Data Transmission Utility - Enabling Future Economic Growth

By Brad Nickel

The Vision

Create a new privately owned government regulated monopoly utility that owns and operates Canada wholesale data networks. This would include all wired data transmission infrastructure. The system would be run at cost ensuring equal access, reliability and security that would underpin the third industrial revolution. The retail component of the market would be open to all participants.

Definition of Data Transmission

Data Transmission is the infrastructure that facilitates the transportation of data. The infrastructure could be cell phone towers, antennas, fiber optic cable or copper wire. The data could be a phone call from your land line, a cell phone call, watching Netflix, traffic light controls, pipeline pressure monitoring, playing Pokemon Go or emailing coworkers. Data Transmission is about the transfer of data and connection from the creators of data to the consumers of data.

Opportunity

Current market structure is inefficient

- Duplicate infrastructure – ineffective use of capital by creating un connected parallel networks. The best example of this is having a Shaw and Telus cable going into the same house, A Roger and Telus cell phone antenna sitting on the same tower.
- Oligopoly incubator – Historical assets and spectrum auction ensures limited competition and prices will remain far above cost of service but low enough to discourage competition.
- Economic growth depends on access to cheap data transmission

High growth industry

- Data usage grows at 19% per year, Peak Data usage grows at 51% per year.
- Data growth is driven by increased computing power enabling a more connected society.
- Self driving cars and the internet of things will drive data usage higher and require more reliable and secure networks.

Mature Market Size

- $48.7 billion CDN market in Canada
- $163.92 per family per month
- Most families pay more for data transmission than they do for electricity and water

Cyber Security

- Cyber attacks are making data security a national security issues-(ie. the Ukraine power grid hack)
- Companies and Government run private networks since of security concerns of existing telecoms
- Cyber security becomes more critical when Data Transmission is an integral part of our transportation economy.

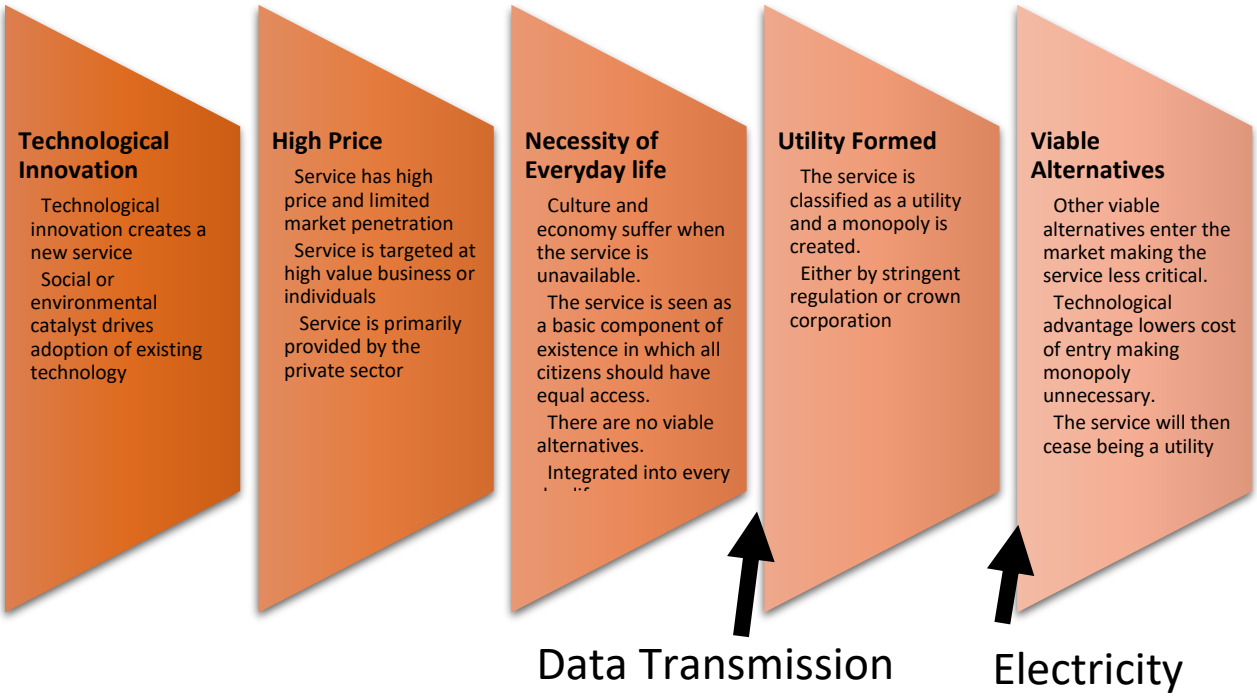
Cultural discontent with status quo

- Canadians are fed up with the high cost and low-quality service Data Transmission.
- People consider data transmission an essential service that all should have access to

Historical Precedence – Electricity

Data Transmission is showing strong indicators it is on track to become a utility and possess all of the characteristics needed. Historically the same problems that exist around Data Transmission were similar to what people were experiencing with electricity in the early 1900's. To solve these problems, utilities were created and the electrification of Canada has been highly successful.

Not all services become a utility and a service that is a utility will never remain a utility indefinitely. See figure below for the lifecycle of a utility.



Characteristics of a Utility

- A business that provides an everyday necessity to the public at large

- Public utilities are firms that are sometimes synonymous with natural monopolies. These organizations are generally so called because there is structurally no room for market competition— one firm can “naturally” produce at lower costs than competitors who are eventually priced out of the market.
- Equal access is demanded by society
- Reliability and security are critical to national interests.
- Capital intensive business
- A commodity that cannot be stored

1. Universal Access and Deployment

1.1 Are the right legislative tools in place to further the objective of affordable high quality access for all Canadians, including those in rural, remote and Indigenous communities?

No, Data Transmission technical constraints makes it similar to electrical grids. Models that govern electricity should be used to regulate Data Transmission(Internet, telephone ect). Alberta electrical market design could be used as a blueprint for the CRTC. You need a Systeme planner, Quasi Judicial Regulator and private utilities to own and operate the network.

1.2 Given the importance of passive infrastructure for network deployment and the expected growth of 5G wireless, are the right provisions in place for governance of these assets?

No, the spectrum action will always insure an oligopoly will form. Economic theory around electrical market development should be used to develop market rules for wireless and wired. Security and reliability have been completely ignored. Our data transmission system needs to be built to the same standards as our electrical system (NERC standards).

2. Competition, Innovation, and Affordability

2.1 Are legislative changes warranted to better promote competition, innovation, and affordability?

Yes, Increased competition under current market rules will lead to a short-term price reduction, but ultimately the new player will become unprofitable and be forced out of the market. By using the electricity market design, you could drastically lower telecom rates for Canadians and build a more secure system. A modified telecommunication market will need to have strong competitive principles and the participation of private companies to be successful.

Most Canadian families pay 2 to 3 times more for their telecommunications (data transmission service) bill than their electricity. On the surface, these numbers do not make sense when telecommunication companies are simply transferring data and are not creating the content. The primary reason for the current pricing is market design. You do not need to look any further than your own household to see the inefficiencies of the current market structure. Most homes have three cables that enter the home from three different companies, that have three different networks that provide the same service. When you look out the window, you see a cell tower that has three different companies' antennas on it that provide the same service. In the early days of electricity, a similar issue existed that would have two or three power lines running into the same home to provide the same service on parallel networks. The natural market response to structural inefficiencies common to telecom and electricity networks is consultation. This consultation with the current market structure leads to increased cost for all consumers. New players entering the market will bring down prices in the short term, but ultimately the structural inefficiency will see the new player become unprofitable and forced out of the market. Time and time again, this has been proven by small telecom providers bought up by the incumbent telecoms. A modified telecom market must work to address these structural inefficiencies. This is the exact problem that the electricity markets have solved.

As society becomes more connected and telecommunication (data transmission) needs increase we cannot afford to rely on a patchwork network that the current market has created. The telecommunication needs of self driving cars is just one component which our current network capacity is not prepared to handle. We must coordinate and design the system centrally to ensure it is reliable, secure and trusted. This will ensure our economy, and the people of Canada, can be better protected against a cyberattack. Currently, there is no economic signal to have traditional telecom providers build more secure and reliable networks.

Electrification of Canada has been a huge success. Electricity is the lifeblood of our society and is provided so reliably that it is unnoticeable. Electrification success is due to Canada's 1940 policy decision. Let us make the telecommunications story a similar success! I look forward to meeting with yourself or your staff to discuss this matter further.

3. Net Neutrality

3.1 Are current legislative provisions well-positioned to protect net neutrality principles in the future?

No, current telecommunication has a strong profit incentive to shape traffic and sell personal data. The profit incentive needs to be removed. Imaging if an electricity company would not connect certain brands of stove to the system or would sell your real time electricity usage data.

4. Consumer Protection, Rights and Accessibility

4.1 Are further improvements pertaining to consumer protection, rights, and accessibility required in legislation?

Yes, duplicate the legislation for electricity.

5. Safety, Security and Privacy

5.1 Keeping in mind the broader legislative framework, to what extent should the concepts of safety and security be included in the Telecommunications Act/Radiocommunication Act?

Cyber attacks can take down power grids currently. In the future it will be able to stop cars and cripple economies. Our Data networks need to be master planned for security, reliability, accessibility and affordability. A for profit company will always look to compromise of security. The government of Canada needs to create a association similar to North American Electric Reliability Corporation to address telecommunication security issues. this will also require the creation of government agency that plans the system.

6. Effective Spectrum Regulation

6.1 Are the right legislative tools in place to balance the need for flexibility to rapidly introduce new wireless technologies with the need to ensure devices can be used safely, securely, and free of interference?

No, current structure that allows telecommunication companies to be content creators as well as network providers creates an inherent conflict of interest to interfere. Network companies need to be different from content creators to eliminate this conflict of interest. Similar to how generator and wires owners are banned from operating under the same company in a level 4 privatized market.

7. Governance and Effective Administration

7.1 Is the current allocation of responsibilities among the CRTC and other government departments appropriate in the modern context and able to support competition in the telecommunications market?

No, The government needs to create a planner organization that will plan the network to meet government reliability, security and accessibility standards. The planner will then direct the Data Ultiles where to build infrastructure. Data Utilities will then bring there cost to the CRTC for approval.

7.2 Does the legislation strike the right balance between enabling government to set overall policy direction while maintaining regulatory independence in an efficient and effective way?