

## Growing Broadband Connectivity in Rural Canada

Andreas Wiatowski, Founder and CEO, Silo Wireless

Access to the Internet and connectivity are often taken for granted by people living in urban and suburban communities. Many people have come to expect wireless access as a part of daily life. It's no longer a luxury, it's a necessity.

When I moved to Brant County in rural Ontario, I already had a number of years of experience as a networking consultant. I knew from the research we did before launching our wireless broadband business, Silo Wireless, that there was a great lack of broadband access in rural Canada. The options available at the time were both expensive and unreliable. After our initial launch of the company in 2006, we quickly realized the thirst for broadband access since our phones rang off the hook with little to no advertising. Our new customers were spreading the word via the social media platform known as "word of mouth."

After our first year in business we began to realize that some of the choices we had made in wireless equipment that were based on the 802.11 protocol were not going to meet the growth required to sustain a positive customer experience. Many of our access points began to flounder after 25-30 customers were hooked up. In order to sustain growth, we began deploying multiple sectors and access points. Due to our inexperience we began to run into many performance headaches and some days it felt like our entire business was about to come to a grinding halt...enter the world of



self interference!

We began to research other brands of equipment in the market place. We discovered that there were a number of choices in the market, but each had its pros and cons. There seemed to be a wide variety of installation options, and many manufacturers had hidden licensing costs. Some brands of equipment offered horsepower and lofty promises, but seemed to be geared towards multinational corporations with really deep pockets. Other manufacturers seemed to have product lines that were all over the board in many different shapes and sizes. Others came from overseas markets, which added a new cost metric. After a few months of research and product trials we entered the world of Canopy by Cambium.

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Cambium's FSK access points offered us the solution we needed for our PTMP access issues. The Canopy product line also offered us the opportunity to use GPS synchronization to effectively re-use the spectrum available to us in a highly efficient manner. GPS synchronization eliminated self-interference at adjacent sites. We quickly realized the product's power and started to deploy it across our network. What became apparent to us during deployment was the fact that the product was extremely easy to deploy, both on the towers and for our installers.

As growth continued for our business, we entered yet another challenge, the ever-growing demand for faster access. Even though our investments were meeting the needs of most customers, we had an ever-growing number of customers that wanted faster access. In the world of on-demand video and real time voice over IP products, customers want access to these technologies, just like their urban counterparts, including quality of service. We heard that the 3.65Ghz band was going to become available on a licensed level so we decided that we wanted to be first to market in our region to utilize this virgin spectrum. We made the decision that this was going to be our choice for next generation services.

Once again, we looked to Cambium. Breaking from the norm, the company developed the PMP 320, a product in the 3.65Ghz spectrum using the WiMAX 802.16e protocol and MIMO antennas instead of FSK single polarity antennas. Such a shift introduced many challenges



compared to previous FSK platforms on the market that were well seasoned and proven. The PMP320 featured multiple service flows so we were able to distinguish service levels for regular web traffic and voice over IP traffic. It allowed us to centralize deployment authentication using an AAA radius server, and most of all it has delivered speed and reliability that was previously unavailable. GPS synchronization was also a standard that once again allowed us to re-utilize spectrum across our service territory.

Silo was the first service provider in our area to deliver service in the 3.65 GHz band. We're now able to dynamically adjust service flows for bandwidth, as well as layer multiple service loads. We also offer our customers a variety of speed

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packages, from 300 Kbps to 8 Mbps, leveraging the MIMO capabilities, which have increased our installation ratio. When new subscribers request service within our coverage area, 80 percent of them can be hooked up without any additional access point installations. We've also been able to provide coverage to sites that were previously unreachable due to difficult terrain. As a result, this previously underserved Ontario county now has nearly more than \$1M in new infrastructure that can finally support the bandwidth our subscribers demand.

[www.silowireless.com](http://www.silowireless.com) [1]

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