



Realizing 5G Futures and Enablers Using ENCQOR 5G Testbed

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STRONGER NETWORKS, SMARTER COMMUNITIES.
MIEUX CONNECTÉ, PLUS PERFORMANT.

ENCQOR.CA



5G Interprovincial Innovation Platform

Canada

Ontario

Québec

ERICSSON

ciena

THALES

IBM

CGI



Centres d'excellence de l'Ontario



prompt

Mitacs

ADRIQ RCTI
DE L'IDÉE AU MARCHÉ

\$ 400M

The largest 5G PPP collaborative Innovation project in Canada



COGECO



ROGERS

TELUS

VIDEOTRON

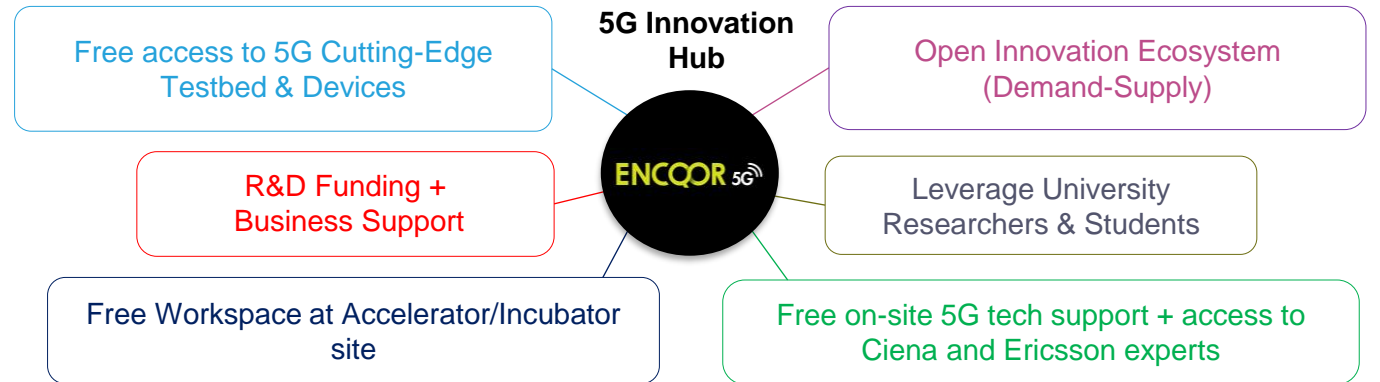
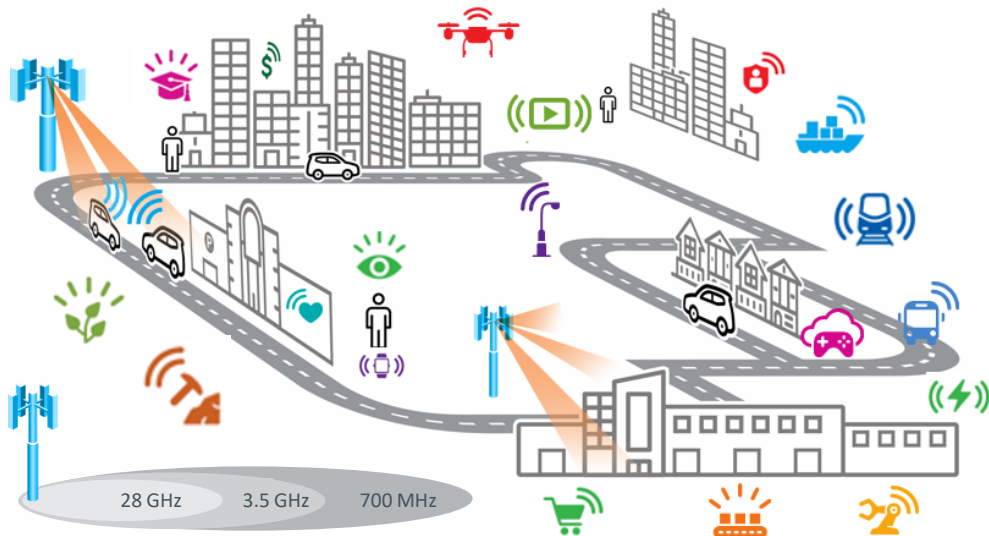
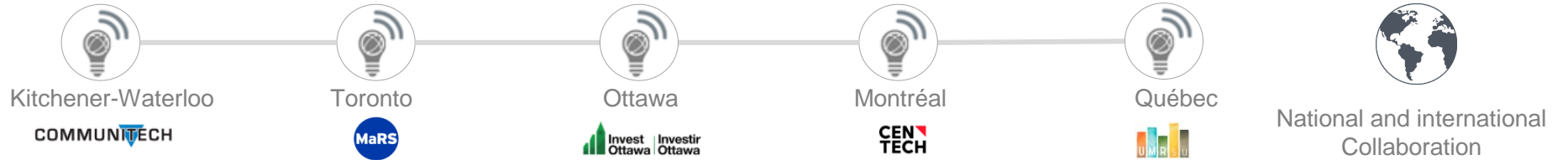
ENCQOR 5G

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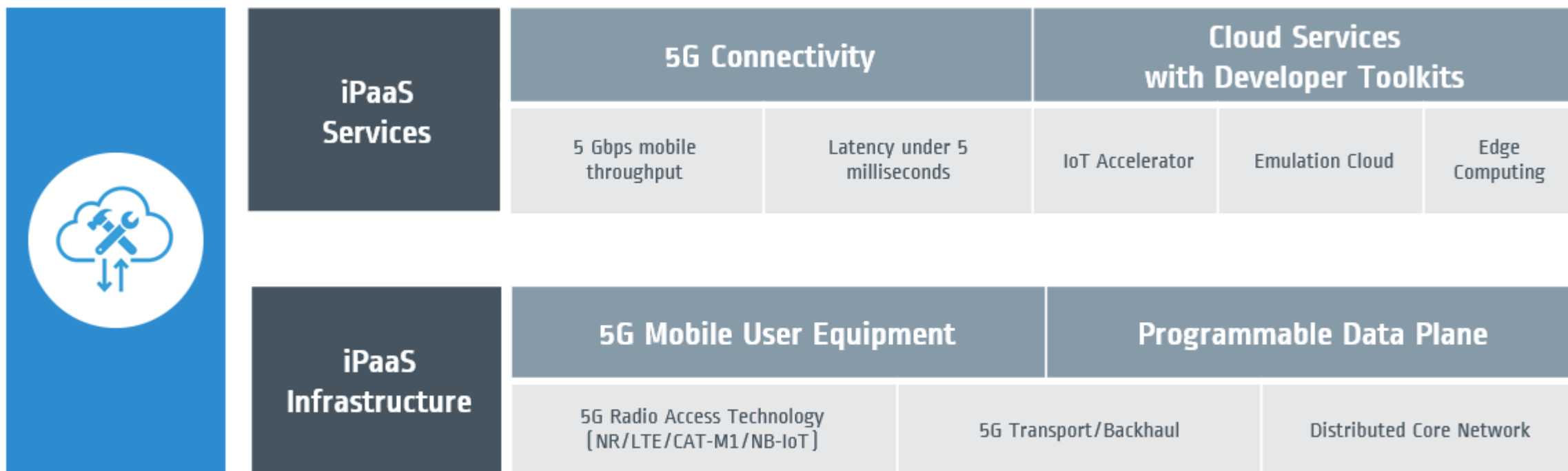
ENCQOR 5G Open Innovation Platform

Corridor Québec-Ontario: 5 Digital 5G innovation Hubs open to all and accessible from everywhere



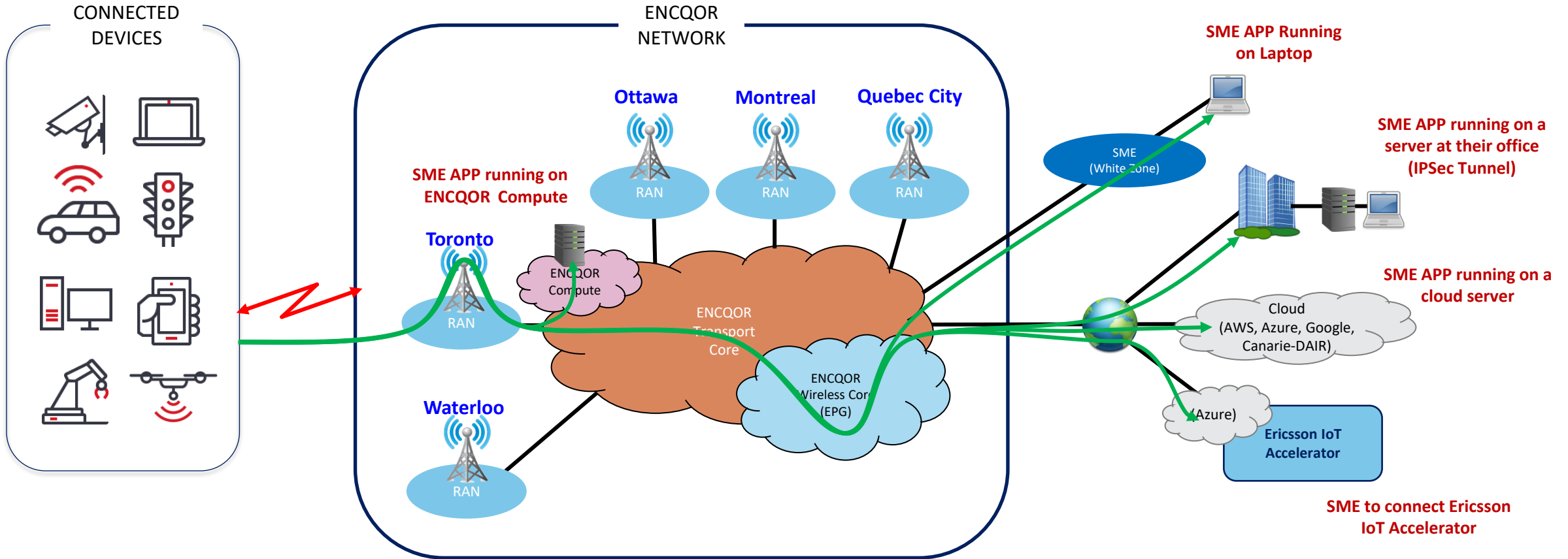
E2E Ecosystem to *develop – experiment – démonstrate* your novel solutions, applications and services

ACCESSING THE 5G INNOVATION PLATFORM AS A SERVICE (IPaaS) TESTBED



* Features will be added throughout the project.

ENCQOR NETWORK E2E OVERVIEW



iPaaS 5G Testbed Technologies

@ each ENCQOR 5G Innovation Hub

Full Vertical 5G Stack Integration



Red Zone Area

- 5G RAN & 5G EPC
 - NSA NR (SA being prepared)
 - vEPG at the radio site
 - MIMO radios
 - IMS/VOLTE
- CAT-M1 & NB-IoT also supported
- Adaptive IP Network
- Local Compute
- SDN/NFV and d-NFVI
- MDSO
- IoT Accelerator
- Emulation Cloud
- Smart Applications

Devices available @ site

Mobile devices:

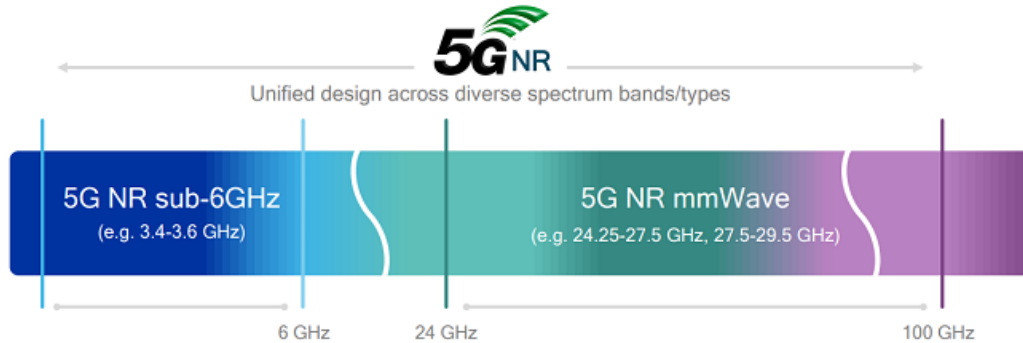
5G Cell
SIM cards
Sensor Modules
CAT-M1, EVB
Nb-IoT
WNC Router Mobile hotspot
...

Device Interfaces:

USB-C
USB
Wi-fi
Android APKs
Internet

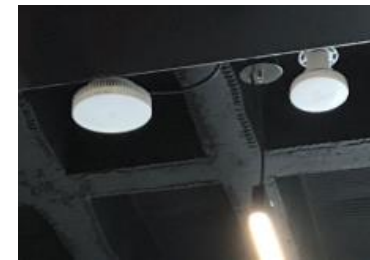
**** We support BYOD ****

Diverse Spectrum Bands/types @ Each Hub



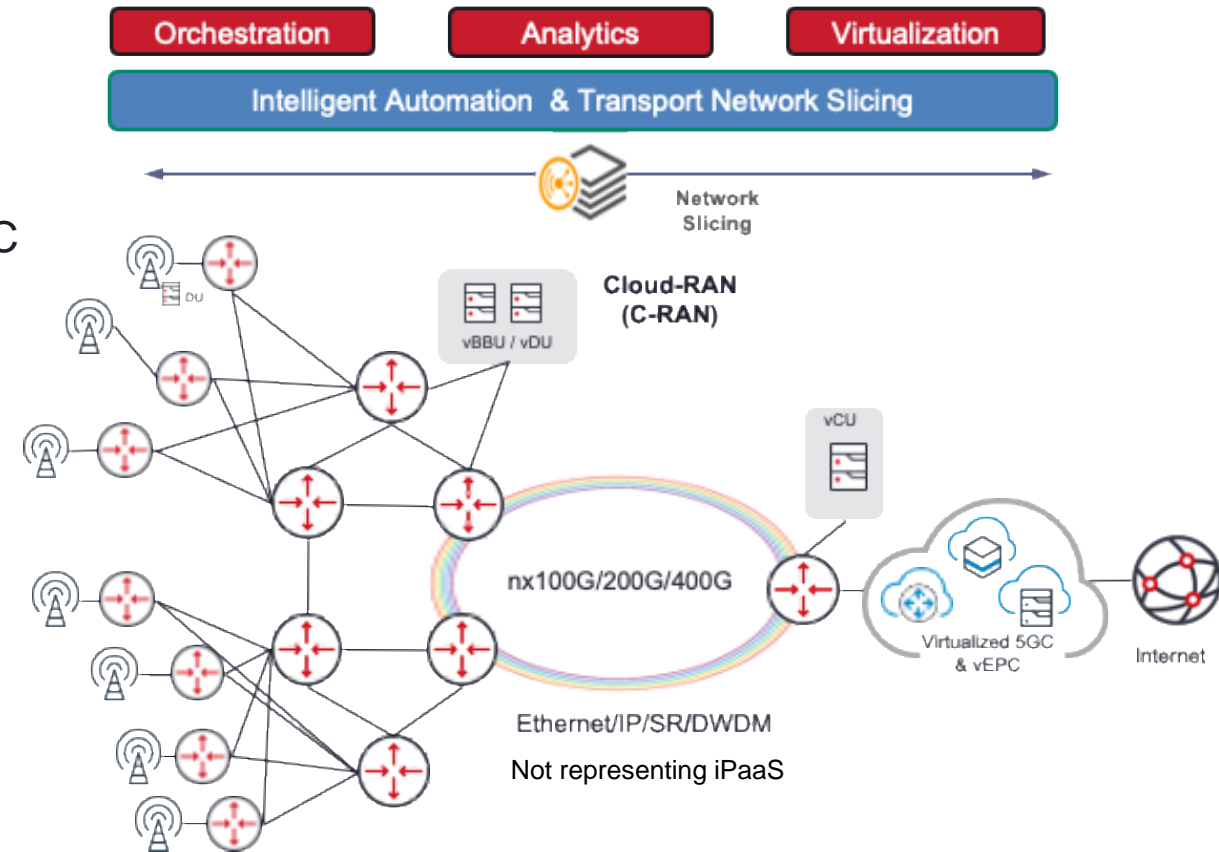
- Low : Band B14 (700 Mhz)
- Mid : B42/n78 and B40 (3.5 Ghz)
- High : Band n261 (28 Ghz)

**EXTERIOR
&
INTERIOR**



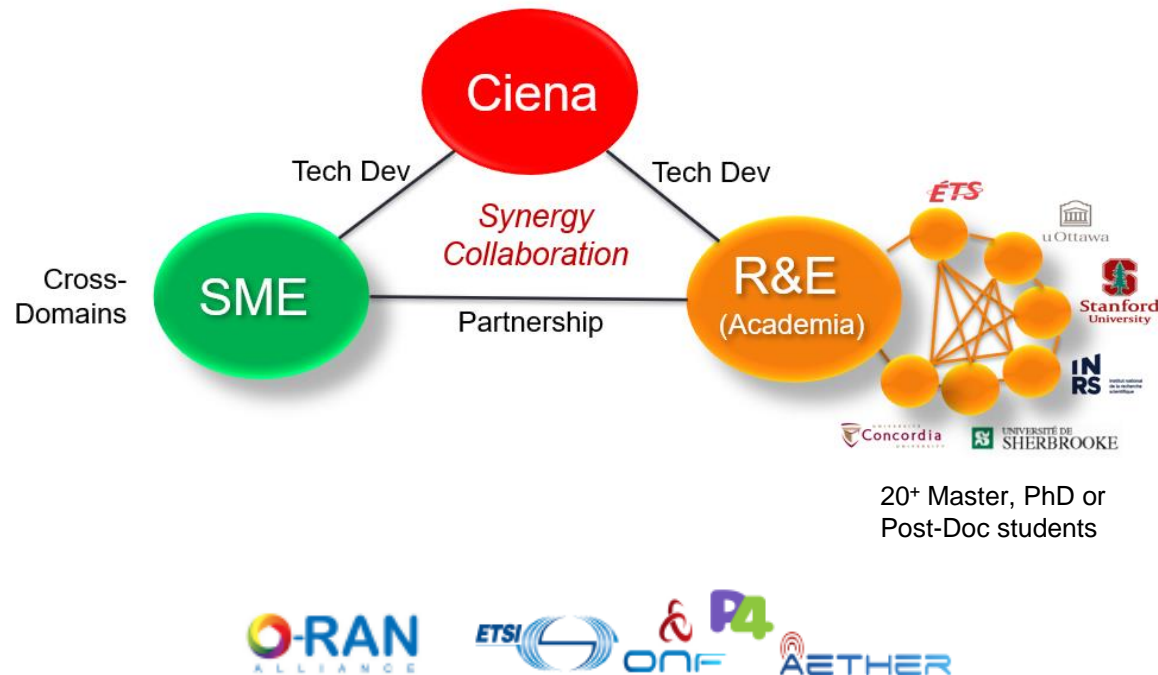
Adaptive IP Network

- Greater 10/25/50/100/200/400GE interface density to support higher capacity deployments
- Support multiple 5G applications like eMBB, urLCC, and mMTC
- Intelligent Automation
- Real-Time telemetry
- Agile and dynamic network Implementation
- Transport Network Soft Slicing based on SR-MPLS



To the Next Frontier - Self Optimizing Fabric (SOF)

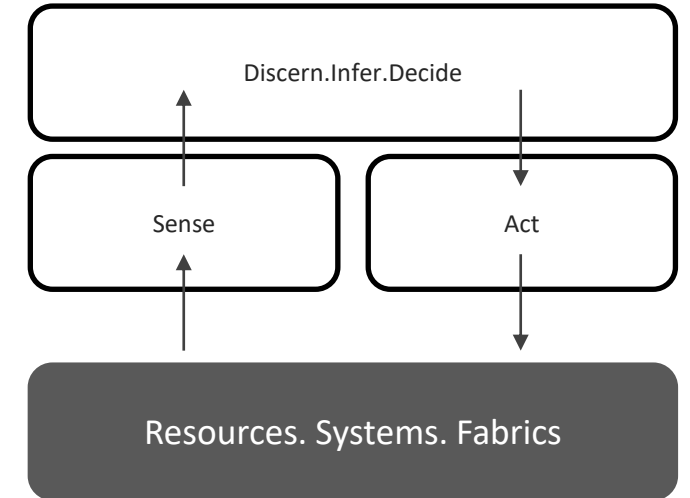
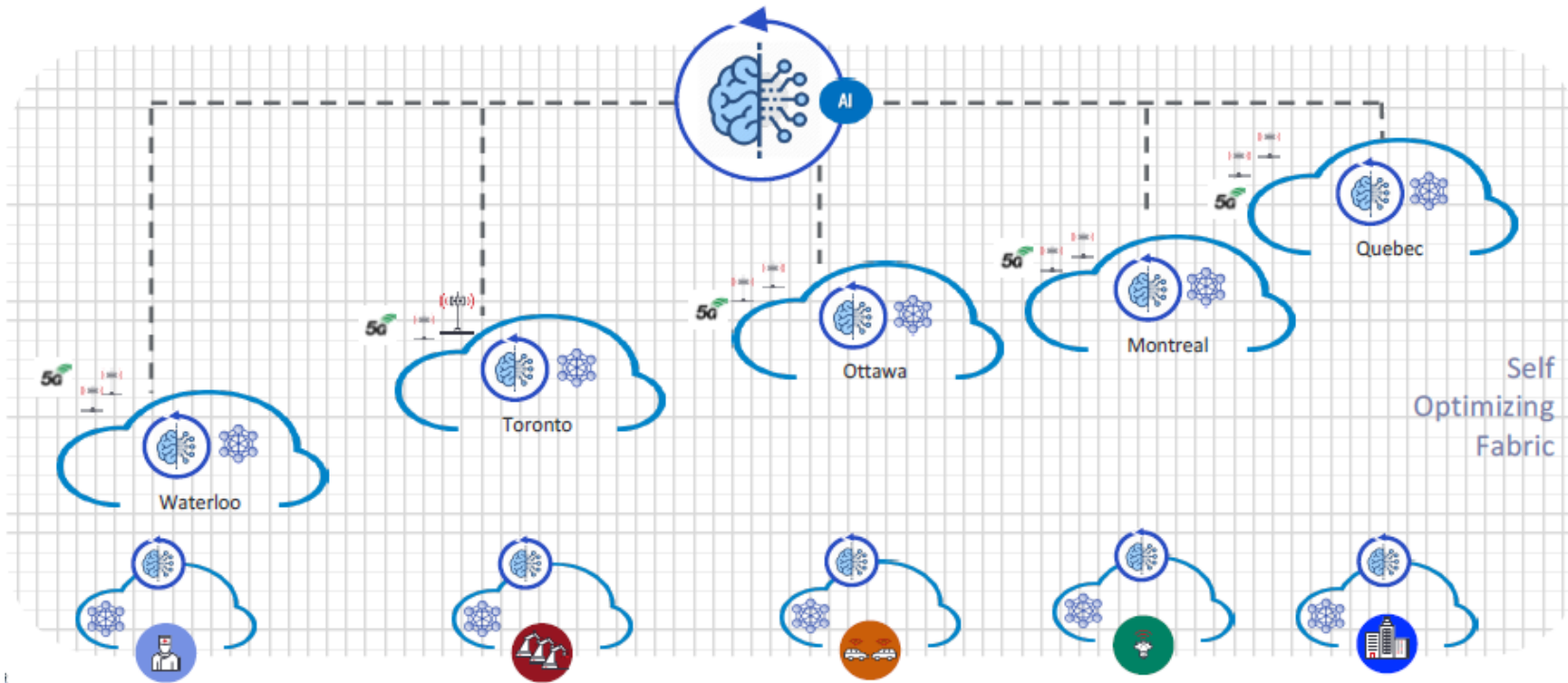
Ciena Built an International Research Ecosystem



Problem we are solving:

- 5G - first generation of networking that makes connectivity as pervasive
- Confluence of robotics and machine intelligence underpinned with this level of pervasive connectivity
 - lines blur across consumers and producers of digital services and/or components that constitute these services so much so that the user becomes a part of the cloud, making the cloud pervasive.
- Managing the complexity becomes the key challenge with multiple consumers and producers contributing to common tasks

Self Optimizing Innovation Corridor



- Self Optimizing Fabric to stitch together disparate resources hosted at the innovation Hubs & User Compute

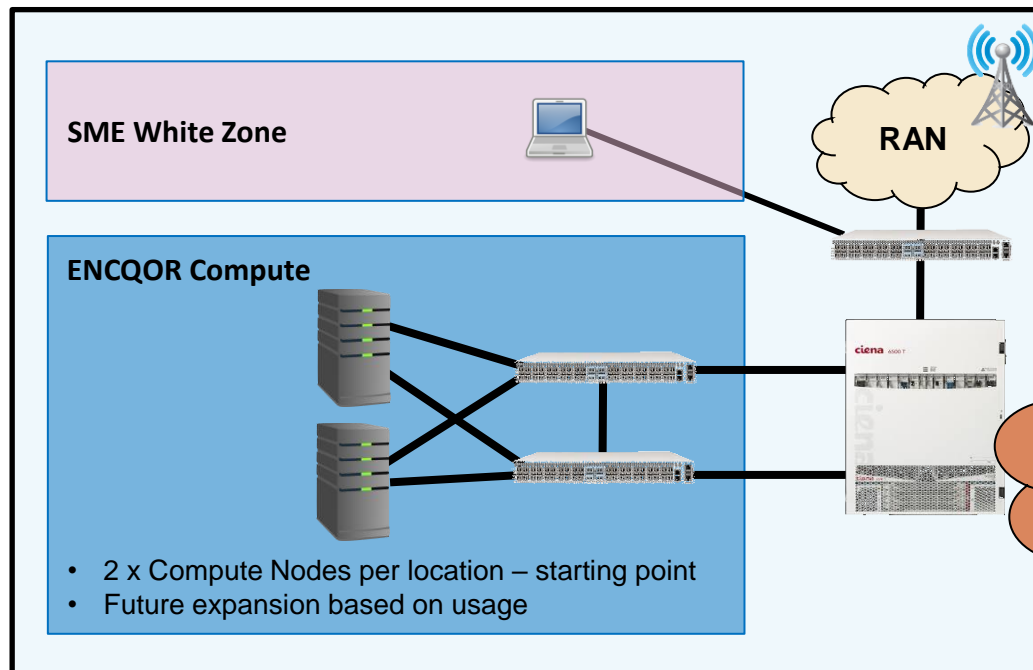
Interested to know more or participate: Refer to the BLOG or White Paper

ENCQOR 5G EDGE COMPUTE SOLUTION

ENCQOR Compute Solution

- A standard based solution that uses RedHat Openstack platform to provide cloud resources within ENCQOR iPaaS network
- It offers low latency access to the SME application
- Servers have been deployed in all hubs co-located with vEPG & antenna
- The underlying network circuit is provided using the L3VPN connections
- SME can access it remotely (Internet) or locally (from white zone), each SME has its own secure sandbox

ENCQOR
HUB



*Standard x86 based Compute Nodes
supporting vCPU, vRAM, vStorage & GPU
availability*

5G is Use Case Driven – Supporting All Use Cases @ each site

Massive IoT

(Massive Machine Type Communications)



Critical IoT

(Ultra-Reliable and Low-latency Communications)



Enhanced Mobile Broadband (eMBB)



Fixed Wireless Access (FWA)

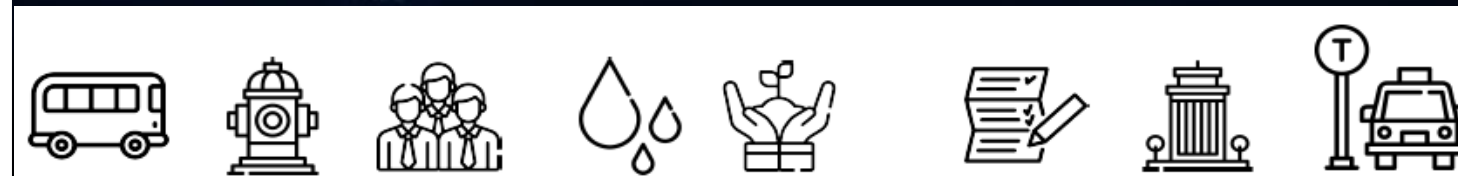
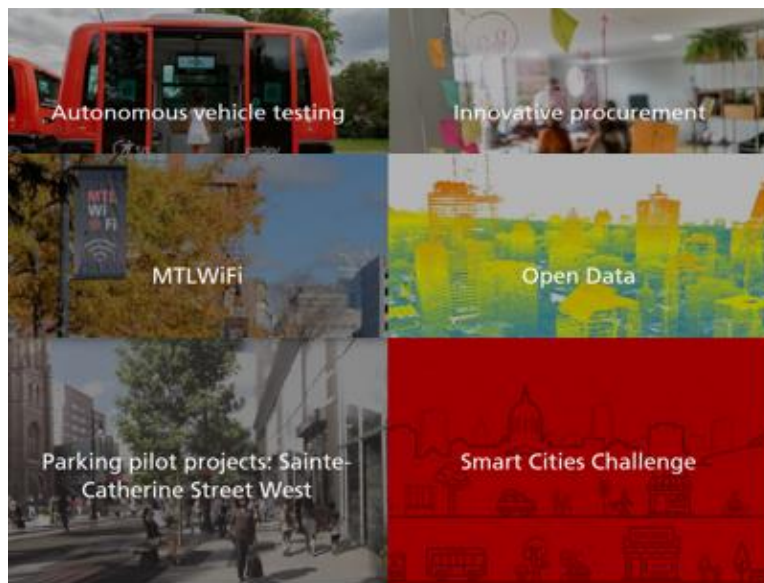


STRATEGIC VERTICAL INDUSTRIES

ENCQOR's current view of prioritized verticals



Continuum Innovation Environment - **SMART CITY**



Collaboration - From ENCQQOR Innovation Hub -» 5G Urban Lab

Rich 5G Ecosystem

Anchor

Industry Founders



NPOs Partners



Service Providers



Research Networks



Academia



NPO



ENCQOR Innovation Hub



Governments & Industry



DIGITAL ECOSYSTEM

Local Cities Initiative

R&E partners



City Collaboration



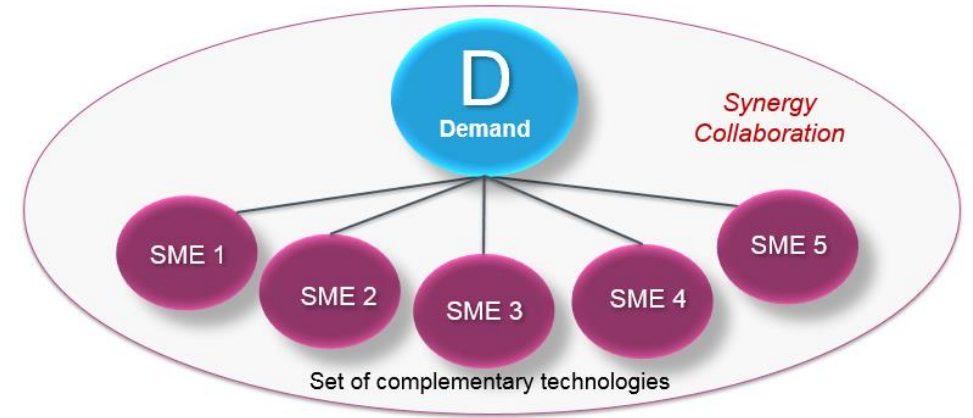
CECR



Micro-Innovation Collaborative Centre

5G Adoption Program

- Support companies and organizations to:
 - Design, prepare and test **Use Cases** with end users
 - Demonstrate usage in terms of products, services or processes related to 5G technologies in various sectors
- Desire to support experiments/piloting with a potential for long-term adoption
- Favor support for large-scale projects including several partners.

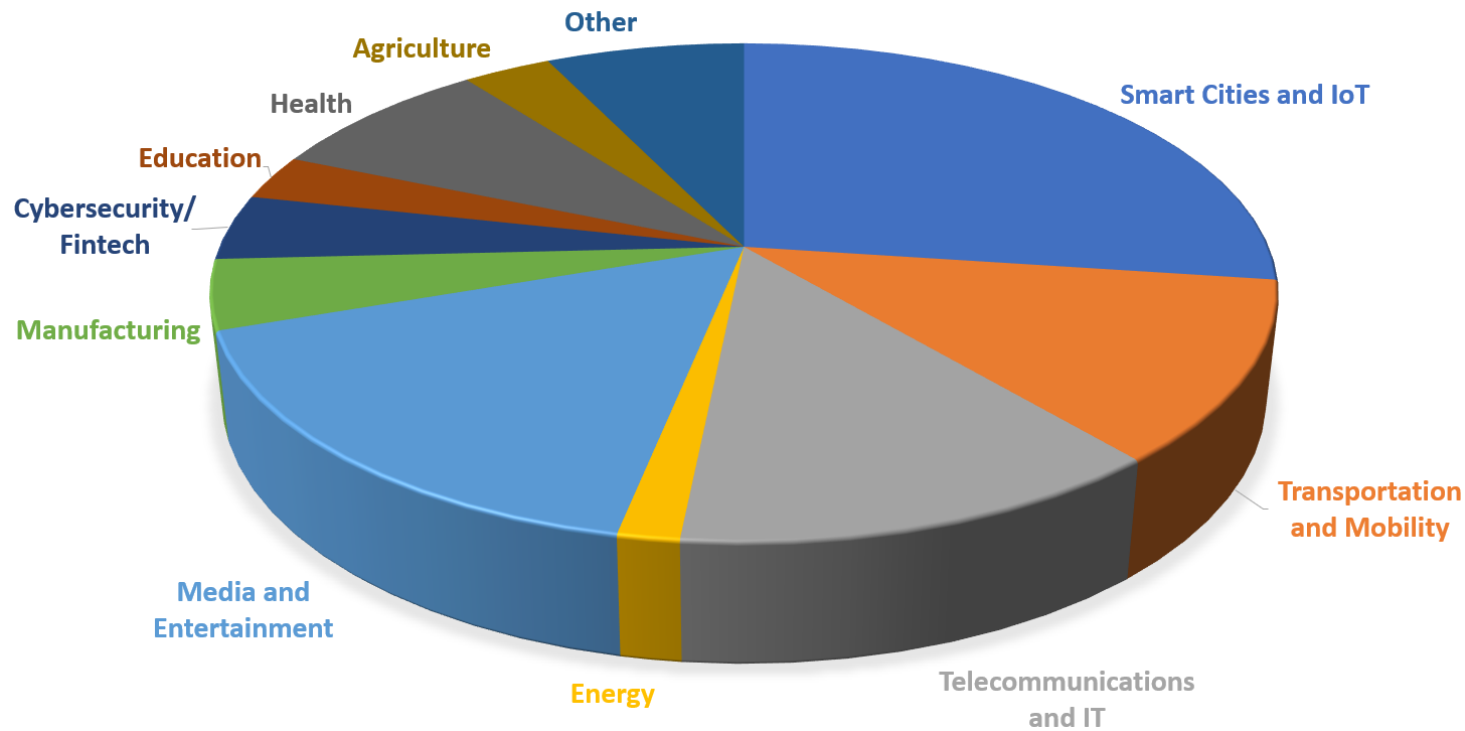


How to use the 5G technologies to improve efficiency & competitiveness

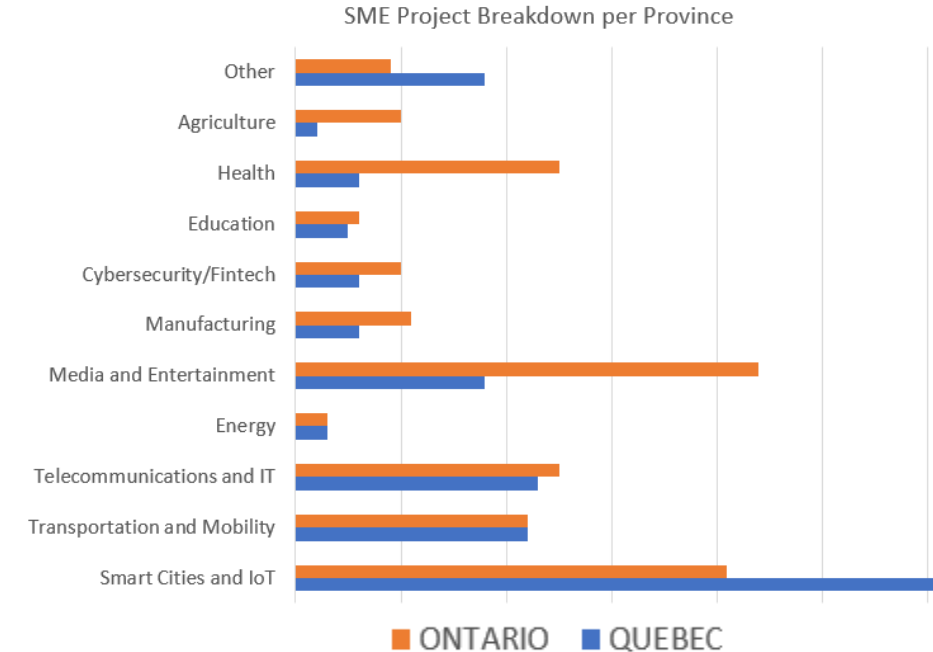
Collaborate together to provide an integrated Value-Added Solution

SME Projects Breakdown per Vertical

400+ SME PROJECTS



Consolidated view of Quebec & Ontario



Mix is dynamic...
Snapshot view as of June 2020

SME Success Stories...



Autonomous Vehicle Organization (AVO) is a Toronto-based company focused on connecting and protecting people from connected and autonomous vehicles. Through the ENCQOR 5G program, AVO was able to test their technology, Foresight, on a 5G network to further develop it to achieve maximum performance



Arvizio will demonstrate use cases of 5G wireless technology for augmented and mixed reality collaboration. Scenarios will include multi user synchronization using mixed reality and XR viewers to display 3D mixed reality visualization experiences in architecture, engineering, mining and energy based use cases



Companies that ship products now have a way to address all the usual logistical and accounting headaches and create a streamlined process for shipping freight anywhere in the world. RoadLaunch enables a company to manage its fleet, save time and connect securely with trusted freight partners.



OVA Created a platform StellarX that is the ultimate XR creation platform used by business professionals across various industries. They are using use the 5G superior characteristics to change the education, medicine, teleworking as well as gaming industries



Many More...

QUESTIONS & ANSWERS



For more information:
WWW.ENCQOR.CA



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STRONGER NETWORKS, SMARTER COMMUNITIES.

TECHNOLOGY PARTNERS



GOVERNMENT PARTNERS



COORDINATING PARTNERS



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