THE ROLE MODEL FOR SUSTAINABLE RURAL BROADBAND

THE PROVINCE OF NOVA SCOTIA IMPLEMENTS A PIONEERING BUSINESS MODEL FOR DELIVERING HIGH-SPEED INTERNET TO RURAL AND REMOTE LOCATIONS

SITUATION

In 2006, a majority of Nova Scotians enjoyed high-speed Internet service, but broadband connectivity was still unavailable for thousands of citizens living in rural areas.

The government of Nova Scotia recognized the lack of high-speed Internet access to be a key social and economic issue for the more rural areas of the province. Although 78 percent of the province's roughly one million residents had broadband connectivity, these were mostly located in Halifax, Sydney and other urban areas. About 200,000 citizens, 93,500 dwellings, 5,600 businesses and hundreds of schools and medical facilities remained unserved because they lived outside the reach of traditional wired broadband technologies.

SOLUTION

The provincial government created the sweeping Broadband for Rural Nova Scotia initiative.

In creating the rural broadband initiative, Nova Scotia recognized that broadband access was as much an integral part of life as electricity or running water. The project was announced in December, 2007, and the government set an aggressive goal of 100 percent broadband connectivity. After much research and planning, the province and its service provider partners determined that fixed wireless technology was the optimum solution for providing high quality rural service quickly, reliably and cost-effectively. Leveraging proven Motorola fixed wireless point-to-point (PTP) and point-to-multipoint (PMP) broadband technologies, over the next three years the team set out to perform the ambitious task of bringing broadband connectivity—and all its enormous social and economic benefits—to residents living in the most beautiful, yet most rugged parts of the province.

CUSTOMER PROFILE

Organization

- Provincial Government of Nova Scotia

Applications

- High-speed Internet access provided to thousands of rural businesses and residences throughout the province

Motorola Solution

- Motorola fixed wireless broadband PTP and PMP solutions

Solution Features

- Rural high-speed access at the same quality levels and prices as urban broadband service
- Exceptional ruggedness and reliability for remote areas and harsh weather environments
- Enabling sustainable business cases for service providers

PROVIDING HIGH-SPEED INTERNET FOR EVERYONE WHO WANTS IT, WHEREVER THEY LIVE

On a snowy Cape Breton Highlands road, a car accident leaves a number of people injured, one with a serious injury. At the local hospital, no doctor with the right expertise is available to read the X-rays. Without high-speed Internet, there is no way to send the files to the doctor so the doctor must come to them, driving an hour in a blizzard to spend a few minutes reading the X-rays, then driving another hour back. It's not simply inefficient, it's life threatening.

"In the Rural Broadband for Nova Scotia project, our mandate was deceptively simple," says Nancy Flam, project director. "Provide high-speed broadband to everyone who wants it, wherever they live in the province." But in a province that boasts some of the most spectacular, yet difficult terrain in Canada— including the rugged Cape Breton Highlands and islands that do not even have grid power—the goal was much easier stated than done.

RESULT

With the goal of 100 percent broadband coverage accomplished, rural residents and businesses are experiencing an enhanced quality of social and economic life.

High-speed Internet service is now transforming the lives of more than 200,000 rural Nova Scotians. More than 40 percent have now signed up for service, with more being added every day. Just as important, the province and its service providers are able to deliver this high-speed connectivity while sustaining a profitable business model. Not surprisingly, other provinces and countries around the world are studying the project as a model for providing the economic and social benefits of broadband access to their own rural and remote areas. The Rural Broadband for Nova Scotia Project is a resounding success.

The Broadband Growth Engine

"Information technology is a universal enabler that will benefit every citizen, business and community in Nova Scotia," says Flam. But without high-speed Internet access, rural residents weren't able to benefit from IT as much as the rest of the population. "No matter where you live in Nova Scotia, broadband is critical to economic development." Flam continues.

The province knew it had to level the broadband playing field. Broadband access would help businesses grow, enabling them to acquire new local, national and international clients. It would help residents use social networking, do online shopping, utilize Internet Voice over Internet Protocol (VoIP) services, enjoy streaming video and much more. Students would have the speed to take advantage of online access to their schools, and participate in distance learning. Farmers could use the Internet to do everything from buying supplies to getting test results and weather reports to selling products online. Tourism businesses could take reservations and payments online. Professionals would be able to work from home no matter where home is. Doctors would be able to read X-rays and access patient data in their home office at any time of day or night and in any weather.

High-Speed Challenges

The project presented a number of formidable challenges. First, the province could hardly do everything alone. They would need the help of Internet service providers to plan, install and maintain the network. That was the first challenge. "The project needed ISP partners willing to deploy broadband technology and provide high-speed Internet service in the most costly types of environments," says Andrew Boswell of project partner Nova Communications. "They needed to serve a small number of potential customers over a large area of challenging terrain." In such a low-density environment, the infrastructure must be exceptionally cost-effective. One of the major issues was which technology would be best in terms of both efficacy and affordability: cable, DSL, satellite or fixed wireless broadband?

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Fixed Wireless Technology

The project began with a pilot phase, and then using the pilot as a model, went out for bid for the remaining unserved/underserved areas of the province. To help make the bidding process more manageable, the team divided the province into zones, and allowed service providers to bid on providing access to one or more of them. "This was such a difficult project, we wondered if we would even get any bids," says Flam, "but we wound up getting responses from six companies." The team also got the answer to which technology would be best: all six bidders specified using fixed wireless broadband. "Fixed wireless is scalable and can be inexpensively upgraded to provide higher bandwidth," Flam explains. "It also has long been proven successful in networks around the world."

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>
> Andrew Boswell of project partner Nova Communications

There were three winning service providers—Seaside, East Link and OmniGlobe—all of whom eventually partnered with Nova Communications for engineering and staging expertise. "The network makes extensive use of Motorola technology," says Boswell, "including point-to-point (PTP) technology to bring signals into an area, and point-to-multipoint (PMP) for local signal distribution."

The "4Ps"

The project became a true partnership between public and private resources. "We coined the phrase '4Ps,'" notes Flam. "We called it the 'Public, Private, People Partnership,' and it was definitely that." For its part, the provincial government provided both crucial network assets and invaluable facilitation support. Says Flam, "The province's attitude was 'we will not be the reason this project won't succeed.'"

The province was able to collaborate with many other governmental entities. Among them was the Department of Natural Resources (DNR), which helped with expedited access to Crown land. Transportation and Infrastructure Renewal (TIR) helped coordinate access to rights-of-way and provincial towers. The Environment Department clarified regulations and Service Nova Scotia and Municipal relations helped solidify service provider relations with the 55 municipalities impacted by the project. The province also called upon its Federal partners, Industry Canada and the Atlantic Canada Opportunities Agency (ACOA), to understand and maneuver through Federal policies and programs.

Service Provider Support

One of the first critical decisions the government made was not to become a service provider itself, electing to support the service providers rather than compete with them. This decision was key to the creation of a sustainable service provider business models. "The government contributed vital resources to enhance service provider business opportunities," explains Flam. "For example, we gave our service providers vital market data to help them optimize revenue opportunities, and we provided access to towers and other structures to help lower costs."

Nova Scotia allowed the use of provincial towers and structures for the network, and also absorbed the costs of building 14 new towers and upgrading 22 others. Structure issues led to an interesting example of the public-private collaboration, occurring when one service provider asked a pertinent question. "They wanted to know why, if we were considered a critical utility, that other utilities like phone and electric companies could put their poles on the sides of roads, but we couldn't," recalls Flam. "So I went to TIR and asked that same question and they thought for awhile and then said 'We don't see why not.' So our partners were able to have free access to the rights-of-way."

Proactive Communications Strategy

"We did reach out a lot to the public," says Flam. "We engaged them in a variety of different ways." The team worked closely with providers to keep the public informed through communications vehicles such as a website and regular newsletters. They consistently provided service providers with information to share with the public or with the media. "A lot of this was to make sure our key messages would be up to date and accurate, whether it was our minister talking, our providers talking or us talking, so as not to confuse the public," Flam continues.

The team also worked extensively in the communities and municipalities. "We would go out and do presentations to the public to help them understand fixed wireless and how it worked, why we were building towers, and so on,"

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adds Flam. “Some worried there would be radiation coming from the towers that would harm their health. Others were concerned about how the signals would affect their wireless home phones. The community meetings could often be challenging.”

100 Percent Coverage

The Broadband for Rural Nova Scotia project was completed in mid-2010, taking just two and one-half years to provide high-speed Internet access to 93,500 civic addresses over terrain that was as challenging as it is spectacular. Many of these sites were extremely difficult. “We had sites that used green power, working off a combination of wind and solar,” says Boswell. “One example was one of our service providers had to provide service to a small island off the coast with no access to the power grid. We used a combination of wind and solar energy, and it turned out that the island installation actually began providing service to small communities on the mainland.”

“We now have 100 percent coverage in the province,” says Flam. “The system consists of more than 400 structures and is delivering 1.5 Mbps throughput to subscribers at a cost that’s comparable to our urban areas.” The system is also a business success. “Uptake is going faster than our service providers can keep up with,” adds Flam. “Approximately 40 percent of potential subscribers are connected and we are adding more and more people every day.” The initiative has succeeded in its mission: to make high-speed Internet service available and affordable for everyone who wants it, no matter where they live in the province.

Global Role Model

Not surprisingly, the Nova Scotia rural broadband project is attracting the attention of a large number of jurisdictions across North America and the world. Nancy Flam has spoken at numerous conferences, sharing information on how Nova Scotia has enabled 100 percent rural high-speed coverage in a way that enables sustainable business models. What’s her message?

“Basically, I offer a number of suggestions,” say Flam. “The first is to focus on the business model and how it’s going to be sustainable to make the business a going concern.” In addition, she says “you also want to make sure your system is scalable so you can look to increasing the bandwidth and incorporate new technology as your system grows.” Another suggestion is to make sure there is strong leadership at the top that has buy-in to the initiative and can smooth the way over expected and unexpected obstacles. Finally, concludes Flam, “You can’t underestimate the value of a strong communication and stakeholder strategy. People just want to know what’s going on, so you really need to engage your community. When the public is engaged, they can really help you.”

Sustainable Quality of Life

The Province of Nova Scotia prides itself on its quality of life, and rightly so. From the cosmopolitan environment of Halifax to the rural landscape of Cape Breton, residents enjoy an exceptional way of life that includes spectacular scenery, more than 4,500 miles of beautiful coastline and pristine white sand beaches. There are also 10,000 lakes and rivers for recreation and sport fishing and spectacular provincial and city parks.

The Broadband for Rural Nova Scotia project is adding to this exceptional lifestyle by providing fast and affordable Internet access to help optimize economic development. What does the future hold for the new fixed wireless broadband network? Says Flam, “Now we are in the process of developing a digital strategy to help our citizens take maximum advantage of the new fixed wireless network in the future.” Nova Scotia is fast becoming a role model not just for sustainable rural broadband business models, but also for sustainable quality of life.

100 %

100 percent coverage in the province

400

The system consists of more than 400 structures

1.5 Mbps

The system is delivering 1.5 Mbps throughput

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