RMA Issue Backgrounder – Broadband Technology

This article is the first of a four-part series.

What are the different broadband delivery technologies?

Broadband internet is distributed using both backbone and final mile infrastructure and technology. The backbone network connects communities, typically using fibre. Think of this like Alberta's highway system that connects communities with few access points. Final mile infrastructure is what connects individual houses and businesses to the internet. This can be thought of as local roads that bring people off the highway and to their houses.

In rural Alberta, broadband is delivered to houses and businesses primarily through four technologies.

- Fibre to the premises – this involves physically connecting buildings to fibre backbone to connect to the internet. This is the most reliable type of connection, however, it is also the most costly in rural settings.
- Fixed wireless access – using this method, fibre is brought to a communications tower that sends out a signal wirelessly. This signal is then accessed by rural residents through a dish that brings the internet into the building. This method is lower cost than fibre to the premises, however, it requires towers be located strategically to provide service and utilizes a finite resource, spectrum, to distribute the signal.
- Mobile access – similar to fixed wireless, mobile internet access delivers internet services remotely. However, unlike fixed wireless, mobile access does not require line of site, as it delivers service using the same technology used to deliver service to a cell phone.
- Low earth orbit satellites – this is an emerging technology that uses many small satellites flying in low orbit to deliver internet. This functions by an earth station sending a signal to the satellites, which then redirect that signal towards users on the ground. Users on the ground pick up the signal using a satellite dish. The speeds achieved using this method are typically faster than fixed wireless, however, there is a large upfront cost for the satellite dish, the service can be unreliable, and it is not yet widely available.

Why does it matter?

The different technologies available impact RMA's advocacy. For example, because much of rural Alberta is served by fixed wireless access, RMA advocates on spectrum issues. Additionally, the emergence of low earth orbit satellites and Government of Canada funding specifically for this technology warrants an understanding of when and where it is most likely to be used.

What is RMA's position on the different broadband technologies?

RMA is technology neutral, meaning our advocacy is based on obtaining highspeed internet in rural Alberta regardless of the technology used to deploy it. Certain technologies will make more sense in certain areas than others. For example, satellite will likely be the best option in remote northern areas, while fibre to the premises may be an option in areas that are close to Edmonton or Calgary. To provide highspeed internet in rural Alberta it is likely a blend of technologies will be necessary.

Have questions?

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