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**Democratic Ideals Meet Reality:
Developing Locally Owned and Managed Broadband Networks and ICT Services
in Rural and Remote First Nations in Quebec and Canada**

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Abstract: This paper is based on a keynote presentation at the 2012 Community Informatics Research (CIRN) conference in Prato, Italy by Tim Whiteduck, Technology Director at the First Nations Education Council (FNEC). The paper was co-written with the FNEC research partners. First Nations in Canada are part of a complex web of relationships and networks that share information, resources and learning related to broadband and Information Communication Technologies (ICT). First Nation community leaders, through their national organization the Assembly of First Nations (AFN), have adopted the eCommunity as an overarching approach for broadband development. This development is fueled by the desire by First Nations to own, control, and manage their local infrastructure. Regional organizations, including the regional management organizations (RMOs) for the First Nations SchoolNet program, are key players collaborating with communities to support their use of broadband and ICT. In particular, the videoconferencing network built by the RMOs in collaboration with the communities was and continues to be a catalyst for increased broadband development. FNEC, the RMO for Quebec is discussed in detail, including its technology development and related activities. FNEC works with partner organizations across Canada, notably the Keewaytinook Okimakanak (KO) tribal council in northwestern

Ontario and Mi'kmaw Kina'matnewey (MK) in the Atlantic region. Together the three organizations are also partners with the University of New Brunswick and Simon Fraser University on several research and outreach projects, two of which - First Mile and VideoCom / First Nations Innovation - are briefly discussed.

1 First Nations in Canada

Across Canada, many of the more than 600 First Nation (Indigenous) communities are in rural areas and also remote places accessible only by air. Similar in ways to many Native American and Australian Aborigine communities, First Nations people live a land-based lifestyle within a wealthy and increasingly urbanized and commercialized nation-state. The Canadian Constitution recognizes First Nations people as one of the founding nations of Canada. The Constitution also recognizes the First Nations' right to self-determination, to negotiate the terms of their relationships with Canada, to establish the governance structures they consider appropriate for their needs, and to determine how they wish to develop their communities. Owning, controlling, accessing and possessing their local infrastructures including ICT networks and their associated applications is an essential economic driver for local development and employment. Accessing the resources required to sustain these essential tools and infrastructure is an ongoing challenge for these communities and their leaders.

The Canadian government has not lived up to the requirements outlined in its own constitution. Like their counterparts in the United States and Australia and elsewhere, First Nations people in Canada have their rights defined in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP, United Nations, 2007). The UNDRIP passed in September 2007 with Canada voting against it until finally accepting it in principle in November 2010. In contrast to the principles of freedom from state oppression outlined in the UNDRIP, the Royal Commission on Aboriginal Peoples (1996) found that the historical treaties with First Nations were replaced with Canadian state policies intending to remove First Nations people from their homelands, suppress First Nations and their governments, undermine their cultures, and stifle their identities. Thousands of First Nations people are, with the support of their families and friends and organizations such as the Aboriginal Healing Foundation and Canada's Truth and Reconciliation Commission, learning to heal from the devastating destruction wrought by the state imposed and church-managed residential school system. Over 150 years of forced removal of First Nation children from their homes and communities to attend residential schools has resulted in an ongoing legacy of individual, family and community breakdown.

Most First Nations still struggle with poverty, environmental and resource challenges such as ensuring clean drinking water, and high unemployment, often described as third world living conditions. Poverty and unemployment, especially in small, remote First Nations in the northern regions across Canada affects 80 to 90 percent of the people living in reserves. Controlled by the Federal government's Indian Act and an urban-based, centralized Aboriginal Affairs and Northern Development (AAND) department, governance and funding structures are forever changing and are at the discretion of people who have little or no

knowledge or experience in living and surviving in these challenging culturally sensitive environments.

Historically First Nations have been using whatever means available to rebuild and revitalize their communities - entailing a constant cycle of having to find and fight for the resources to effectively deliver essential community services and activities. This includes the ongoing struggle to develop and maintain an adequate level of information and communication technology (ICT) infrastructure, applications, training, and ongoing support and maintenance so that the communities can use these technologies effectively to reach their development and economic goals.

2 Broadband Development by and in Remote & Rural First Nations: Relationships, Sharing and Networks

Canada has a universal service requirement for telephone service but not for internet service and the required broadband infrastructure. Commercial telecommunication service providers are reluctant, slow or refuse to develop infrastructure without significant government investment; consequently it is always very challenging to build the partnerships necessary to develop broadband infrastructure and provide equitable and affordable internet services in many remote and rural regions of the country. Government policy to support broadband in remote and rural First Nations communities is underdeveloped and uncoordinated among many different departments and program areas. Since 1996, a variety of funding initiatives, strategies, and projects were implemented to support development of broadband infrastructure and increased use of ICT in First Nations communities. Too often, many of the program requirements made it impossible for First Nation ownership, control and development of the infrastructure, the networks and the local resources required to address the ongoing growth in demand and forever changing technologies.

The broadband development in First Nations across Canada is led by the needs of First Nation communities rural and remote regions. These communities are autonomous entities each with its own elected government responsible to deliver a variety of services to and support activities by community members. Increasingly these services and activities have a requirement to use broadband networks and ICT and the need for bandwidth is always growing. Unfortunately the result of this patchwork effort by the federal and provincial governments is many remote and rural First Nation remain today without the infrastructure or resources to support essential broadband applications and services that the same governments utilize and require for accessing their funding initiatives and ongoing reporting.

First Nation communities are linked together regionally and nationally through a complex and dense web of interconnected relationships and networks. These relationships and networks are the spaces through which First Nations share ideas and resources and collaborate to develop their local networks and link into the broadband infrastructure connecting their communities with the wider world. First Nation owned and controlled organizations at the regional and national levels are in place and continue to be led by the local First Nation leaders.

First Nation owned and managed networks include the infrastructure, the jobs, the opportunities, and the local enterprises being developed and supported by broadband applications and services. The interconnections that First Nations share with their neighbours and the world require regional networks and organizations to support the local operations and delivery of the community services through utilizing and sustaining the local networks. These regional organizations and networks are interconnected with other networks and service agencies through the effective deployment and utilization of video, voice, mobile, data, and other digital tools and applications.

On the national level the federal government supported First Nation organizations in the regions across the country to identify, develop and deliver connectivity solutions and opportunities and do the work required to make these different ICT infrastructures and developments happen. Some of these organizations did move into working with the local networks and provided a variety of IT services and broadband applications. As well, over the years these organizations have influenced and supported policies by engaging with universities and other research institutions to produce research, evaluations and publications that highlighted some of these developments. At the national level, the community leadership working with their representative body, the Assembly of First Nations, worked to bring this work forward and support the development of a national eCommunity framework to foster the creation, utilization, and sustainable operation of the First Nation networks (J. Whiteduck, 2010).

This paper discusses in more detail several of these developments and networks including:

- The need for First Nations to own, control, and manage their local networks as part of the larger movement and need for First Nations self-determination (as documented by the First Mile project).
- Regional networks and their organizational structures and partnerships (using the particular example of the First Nations Education Council and its partners in Ontario and the Atlantic region - Keewaytinook Okimakanak and Mi'kmaw Kina'matnewey).
- Online networks, particularly the videoconferencing networks and infrastructure that links the regional networks and First Nation communities (as documented by the VideoCom research initiative).
- Research projects, specifically VideoCom / First Nations Innovation and First Mile, proceeded by CRACIN and RICTA, that link regional organizations and communities with the people and resources available in universities and research institutions.
- The federal government's First Nations SchoolNet program support for IT Regional Management Organizations (IT-RMOs) and the IT-RMO interactions and engagement with federal policy makers in areas involving broadband such as infrastructure development, education and health services.

- The national representative organization the Assembly of First Nations (AFN) and its IT working group partially comprised of IT-RMO's that adopted the eCommunity approach developed to meet the holistic needs of First Nations.

The federal government program most directly responsible for increasing the use of ICT in remote and rural First Nations is First Nations SchoolNet. Since 2006 the program budgets have been reduced and the future of the program continues to be unclear with year-to-year project-based funding application requirements. The program provided funding for First Nations SchoolNet IT regional management organizations (IT-RMOs) across Canada to advance broadband infrastructure and applications in First Nations schools and communities. As discussed by O'Donnell, Milliken, Chong & Walmark (2010), the First Nations SchoolNet IT-RMOs have collectively been responsible for much of the broadband infrastructure development and subsequent use of ICT in remote and rural First Nations. Although the program focused on First Nations schools, the infrastructure developed under this program has spread to other applications and uses within communities. Supported by numerous support resolutions by First Nation leaders at the local, regional and national levels, the IT-RMOs continue to deliver a limited ICT support service for First Nation schools and the communities across the country (T. Whiteduck, 2010).

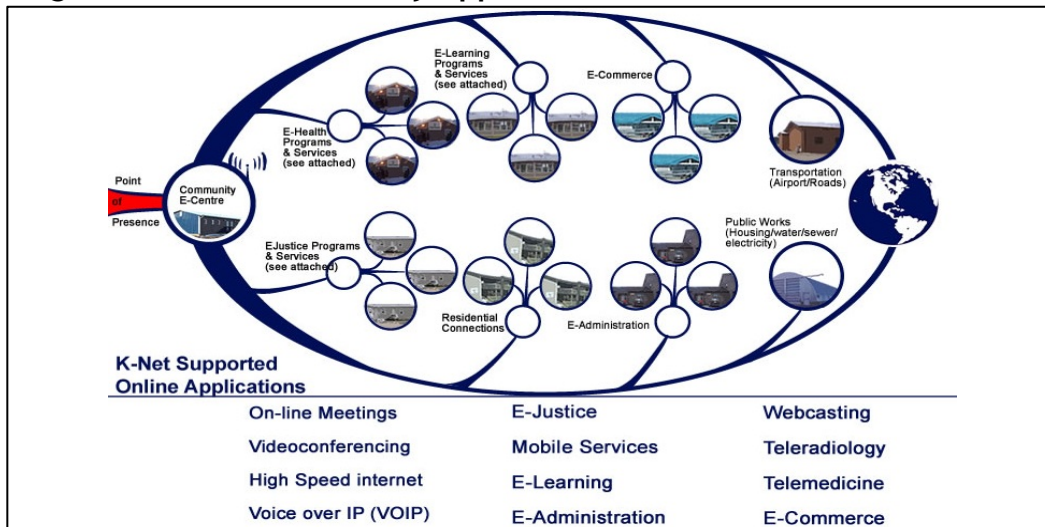
3 The AFN and the eCommunity Approach

Although each of the more than 600 First Nations in Canada is unique, there are common sustainable development priorities for all. The Chief of each community is represented nationally by the Assembly of First Nations (AFN), giving each community an opportunity to contribute ideas through their leadership that can influence change and share ideas and resources among First Nations across the country. National resolutions direct the AFN in their day-to-day efforts to address the needs of the First Nations within an increasingly difficult and ignorant urban centric political and corporate influenced and controlled environment.

The AFN through the community leadership supports many activity areas central to the sustainable socio-economic development of First Nations. All these activities are driven by community needs with innovation for change led by the communities. These areas include: securing lands and resources, building capacity for governance, addressing the legacy of the residential schools, alleviating poverty, increasing health and wellness, providing education and training, ensuring adequate and healthy housing and water supply, maintaining culture and languages, and building relationships with partners who can work with First Nations to reach their goals.

Key to understanding this dynamic is that the AFN is community-based, with their activities built on existing work in First Nations or generated by engagement with First Nations. The same dynamic applies to the AFN's eCommunity approach. The First Nation leadership through the AFN have passed numerous national resolutions relating to broadband infrastructure. In 2010, the AFN published its e-Community ICT model (J. Whiteduck, 2010). eCommunity is a holistic model for broadband development based on community needs (Diagram 1).

Diagram 1: The eCommunity Approach



The 2011 eCommunity Framework resolution put forward by First Nation Chiefs and endorsed by the AFN underlined that the eCommunity model includes a First Mile approach (McMahon, O'Donnell, Smith, Woodman Simmonds & Walmark, 2010). The First Mile describes the need for First Nations to own, control, and manage their local broadband infrastructure and the services and data flowing through their local networks. First Mile concepts support the principles of OCAP (Schnarch, 2004) applied to broadband - ownership, control, access and possession. The principles of OCAP are an essential component for all ICT developments and initiatives that need to be respected - ownership, control, access and possession of ICT infrastructure, applications and services.

These concepts also include support for First Nations to use broadband and ICT for community-controlled service delivery in a holistic manner. Policies to support a First Mile approach include supporting community members to use these technologies effectively and ensuring they have the capacity to do so (McMahon et al., 2010). Examples of First Mile in action are documented in Fort Severn's (2001) Technology Showcase - <http://fortsevern.firstnation.ca>, the First Mile website - <http://firstmile.ca> - and a recent study of Fort Severn's technology development (O'Donnell, Kakekaspan, Beaton, Walmark & Gibson, 2011).

Owning, controlling, accessing, and possessing their own ICT infrastructure pays economic benefits as well as development potential. The CRTC (Canadian Radio and Television Commission) regulations currently require telcos (telecommunications companies) to run a separate circuit to each building that it connects. Obviously, that is often prohibitively expensive for small First Nations who need eCommunity access. To address the challenge of providing economically viable access to multiple locations on reserves, several of the IT-RMO's have been certified by the CRTC as "non-dominant carriers" who can build dark-fibre local loops and distribute bandwidth among the community. The AFN eCommunity potential, under this formula, is possible.

The AFN’s eCommunity approach was endorsed by the AFN IT working group that includes members of First Nations SchoolNet IT-RMO organizations. In the eCommunity model, communication infrastructure is part of a broader plan for economic, social, and cultural change based on knowledge and information. eCommunity builds on a common network model employed by Canadian governments, institutions and telecom companies. The themes put forth in the AFN framework document are First Nations: 1) infrastructure and capacity development, 2) connectivity, 3) human resources development, 4) information management, and 5) service delivery and partners. Along the lines of First Mile approaches, the eCommunity model also proposes that First Nation communities and organizations oversee the public funding required to develop and control the communication infrastructure in their communities. Through the work of the AFN IT working group members and other networks, these ideas have been shared nationally and implemented in collaboration with numerous First Nations across the country. Stories of many of these initiatives are documented on the First Mile website (<http://firstmile.ca>).

To illustrate just one example, Keewaytinook Okimakanak (KO-KNET) is developing a comprehensive eCommunity approach in collaboration with its member First Nations that is described in a website (<http://e-community.knet.ca/>) and was recently shared and well received at the 2012 Annual General Assembly of the Assembly of First Nations in Toronto (Diagram 2).

Diagram 2: Keewaytinook Okimakanak’s eCommunity Approach



4 The First Nations Education Council (FNEC) and FNEC Technology Development

As noted previously, First Nation communities are linked together regionally and nationally through a complex and dense web of interconnected relationships and networks through which they share ideas and resources to develop their use of broadband and ICT. This paper discusses the particular example of one regional organization in detail - the First Nations Education Council - and FNEC’s regional organization partners in Ontario and the Atlantic

region - Keewaytinook Okimakanak and Mi'kmaw Kina'matnewey.

The First Nations Education Council (FNEC) located in Wendake, Quebec, is a First Nation organization established to support and represent 22 member communities in Quebec in the domain of education. The communities are from eight nations: Abenaki, Algonquin, Atikamekw, Huron, Malecite, Mi'gmaq, Mohawk and Innu. As the IT Regional Management Organization (IT-RMO) for the First Nations Schoolnet program in Quebec, FNEC also services non-member communities on the North Shore of the St. Lawrence River and in Labrador.

FNEC's mission is to link the force and the efforts of its members in the field of education, to defend the collective interests and to find solutions that address the educational issues facing the communities. In particular, its goals are to represent and support its members, to support dialog across the collective, to intervene politically so that education in indigenous medium concerns the jurisdiction of the First Nations, to intervene technically so that the rights as regards to education of its members are respected, to take the necessary measures to make progress and increase the quality of the programs and the educational services of its members, to ensure the defense and the advancement of its member's interests, and to support and assist its members in their interactions with other authorities.

FNEC manages a multitude of programs, including: New Paths for Education, a Parental Involvement Strategy, Teacher Recruitment and Retention: Professional Development, Special Education, Youth Programs (such as Youth Employment, Science and Technology, Career Promotion and Awareness), First Nations SchoolNet and Aboriginal Languages. FNEC has also developed and implemented a new Post Secondary institute located in the First Nation community of Odanak.

The objective of the FNEC Technology sector is to promote and engage the use of ICT in schools by cultivating teacher and student exploitation of ICT. They do this through a wide variety of services and program. One sample program is the delivery of Professional Development Training, using videoconferencing. From October 2004 to June 2006, they delivered 52 skills training workshops representing 130 hours of training offered to 1,330 participants, including Special Education workshops and Autism workshops. Another sample program is the MicroProgram ICT Accredited Training. This program responded to the need to overcome several major obstacles to ICT use in schools: the lack of training for teachers and lack knowledge and training on how to integrate ICT, equipment and telecommunications in the curriculum. The FNEC in collaboration with the University of Montreal developed a 15 credit postgraduate program to improve First Nation School teacher abilities to integrate ICT, designed specifically to improve teachers' ability to use technological tools and understand how ICT can support learning.

FNEC began its work in broadband development in 2003 after it was selected by the federal department of Indian Affairs as the IT Regional Management Organization for the First Nations Schoolnet Program for the Quebec region. Its first activities included regional T1 (1.5MB) network deployment and local IT network improvements made into 18 communities, working with an annual budget of \$1.4M from 2003 to 2006 and \$850,000 from 2007 to 2011. In addition to its activities with First Nation schools, FNEC began collaborating with Health

Canada to support First Nation health centre connectivity improvements supporting and sustaining local network and broadband application development.

The FNEC developed a comprehensive broadband infrastructure project, Vision 2007, aiming to deploy fibre optic connectivity into 13 of its 22 member communities including the external fibre network connection. The total budget projected was \$4.5M and was eventually funded by the First Nations Infrastructure Fund of Indian and Northern Affairs Canada (INAC recently relabelled as AANDC). FNEC expects to complete the project in 2013.

5 Regional Organizations in Quebec, Ontario and Atlantic and the Videoconferencing Networks

FNEC has links with partners across Canada through the relationships built by the First Nations SchoolNet program, the AFN IT working group, and several ongoing research projects. In particular, FNEC works regularly with its partner in the Atlantic region - Atlantic Canada's First Nation Help Desk, part of the Mi'kmaw Kina'matnewey (MK) education organization - <http://fnhelp.com>, and with its partner in Ontario - the Keewaytinook Okimakanak (KO) tribal council - <http://knet.ca>.

There are many examples of how these three organizations work together and with other partner organizations across Canada to support the development of infrastructure and broadband services and applications in collaboration with the First Nations in their respective regions. The IT-RMO's have collaborated with each other to reach First Nation communities across Canada and Nunuvut.

A core example of this collaboration among regional organizations and First Nation communities is the development, deployment and ongoing use and further expansion of the regional videoconferencing networks. Our research has highlighted numerous examples of how remote and rural First Nations use videoconferencing to support sustainable development. First Nations are using videoconferencing not only for distance learning and telehealth but also for increasing for their participation in a range of social, economic, political and cultural activities (O'Donnell et. al, 2007; O'Donnell, Beaton, McKelvey, 2008).

For instance, in 2007 the First Nation national videoconferencing network connected 160 First Nation videoconferencing sites and an additional 535 computers watched the suicide prevention event via webstream. This event was created by the youth in one Atlantic First Nation community. Collectively, there was a targeted audience of 4,000 to 5,000 people and proved that First Nation communities can be content producers as well as consumers. All three organizations work closely with the communities that are driving the need for this development.

Videoconferencing has helped many remote and rural First Nations overcome geographical barriers and support community members to stay in their communities while engaging in meaningful activities happening outside. As discussed in an upcoming publication (O'Donnell, Johnson, Kakepetum-Schultz, Burton, Whiteduck, Mason, Beaton, McMahon & Gibson, in press) this First Nations experience with videoconferencing is part of the larger international story

of how indigenous peoples everywhere are using broadband networks and ICT to continue to develop and maintain control over their ways of life.

The three organizations - FNEC, KO and MK - as well as the other regional network organizations across Canada have established that a two-way symmetrical minimum benchmark for community bandwidth / network infrastructure is necessary for videoconferencing to be properly supported on a private managed network. The remote and rural First Nations variously use available T1 (1.5Mb) connections, cable, fibre, microwave, or, in some northern communities, satellite connections. In northern Ontario, Quebec and Manitoba, the latter are managed by NICSN - the Northern Indigenous Community Satellite Network.

Some communities are more active users of videoconferencing than others, and the use of videoconferencing has been increasing in recent years and continues to expand. In Quebec for example, FNEC's videoconference services support training and communication in all the First Nation communities of the region. In 2008-2009, videoconference activities rose by 40% and utilization hours increased by 50% compared to the previous year. At least 58 videoconference systems have been installed in the First Nations schools and health centres of Quebec, and certain band councils also use this technology (First Nations Education Council, 2009). In 2010-11, FNEC supported the deployment to all five treatment centres across the region as well as FNEC's Post Secondary institute. FNEC reported multipoint usage statistics for 2010-11 at 968 hours, a 17% rise on the previous year (First Nations Education Council, 2010).

The three diagrams below illustrate the interconnected-ness of the regional networks managed by FNEC in Quebec (Diagram 3), by Keewaytinook Okimakanak (KO-KNET) in Ontario (Diagram 4), and Atlantic Canada's First Nation Help Desk / MK in the Atlantic Region (Diagram 5). Diagram 6 illustrates the network in the New Brunswick community of Burnt Church First Nation.

Diagram 3: The FNEC Regional Network

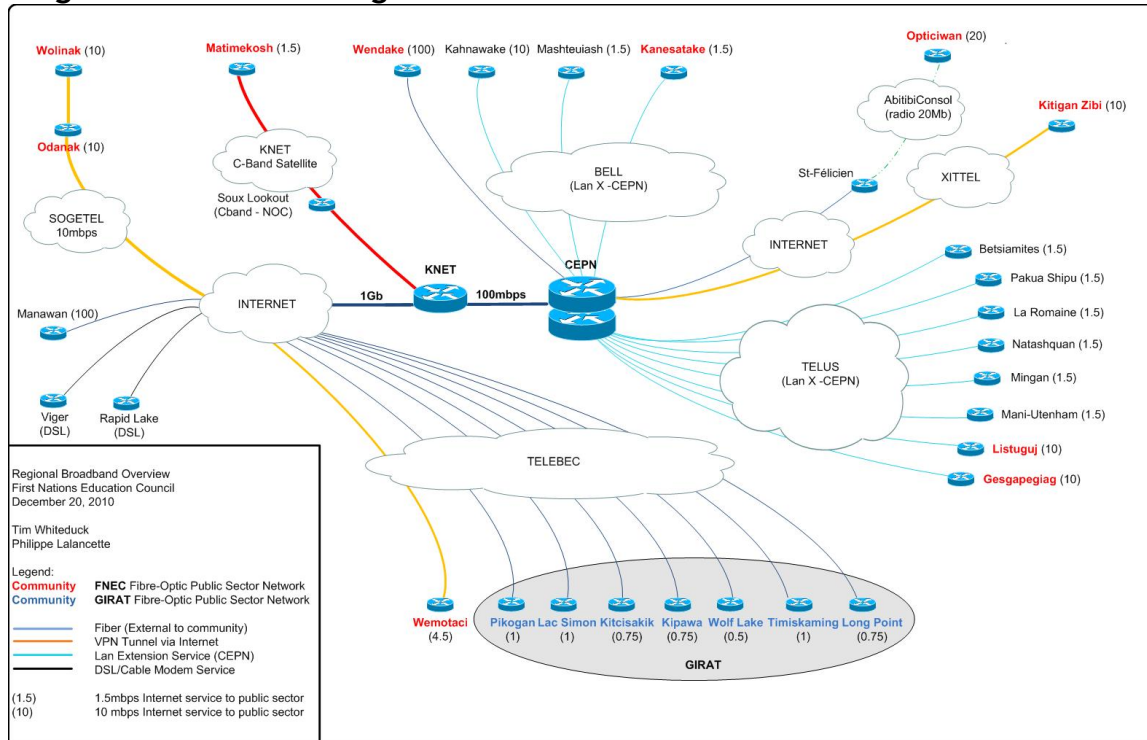


Diagram 4: The KO-KNET Regional Network

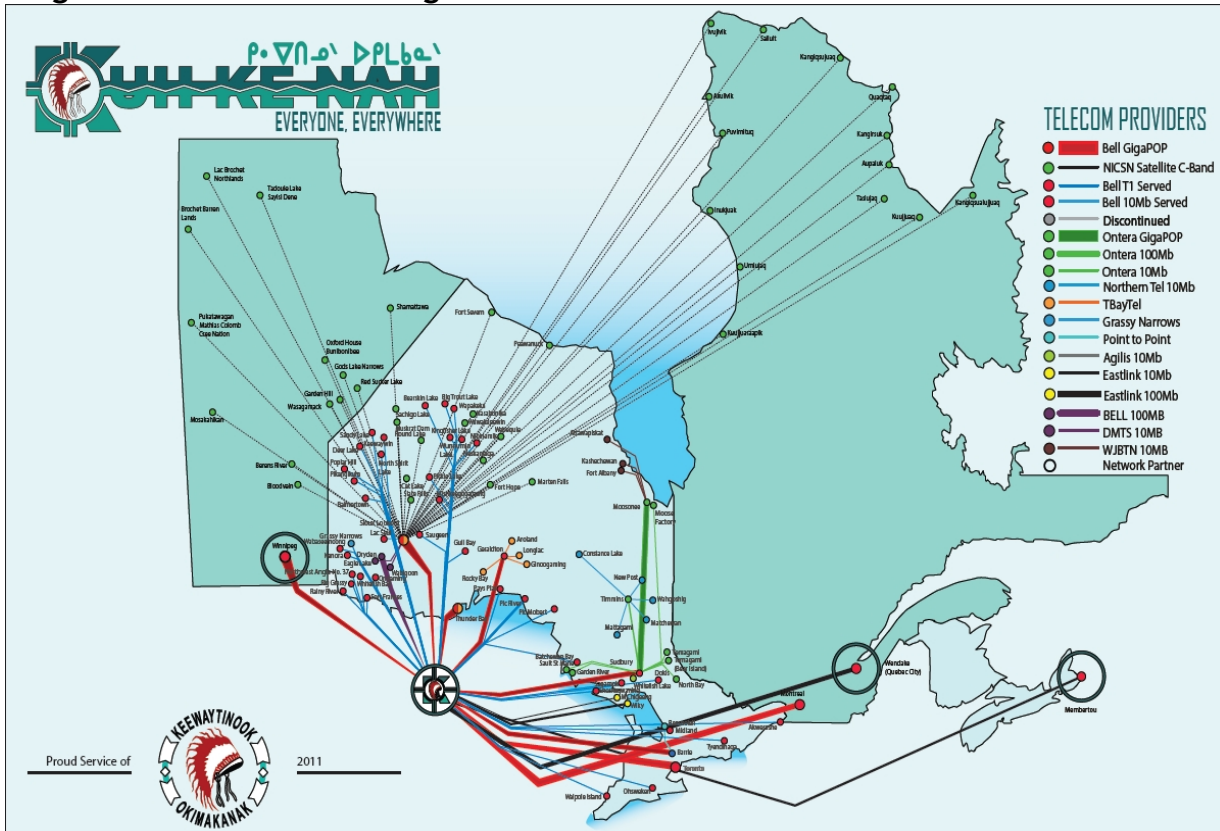


Diagram 5: MK's Atlantic Regional Network

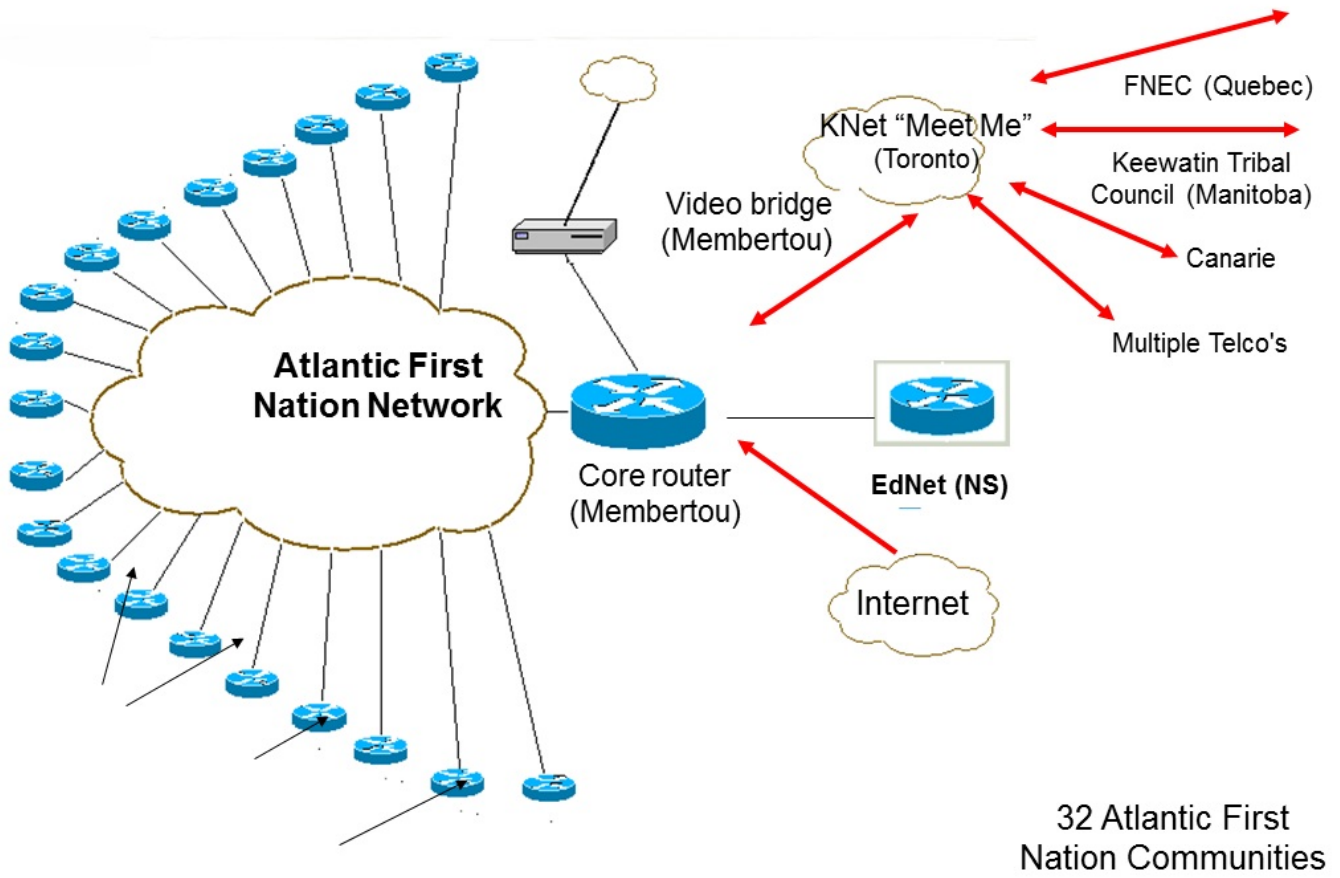
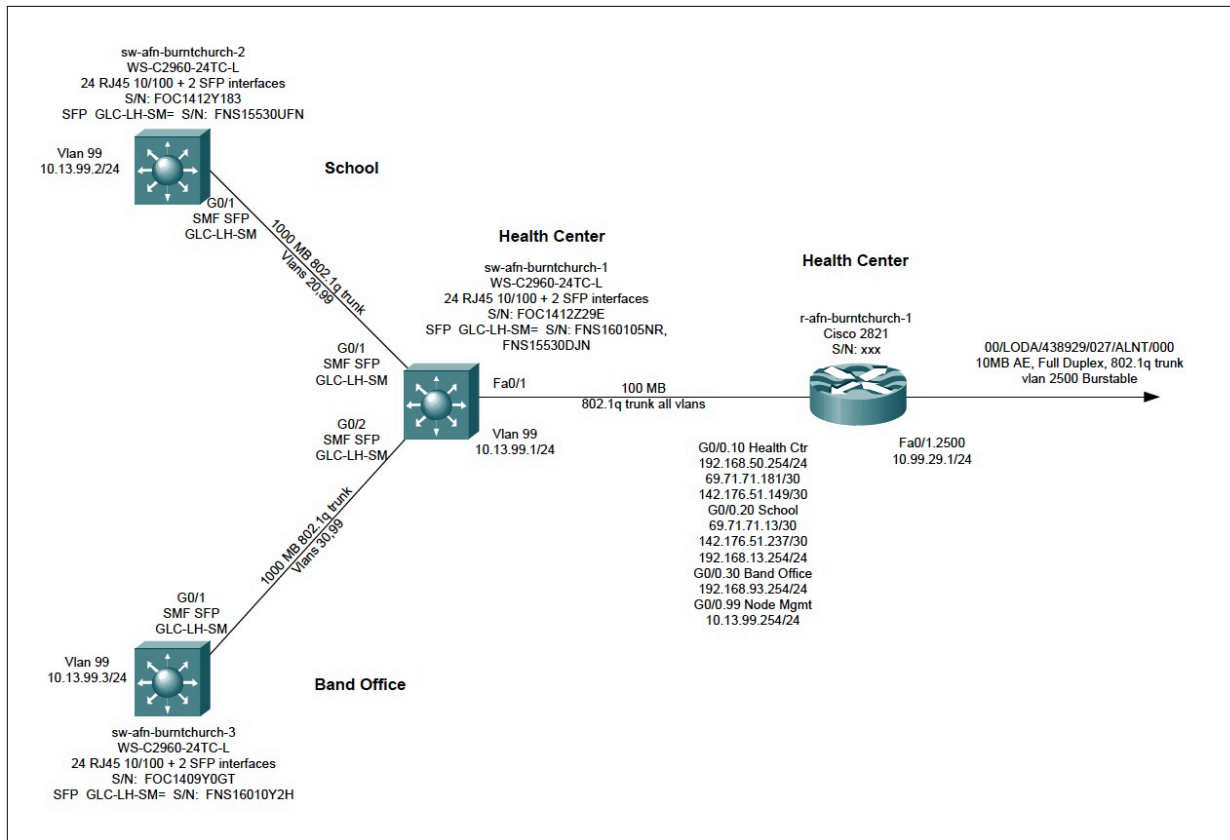


Diagram 6: Burnt Church First Nation fibre network, 2012



6 Research and Outreach with Communities

Inclusion in and engagement with research projects is another way that rural and remote First Nations and their regional partner organizations share information and resources to document, promote awareness and understanding of, and support the development of broadband networks and ICT. In the past decade, research and outreach projects - most notably VideoCom / First Nations Innovation (<http://videocom.firstnation.ca>) and the First Mile (<http://firstmile.ca>), proceeded by the CRACIN project (<http://archive.iprp.ischool.utoronto.ca/cracin/index.htm>) and RICTA (<http://ricta.ca>) - have linked regional organizations and communities with the people and resources available in universities and research institutions. Notably all four research projects have been supported by the Social Sciences and Humanities Research Council of Canada (SSHRC) with in-kind funding by the partners.

All four projects have also supported and promoted the engagement of federal policy-makers in learning about the needs of remote and rural First Nations related to broadband networks and ICT. First Nations communities and their regional partners engage with policy-makers and political representatives on an ongoing basis; however one of the benefits of having research partners is the opportunity for publications that provide evidence-based research to tell their stories and support their ongoing needs.

Currently the three First Nation organizations discussed in this paper - FNEC; Atlantic Canada's First Nation Help Desk, part of the Mi'kmaw Kina'matnewey organization; and the Keewaytinook Okimakanak Tribal Council - are partners in two ongoing projects with university partners. These are the outreach First Mile project with Simon Fraser University and the University of New Brunswick, and the VideoCom / First Nations Innovation project with the University of New Brunswick.

The First Mile project website: <http://firstmile.ca> has more than 50 stories and videos from First Nations across Canada showcasing their achievements with broadband and ICT. The website also disseminates the report, Putting the 'last-mile' first: Re-framing Broadband Development in First Nations Communities (McMahon, O'Donnell, Smith, Woodman Simmonds, & Walmark, 2010) that comprehensively documents the needs for First Mile approaches. A community that puts First Mile concepts into action is working closely with its strategic partners to own, control, and manage its local broadband network and infrastructure.

The VideoCom project (<http://videocom.firstnation.ca>) has been ongoing since 2006 and in 2013 will become the First Nations Innovation project. Both projects have research and outreach activities. The research is exploring broadband communications in remote and rural First Nation communities in Canada. The partners are also exploring new ways to work together in participatory research while separated by vast distances. The project partners are located in four Canadian provinces, across three time zones and more than a thousand kilometres apart from each other. The partners use communication technology extensively - especially video - to make VideoCom happen. The project website - the VideoCom moodle environment - is hosted on the KO-KNET Meeting Space. The website is the main repository of information about the project. The partners use multi-site videoconferencing for monthly meetings and special online events, which have been ongoing since July 2006. KO-KNET provides the multi-site videoconference bridge and archiving resources for the meetings. The project has produced more than 40 publications since 2006 that are all available on its website.

Since 2010 the VideoCom project has been working with collaborating remote and rural First Nation communities to conduct community-based research on eCommunity strategies and innovative delivery of services using broadband networks and ICT. Below we briefly profile three of these publications produced with First Nations in Quebec, Ontario and the Atlantic region.

- **Broadband-Enabled Community Services in Kitigan Zibi Anishinabeg First Nation: Developing an e-Community Approach** (Whiteduck, Tenasco, O'Donnell, Whiteduck & Lockhart, 2012). This paper was produced in collaboration with Kitigan Zibi Anishinabeg First Nation in Quebec, the largest Algonquin community in Canada and recognized as a leader for their community services. For our collaborative study, we conducted a qualitative analysis of interviews with community services staff in Kitigan Zibi Anishinabeg. The interviews explored questions of technology and community, including their current successes, challenges, and future potential. Kitigan Zibi is developing a strategy to integrate communication infrastructure and information, and communication

technologies (ICT) into services that promote community, economic, social, cultural, and intellectual development. The discussion focuses on how the community can integrate a holistic “e-Community” approach into its strategy.

- **A New Remote Community-Owned Wireless Communication Service: Fort Severn First Nation Builds Their Local Cellular System with Keewaytinook Mobile** (O’Donnell, Kakekaspan, Beaton, Walmark, Mason, Mak, 2011). This paper was produced in collaboration with Fort Severn First Nation, a remote fly-in community on Hudson Bay in Ontario. The lifestyle reflects a deep respect for and connection to the land. The Keewaytinook Okimakinak (KO) Tribal Council has developed the Keewaytinook Mobile (KM) service in remote First Nation communities in Northern Ontario. In November 2009, Fort Severn and KO established the KM service in the community. This study traces the history of KM and its implementation in Fort Severn and describes how and why community members are using the service. The analysis is based on interviews and discussions with community members during three research visits from March 2010 to March 2011.
- **Post-Secondary Distance Education: Experiences of Elsipogtog First Nation Community Members** (Simon, Burton, Lockhart & O’Donnell, 2012) This paper was produced in collaboration with Elsipogtog First Nation in New Brunswick. Post-secondary distance education is an option for community members living in many Atlantic First Nations. This paper includes preliminary results from research based on interviews with community members of Elsipogtog First Nation. Most community members interviewed had taken post-secondary courses by distance education while living and working in their community. The focus is their experiences of distance education, in particular with videoconferencing and online web-based course delivery systems.

The VideoCom publications profiled above and those currently in development are an ongoing work in progress exploring how to collaboratively conduct respectful research about ICT and engage First Nations meaningfully in the process. The relationships established through the research are essential to ensuring that the stories told in the publications strongly reflect the voices of community members, and that the publications meet the needs of First Nations. In this way, the researchers involved and the institutions they represent become part of the web of relationships through which First Nations share ideas to support their development and use of ICT and broadband (Gibson, Thomas, O’Donnell, Lockhart & Beaton, 2012).

7 Conclusion

The complex network of First Nation relationships and partnerships discussed in this paper highlight the importance and value of appropriate ICT infrastructure and tools to adequately address the needs and priorities in remote and rural communities. Developing and sustaining First Nation owned and managed infrastructures and applications requires the cooperation and collaboration of all the individuals, communities, organizations, governments, institutions, and corporations working with the people and communities.

First Nations and their citizens want equitable and affordable services and opportunities for their children and their future. Protecting and sustaining their communities, territories, and resources that have always provided for their needs and survival requires all the partners to be working together. Learning from and listening to the people who live and work in these remote and rural environments as well as understanding what is required to create healthy and prosperous communities is an ongoing challenge for most people in far-away governments, institutions and corporation.

Owning, managing, and accessing ICT infrastructure and broadband networks provides First Nations with the economic and social tools to support local development and services. Adequate and appropriate ICT tools is an essential utility for all First Nations today. It is incumbent upon all partners to be finding innovative strategies that effectively support and sustain First Nation owned broadband networks and services.

On an international level, the approaches discussed in this paper are supported by the UN Declaration on the Rights of Indigenous Peoples (UN, 2007). The UN Declaration supports control by indigenous peoples over developments affecting them and their lands, territories and resources. Indigenous control of broadband infrastructure will support their ongoing work to maintain and strengthen their communities, institutions, cultures and traditions, and to promote their development in accordance with their aspirations and needs.

Many research articles, papers, reports and presentations discussed in this paper have shown how First Nations in Canada are using broadband networks and ICT to pursue their self-determination goals. An abundance of evidence exists that remote and rural First Nations are using and shaping broadband networks to meet many of their social, political, cultural and community needs. Missing in this scenario is government recognition, respect, and support for their innovation and leadership. Control of local broadband and the community services using the network means that First Nations can support community and economic development in a way that meets their unique needs.

Acknowledgements

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