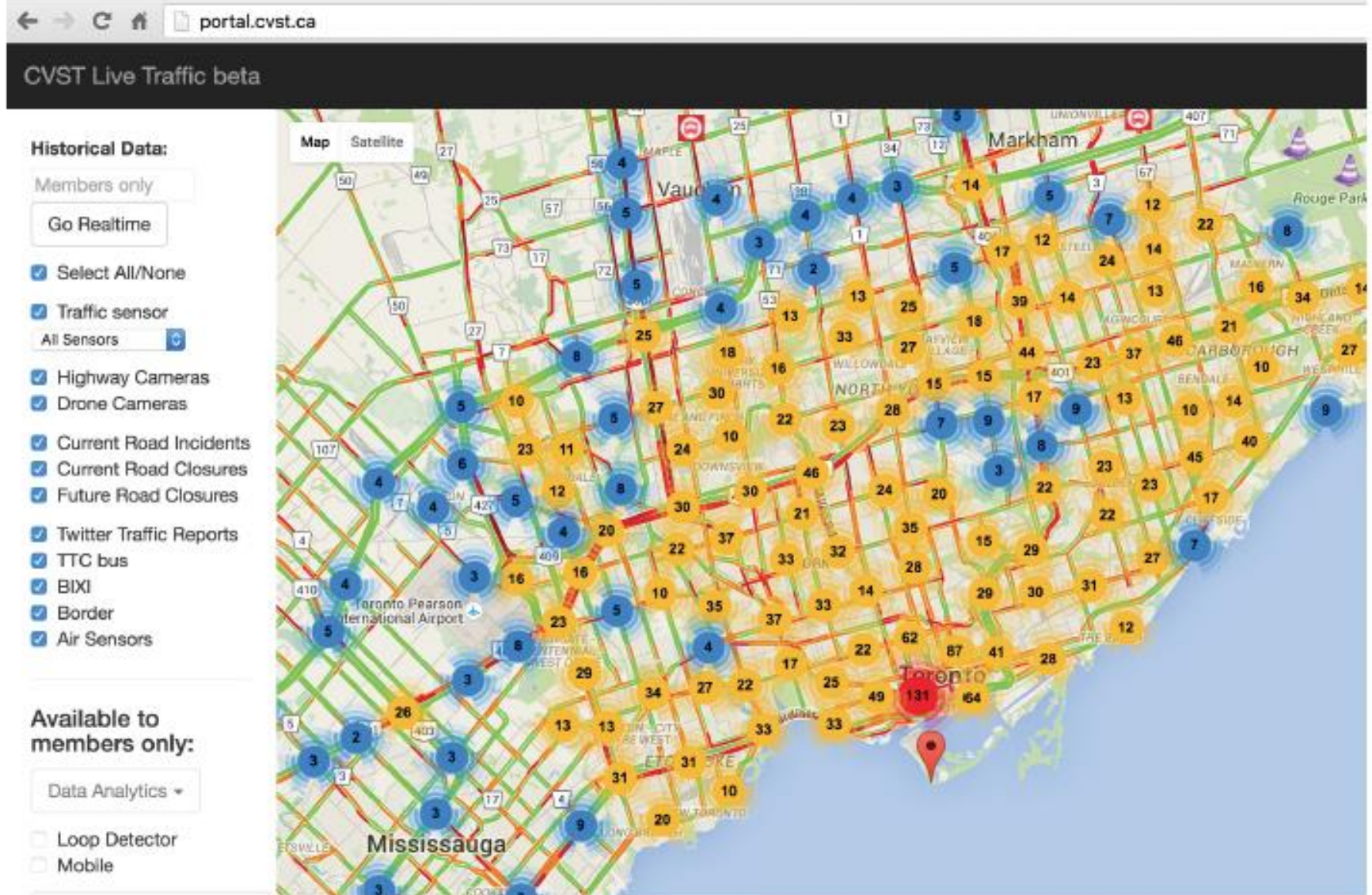




International Data Flows, Data Protection Requirements, and Innovation and Trade

Alberto Leon-Garcia
University of Toronto

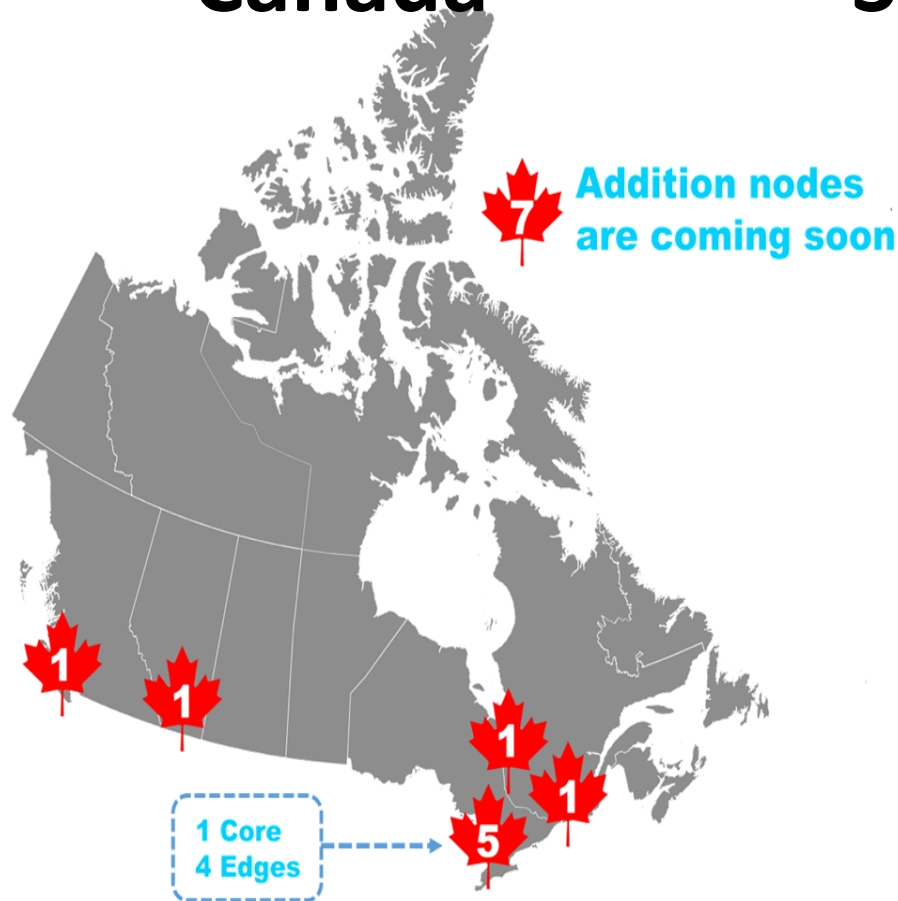
CVST Platform: Enabling Data-Driven Smart City Applications



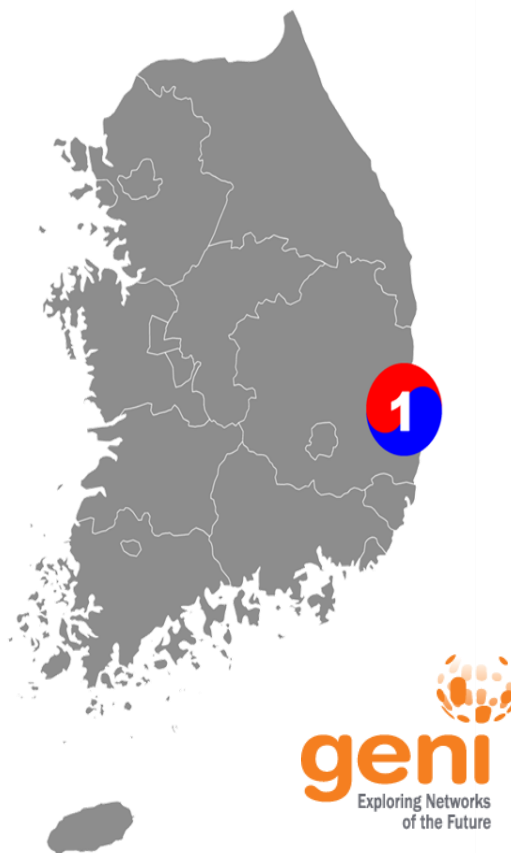
New York City, San Francisco, and coming soon to a Smart City near you.

SAVI Testbed

Canada



South Korea



Challenge

- ❖ Data can flow readily and instantaneously irrespective of borders
- ❖ International data flows bring economic benefits
 - ◆ Facilitate international trade
 - ◆ Support new applications with huge economies of scale
- ❖ International data flows bring risks
 - ◆ Privacy of personal data
 - ◆ National security
 - ◆ IP and trade secrets

Current Approach

- ❖ Constraints on data flows
 - ◆ Keep data and processing within borders
 - ◆ Ensure data protections respected across borders



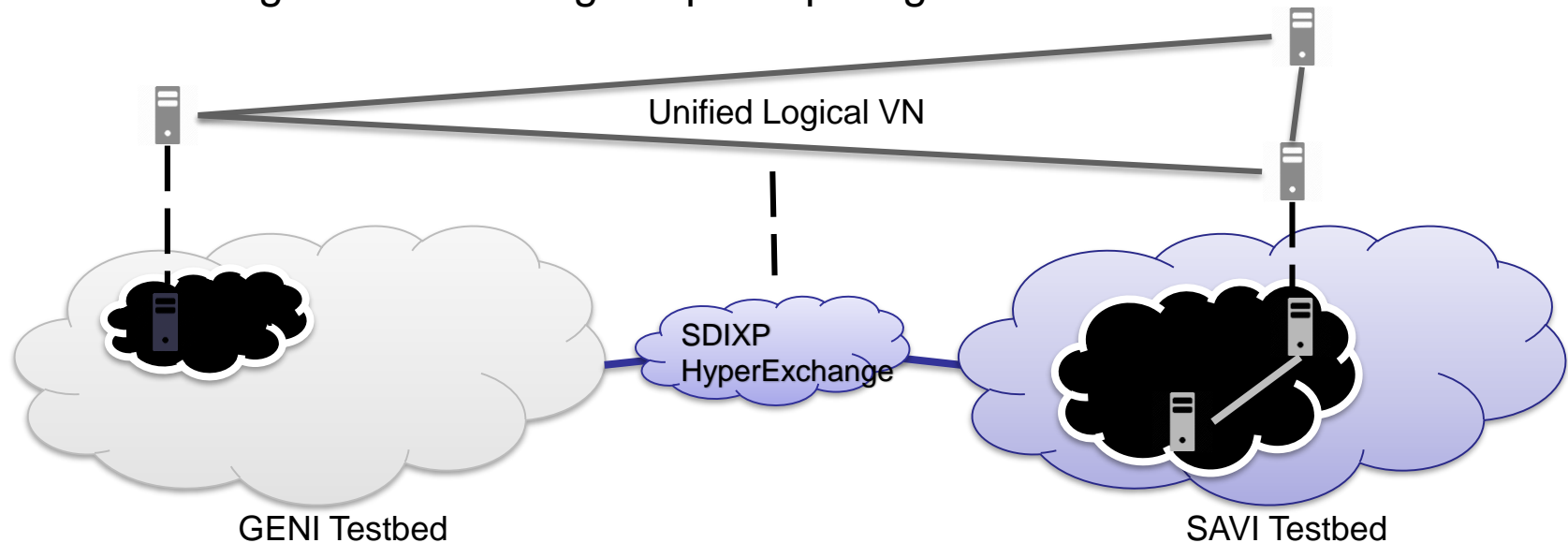
A Role for Virtualization?

- ❖ Cloud computing
 - ◆ Tenants allocated virtual resources to support their applications
- ❖ SAVI research:
 - ◆ Federate computing clouds
 - ◆ Provide tenants with resources across clouds
 - ◆ GENI-SAVI: U.S. – Canada
 - ◆ Software-Defined InterExchange

HyperExchange SDI eXchange Point

A versatile exchange point architecture that peers Infrastructure Providers (Autonomous SDI Domains) and their hosted VNs

- Protocol agnostic
- Based on SDI architecture
- Inter-domain network control authorization
- Enabling NFV at the edge of participating networks





SDIX as Free Economic-Computing Zone

- ❖ Deploy tenants in computing clouds that span across international borders
- ❖ Each tenant operates within legal constraints of country of data origin
- ❖ Data travels across borders while respecting requirements of its origin
- ❖ Technology-legal changes required?
- ❖ Impact on economies of scale?
- ❖ Impact on barriers to innovation?