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THIS ISSUE

Mobility
Managing and Securing the Mobile Enterprise

Policy
Status of Broadband Connectivity in Canada:
The Need for a National Strategy and Clear
Standards of Service

Technology
SDN and NFV - What are they, how can they help you?

FEATURES

**Twitter – Part 2: Are customers trying
to reach me but I'm not there?**

Canadian Consolidation

Telecom 2013 – See you next year!

STATUS OF BROADBAND CONNECTIVITY IN CANADA:
The Need for a National Strategy and Clear Standards of Service

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Broadband connectivity is often seen as a key measure of advanced countries' readiness for the digital global economy as it enables competitiveness such as mobile commerce, distributed production, and innovation. Broadband connectivity also is seen as critical to addressing issues in domestic economic and societal issues such as the 'digital divide' or the 'broadband gap' between urban and rural areas, high and lower income citizenry and lowering costs of development in remote regions. Thus, the European Community has set out a target of 20Mbps for its members, with the intention of ramping up to 100Mbps. Korea, currently targeting 110Mbps, is the global leader. In 2002, Canada was rated by the OECD as second, after Korea - in connectivity, while in its latest ratings, Canada was ranked 10th.[1][2]

In this article we explore how Canada appears to have lost some of its competitive edge, where the problem appears to be most acute, and some potential options to address the issues.

Broadband Pricing versus Availability
Within digital divide issues, there is an important distinction to be made between pricing and the availability of high-speed broadband services, as well as the standards that apply to those services.

The Government of Canada (GoC) recently (November, 2013) launched an advertising campaign indicating that pricing of wireless services was a nation-wide issue originating with the incumbents' current market position.[3] While this campaign was not exclusively about broadband services, wireless services are often heralded as the solution to broadband connectivity challenges in rural regions. GoC indicated that this pricing issue could be addressed as a competition issue by the licensing of new spectrum to wireless carriers in upcoming 700MHz and 2500MHz auctions, entry of new foreign carriers (ref. mediacoverage of Verizon's consideration of the Canadian market, summer 2013), as well as policies to encourage incumbents to lower roaming rates and encourage sharing of towers and sites.[4] Prices for data plans are typically lower in metropolitan markets where, following the 2008 spectrum auction, prices for data plans are typically lower where there are new wireless competitors such as WIND, Public Mobile and Mobilicity, even though these new providers have thus far only managed to create a toehold.

The GoC indicates that "99% of Canadians have access to high speed broadband".[5] However, there are a significant number of citizens in rural and remote areas of Canada which still have limited or no access to higher speed broadband services as envisioned by the CRTC's broadband Internet access target.[6] Thus, while citizens in urban markets typically have access to advertised speeds of 50Mbps or even 100Mbps, the speeds available in rural and remote regions is far less, and often at exorbitant costs to end users.[7] In general, citizens in rural areas typically might obtain 2Mbps broadband Internet access services over wireline services (such as DSL and Cable modems). Citizens in remote areas – generally outside the transportation corridors (although in some cases within commuting distance of metropolitan areas) can often only obtain 2Mbps services via satellite technology, and often at much higher costs than their urban counterparts.

Rural Connectivity - Financially Unsustainable?
The GoC has indicated that it has a particular focus on policies that enhance connectivity for its rural citizenry: "We have set strong rural requirements—the first of their kind in Canada—that will apply to those companies best positioned to deploy in rural areas. Additionally, updated roaming requirements ensure that your provider can offer service outside their coverage area." However, this focus does not deal with the fundamental economic issues associated with delivering broadband to citizens in rural and remote areas where disposable income and ARPUs are lower, but carriers' costs are significantly higher than in metropolitan areas due to low and very low population densities, difficult terrain and severe climatic conditions.[8]

In effect, in absence of sustained government funding and investment in broadband networks, there is no financially sustainable solution for high-speed Internet for many citizens in regional and remote Canada.

Limited Policy Framework and Little Funding
In comparison with other leading OECD countries, Canada has a limited policy framework and provides very limited funding for broadband connectivity.[9] Unlike other countries, there is no mandated universal broadband service standard[10] and limited capital funding for connectivity in regional and remote areas. In the past, Industry Canada's Broadband Canada Fund[11] provided capital funding for telecom connectivity in hard to service areas. However, funding for this programme has been 'sun-setting' and current

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1 http://www.oecd.org/sti/broadband/oecdbroadbandportal.htm

2 A related issue to the availability of broadband networks in Canada is whether the architecture of these networks (data centres for cloud computing, routing, etc.) should be national or global in nature and correspondingly, whether unique local (national) service provider (including consultants) solutions are desirable or sustainable. The CATA Alliance – as one example, has advocated for an integrated North American network architecture and service suppliers following Shared Services Canada's announcement of its intent to consolidate its data service centres and more recently, the PRISM revelations of infringement on corporate privacy and data security. See Shared Services Canada (SSC) Advocacy Alert: Myths and Mystery, Exploring Sourcing Options for SSC: Impact of Data Sovereignty: Call for Guidance web posting http://www.cata.ca/Media_and_Events/Events_Calendar/cata_ec12181201.html

3 Canada's largest wireless companies currently hold more than 85% of Canada's wireless airwaves and hold more than 90% of the Canadian market. Canada's Wireless Policy: More Choice, Lower Prices, Better Services'

4 "The Government's wireless policy for greater competition has already benefited Canadians through more choice, lower prices and better service. This trend will continue as a result of the upcoming auction because its rules were designed in the best interest of Canadian consumers." "'2)

'Backgrounder—Facts About Roaming and Antenna Tower and Site Sharing: Advanced Services for all Canadians' http://www.ic.gc.ca/eic/site/064.nsf/eng/07328.html

5 Defined as 1.5Mbps or greater. Ref. Study of Future Demand for Radio Spectrum in Canada 2011-2015 Industry Canada

6 In Telecom Regulatory Policy 2011-291, the Commission established a universal broadband Internet access target download speed of 5 Mbps (1Mbps upload speed) Ref. http://www.crtc.gc.ca/eng/publications/reports/broadband/bbreport1111.htm#n2.0

7 Videotron as one example, advertises a 100Mbps service package in southern Quebec. While some satellite-based ISPs (e.g. Tamaani in Nunavik - northern Quebec) in remote regions advertise up to 6Mbps, these packages are targeted to commercial and institutional users and their pricing is usually well beyond affordability thresholds of residential subscribers.

8 Nordicity's 2011 International Wireless Market report for TELUS indicated that rural Canadians are much more dispersed geographically and have a lower overall population density than is the case in most other advanced economies.

projects will end in 2016. As a result of this, provincial, as well as municipal governments are finding themselves involved in the creation of new broadband projects through targeted programs and public/private partnerships. One such example is the recent fibre-optic network build in Olds, Alberta, delivering 1 Gbps service to residents of this small Alberta town[12].

Despite the widely-accepted and discussed social and economic benefits that broadband connectivity offers, the Federal Government has yet to define a Canada-wide digital economy strategy following on its 2010 consultations, which has left many wondering if the discussion *was* the plan.

Other initiatives such as joint federal / provincial / regional funding of regional broadband as economic development initiatives, the CRTC's mandated special deferral account funding for rural service[13], etc. are too limited in both scope and funding to have a national impact on connectivity. While Industry Canada believes that the private sector has been effective and will continue to be effective at addressing the broadband gap,[14] a number of leading international spectrum management experts have questioned the effectiveness of this approach.[15]

9   Organisation for Economic Co-operation and Development, Universal Service Policies in the Context of National Broadband Plans (July 2012), online: http://search.oecd.org/officialdocuments/displaydocumentpdf/?cote=DSTI/ICCP/CISP(2011)10/FINAL&docLanguage=En

As a result of the economics of delivering broadband services and the limited government role in promoting broadband connectivity through direct funding, citizens in rural and remote regions still feel they are facing a widening gap in connectivity relative to their urban counterparts, putting the economic well-being of their communities in jeopardy.

Some Potential Solutions to Connectivity issues
Given the importance of connectivity to Canada's digital economy strategy and the need to ensure that all Canadians can participate in the new economy, it's important that the connectivity issues be moved back into the spotlight of public policy debate. While the ultimate solution likely requires long term (and recurring) funding commitments, progress could be made in the interim based on more information and debate on current accessibility and affordability of high-speed Internet services and national connectivity service standards. A few initiatives that would further these goals are summarized briefly below.

The Federation of Canadian Municipalities[16] has recently initiated a Canadian Broadband Report Card - a study of how rural Canadians and rural businesses are doing vis-

10 In 2010, the Canadian Radio-television Telecommunications Commission (the 'CRTC') held a major proceeding to determine whether or not broadband should form part of a "basic service objective" (like 'plain old telephone service'), available universally and funded through the CRTC's cross-subsidy regime. Ultimately, in the face of a number of arguments made by several service providers, the CRTC decided that a mix of market forces and targeted government funding was working to close the gap; however, the CRTC set aspirational (i.e., non-binding), minimal target speeds and indicated that it would continue monitor the state of broadband connectivity in Canada.