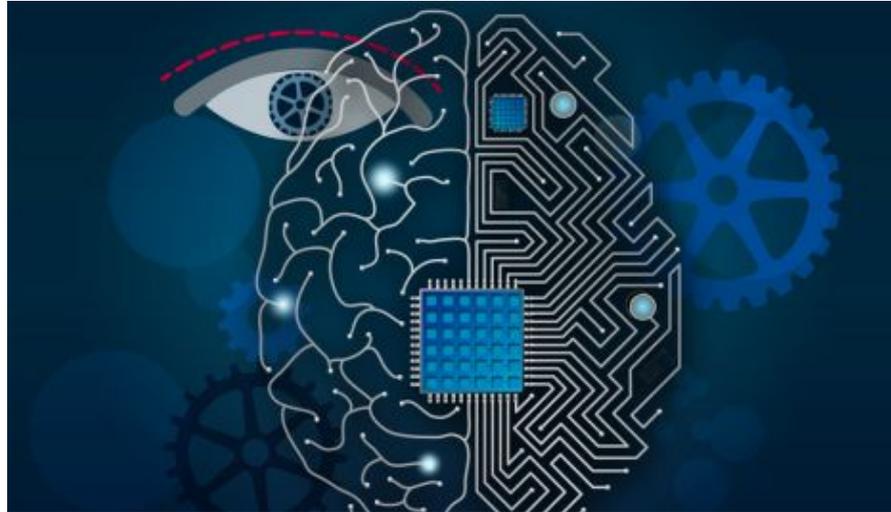


# Update on a commercial implementation of ICN video distribution

8x

8x



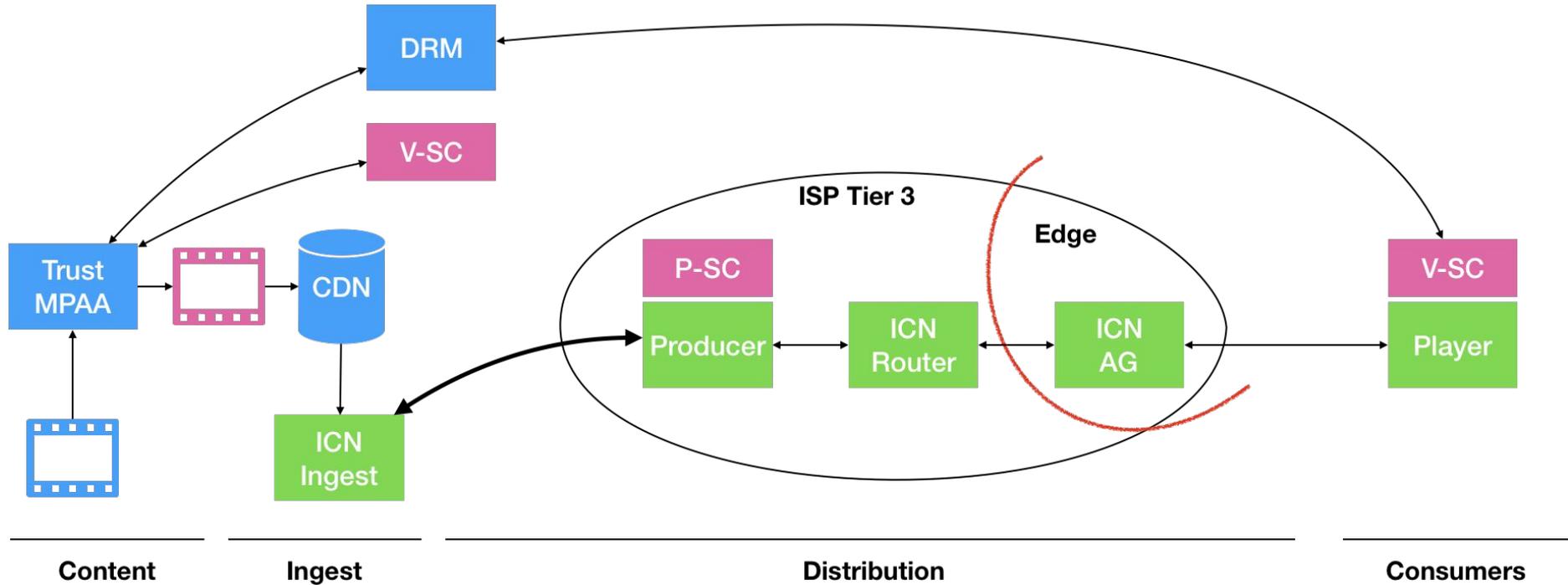
ICNRG Interim Meeting - September 24 2018

# Who are we: 8x Labs

- Montreal-based startup
  - Founders involved in television and streaming technology for 20+ years
  - Targeted customers include content creators, TV networks, operators and distributors
- ***Our Goal:*** providing innovative software solutions to support their video services and improve their customers user experiences on any device at competitive costs and improved performance



# Our challenge: Bring Content Distribution to the Edge



## Our tools: ICN and Smart Contracts

### ICN

- Video distribution scale with live-sessions rather than with the number of users
- Low Latency Video Distribution via In-router Caching

### Smart Contracts on the Blockchain:

- Trustless consensus
- Smart contracts, a protocol to automatically verify and enforce terms of an agreement

### *The strength: Combine ICN + Blockchain:*

- *Enable untrusted producer nodes to join ICN*
- *Enable a decentralized access control system with proof of origin and delivery*

# Achievements since Montreal's Interim on July 15th 2018

- The company is now *hosted* in the advanced incubator in Montreal **Centech**
  - Brings expertise from academia, entrepreneurship and advanced networking to the 8x development with ICN technology transferts
- *Partnering* with **ENCQOR** a joint university-industry 5G testbed between Quebec and Ontario
  - Laval, ETS, University of Toronto and Waterloo
  - A five-year strategy to provide access to 5G networks to SMEs, researchers and academia and major industry partners
  - Edge networking focus



# Achievements since Montreal's Interim on July 15th 2018

- Recently started *testing ICN* routing capabilities on the Kontron's Symkcloud ME1100 compute node
- *Selected* to test, demonstrate and deploy our ICN solution on the LabVi ([www.labvi.ca](http://www.labvi.ca)): a **Living Lab** in Montreal



## SMART LIVING

# AN OPEN-AIR LABORATORY

IN 2016, VIDEOTRON LAUNCHED THE FIRST OPEN-AIR LABORATORY FOR SMART LIVING IN CANADA. IN COLLABORATION WITH PARTNERS ERICSSON, ÉTS AND THE QUARTIER DE L'INNOVATION (QI), THIS UNIQUE VENTURE WILL SET UP THE INFRASTRUCTURE THAT WILL SERVE AS THE PLATFORM FOR SMART LIFE, A GENUINE REVOLUTION DESIGNED TO IMPROVE CITIZENS' DAILY LIVES.

- 1 CONNECTIVITY**  
Uninterrupted connectivity, available regardless of signal source or strength and network traffic, requires a densified network coverage. This need for responsiveness is possible via cellular network such as LTE/5G, Wi-Fi terminals, or even thanks to technologies like Bluetooth, LoRa antennas, Li-Fi, etc.
- 2 SENSORS AND PROBES**  
In the field of smart life, the Internet of Things (IoT) is developing strongly. At the heart of this transformation lies the capacity of objects to interconnect and interact with its physical environment and its digital ecosystem.
- 3 DATA AND ANALYSIS**  
Cloud-based solutions and artificial intelligence technologies make it possible to extract the useful informations in order to create prediction tools. The community will benefit from this confidential and anonymous data. This is an innovation opportunity for the entire digital ecosystem, from the established players all the way up to startups. Practical technological applications serving the citizens.

Cloud-based management of networks and objects  
APPi4t

ENERGY CONTROL  
WIFI SDR  
PROBES FOR SMART WATER MANAGEMENT  
SENSORS FOR AIR QUALITY  
MOTION DETECTOR VIA Wi-Fi  
WATER SENSOR  
BUS DISPLAY  
LAMP SITE  
PIECELL  
LI-FI  
PROXIMITY DETECTION TERMINALS  
LTE / VOLT  
LORA

**TOWARDS 5G**  
5G promises important flows, a large capacity to manage connected objects and instantaneous responsiveness.

ERICSSON  
ÉTS  
Quartier de l'Innovation  
QI

# ENCQOR

Evolution of Networked Services through a Corridor in Québec and Ontario for Research and Innovation

5G<sup>+</sup> STRONGER NETWORKS, SMARTER COMMUNITIES.

ERICSSON 

**ciena.**

THALES

IBM

CGI

*8x to provide the first ICN deployment on the ENCQOR 5G network*

# Development and deployment - The Issues

## Focus on business challenges

- Identify major expenses and revenue streams in customer's business models

## Ease of integration

- Add small changes on top of pre-existing solutions (iterative approach)
- Minimize risks by parallel deployments

## ICN open source and community support

- Is this an active community?
- Who is the sponsor?

# Development and deployment - The Answers

## Focus on business challenges

- Concurrent live video sessions is not a scalable model i.e. CDN + HTTP (HLS, DASH):
  - increase in users = increase in cost

## Ease of integration

- Cisco's Hybrid ICN (hICN) allows interleaving IP routers and ICN routers
- Other solutions to be considered in the future

## ICN open source and community support

- FD.io provides production grade libraries e.g. VPP (Vector Packet Processing)
- Sponsored by Cisco, Intel and others (academia, researchers etc.)

## Next Steps

- As a company: Continue our product development (MVP) and building the team
- As an ICN community member: Identify other ICN use cases and facilitate their test on ENCQOR's 5G network
  - Interested parties can contact us

*Further steps with ICNRG? Continued participation, promote ICN in the industry, draft etc.  
Suggestions welcome!*

## Contributors



INCEPTION  
BLOCK  
VENTURES

# Contact us

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