

**LIVING SMART IN TWO WORLDS:
Maintaining and Protecting First Nation Culture for Future Generations**

By

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Abstract

K-Net is a regional information technology and content development organization that is working directly with six First Nations in the Nishnawbe Aski Nation (Northern Ontario). Delivering a variety of broadband services and developing electronic Indigenous applications, K-Net supports and manages various local First Nation telecom initiatives across the region. This paper and presentation are an opportunity to share the organization's experience sustaining distinctive and minority cultures, our plans and actions to identify community needs, mobilize communities, and encourage and support individual use of its IT services and applications. Brian Beaton (Coordinator of K-Net Services) will share his observations and efforts to create a positive impact and environment for these technologies on the nature of community and of social interaction.

1. Culture and Technology

Throughout the 20th century our societies adopted numerous technologies that improved the distribution and acquisition of information. The predominant technologies each carved out a niche for themselves that makes them both accessible and desirable for people. We telegraphed, telephoned, and televised our lived and imagined experiences. We wrote, spoke, and watched as broadly-based narratives emerge and form into the material expression of our cultures.

These technologies progressively show and invite us into many different worlds. They appeal to our human need to communicate and broadly reflect social and political interest in the mitigation of distance and the control of space. Communication technologies figured prominently in the ways that our societies organize and associate with one another. They bind us together, comfortably or not.

Information technologies anticipate and animate widespread changes in the ways that we think and act. In this sense, they are clues of things to come. They enable extreme forms of concentration and standardization and sometimes facilitate positive social

change among minority groups and societies.

Our work engages the latter theme. At K-Net we view media technologies as important resources in the diffusion of innovation – they are a practical means for transforming everyday life. The horizontal nature of community-based informatics permits widespread changes across jurisdictions and diffuses a synergy that relates to individual perceptions of a bigger picture. And so K-Net's work, in-a-nutshell, is to use technology tools to connect local initiatives for economic development, enhancement of health, education, and social services, and cultural self-determination to a shared sense of community well-being.

1.1 Locating Our Culture

Northwestern Ontario is the traditional territory for thousands of First Nations people living in dozens of fly-in communities (see <http://communities.knet.ca>). Community life in the north is close knit. Children grow up knowing their elders, practicing their culture, learning boundaries, and relying on one another. Their lives are intertwined with the natural beauty and resources that the land offers.

Keewaytinook Okimakanak First Nations are members of Nishnawbe-Aski Nation (NAN). They are small communities with an average population of about 400. Many people speak their Ojibway, Oji-Cree and Cree languages though few still read and write using their traditional syllabic script. Forestry and mining activities are rapidly expanding into traditional territories and tourism is a seasonal mainstay for the area.

These First Nations face many challenges, particularly among youth. Typically, 50 percent of the total population is 20 years of age or younger. Approximately 36 percent of the adult population is unemployed or is receiving some form of social assistance. Youth suicide is at least six times the national average in some communities and high school completion rates are as low as one in five.

Many of the children who grow up in places like North Spirit Lake, Fort Severn and Keewaywin still travel hundreds of kilometres to attend high school. When they leave their communities they also leave the relationships and environment that shaped their identity. They are newcomers, outsiders in a non-Aboriginal, urban world where their language and experience are neither recognized nor valued. They are alone. They miss their families. Many fail or drop out, some return home. Some are lost.

The internet is connected to the community access site (the e-centre), clinic, elementary school, constabulary, Band Office and every home via each community's local cable system. The local cable system replaced the former wireless Municipal Area Network (see <http://www.knet.on.ca/nslstory/story1.html>) in 2001 as part of the Smart Communities Demonstration project. Local access to library services is only now being introduced in many of these communities. The local area networks are managed and

routed locally by Linux servers and routers. The digital radio upgrade of Bell Canada's backbone north of Red Lake enabled broadband service provision beginning in 2000. Fort Severn's satellite system has been similarly upgraded to accommodate broadband data services in 2000.

1.2 Converging Cultures

Community access to communications technologies in many Nishnawbe-Aski communities began in the late 1960s with the introduction of high-frequency radio, satellite-based telephony and later with the extension of analog radio services. Then – as is still the case in some First Nations – communities were given one toll phone that was housed in a local building such as the band office, teacherage, or nursing station.

Nishnawbe people took up the technology. Air cargo was scheduled, wholesalers were reached, emergency evacuations were coordinated. Parents talked to children who had left the community because of illness and for schooling. Doctors could call to follow-up. But this new form of access also posed problems. Talking on the telephone was expensive. Talking on the telephone was not private. Talking on the telephone meant finding someone who spoke English!

The toll telephones were all routed through operators who knew not a word of Cree, neither Oji-Cree, nor Ojibway. They spoke English and French to people who lived in communities where 95 percent of the population spoke only an Indigenous language. Similarly, First Nations would have to read English in order to use the regional telephone directory. Access to new communications technologies appeared to come at a fairly high price – cultural assimilation. “Why,” people wondered, “do we have to take their culture, when all we want is the phone?”

This question was taken up in the early 1970s by Wawatay Native Communications Society – a regional Nishnawbe newspaper and broadcast service. Wawatay not only answered the question concretely – by introducing a translataphone service,¹ publishing a Syllabic² version of the regional phone book, coordinating the introduction of community radio and launching radio and television broadcast networks – but engaged the Canadian communications sector in a substantive review of its access policy.

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1. The translataphone is a bridge between the Bell Canada operator and the person calling from a community. A Wawatay translator moderates the conversation and the call is routed. Wawatay still offers translataphone services.
 2. Syllabic script is a phonetic system that is said to have been introduced by James Pitman in the early 1860s. Some Elders argue that the syllabic fonts are indeed Indigenous and predate colonization by Europeans.

By the early 1980s local access was more than just the extension of services. Access emerged as part of national vision for ensuring the affordability and quality of service of newly introduced media technologies in small isolated Aboriginal communities. Access policy became a strategy for negotiating the cultural fit of new services and an instrument for strengthening Indigenous expression – a means for building infrastructure and content that reflected local conditions and regional priorities.

Although this policy has been successfully applied in broadcast and cable media,³ it has been less successful within the telecommunications sector. Today, telecommunications infrastructure across much of the Nishnawbe-Aski Nation more closely resembles a dirt road than a super-highway. It is an uneven surface where aging physical plant and new telecom applications converge -- often with unhappy results. It is also an area where the Chiefs of Keewaytinook Okimakanak focused their attention some nine years ago. They saw communications for development as a smart way to go.

K-Net's work grows from this community base – its energy, history and innovations. We are a cultural advocate in telecom policy areas and content development in partnership with the First Nations. We provide technological support for individuals and support the technical work of extending broadband access in the communities. We foster long term relationships and continuity of care between learners and teachers, technicians and administrators, caregivers and clients. These technical and human resources provide a local base of support for sharing information among the First Nations across the Nishnawbe-Aski Nation and for developing a cultural legacy within their electronic territories.

2. Tools for Sustaining Indigenous Cultures

One of the strengths of distributed systems is their capacity to support a more equitable relationship between predominant and minority cultures. They install new perceptual criteria for interaction within virtual or contingent settings. They aggregate and parse information. They accommodate non-standard forms of knowledge. They make living successfully in two worlds not only possible but desirable, if one chooses to do so.

Distributed systems do all of these things by engaging people in an exchange of ideas and expression. New media draws a thinner line between cultural user and producer. They constitute exceedingly widespread communities of interest. They also encourage new dialogues – pictorial, syllabic, anonymous – that speak to our own capacity to imagine and enable change.

3. The September 1999, launch of the Aboriginal Peoples' Television Network on basic cable is the most recent product of this policy position.

But these new media require time to mature within a region or community. Content development that strives to serve broad cultural interests or to fill a hole that has been otherwise empty need nurturing and support. K-Net is, in this sense, an incubator – a place where Indigenous projects can develop, adjust, and grow into material expressions of community cultures and their experience of the world.

2.1 Traditional Indigenous Knowledge

Traditional Indigenous knowledge is a rich source for understanding spiritual and social interactions as they relate to the natural world – the environment, the land. Early settlers misunderstood and feared Indigenous knowledge systems. Later on, colonial governments actively discouraged and outlawed their practice. Today, we see them for what they are - sophisticated interpretations of integrated structures and highly localized descriptions of life - a collective expression of wisdom and evidence handed down through an oral tradition.

Though many divergent views of our evolving civilization have been proposed, most agree that knowledge systems and workers will play a central role. Evidence-based systems - simulation software, expert systems, search facilities - will permit increased access to and cross-referencing of data. Likely the growth of knowledge intensive industry will generate demand for greater access to more divergent bases of knowledge. These developments pose several challenges for Aboriginal communities who want to preserve, maintain, sustain and renew their Indigenous base of knowledge.

Oral traditions are fluid. They are carried by older people who make up only a small percentage of the total population. The *Final Report* of the Royal Commission on Aboriginal Peoples relates the critical nature of this problem:

To preserve existing traditional knowledge and explore its application to the health and social problems facing Aboriginal people today, a number of issues will have to be discussed and resolved by governments, health authorities and healers. The number of active healers, midwives and elder advisers is unknown, but it is not likely to rise as fast as the demand for their services (1996:VOL3:290)

And there are many other challenges -- oral traditions are sensitive to local conditions so writing them down changes how knowledge is stored and repeated; northern bandwidth is restrictive; knowledge is sometimes well documented but not collated; graphical search engines are still in their infancy ... and so forth. People in the communities have identified many of these challenges. Language teachers, community health representatives, parents, administrators, and children highlight critical concerns and are helping K-Net to address them.

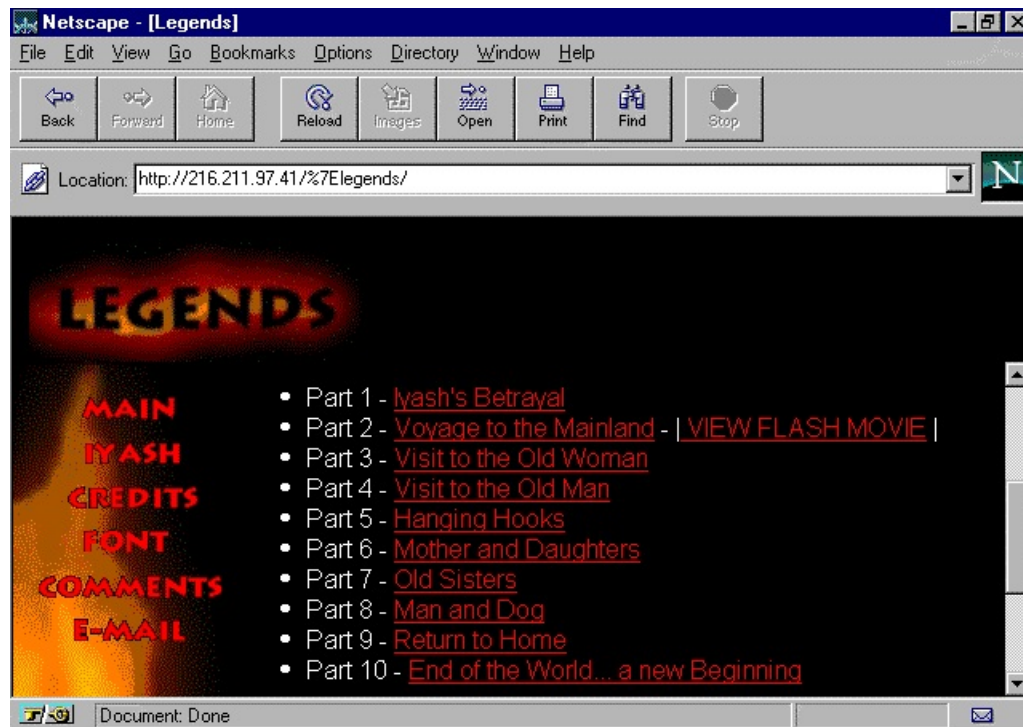
In 1997 K-Net quietly began to incubate a couple of E-Culture prototypes. One was a personal project, the other a collective one. During this period, each project has shared team resources, borrowed approaches, invented solutions, and recycled techniques. Their common goals - ease of use, removal of barriers, cultural relevance, quality - have set standards for work still just getting underway. These projects have also initiated a cycle of improved practice within K-Net - a loop that begins in the community

and winds its way through the constituencies and the technologies that bring these sites to life.

The two projects are The Iyash Saga site and the Ojibway/Cree Dictionary site. Both are now in a state that can be best described as demonstration models. They are working on the internet to bring timeless cultural information to communities on-line.

2.1.1 Iyash (<http://legends.knet.ca>)

Iyash is the story of boy who learns that difficult choices are part of life. It is also the story of another young man - Jesse Fiddler - from the Sandy Lake First Nation who has worked to make this story as widely accessible as possible for Indigenous and non-Indigenous people.



Legends as they are, usually begin with our ancestors and are told from generation to generation. This is where the stories from the Legends site come from. These stories are native to the Northern Ontario area and surrounding regions. There are different versions of our stories across North America.

In 1979, the story of Iyash was recorded on reel-to-reel audio tape. The teller at the time was Jesse Fiddler's grandfather - Jerry. The stories were recorded by Jerry's son - Ennis (Jesse's father). At the time, Ennis was host of a CBC program called "Indian Faces" or better known as "Wingwong" and had recorded Jerry and many other Elders

in the area, capturing their teachings and stories on audio tape. These tapes were stored in the CBC archives in Thunder Bay for the many years.

Ennis Fiddler's other son - Adam - became the host of Wingwong in the 1990s. Adam knew about the tapes and used them on his show. People enjoyed hearing the old people - who have since passed on - speak their language using traditional expressions and concepts. Ennis translated the stories into English. This is how the lyash's Saga came to be written down in the English language.

Jesse Fiddler got involved in this project in 1997 while he was a student at the University of Windsor. Jesse made a multi-media project out of the interpreted story of lyash and documented it on the Internet. These pages created the basic components of the prototype - English text and audio, pictorials and a short Flash animation.

Jesse picked up the project again that summer when he returned home and continued his work at K-Net. Jesse was encouraged to expand the site and to improve access to it by First Nations people in northwestern Ontario.

Since then, Jesse added several features to the Native Language site at K-Net. These include:

- English and Oji-Cree audio at the lyash web site;
- A syllabics version of the lyash story;
- Downloadable syllabics True Type fonts;
- An interactive syllabics Table;
- A syllabics keyboard layout; and
- An updated version of the on-line dictionary.

It was hoped that this site would become an important resource for native language and heritage teachers in the Nishnawbe-Aski Nation. Children and adult learners can navigate the site without having to possess special skills - they can listen in their language or in English, read it in their language, read it in English or simply watch the story develop. Similarly, the site incorporates the structural limitations of the telecommunications infrastructure and permits low and high speed audio streaming.

This project is very nearly complete. It has been supported by Industry Canada's Youth Employment Program and K-Net Services and by the personal interest and motivation of a small production staff. lyash provides a window into the electronic possibilities that exist for a minority culture. It not only strengthens and renews Indigenous knowledge by supporting community level learning, but it also builds a bridge to other non-Indigenous audiences - children in school, policy makers, technicians, and media producers.

2.1.2 Ojibway/Cree Dictionary (www.knet.ca/webdata)

The Dictionary project addresses a longstanding issue in the Nishnawbe-Aski Nation - how to present the different language groups in a common format. It is designed to provide categorical searching for images, sounds, syllabic script and roman orthographic text. The dictionary supports and encourages contributions from individuals and groups who wish to share their dialects and knowledge with others. It is tied to future efforts to link the geographic information systems to broader applications involving education, research, archiving of traditional information, land claims, resource management, among other applications.

Search Again	English	Oji-Cree	Syllabics	Sound	Picture	Contributor	Category
	bear	makwa	ᓄᓐᓇᓂᓐ				Animals
Delete Me	admin						
	dog	ani-mosh					Animals
	Fall	Takwakin	ᓄᓐᓇᓂᓐ			Sandy Lake	
	Monday	Anokiwikisika	ᓄᓐᓇᓂᓐᓇᓂᓐ	monday.wav		Sandy Lake	
	river	sipi					
	spring	sikwan	ᓄᓐᓇᓂᓐ	spring.wav		Sandy Lake	
	summer	nipin	ᓄᓐᓇᓂᓐ	summer.wav		Sandy Lake	
	Tuesday	Kichi-anokiwikisika	ᓄᓐᓇᓂᓐᓇᓂᓐ				
	Wednesday	Apitawan	ᓄᓐᓇᓂᓐ	wednesday.wav		Archie Meekis	

The Oji-Cree Language is one of the few remaining original languages of this land that has any hope of being successfully passed on to the next generation. The on-line dictionary provides one way to preserve and utilize this original language in all aspects of local education and service programs. The dictionary project will ensure our way of life is understood and protected by all people and for future generations.

The parents and grandparents in the Keewaytinook Okimakanak tribal region of Northwestern Ontario still use their language much of the time, both in their homes and in their workplace. But the use of English in the schools, by media, and in most business settings is resulting in many young people not being able to speak their Native language. Very quickly Native language speakers are witnessing the loss of their own language with a great deal of concern. Everyone is looking for ways to make Oji-Cree the language of choice in all aspects of home, school and work. This includes

making the Native language (Oji-Cree) and appropriate resources available on the Internet.

The dictionary project will use existing resource material from sources such as Wawatay's print, audio and video libraries. As well other language reference material gathered by workers in each Keewatinook Okimakanak First Nation can be digitized for on-line access. The on-line database will include text, audio and graphical representation of the words and terms used for translation from English to Oji-Cree or vice versus. The information will be available to assist students in the use of the Oji-Cree and English languages. It can be used as a reference tool for classrooms and employees in their workplace. As the community-based component of this project develops the on-line database will be expanded to include video clips of Oji-Cree phrases being used by speakers demonstrating various applications and concepts.

Being encouraged and supported to conduct business in Oji-Cree will result in young people being able to acquire positions in most Native organizations throughout the region. Youth will get an opportunity to further develop their skills and interest in local heritage, language usage, digital content creation (graphics, audio and video) and organization of online databases. They will learn some of the latest skills for digitizing and storyboarding this information and creating Web sites using the project's database. Gaining exposure and experience with web sites, digitizing material, setting up and maintaining online databases will be very valuable when these young people seek employment or start their own businesses.

Technology is changing the way we live and work. Traditional jobs are declining to make way for new ideas, and new skills. For example, the graphic designers and illustrators of yesterday are today's web professionals. These new and exciting careers are pioneered by those with the creative knowledge and traditional skills that are the foundation of digital media professionals. This revolution defines the information age. The Native languages must be included in this revolution to ensure their survival and applications throughout all aspects of the First Nations.

2.2 Animating Community Interest

The K-Net Services team is coordinating broadly-based projects aimed at improving the quality and level of telecommunications services available in First Nations. K-Net has been instrumental in demonstrating the practical value of communications applications in First Nations. K-Net's success is based on its proximity to emerging community needs, its commitment to pragmatic system-based solutions, and by its capacity to support early adopters in their use of new technologies and applications.

K-Net provides HelpDesk Services to 120 First Nation SchoolNet sites across Ontario, managed Science and Technology Camps for Aboriginal youth, and hosts a variety of open source on-line communication tools such as the Turning Point discussion forum (www.turning-point.ca). In addition, K-Net develops on-line learner resources such as

the DirecPC Manual and the Webpage Development Guide (see www.knet.ca/tutorials).

In 1994, K-Net introduced a text-based BBS service and provided intensive training for its community members. The service grew from a gated training application into a regional messaging system. The different discussion forums are still an active and accessible resource. In 1996, K-Net launched a web-based e-mail service to animate adoption of improved internet access. In 1999, the K-Net mail server hosted over 3,000 users located in remote communities - adults and children, administrators, teachers and health professionals. Today we are hosting over 6,000 active user accounts, more than a 1,000 personal home pages and receiving over 5 million hits a month on the different on-line services hosted at <http://knet.ca>.

K-Net has focused its organizational energy on advocating for and supporting broadband development in Keewatinook Okimakanak First Nations and on the development of appropriate community-based applications, such as telehealth (<http://telehealth.knet.ca>) and the internet high school (<http://knet.ca>). K-Net representatives in the communities play a dual role in maintaining local skills and technical plant and articulating local needs and interests. Both the Iyash Saga and the Dictionary project reflect cultural and educational demand for better access to regional Indigenous information.

3. Knowing Needs / Promoting Services

Talking about this new network is good, it also raises expectations. These expectations have to be met. I think this network idea is a good thing and I enjoy what is going on.

**Douglas Meekis, Deer Lake Elder
Community Consultation, May 1999**

3.1 Community Impact

K-Net's work is predicated on sustainable partnerships for community development. These partnerships enable key technical and institutional infrastructural changes and have produced a critical mass of individuals in communities who facilitate system-wide transformations.

Since 1997, K-Net worked with Bell Canada and Industry Canada's FedNor program to initiate and coordinate regional telecommunications improvement projects such as the North of Red Lake Digital Radio Upgrade, the Satellite Served First Nations Upgrade, the Deer Lake and Poplar Hill Telecommunication Digital Data Service Upgrade, the North Spirit Lake Telecom Service Development, and the Keewaywin Telecom Service Development. K-Net also worked with the Government Telecommunications and

Information Service, First Nations SchoolNet, and the Community Access Program to develop wireless connectivity infrastructure for 24 remote First Nations.

K-Net Services plays a lead role in the regional diffusion of information-based sources. K-Net is partnering with Industry Canada, HRDC, INAC, the Sioux Lookout Area Aboriginal Management Board (SLAAMB), Confederation College and Lakehead University to coordinate and support community-based technology transfer. K-Net delivered training programs such as the Computer Technician Training Project, the Community Access Coordinator/Network Administrator and Webmaster Project, and the Telecommunications Support Technician Project.

Today, as Industry Canada's Aboriginal Smart Communities Demonstration project, Keewaytinook Okimakanak is able to further develop and explore new connectivity solutions and broadband applications in the First Nations across the region. New partnerships and a scalable network is ensuring the ongoing sustainability of the network and the applications carried on it.

3.2 Socio-cultural Interaction

The introduction of communications services is creating new jobs and job opportunities in each First Nation. It is providing a vital professional development connection for local teachers and health professionals in the communities. New media also provides a means for youth to escape the isolation of their immediate environment and to learn more about the world around them. These new services improve First Nations access to government agencies, officials and programs. And new communications services are being used to provide culturally and linguistically relevant instruction to children.

4. Conclusion

As an Aboriginal organization, K-Net is a bridge between two worlds. In one world people live close to the land, they still know the teachings of Turtle Island, they speak their Aboriginal languages and many can remember a time when old technologies were new. The other world is filled with machines and applications - many of them untested - that suggest ways to improve services and enhance local cultural autonomy and capacity for self-determination.

Both of these worlds are built on knowledge systems that make the most of limited resources (finding firewood or a medicinal plant and routing bandwidth are equally difficult above the 51th parallel). For the moment, they are called smart. They converge around community-based principles, each supporting concepts that relate change to survival and engage transformation with sustainability. The practical reflection of Chiefs determining ways to improve community conditions and the technical appreciation of human needs and services. Together, it's living smart in two worlds.