

Extending and Improving Broadband Infrastructure in Canada:

Learning from Australia's National Broadband Network Initiative

Catherine Middleton
Ryerson University

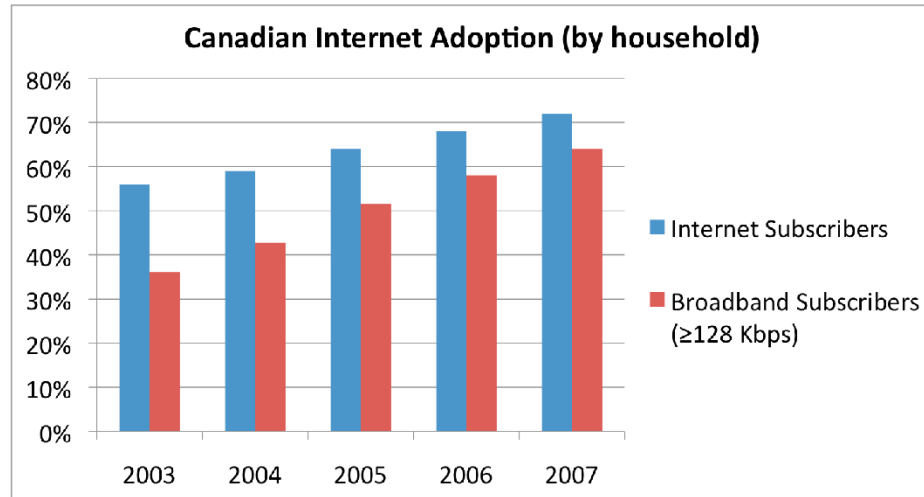
Presentation to the Canadian Communication Association
Conference
Ottawa, May 2009



Key Points

- What is the status of broadband infrastructure and uptake in Canada?
- Have we been well-served by “market forces” driven policies?
- An alternative approach to developing broadband infrastructure: The Australian *National Broadband Network* proposal

Steady Growth – Internet & Broadband



CRTC Reports (2004 – 2008)

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Source: CRTC reports

CRTC, 2004. Report to the governor in council: Status of competition in Canadian telecommunications markets; deployment/accessibility of advanced telecommunications infrastructure and services. CRTC, Hull.

CRTC, 2005. Report to the governor in council: Status of competition in Canadian telecommunications markets – deployment/accessibility of advanced telecommunications infrastructure and services. Gatineau. <http://www.crtc.gc.ca/eng/publications/reports/PolicyMonitoring/2005/gic2005.pdf>.

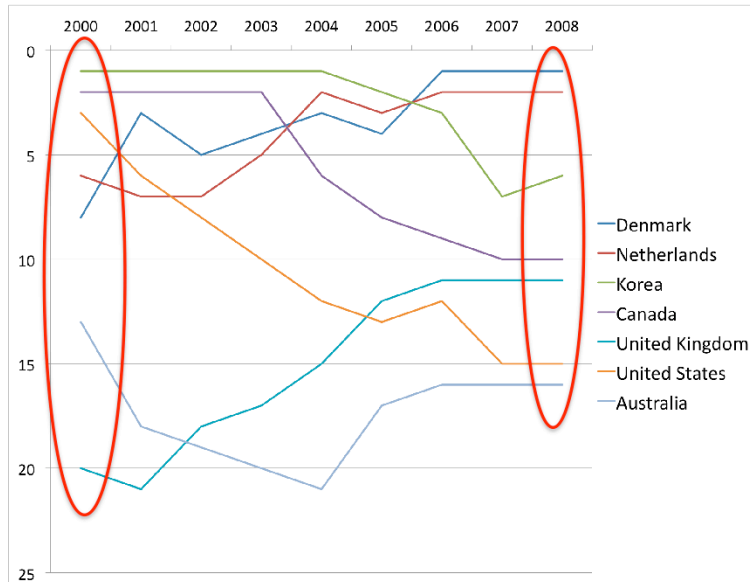
CRTC, 2006. CRTC telecommunications monitoring report: Status of competition in Canadian telecommunications markets – deployment/accessibility of advanced telecommunications infrastructure and services. Gatineau. <http://www.crtc.gc.ca/eng/publications/reports/PolicyMonitoring/2006/tmr2006.pdf>.

CRTC, 2007. CRTC telecommunications monitoring report: Status of competition in Canadian telecommunications markets – deployment/accessibility of advanced telecommunications infrastructure and services. Gatineau. <http://www.crtc.gc.ca/eng/publications/reports/PolicyMonitoring/2007/tmr2007.pdf>.

CRTC, 2008. Communications monitoring report. Canadian Radio-television and Telecommunications Commission, Ottawa. <http://www.crtc.gc.ca/eng/publications/reports/PolicyMonitoring/2008/cmr2008.pdf>.

(Note changing definitions of high speed in 2007/2008 reports: broadband ≥ 1.5 Mbps, but high speed ≥ 128 Kbps).

OECD Broadband Rankings (subscribers/100)



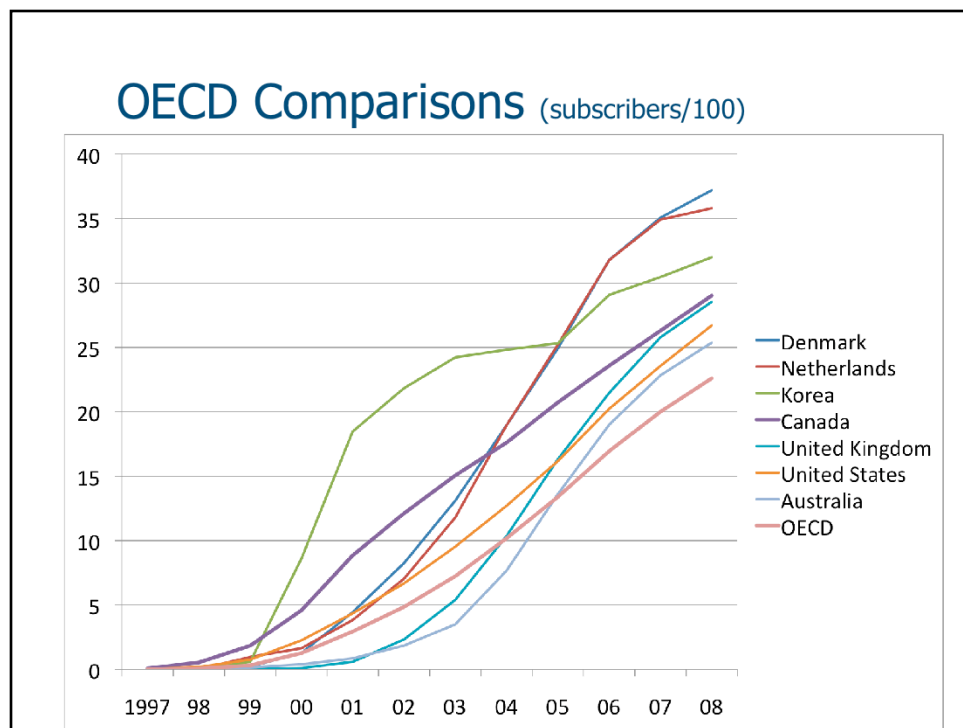
Source: OECD Broadband Portal, http://www.oecd.org/document/54/0,3343,en_2649_34225_38690102_1_1_1_1,00.html

December 2008

Note that OECD data are flawed in some ways, but provide a good means of comparing relative performance against other countries, and over time within a single country.

Difficult to do a direct comparison to CRTC data, because of different measure (households vs. subscribers per 100).

Data are for December of each year. Note that Canada was ranked #1 in 1999, but data are not available for all countries shown here so 1999 is not included.



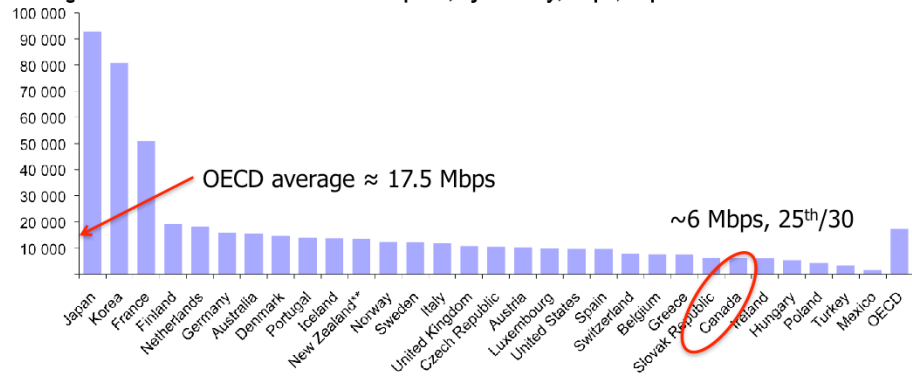
Source: OECD Broadband Portal, http://www.oecd.org/document/54/0,3343,en_2649_34225_38690102_1_1_1_1,00.html

Data are for December of each year, selected countries only.

Canadian growth has been steady, but is being surpassed by many European countries (not all are shown).

OECD Data on Broadband Speeds

Average advertised broadband download speed, by country, Kbps, September 2008

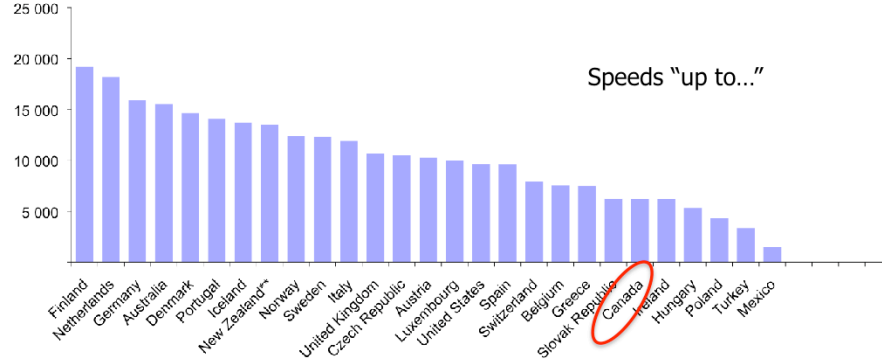


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Source: OECD Broadband Portal, http://www.oecd.org/document/54/0,3343,en_2649_34225_38690102_1_1_1_1,00.html

OECD Data on Broadband Speeds (2)

Average advertised broadband download speed, by country, Kbps, September 2008



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Source: OECD Broadband Portal, http://www.oecd.org/document/54/0,3343,en_2649_34225_38690102_1_1_1_1,00.html

Even when the fastest 3 countries are removed from the comparison, average advertised broadband speeds in Canada are not competitive with the rest of the OECD.

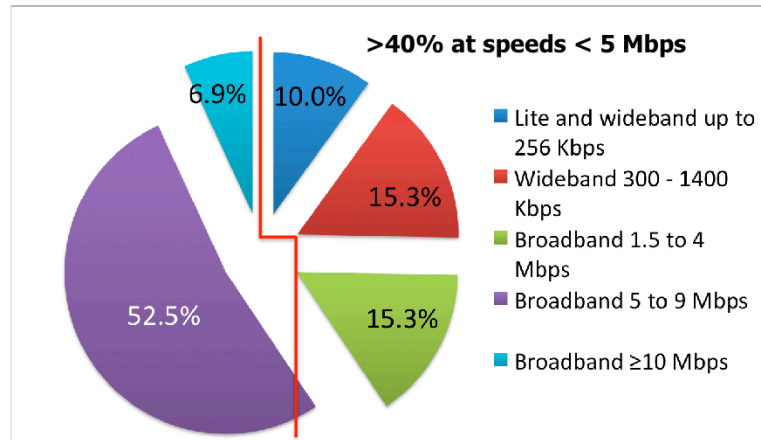
Comparisons of speeds should also take into account download caps (bitcaps). E.g. Australia has higher speeds than Canada, but much more restrictive bitcaps, which limit the affordability of the high speed connections.

Subscribers rarely achieve advertised speeds:

Epitiro, 2009. Australia Internet performance index – summary findings 2008 (Q4). Epitiro, Sydney.

Ofcom, 2008. UK broadband speeds 2008 – consumer experience of broadband performance: Initial findings.

Defining 'Broadband' in Canada



Types of Broadband Connections in Canadian Households (64% uptake, 38% ≥ 5 Mbps)

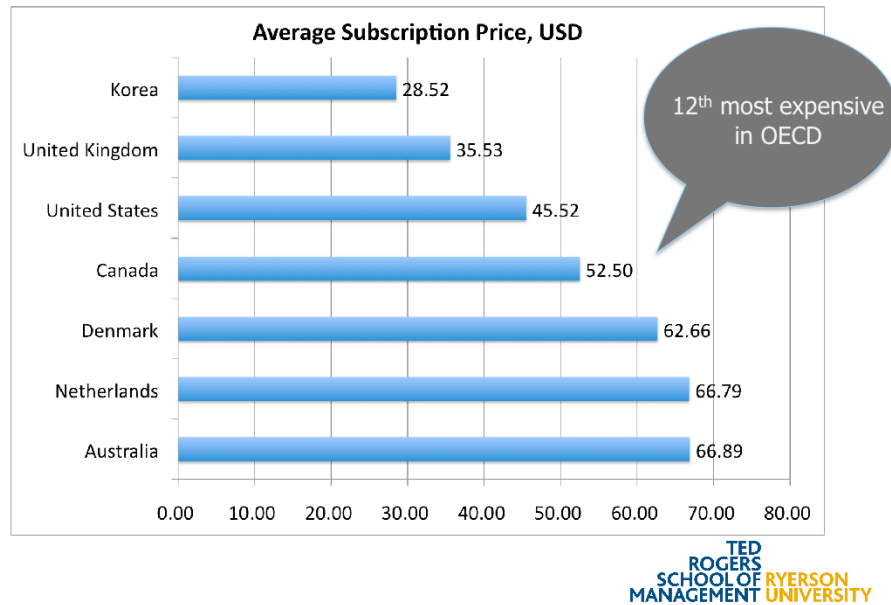
CRTC Communications Monitoring Report 2008 (2007 data)

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OECD defines broadband as > 256 Kbps connections, but as seen in the previous slides, the average advertised speed across the OECD is much higher than this.

CRTC, 2008. Communications monitoring report. Canadian Radio-television and Telecommunications Commission, Ottawa. <http://www.crtc.gc.ca/eng/publications/reports/PolicyMonitoring/2008/cmr2008.pdf>. Table 5.3.3

OECD Data on Broadband Prices



Source: OECD Broadband Portal, http://www.oecd.org/document/54/0,3343,en_2649_34225_38690102_1_1_1_1,00.html

Consideration of prices should also take into account download caps (bitcaps).

Canadian “Market Forces” Policies...

- “Competition” has provided 92% market share to incumbent telcos/cablecos, revenue CAGR of 15.1%
- Limited innovation in terms of speeds, services
- Little evidence of willingness to move to “next generation” infrastructures



CRTC 2008, note also that top 5 providers have 77% of revenues

Canadian Telecom Policy:

Telecommunications Policy Review Panel, 2006. Telecommunications Policy Review Panel - final report 2006. Industry Canada, Ottawa.

Governor General in Council, 2006. Order issuing a direction to the CRTC on implementing the Canadian telecommunications policy objectives. <http://canadagazette.gc.ca/archives/p2/2006/2006-12-27/html/sor-dors355-eng.html>. (accessed Access Date, Access 2006).

For a critical perspective, see Moll, M., Shade, L. R. (Eds.), 2008. For sale to the highest bidder : Telecom policy in Canada. Canadian Centre for Policy Alternatives, Ottawa.

Next Generation Networks

- Korea
- Estonia
- Portugal
- Greece
- Netherlands
- Australia

FTTH/FTTP networks

- Offer speeds of 100 Mbps, up to 1 Gbps (Korea)
- Enable healthcare, education, smart grids – more than just internet access

See www.delicious.com/canadabroadband for links/information on these projects.

FTTH – Fibre to the Home

FTTP – Fibre to the Premise

For a discussion of what could be done with faster networks, see Ezell, S., Atkinson, R., et al., 2009. The need for speed: The importance of next-generation broadband networks. The Information Technology and Innovation Foundation, Washington, DC. <http://www.itif.org/files/2009-needforspeed.pdf>.

Information on next generation networks:

Analysys Mason, 2008. Final report for the broadband stakeholder group – The costs of deploying fibre-based next-generation broadband infrastructure.

Broadband Stakeholder Group and Department for Business Enterprise & Regulatory Reform, Cambridge. <http://www.broadbanduk.org/fibrecosts>.

Broadband Stakeholder Group, 2007. Pipe dreams?: Prospects for next generation broadband deployment in the UK. www.broadbanduk.org/content/view/236/7/.

OECD Directorate for Science Technology and Industry, 2008. Convergence and next generation networks – ministerial background report. OECD Ministerial Meeting on the Future of the Internet Economy, Seoul. <http://www.oecd.org/dataoecd/25/11/40761101.pdf>.

OECD Directorate for Science Technology and Industry, 2008. Developments in fibre technologies and investment. OECD Working Party on Communication Infrastructures and Services Policy, Paris. <http://www.oecd.org/dataoecd/49/8/40390735.pdf>.

OECD Directorate for Science Technology and Industry, 2008. Public rights of way for fibre deployment to the home. OECD Working Party on Communication Infrastructures and Services Policy, Paris. <http://www.oecd.org/dataoecd/49/9/40390753.pdf>.

Broadband Investment in Canada

Industry Canada 2009 initiative:

- \$225 million
- For un/underserved communities
- Fund covers up to 50% of project costs, applicants must fund the rest
- 1.5 Mbps network speed
 - “For unserved Canadians, this is a dramatic improvement over no service or only dial-up service.”



This investment will be welcomed in these communities. But compared to international efforts, it is a tiny investment.

Industry Canada, 2009. Broadband Program. <http://www.ic.gc.ca/eic/site/719.nsf/eng/home>.

http://www.ic.gc.ca/eic/site/719.nsf/eng/h_00004.html

Broadband Investment in Australia

- National Broadband Network (NBN), announced April 2009
- Will provide FTTP to 90% of Australian homes, schools, businesses, satellite or wireless connections to remaining 10%
- \$43 Billion (AUD) investment (part of stimulus package, but planned for many years)
- 8 year roll out schedule



\$43B AUD \approx \$38B CAD as of April 2009

Prime Minister of Australia, 2009. New national broadband network. http://www.pm.gov.au/media/Release/2009/media_release_0903.cfm

Felton, B., 2009. Fiber future: Australia paves the way. <http://www.fiberevolution.com/2009/04/fiber-future.html>.

Prime Minister, Premier of Tasmania, et al., 2009. Tasmania first to receive superfast broadband. http://www.minister.dbcde.gov.au/media/media_releases/2009/023.

Government of Australia. (2009). 21st Century Broadband. http://www.accc.gov.au/content/item.phtml?itemId=868050&nodeId=c22d7f2459f61ef368a4722fcbb57381&fn=21st_Century_Broadband_-_Brochure_low_res_web.pdf

NBN Attributes

- Visionary government, committed to intervention in the broadband market
- Public-private partnership with large initial government investment
- Open access, wholesale model
 - Contradicts the approach of competitive market forces, infrastructure competition
 - Requires changes to the regulatory environment

Government provides at least 51% of capital, to sell down investment once network is operational

NBN Process to Date

- Successive governments committed to improving Australian broadband infrastructure
(historically poor performance – expensive, low speeds)
- Rudd government cancelled previous government initiative (to serve rural/remote areas), initiated NBN consultative process
- RFP closed Nov. 2008, results announced in April 2009

RFP was for 12 Mbps FTTN (node) infrastructure, to serve 98% of Australian homes. See Department of Broadband Communications and the Digital Economy, 2008. Request for proposals to roll-out and operate a national broadband network for Australia. Australian Government, Canberra. http://www.dbcde.gov.au/__data/assets/word_doc/0005/86072/Request_for_Proposals_-_DCON-08-18.doc.

See submissions to the Australian Senate Select Committee on the National Broadband Network for discussion of broadband provision in Australia. http://www.aph.gov.au/Senate/committee/broadband_ctte/index.htm

A panel of experts reviewed the submissions to the RFP, and decided to exclude the 12 page submission from telco incumbent Telstra on the grounds that it did not meet the conditions regarding broadband for SMEs.

Upon review of all proposals, it was decided that none met the requirements. Instead, an announcement was made that the NBN would be built as a public-private partnership open access FTTP network.

Questions to Consider

- Is this a good idea? Is faster better?
 - Potentially transformative infrastructure, but at a high cost
 - If the “market” isn’t willing to build this, is there a business case? Does it matter?
- What are the appropriate regulatory structures?
 - Is open access the right model?
- What are the appropriate technical configurations?

Lessons from the NBN (so far)

- Complex, messy, expensive process
- It takes visionary leadership, with long planning horizons
- Politically risky
- Technically uncertain (no precedents on this scale)
- But, commitments from successive governments to do something have resulted in a clear course of action

Closing Comments

- On a comparative basis, Canada no longer leads the world in broadband infrastructure development or usage.
- Australia has introduced a bold initiative to build a National Broadband Network.
Stay tuned to see what happens.
- Canada can learn from Australia's successes and failures in building next generation infrastructure, but political vision and commitment is essential.

Broadband Resources: Canada and Beyond

- <http://delicious.com/canadabroadband>
- <http://www.broadbandresearch.ca>
- <http://www.cwirp.ca>
- http://www.aph.gov.au/Senate/committee/broadband_ctte/index.htm
- http://www.dbcde.gov.au/communications_for_business/funding_programs_and_support/national_broadband_network

catherine.middleton@ryerson.ca

ROGERS HI-SPEED INTERNET COMPARISON

Select	Service	Best suited activity	Speed	Email addresses	Additional Usage Charge	Monthly Usage Allowance	Monthly Fee
<input checked="" type="radio"/>	Extreme Blistering speed, for sharing large files and much more.	Music, video streaming, downloading and playing games.	10.0 Mbps	9	\$1.50/GB	95 GB	\$59.99
<input type="radio"/>	Express Enjoy a fast service that's great for email, sharing photos and files and extensive Web surfing.	Music, video streaming, downloading and playing games, online shopping and instant messaging.	10 Mbps	9	\$2.00/GB	60 GB	\$46.99
<input type="radio"/>	Lite For email and occasional file sharing with moderate Web surfing, this service allows you to surf at speeds much faster than dial-up.	Moderate web surfing, online shopping and instant messaging.	3 Mbps	5	\$2.50/GB*	25 GB	\$35.99
<input type="radio"/>	Ultra-Lite For those who primarily use email combined with a light amount of Web surfing.	Lite web surfing and instant messaging.	500 Kbps	3	\$5.00/GB*	2 GB	\$25.99

May 2008 broadband prices, Rogers.com, Ontario market

Bell Internet

Portable and Rural Internet services

Key features

Essential
Ideal for people who only want to surf the net, email and bank online.
\$23






Essential Plus
Perfect for daily online tasks and activities. Do more in less time.
\$33

Performance
Ideal for families, or for people who download music, stream video or play games online.
\$43

Max 10
Ideal for those who want to download large media files and play them right away.
\$53

Max 16
Ideal for power users who want all the speed and usage they can get.
\$83

Speed and usage^{1, 2}: Consistently fast dedicated Internet access that's never shared

Download speed	 Up to 500 Kbps	 Up to 2 Mbps	 Up to 7 Mbps	 Up to 10 Mbps	 Up to 16 Mbps
Upload speed	Up to 500 Kbps	Up to 800 Kbps	Up to 1 Mbps	Up to 1 Mbps	Up to 1 Mbps
Included monthly Internet usage	2 GB	20 GB	60 GB	100 GB	100 GB

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May 2008 broadband prices, Bell.ca, Ontario market