SWIFT

SouthWestern Integrated Fibre Technology

Barrie Council

Barrie, ON

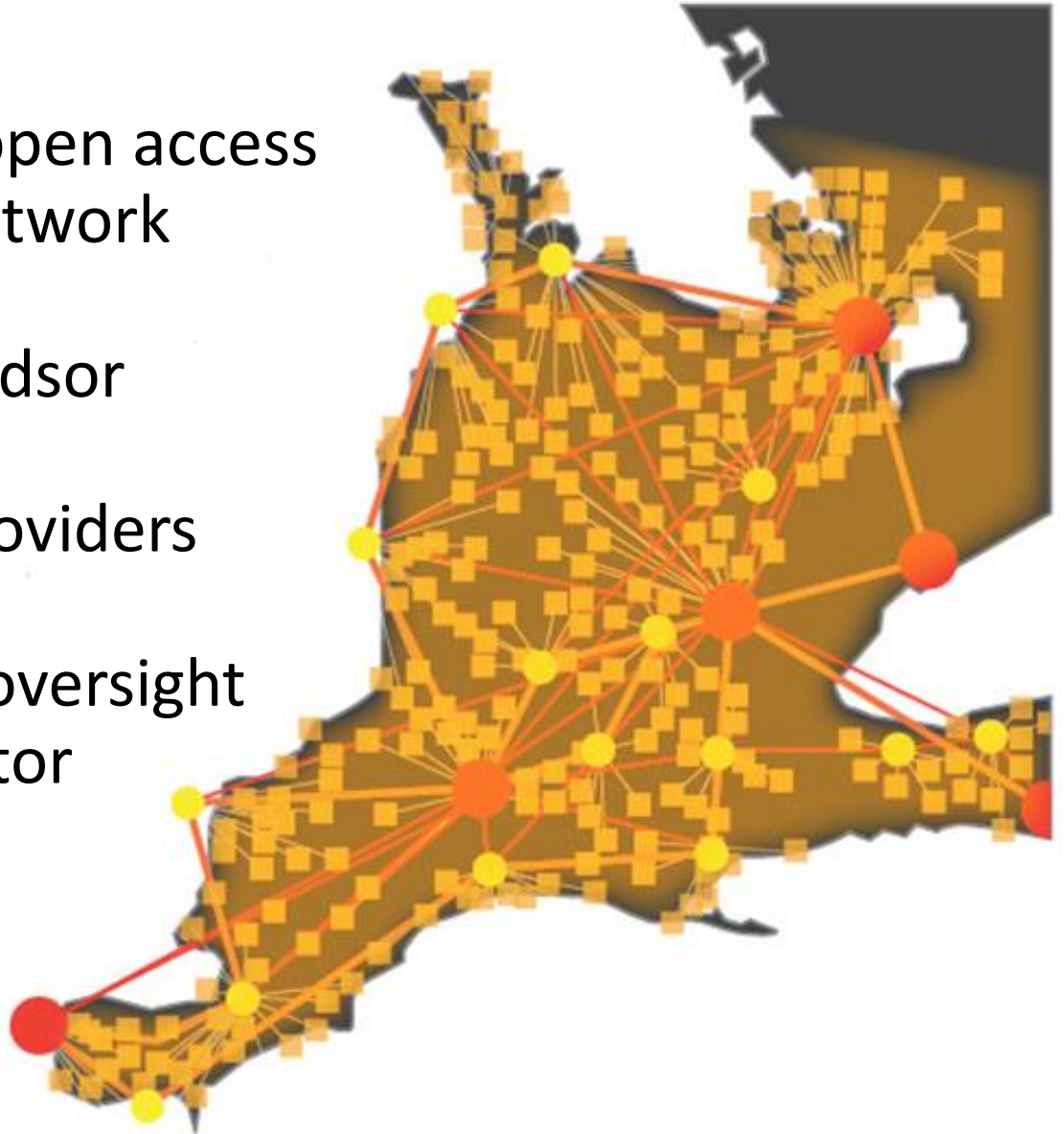swiftnetwork.ca

facebook.com/networkswift

twitter.com/networkswift
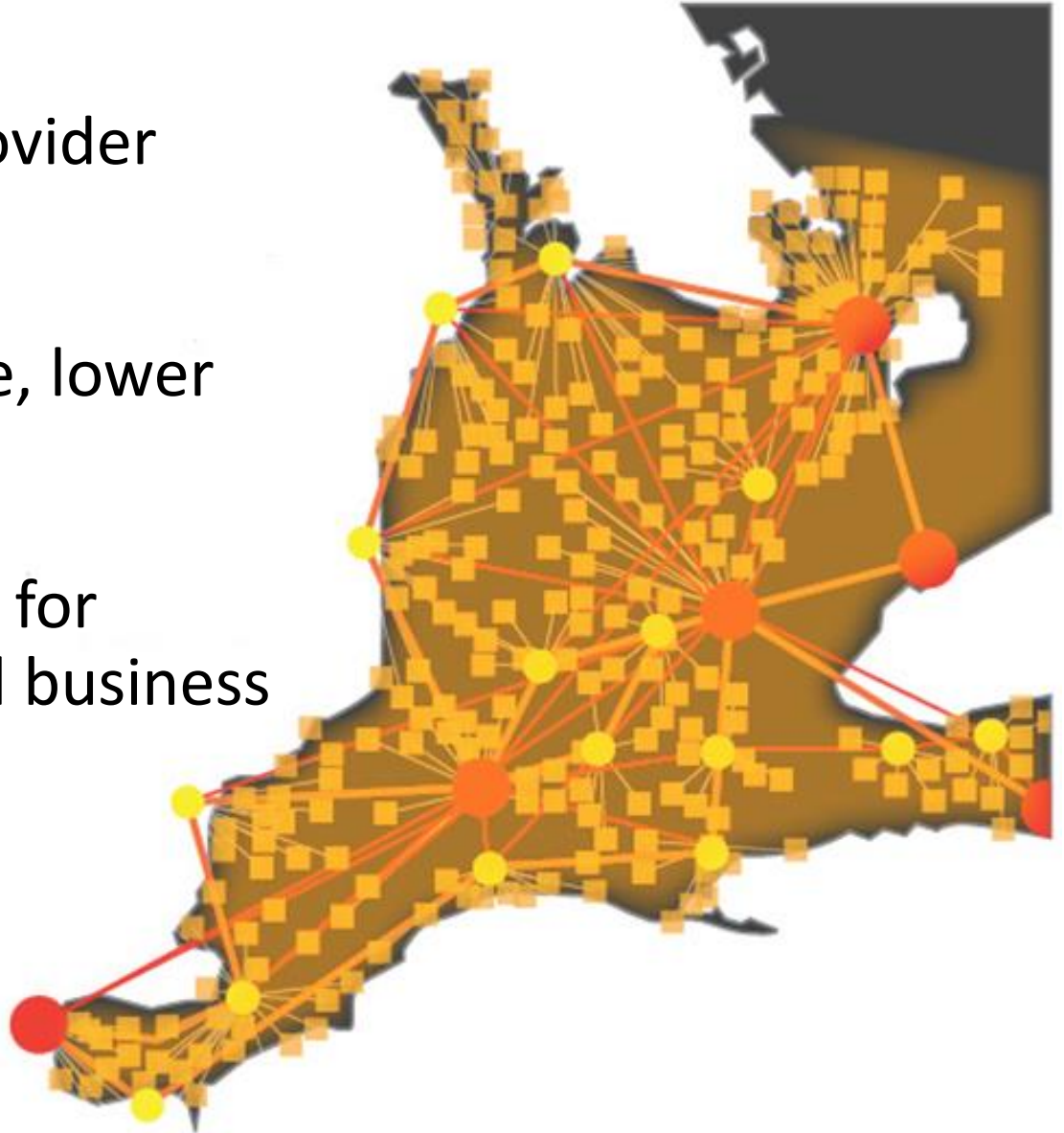
May 9, 2016

SWIFT – What Is It?

- Ubiquitous, open access fibre optic network

- Orillia to Windsor

- Owned by providers

- Subsidy and oversight by public sector

SWIFT – What Does it Mean?

- Increased provider competition

- Better service, lower rates

- Better access for residents and business

- Globally competitive

SWIFT - Stakeholders

- WOWC Caucus - 14 Counties and Chatham-Kent

- Region of Niagara, Town of Caledon, City of Stratford, City of Orillia, Grey Bruce Health Services, SCAN and Georgian College have joined with a financial contribution

- Region of Waterloo is part of the feasibility study

- In discussion with 7 other separated municipalities of Barrie, Brantford, Guelph, London, St. Mary's, St. Thomas and Windsor

- LDCC, Chippewa's of the Thames First Nation and Walpole Island First Nation support SWIFT.

- Other partners are educational institutions, healthcare organizations, First Nations, private sector enterprises
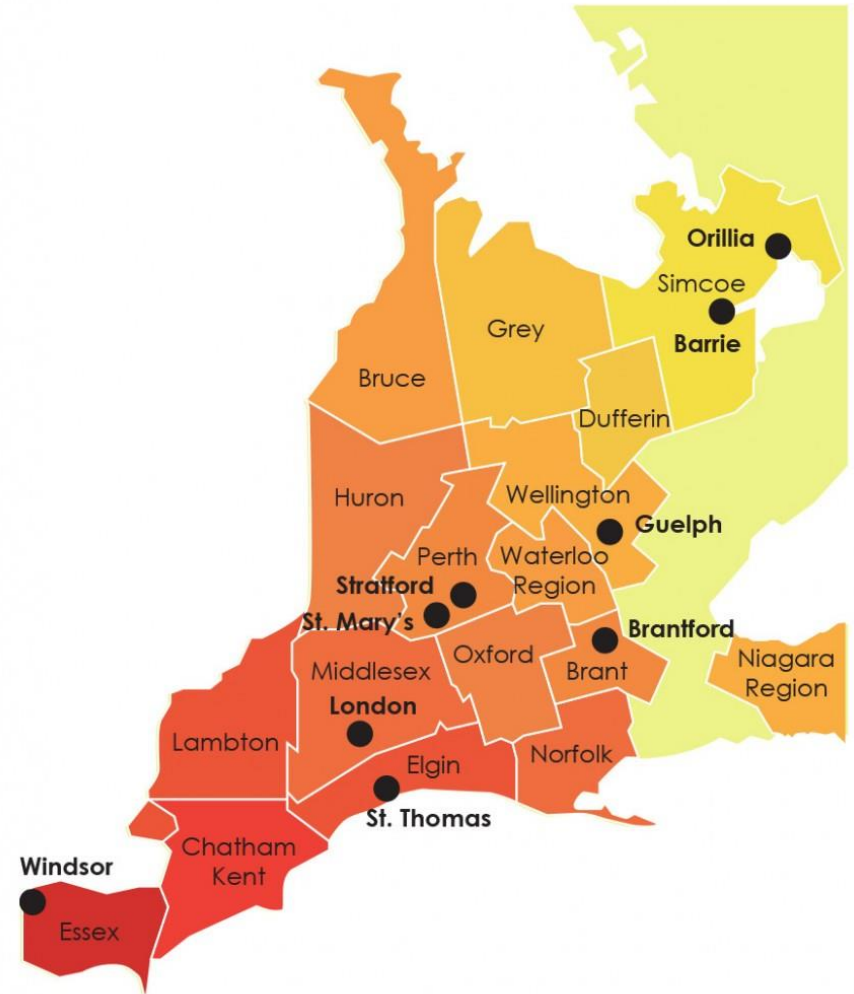
WOWC's Mission:

"enhance the prosperity and overall well being of our communities"

SW Ontario & Niagara has ~3.5 Million people – ~10% of Canada's population

SWIFT Board of Directors

- Gerry Marshall (Simcoe County Warden) Chair
- Mitch Twolan (Bruce County Warden)
- Randy Hope (Chatham-Kent Mayor)
- George Bridge (Wellington County Warden)
- Jim Maudsley (Middlesex County Warden)
- Roger Watt (Huron County Councillor)
- Bev MacDougal (Lambton County Warden)
- David Mayberry (Oxford County Warden)
- Harry Schlange (Niagara Region CAO)
- Armando Narvali (Town of Caledon IT Manager)

- 5 non-municipal positions still to be filled

SWIFT Advisory Committee

- Sonya Pritchard, CAO, Dufferin County
- Geoff Hogan, Director of IT, Grey County
- Mike Morgan, IT Manager, Waterloo Region District School Board
- Helen Hambly, Associate Professor, School of Environmental Design and Rural Development, University of Guelph
- Lance Thurston, President & CEO, Grey Bruce Health Services
- Steve Benoit, Manager - Media Services & Network Communications Infrastructure, Georgian College
- Stuart Hendrie, CIO, Niagara Region
- Jennifer Whiteye, Southern First Nations Secretariat, London District Chief's Council

History

Milestone	Dates
Presentation to caucus on broadband including EOWC's EORN project	May 6, 2011
Contract awarded for feasibility study to CPC	September 14, 2012
Feasibility study adopted, budget set ($350K)	October 18, 2013
Stakeholder consultations	
SCF funding application submitted	December 19, 2014
Minister's letter received	April 2, 2015
http://www.r2b2project.ca/ funded by OMAFRA to study economic broadband impact (Helen Hambly, University of Guelph)	April 24, 2015
Very positive 3rd Party (Dr. Rajabiun) review validating project	July 28, 2015
Southwestern Integrated Fibre Technology Inc. incorporated	November 12, 2015

SWIFT

SouthWestern Integrated Fibre Technology

CONTEXT FOR THE PROJECT

The New Reality

Respect your parents! They had to do their homework without Google.

someecards
user card

Job Loss in Traditional Industry

Progress Rail closing London plant

Hank Daniszewski and John Miner, The London Free Press
Saturday, February 4, 2012 11:21:18 EST AM

THE GLOBE AND MAIL

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CATERPILLAR

Caterpillar closing Toronto plant, 330 employees to lose jobs +

TORONTO — The Canadian Press
Published Saturday, May. 04 2013, 12:45 PM EDT
Last updated Saturday, May. 04 2013, 2:00 PM EDT

PLANT CLOSURE

Hundreds losing jobs as Kellogg's closing London plant

576

By Hank Daniszewski, The London Free Press
Wednesday, December 11, 2013 9:16:02 EST AM

(560 jobs)

740 jobs lost as ketchup maker closes Leamington plant

199

By Jonathan Sher, Jane Sims, Bob Boughner, QMIAgency
Friday, November 15, 2013 11:36:02 EST AM

BlackBerry Layoffs Leave Waterloo Scrambling For New Sources Of Jobs

CP | By David Friend, The Canadian Press
Posted: 11/14/2013 6:37 pm EST | Updated: 01/23/201 6:58 pm EST

(4,500 jobs)

Ford Canada set to close St. Thomas plant as election looms

When provincial political leaders go to St. Thomas during this fall's election they will see first-hand the economic struggle that lies ahead.

(1200 jobs)

The Internet of Things – Big Data

Regional digital infrastructure enables apps
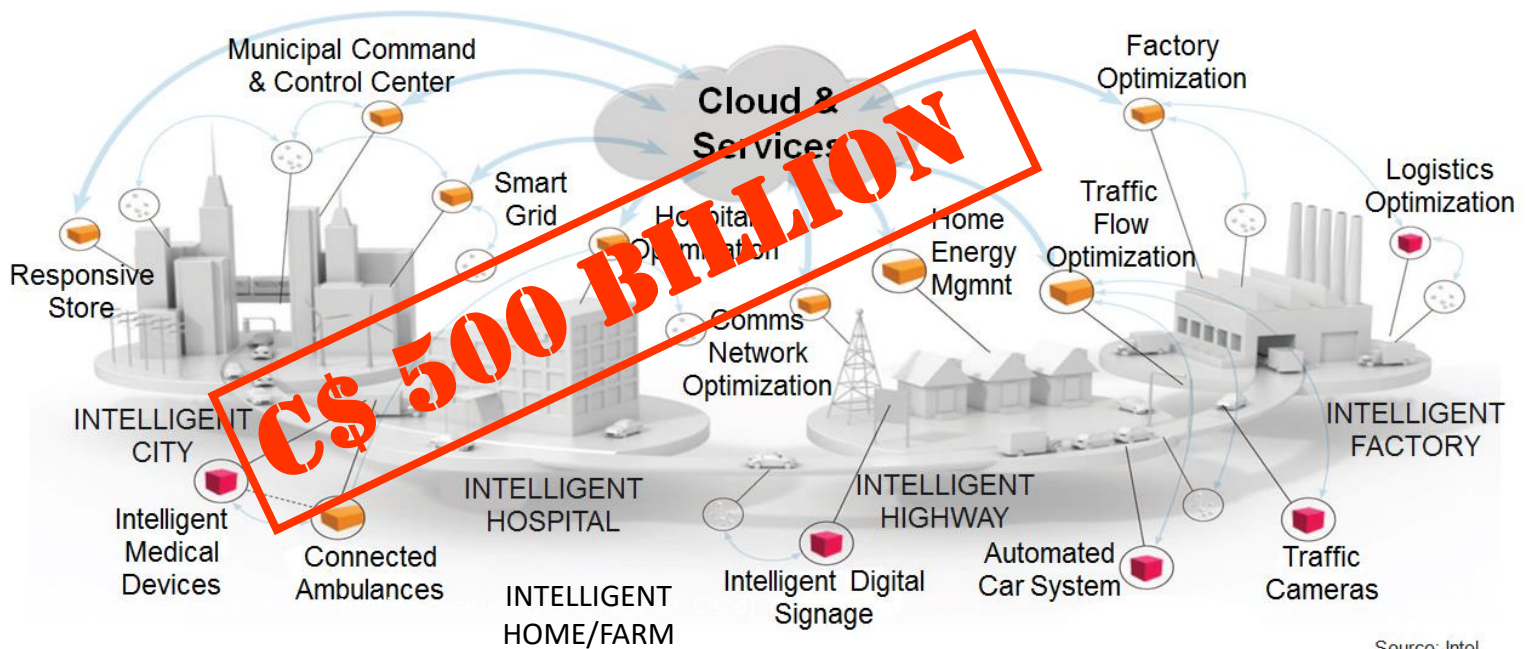
Source: Intel

"The digital foundation and plumbing for applications are needed to enable 21st century applications, economies and societies."

(Source: ITU)

- High speed connectivity
- Sensors
- Cloud computing
- Big data

- Smart devices, Applications
- Video
- Wireless access
- Sharing (sensors, data)

Fibre – Smaller Investment, Large Return

Cost per Km

Open Access

SWIFT
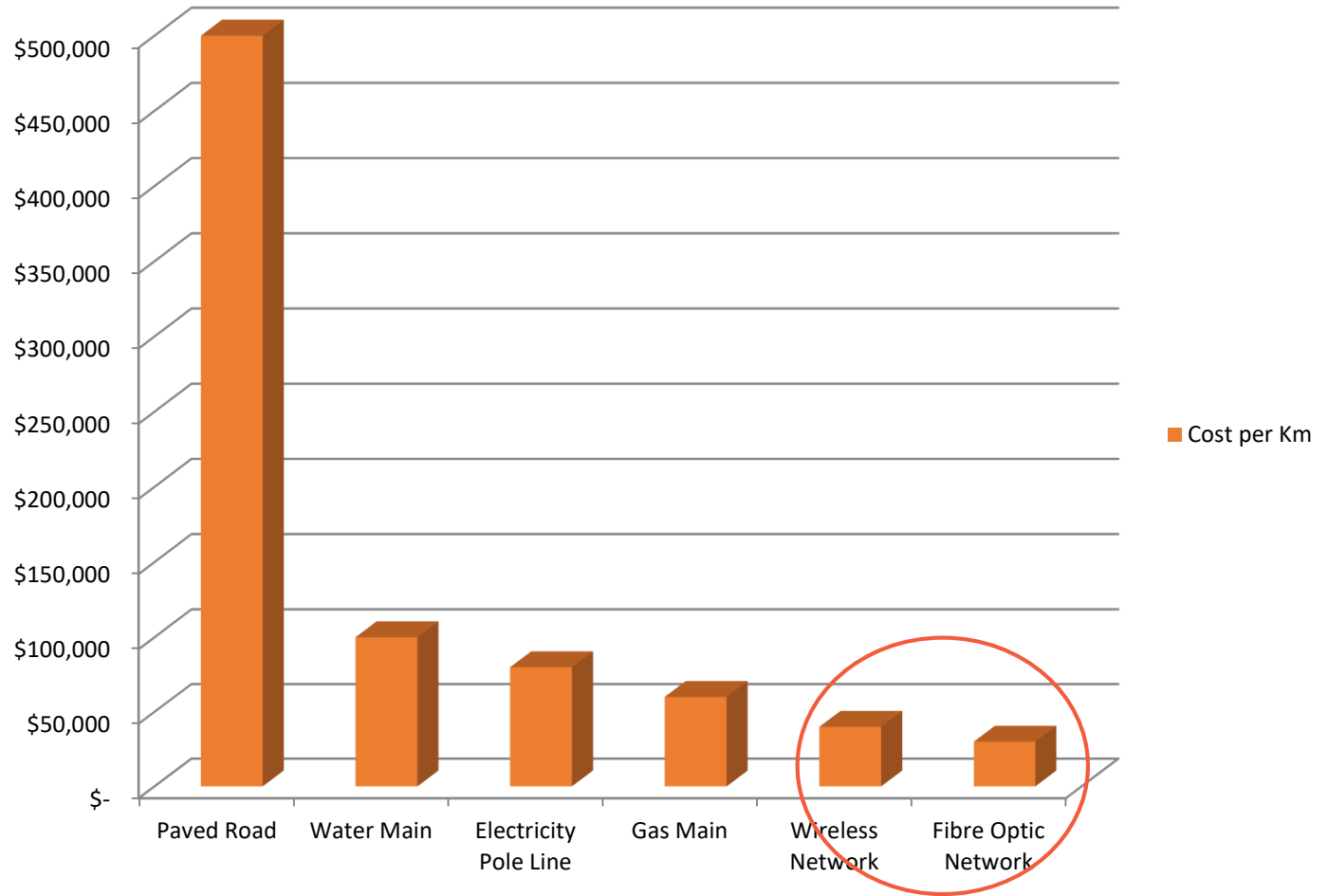
SouthWestern Integrated Fibre Technology

FINDINGS OF THE FEASIBILITY STUDY

Poor Fibre Broadband Penetration

- Japan   72.7%
- Korea   68.0%
- Sweden   43.7%
- Canada   4.7%

- OECD Average
  17.1%

Percentage of fibre connections in total broadband subscriptions, Dec 2014
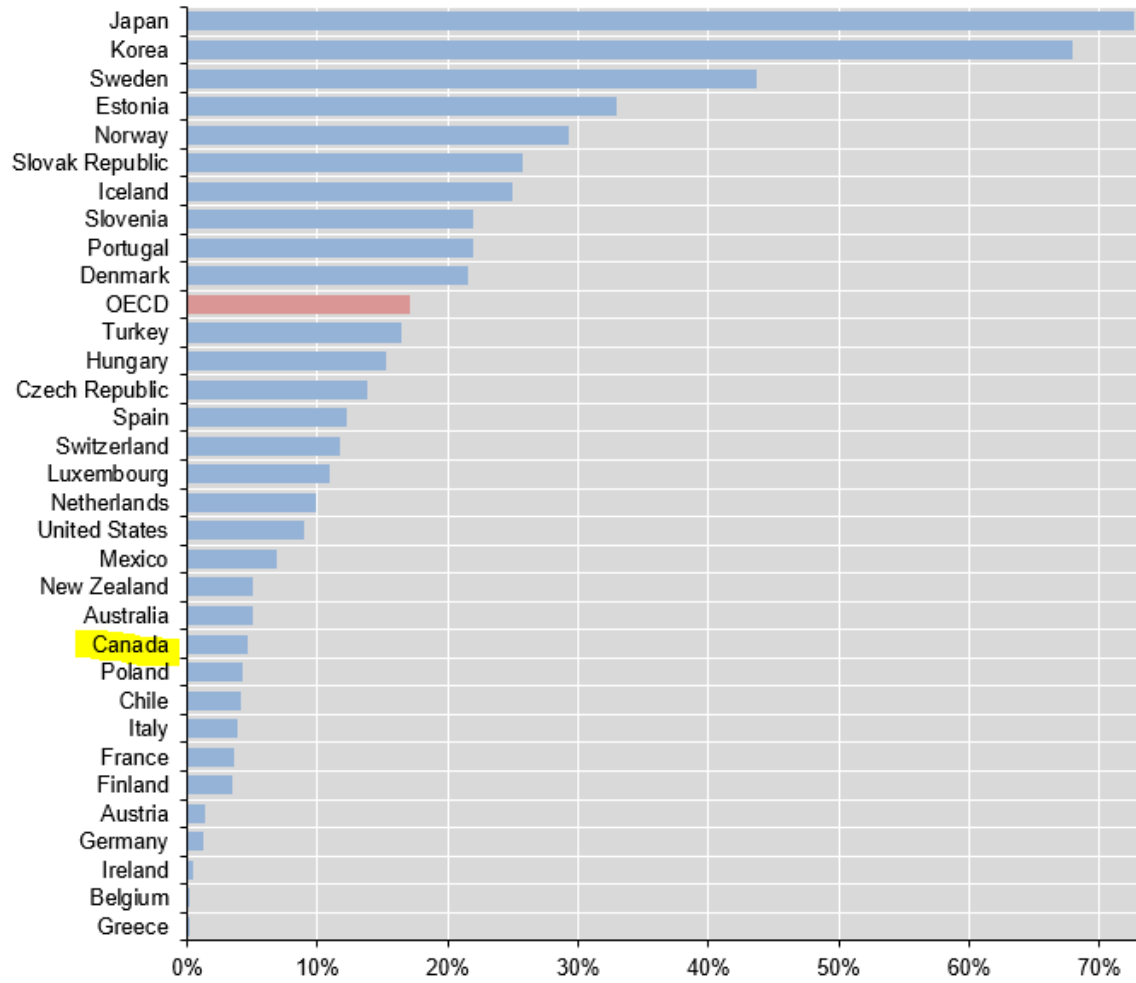
Not enough consumer choice

Providers pick the broadband winners and losers

Providers responsible to shareholders

SWIFT network is feasible to build

- One time NBCF funding to get started

- Ongoing funding for last mile based on residuals from rates (Broadband Development Fund)

Study can be downloaded from http://swiftnetwork.ca/materials/
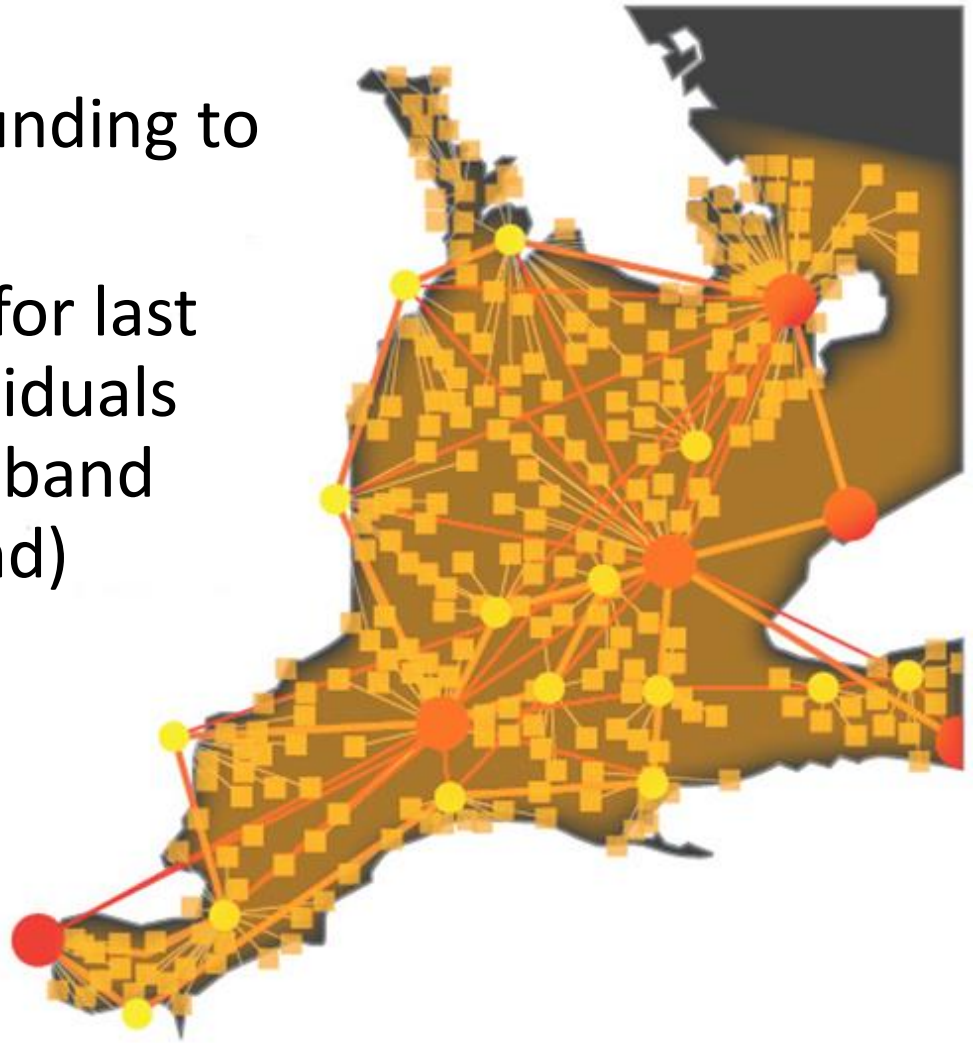
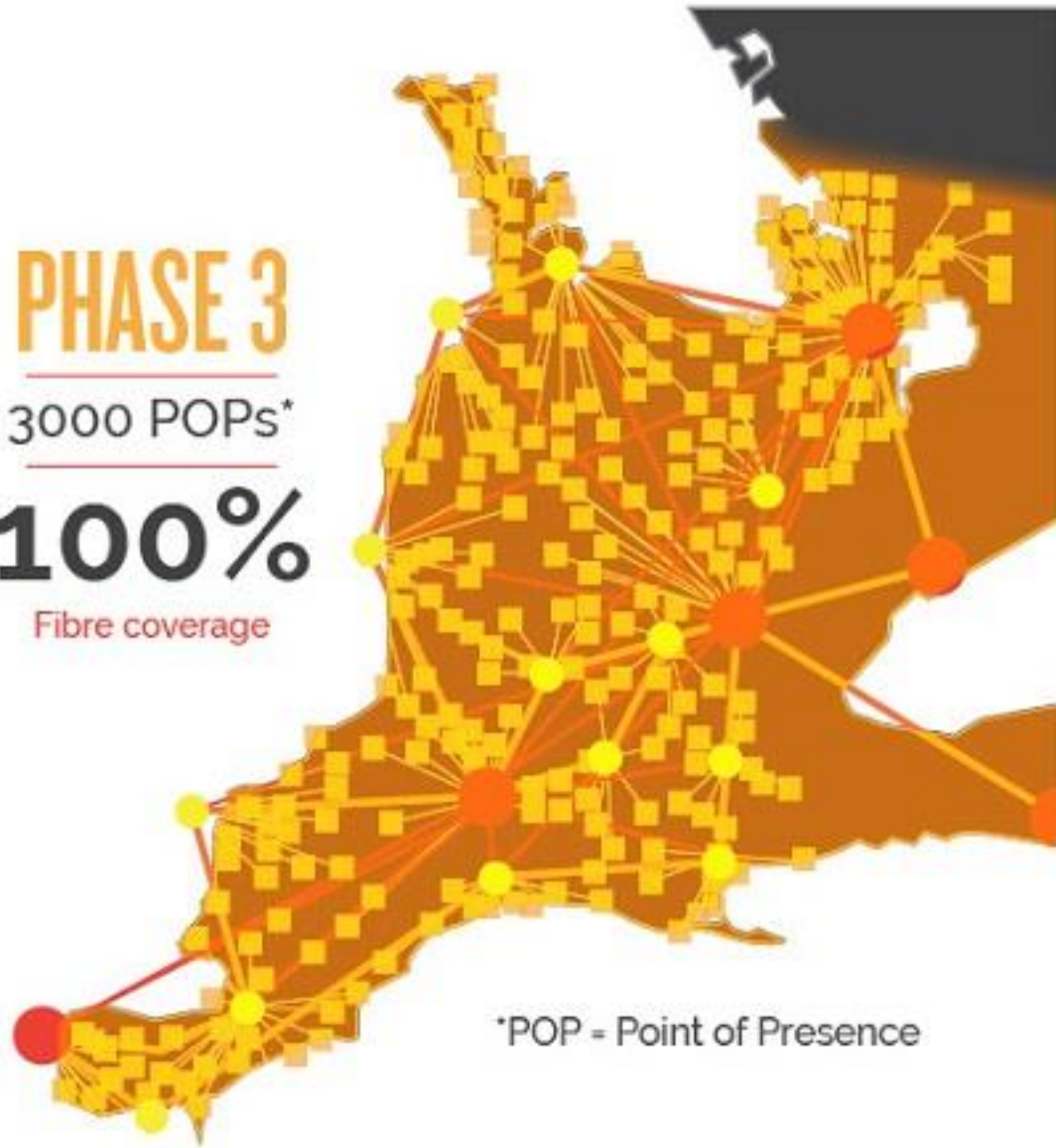# The Plan – BDF funds ongoing builds

PHASE 3

3000 POPs*

100%

Fibre coverage

*POP = Point of Presence

Why SWIFT?

- Modern economy (agriculture, home, MUSH, SME) requires fast, reliable broadband
- Fibre is only long term solution that scales to future needs of Internet of Things
- SWO needs a catalyst to spur broadband development to improve service quality / price
- SWIFT improves ROI for providers in rural areas (and many urban areas) to build fibre (due to density and demographics)
- SWIFT will subsidize fibre builds via RFP and has an ongoing subsidy mechanism (including further funding) so everyone gets connected

"enhance the prosperity and overall well being of our communities"

SWIFT
SouthWestern Integrated Fibre Technology

WHERE WE GO FROM HERE

SWIFT Organizational Structure

- SWIFT - Not-for-profit, non-share capital corporation

- Governed by board of directors (10 municipal, 5 other public sector)

- Providers build, own and run network – SWIFT oversees compliance with principles and subsidy

- Existing fibre assets employed wherever available, new fibre assets built to fill gaps

- SWIFT is funded ongoing by residuals from rates from providers

The SWIFT Network Design

Phase 1 Features

- Up to 1 Gbps access for under $100/ month (target) for all business & residents

- IXP's like 151 Front St., Toronto, Windsor / Detroit, 350 Main St., Buffalo

- Path & electronics diversity from all POPs to 151 Front Street

- 350 Communities fibre optic access to as low as 4 person / km^2

- Design does not duplicate existing fibre optic infrastructure
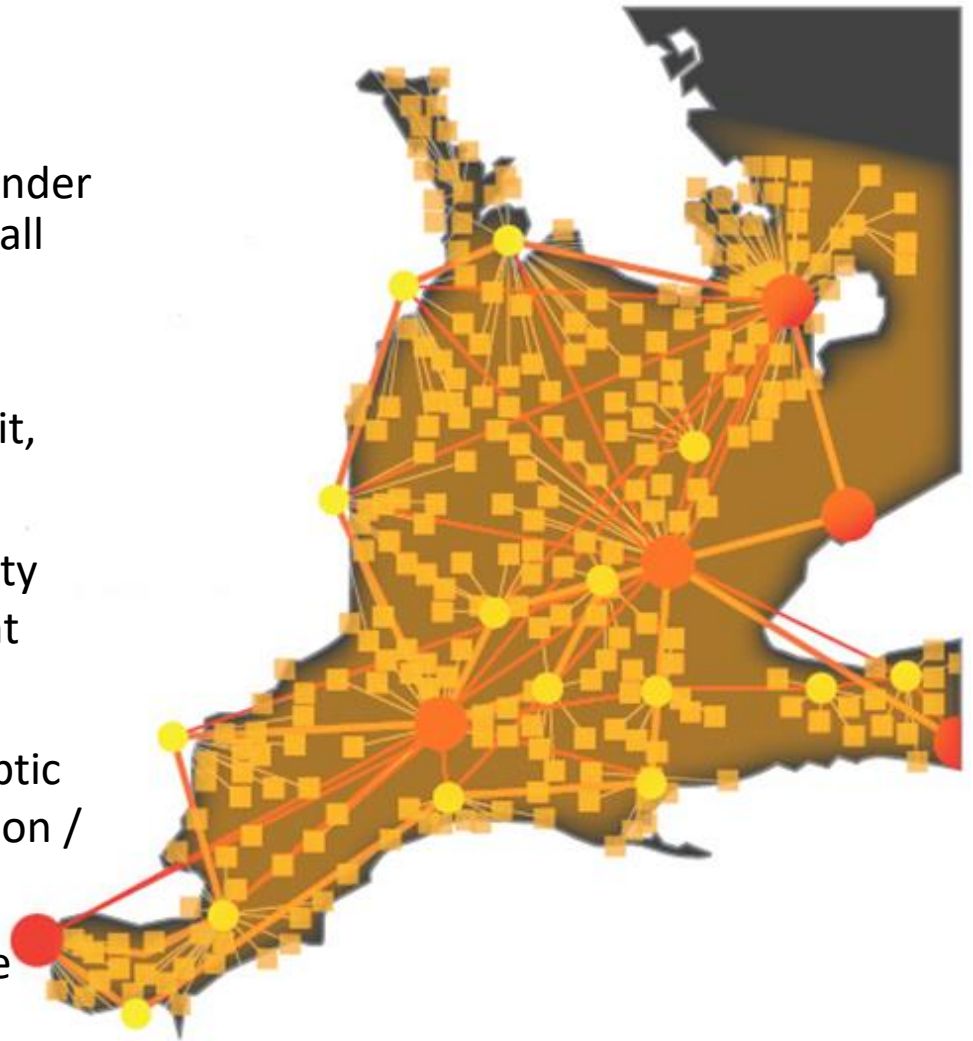
Not just ubiquitous and fast, **BETTER** Internet

London — CORE-1 — **Guelph**

CORE

CORE-2   **Barrie**   CORE-3

ACCESS AGGREGATION

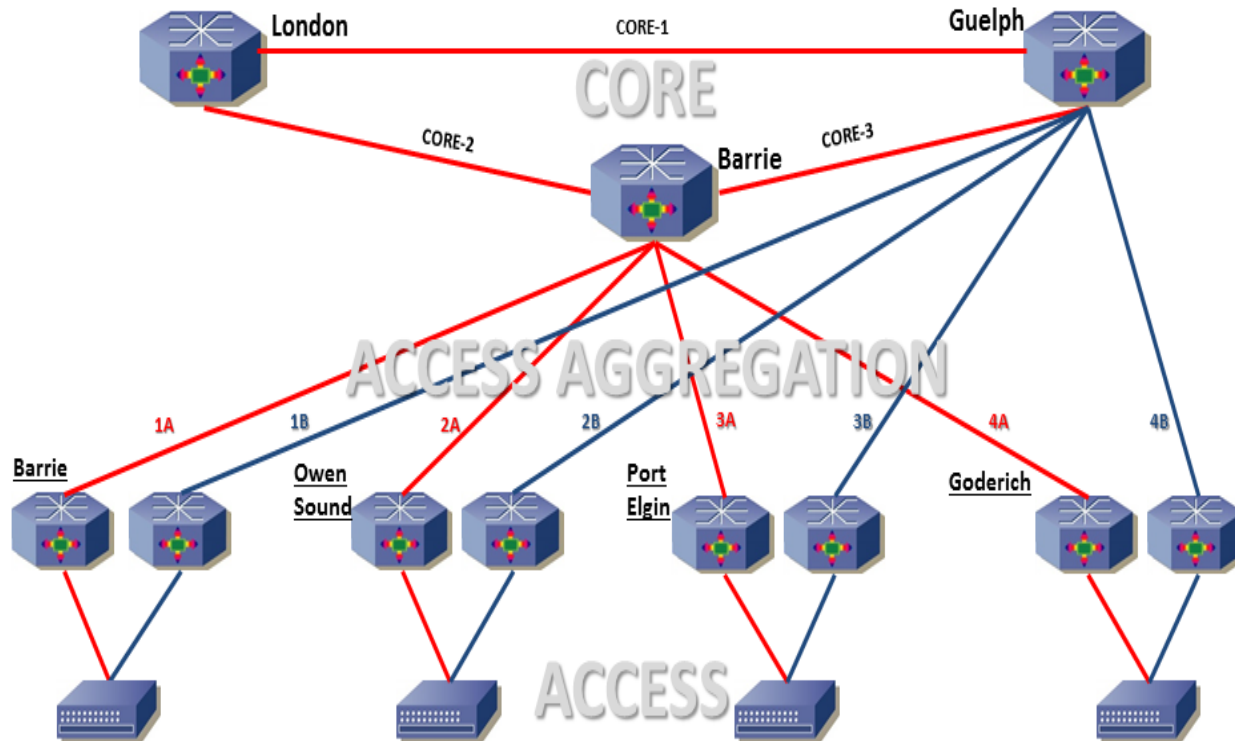1A   1B   2A   2B   3A   3B   4A   4B

Barrie   **Owen Sound**   **Port Elgin**   **Goderich**

ACCESS

Simcoe County

Alliston	Elmvale	Port McNicoll
Angus	Glencairn	Port Severn
Balm Beach	Hawkstone	Sebright
Barrie	Innisfil	Severn Bridge
Beeton	Lafontaine	Stayner
Borden	Lisle	Stroud
Bradford West	Midhurst	Thornton
Gwillimbury	Midland	Tottenham
Brechin	Minesing	Victoria Harbour
Chippewas of	Moonstone	Wasaga Beach
Rama First	Nottawa	Washago
Nation	New Lowell	Waubaushene
Coldwater	New Tecumseth	Woodland Beach
Collingwood	Orillia	Wyebridge
Cookstown	Oro Station	
Craighurst	Penetanguishene	
Creemore	Perkinsfield	
Duntroon	Phelpston	

Grey County

Ayton	Holstein
Big Bay	Keady
Bognor	Kimberley
Chatsworth	Markdale
Clarksburg	Meaford
Craigleith	Mount Forest
Desboro	Neustadt
Dundalk	Owen Sound
Durham	Priceville
Elmwood	Shallow Lake
Feversham	Stanton
Flesherton	The Blue
Georgian Bluffs	Mountains
Grey Highlands	Thornbury
Hanover	Williamsford

Bruce County

Adamsville	Mar
Allenford	Mildmay
Barrow Bay	Miller Lake
Cargil	Paisley
Chepstow	Pike Bay
Chesley	Point Clark
Chippewas of	Port Elgin
Nawash First Nation	Red Bay
Dyers Bay	Ripley
Ferndale	Sauble Beach
Formosa	Southampton
Hepworth	Stokes Bay
Holyrood	Tara
Inverhuron	Teeswater
Kincardine	Tiverton
Lions Head	Tobermory
Lucknow	Walkerton
	Wiarton

Huron County

Auburn	Huron Park
Bayfield	Morris-Turnberry
Bluewater	Seaforth
Blyth	South Huron
Brussels	St. Joseph
Central Huron	Vanastra
Centralia	Varna
Clinton	Walton
Crediton	Wingham
Dashwood	Wroxeter
Exeter	Zurich
Goderich	
Gorrie	
Hensall	

Project Capital Costs

Costs

- Current Project Cost $269M*
- SWIFT only subsidizes scalable fibre
- Partners have invested over $800K on project to date

Funding

- Federal $94.3M   1/3
- Provincial $94.3M   1/3
- Municipal $18.0M
- Private $80.4M   1/3

72%

* Does not include communities over 100K population - Numbers are best estimates based on current knowledge (total project $281M)

Barrie's Opportunity

- Get involved: Largest city in northern area of project

- Current location of one of three core network sites

- Help your local region grow and prosper – "a rising tide floats all boats"

Prime Minister of India Narendra Modi

"Cities in the past were built on riverbanks. They are now built along highways. But in the future, they will be built based on availability of optical fiber networks and next-generation infrastructure."

Why SWIFT?

1. SWIFT is a non-profit corporation whose primary concern is the public interest.

2. SWIFT is a large buying group of users, giving it clout with telecom service providers on behalf of everyone in Southwestern Ontario.

3. An open network means you will have a wider selection of providers, creating competition, better services, and lower rates.

4. Regardless of population density or economic status, telecom providers will connect everyone with fibre using subsidies from SWIFT.

5. Telecom service providers will build, own, and operate the SWIFT Network so we don't have to reinvent the wheel.

6. The SWIFT board of directors will hold providers accountable for delivering on their promises as spelled out in the contracts for the project.

RFPQ / RFP

- Funding announcement
- RFPQ
  - Pre-Qualifies Financial, Insurance and Indemnity
  - Requires location of providers fibre and points of presence
- Analysis of RFPQ data
- Provider / user consultation
- Construction Plan developed
- Business case finalized
- SWIFT member Council's approval
- RFP's released

Municipal Capital Contribution

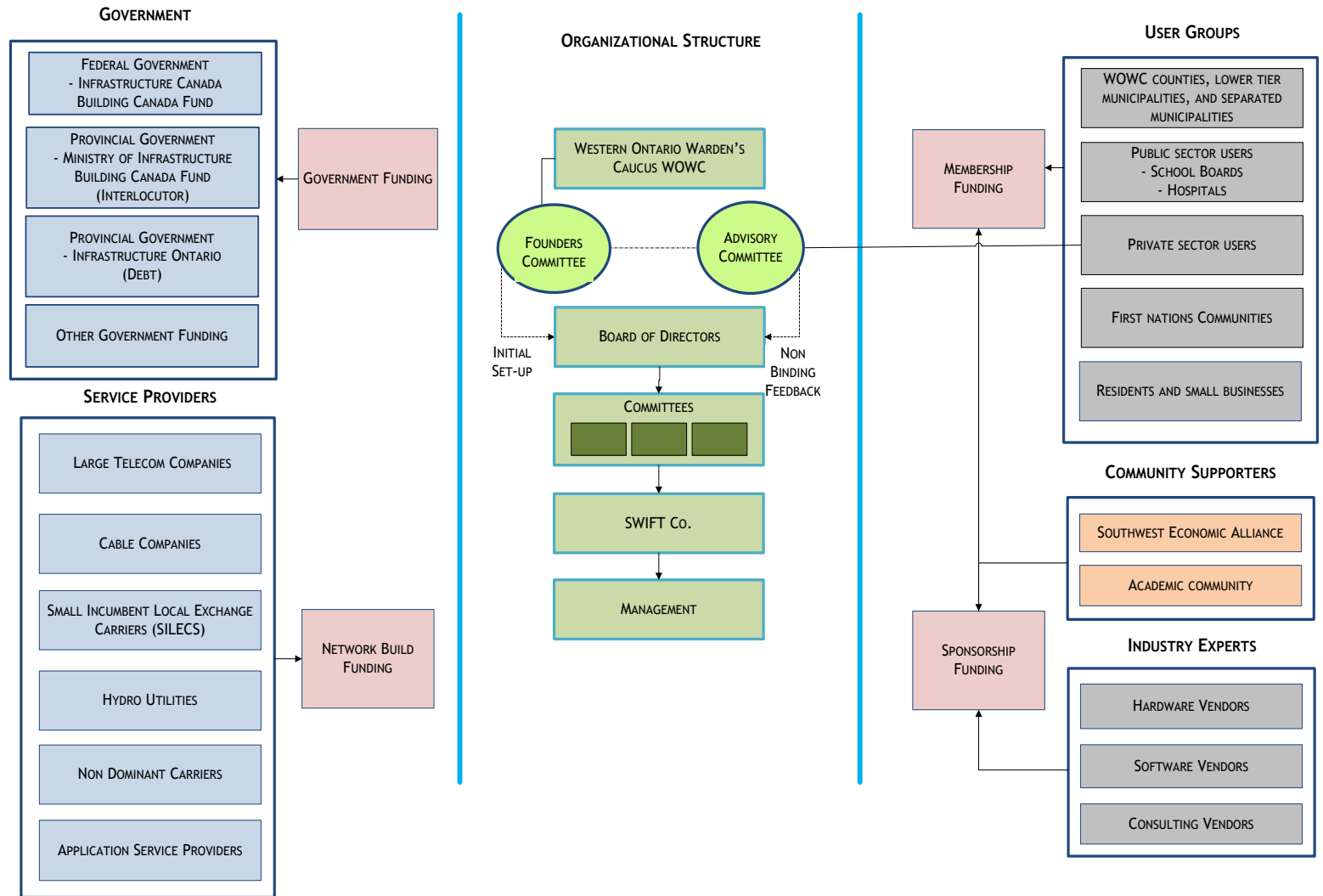- Municipal contribution based on formula
  - Need
    - Land area
    - Population
  - Capacity (FIR)
- Total annual contributions* vary
  - Low: Brant County $69,400
  - High: Simcoe County $491,500
- Calculated Barrie contribution $ 54,285

- Values are subject to change
- Annual contributions happen for five (5) years
- Separated municipalities have been asked to contribute capital

Organization structure

GOVERNMENT

- FEDERAL GOVERNMENT
  - INFRASTRUCTURE CANADA BUILDING CANADA FUND
- PROVINCIAL GOVERNMENT
  - MINISTRY OF INFRASTRUCTURE BUILDING CANADA FUND (INTERLOCUTOR)
- PROVINCIAL GOVERNMENT
  - INFRASTRUCTURE ONTARIO (DEBT)
- OTHER GOVERNMENT FUNDING

GOVERNMENT FUNDING

SERVICE PROVIDERS

- LARGE TELECOM COMPANIES
- CABLE COMPANIES
- SMALL INCUMBENT LOCAL EXCHANGE CARRIERS (SILECS)
- HYDRO UTILITIES
- NON DOMINANT CARRIERS
- APPLICATION SERVICE PROVIDERS

NETWORK BUILD FUNDING

ORGANIZATIONAL STRUCTURE

WESTERN ONTARIO WARDEN'S CAUCUS WOWC

FOUNDERS COMMITTEE

ADVISORY COMMITTEE

INITIAL SET-UP

BOARD OF DIRECTORS

NON BINDING FEEDBACK

COMMITTEES

SWIFT Co.

MANAGEMENT

USER GROUPS

- WOWC COUNTIES, LOWER TIER MUNICIPALITIES, AND SEPARATED MUNICIPALITIES
- PUBLIC SECTOR USERS
  - SCHOOL BOARDS
  - HOSPITALS
- PRIVATE SECTOR USERS
- FIRST NATIONS COMMUNITIES
- RESIDENTS AND SMALL BUSINESSES

MEMBERSHIP FUNDING

COMMUNITY SUPPORTERS

- SOUTHWEST ECONOMIC ALLIANCE
- ACADEMIC COMMUNITY

INDUSTRY EXPERTS

- HARDWARE VENDORS
- SOFTWARE VENDORS
- CONSULTING VENDORS

SPONSORSHIP FUNDING

Point of Presence (POP) "Orange Box"

What is "Last Mile?"

**Point of Presence (PoP)
Central Office**

**Point of Presence (PoP)
Central Office**

96 Strand "Trunk" Fibre Optic Cable

2 Strands used for Backbone

Last Mile

Last Mile

**6 Strand
"Lateral"
Fibre Optic
Cable**

**6 Strand
"Lateral"
Fibre Optic
Cable**

UNIVERSITY
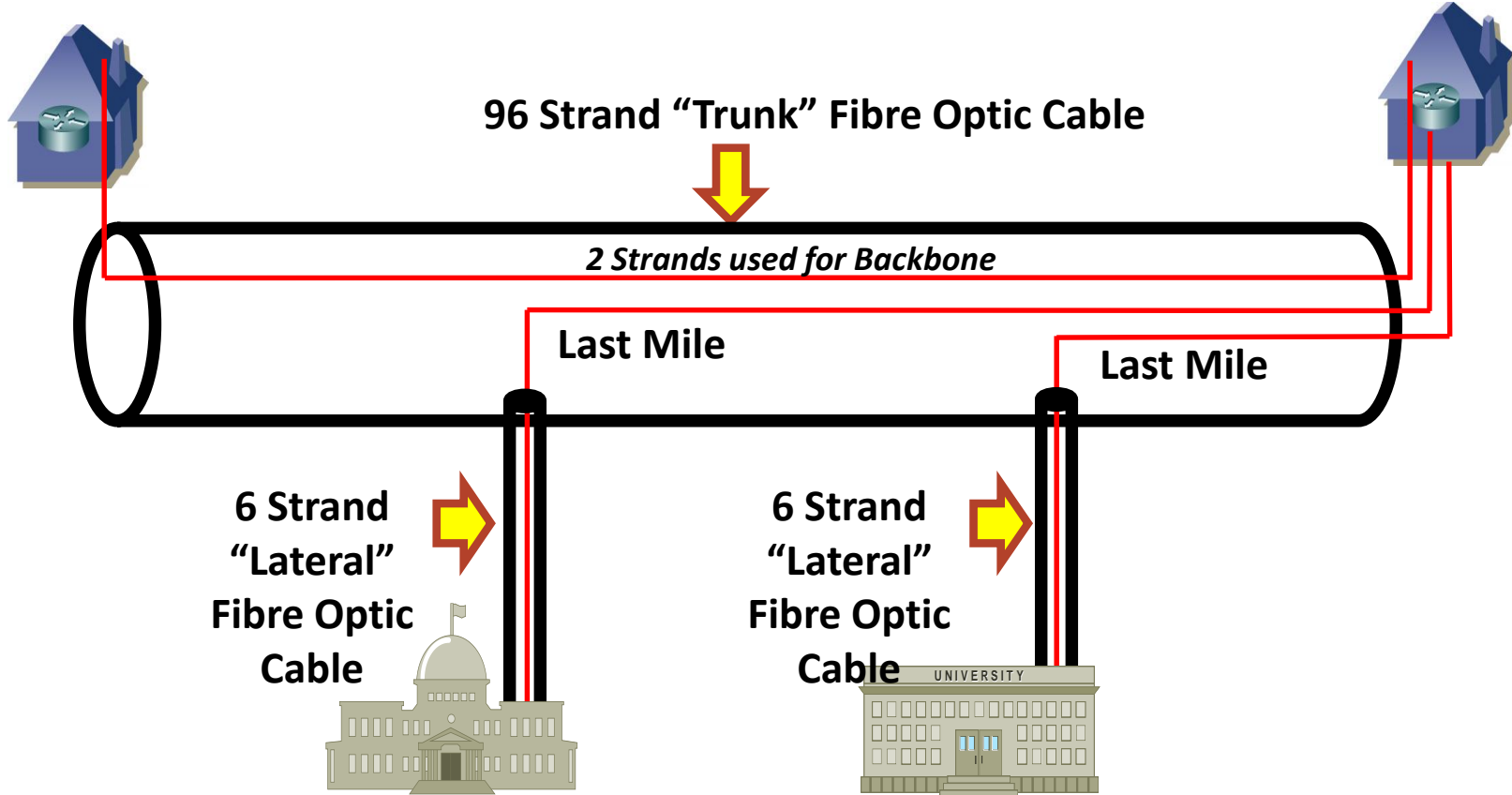
# SWIFT's Contribution to Reducing Lateral Distances

- Residual capacity from 500 km of backbone cable construction

- Residual capacity from 2,200 km of aggregation network cable construction
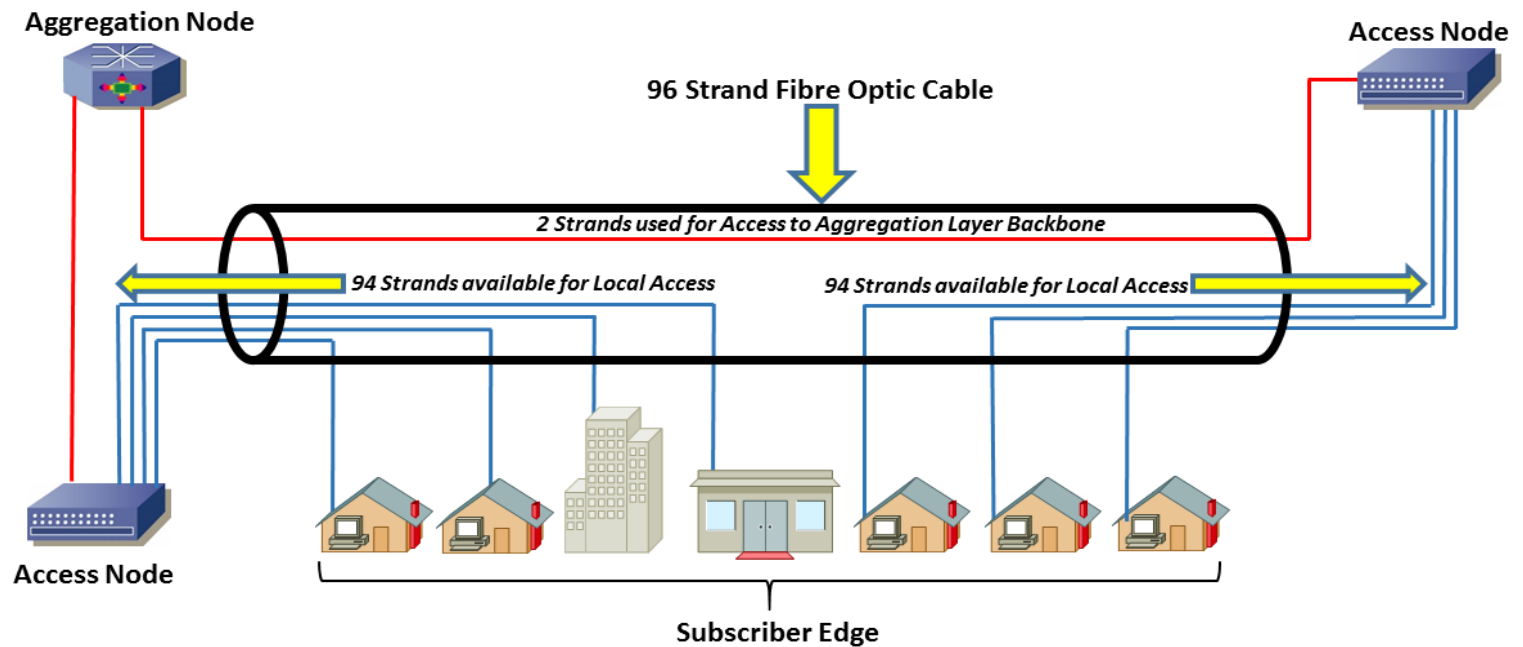
The SWIFT Effect

- **120 km fibre build for core and aggregation**

- **Mitchell, Dublin, Fullarton, Shakespeare now have Points of Presence**

- **Substantial residual capacity exists to support further last mile build out**

- **Barrier to last mile investment has been substantially reduced**

  - **Rural Schools connected (plus other MUSH)**
  - **Over 2000 MUSH sector sites**

BROADBAND CONNECTION SPEEDS IN PERTH COUNTY
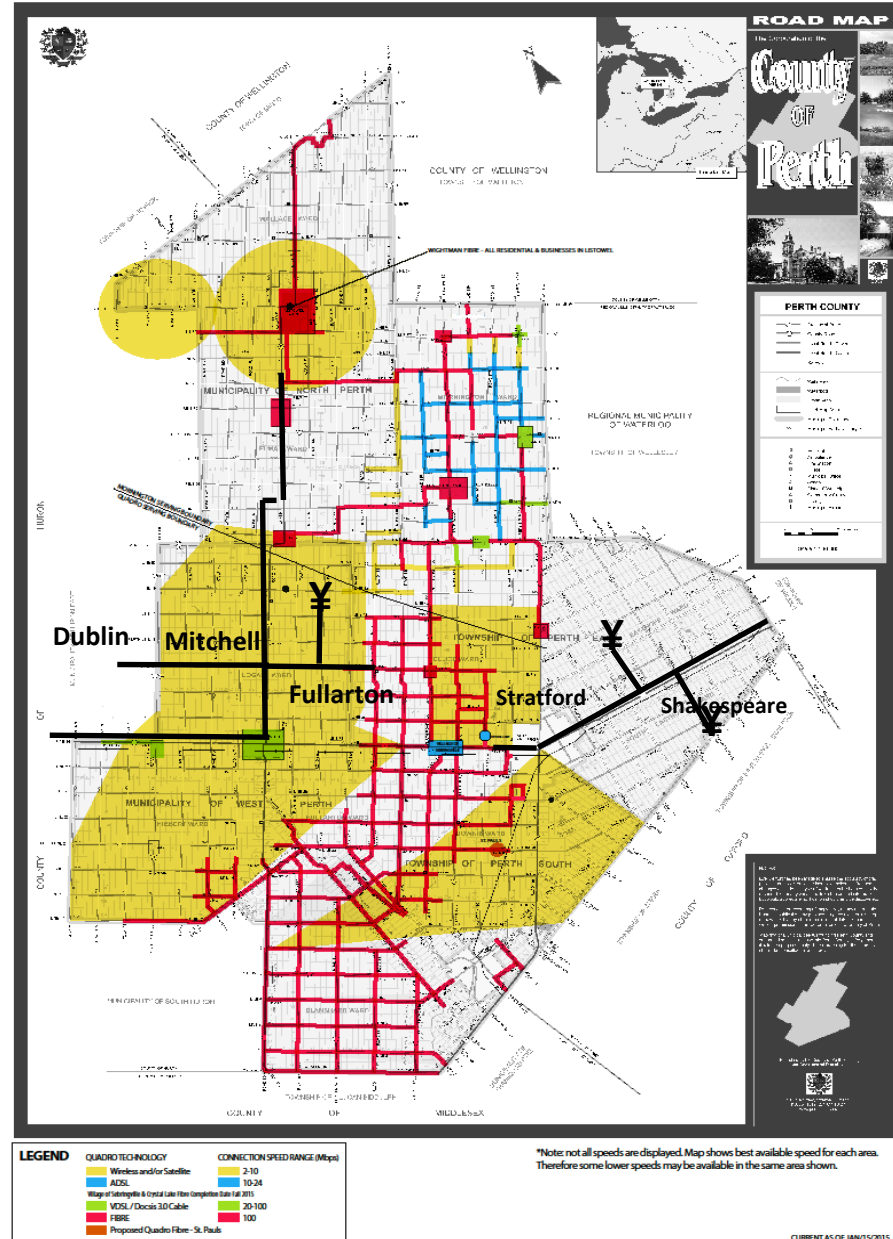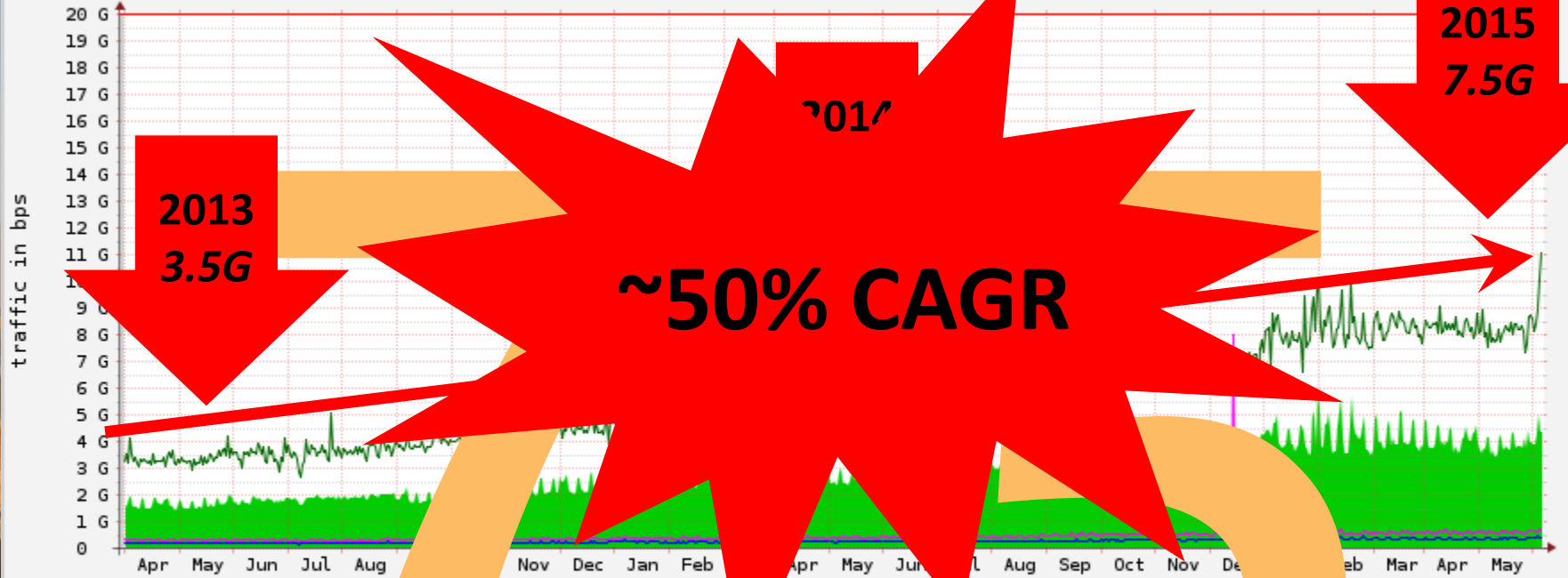
2013 Study with a 10-year Dataset

50% > 75GiB

	Predicted Range (GiB)	
	Mean	Median
October 2013	43.14-44.89	20.79-22.29
October 2014	59.53-61.94	28.69-33.00
October 2015	82.15-85.48	39.59-48.83
October 2016	113.36-117.96	54.63-72.27
October 2017	156.44-162.79	75.39-106.96

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Broadband Development Fund (BDF)

- $281 M* does not give everyone access to fibre – need ongoing funding/subsidy

- SWIFT partner provider pays a small (~3.5%) percentage of revenue back to SWIFT for each connection

- Funds are allocated by SWIFT board periodically to continue to subsidize providers until all of SWO has access to fibre based broadband

* $4B-$7B to fibre everyone in SWO and Niagara

Residents – Families, Seniors, Students

1. Cut down on travel expenses with better connected healthcare services.

2. Go to school anywhere in the world with access to online education programs.

3. Government services, taxes, permits, and licenses will all be available at home. No more line-ups.

4. Gain access to endless forms of entertainment providers.

5. Shop online for products you just can't find locally.

6. Collaborate on ideas and causes, make a difference around the world.

7. Be ready for the Internet of Things, when everything is controlled from a smart device.

Small and Medium Sized Businesses

1. Improve communications with suppliers and customers.

2. Connect your remote offices and centralize your business applications.

3. Utilize low-cost and robust cloud-based apps to streamline day-to-day business.

4. Be prepared for the Internet of Things to ensure your business survives the new era of technology.

5. Accomplish more with fewer resources, and level the playing field with your bigger competitors.

6. Increase your profit margins and see a shorter return on investment paybacks.

Large Businesses

1. Having highly available and low latency connectivity with your offices and customers around the globe supports high-frequency, secure transactions.

2. Outsource data management and enterprise applications to the cloud with confidence.

3. Become future proof by embracing Big Data.

4. Focus on your core business, which leads to improved products and services, as well as customer satisfaction.

5. Reduce operating costs and increase productivity.

6. See more attractive profit margins and a shorter return on investment paybacks.

7. Strengthen the global presence and competitiveness of your local operation.