network in Canada using the BGP protocol to offer a minimum of 2 distinct IP-transit routes per data centre location. CloudPBX customers benefit from connectivity to over 6 distinct fibre optic routes to CloudPBX’s core infrastructure.

By performing manual geographical distance analysis and IP route analysis, CloudPBX endeavours to connect its 500+ user sites to the most performant data centre. The routing of the internet is not static and a user site which was best suited for one data centre may in the future experience better call quality from another location.

CloudPBX cares deeply about the user’s experience of VoIP call quality. In addition to geographical and network infrastructure design, call quality metrics have been captured for all 500 user site locations from all 3 service data centres. When quality issues occur, CloudPBX reacts by advising the user to adjust connection configuration. Although it is very helpful to the end user, making changes after quality incidents occur is reactive.

In order to increase the user’s call quality experience, CloudPBX would like to proactively anticipate call quality issues. It is our hope that by reviewing the call history and call quality analysis dataset, Pacific Institute for the Mathematical Sciences BC-Data workshop grad students will be able to determine if machine learning techniques would be beneficial in providing analysis to create adaptive and proactive connectivity and call routing rules.