Community Broadband Networks for Rural and Remote Indigenous Communities

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The Internet Society: Our Mission

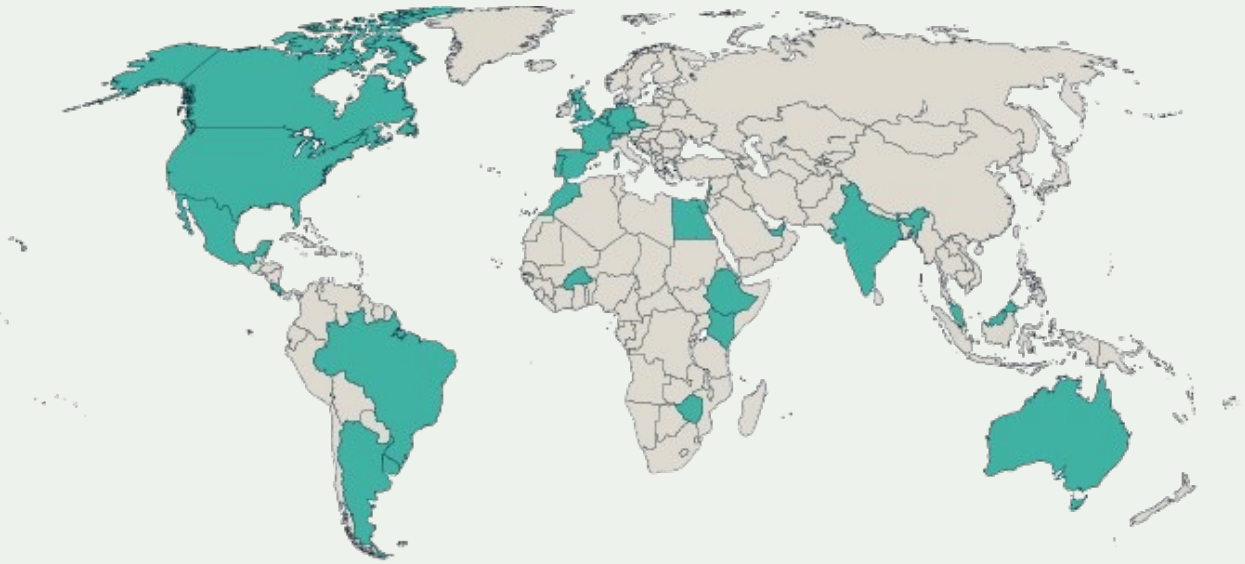
Founded in 1992, the Internet Society is a global charitable organization advocating for an open, globally connected, secure, and trustworthy Internet for everyone.

Our mission is to support and promote the development of the Internet as a global technical infrastructure, a resource to enrich people's lives, and a force for good in society.

Who We Are

Working with local chapters, policymakers, and technical experts worldwide, we help build, promote, and defend the Internet.

There is an Internet Society member on almost every continent.



We work together to ensure the Internet thrives and everyone can benefit from it.

83
Organization members

129
Chapters and special interest groups

117527
Individual members

What We Do: Build the Internet and Improve Its Resilience

We help provide reliable and affordable Internet access to those who need it the most.

In 2024, our focus areas are:

- Connecting the Unconnected
- Fostering Sustainable Peering Infrastructure
- Measuring the Internet

What We Do: Advocate to Defend the Internet

We make sure policy and technology developments support what the Internet needs to remain a global resource for everyone.

In 2024, our focus areas are:

- Countering Internet Threats
- Defending the Internet in the United Nations
- Extending Encryption
- Guiding Constructive Internet Policy
- Helping Shape Legal Precedent
- Sharing Cutting Edge Knowledge
- Securing Global Routing

Internet Society &
National Research Council of Canada

Community Broadband Networks for Rural and Remote Indigenous Communities

To bridge the digital divide by providing education and training to Band Councils and Indigenous-owned SMEs to develop Community Networks (CNs) for broadband Internet access in Indigenous communities in Ontario.

Phases:

- Level 1 Training
- Level 2 Training
- Case Study

Project Activities:

Level 1 Training

- Identify 5-8 communities for training
- Identify community champions
- Plan, customize, deliver training

2 courses:

Community Networks 101 (1.5 hours)

The Business of Community Networks (1.5 hours)

Level 2 Training

- Identify 3 communities for training
- Identify community champions
- Plan, customize, deliver training

3 courses:

Building Wireless Networks (1.5 hours)

Building Fiber Networks (1.5 hours)

Hands-on Crimping (1.5 hours)

Level 2 Training - Results

3 Indigenous Communities trained

- Aroland First Nation

- Chippewas of Nawash Unceded First Nation

- Whitesand First Nation

Case Study – *Chippewas of Nawash*

- 12 case study interviews were conducted – included a cross section of community members, elders, youth, Band Council members and key staff
- Case study produced and
- Video testimonials and teaser compiled

Hands-on Training

Tim
Horton

Chippewas of Nawash

Fibre-to-the-Home (FTTH)

ONTARIO
MANITOBA
MANITOBA
QUEBEC / QUÉBEC
USA / É-U d'A
USA / É-U d'A
UNITED STATES OF AMERICA
ÉTATS-UNIS D'AMÉRIQUE
Hudson Bay
Baie d'Hudson
James Bay
Baie James
Fort Severn
Peawanuck
Severn River
Severn
Albany
Big Trout Lake
Attawapiskat
Sandy Lake
Lansdowne House
Moosonee
Moose R
Pikangikum
Asheweig
River
Red Lake
Armstrong
Sioux Lookout
L Nipigon
Kapuskasing
Cochrane
Kenora
Dryden
Geraldton
Iroquois Falls
Timmins
Kirkland Lake
Fort Frances
Thunder Bay
Marathon
Wawa
Chapleau
New Liskeard
L Superior
L Supérieur
Ottawa R / R des Outaouais
Sault Ste Marie
Elliot Lake
Sudbury
North Bay
Pembroke
Ottawa
Hawkesbury
Cornwall
Espanola
Parry Sound
Huntsville
Brockville
Little Current
Bancroft
Kingston
Owen Sound
Orillia
Peterborough
St Lawrence R / Fl Saint-Laurent
L Michigan
L Huron
Belleville
Port Elgin
Barrie
Oshawa
Toronto
L Ontario
Goderich
Kitchener
St Catharines
Hamilton
Welland
London
Sarnia
St Thomas
Chatham Kent
L Erie
L Érié
Windsor
Scale / Échelle
100 0 100 200 300
km km

the Chippewas of Nawash Unceded First Nation

Before the arrival of Europeans, the Saugeen Ojibway occupied and utilized a land base of about 2 million acres. The area includes the point presently known as the Town of Arthur and extending west to Lake Huron and north to Georgian Bay.

In 1836 the Saugeen Ojibway signed the treaty No. 45 1/2 and proceeded to surrender 1.5 million acres of "the very richest land of Upper Canada." Settlers continued to move to this area and in 1847 it was necessary for Queen Victoria to issue a Royal Declaration.

The Declaration confirmed the land of the Saugeen Ojibway as being the Saugeen Peninsula (a.k.a. Bruce Peninsula) as roughly defined by a line between Southampton and Owen Sound as well as any islands within seven miles of the coast.

Three years later, in 1850 the Government of Canada passed a special Act for protection of Indian lands against squatters and loggers. This was called an "Act for the protection of the Indians in Upper Canada from Imposition, and the property occupied or enjoyed by them from trespass and injury."

Broadband (Fiber to the Home) Project

- Current connectivity is limited to wireless access offered by GBTEL (Grey Bruce Telecom).

- SWIFT, a regional broadband expansion project initiated by the Western Ontario Wardens' Caucus and delivered in partnership with member municipalities and the government of Ontario and Canada.

- Nawash and GBTEL prepared a joint proposal to SWIFT.

  - Fibre-to-the-Home (FTTH) Installed throughout Community
  - Upgraded Radio-based Backhaul technology.
  - New Service levels up to 50mbs Download and 10Mbs Upload

Ulukhaktok – Northwest Territories

CRTC: 2018 Map for Yukon, Northwest Territories and Nunavut

Ulukhaktok Community

Ulukhaktok (Holman) is located on Victoria Island at 70°43°N and 117°45°W, 925 air km north of Yellowknife, 507 air km northwest of Cambridge Bay, and 322 air km north of Kugluktuk.

Working with Ulukhaktok

- Discussions at the Indigenous Connectivity Summit in October 2018 in Inuvik
- Ulukhaktok identified as pilot community
- Community visit in June 2019 – support and leaders identified
- Training began summer 2019, completed at Indigenous Connectivity Summit in Pu'uhonua o Waimānalo, Nation of Hawai'i

Ulukhaktok Community Network

August 2023

- Backhaul on Low Earth Orbit satellite connection

- Private LTE based wireless network to distribute the bandwidth to community members with a custom SIM card.

Testimonial

Now I'm able to see exactly where [my daughter] is…She can show me a live stream with FaceTime with her and it's reliable. In 2019 it would have been a lot of cutting out. Laverna Klengenberg, Ulukhaktok former mayor

Changing Connectivity Landscape

- Availability / Affordability of Starlink service in the North
    - CAD $140/month plus $599 for equipment
- Challenges with Operation and Maintenance Support
- Digital literacy training instead of technical deployment and operations training.

Take Aways

Take Aways

- Capacity building comes FIRST

- Community buy-in

- Changing connectivity landscape

Thank you.