

# Akraino Edge Stack Summit

August 19-20 th, 2019

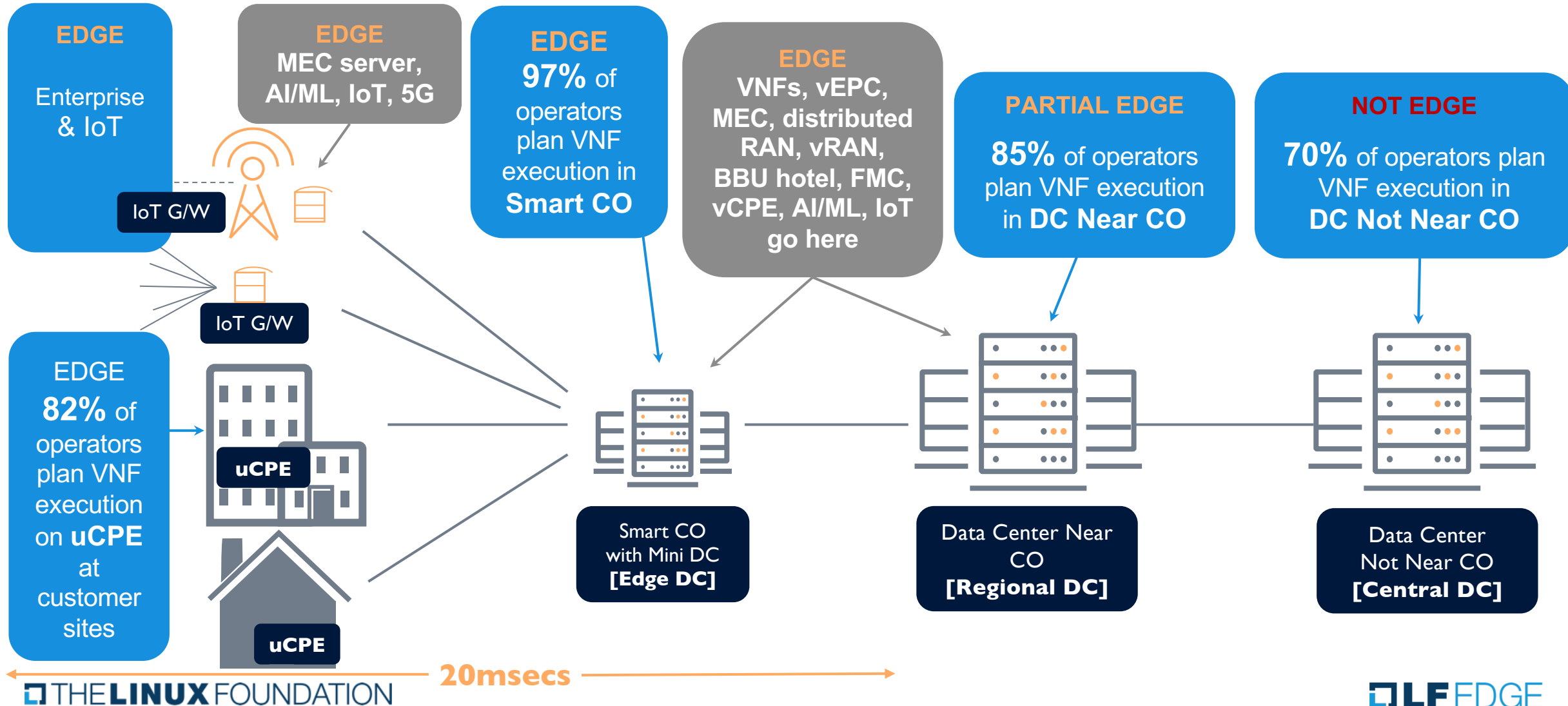
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# Where are the edges?

Distributed cloud, edge compute, AI/ML, IoT, 5G, VNFs/NFV, FMC

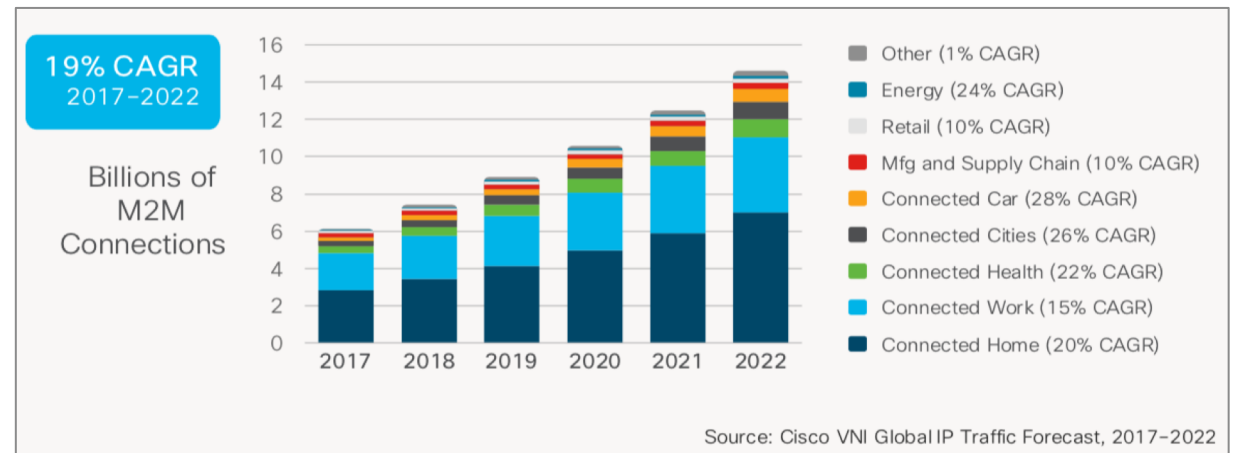


# Opportunity for LF Edge

Industrial, Enterprise and Consumer use cases in complex environments spanning multiple edges and domains.

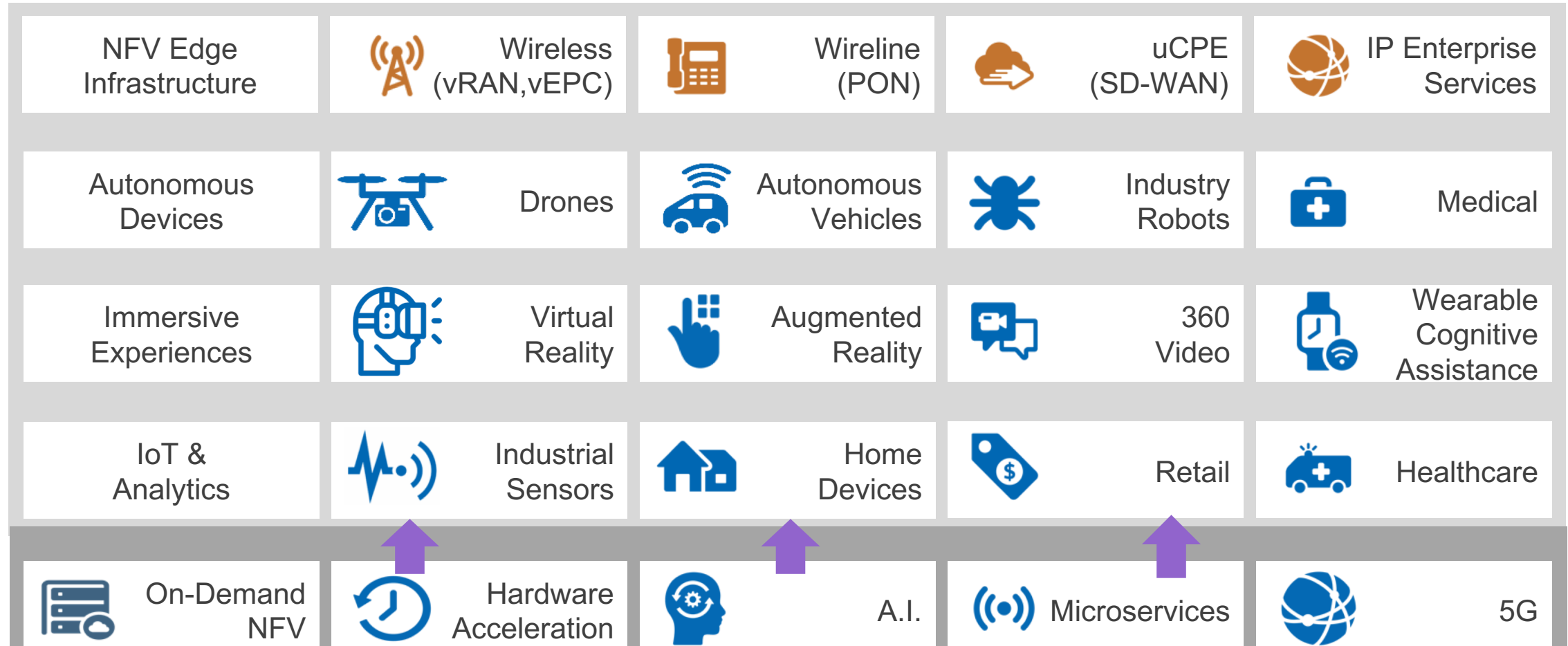
Examples:

- › **Industrial Manufacturing**
- › **Energy (Oil & Gas, Utilities)**
- › **Commerce**
- › **Homes (including B2B2C use cases)**
- › **Automotive**
- › **Fleet/Transportation**
- › Logistics
- › Building Automation
- › Cities and Government
- › Healthcare



# Emerging Edge Applications & Convergence of Technologies

are demanding & fueling lower latency + accelerated processing



# LF Edge – New umbrella for Edge Projects

## Drivers

- › Complementary and aligned vision on multiple LF projects
- › Fuels faster adoption and deployment
- › Edge market is fragmented and creating a larger entity provides leadership

## Anchor Projects



EDGE X FOUNDRY™



OPEN GLOSSARY  
OF EDGE COMPUTING

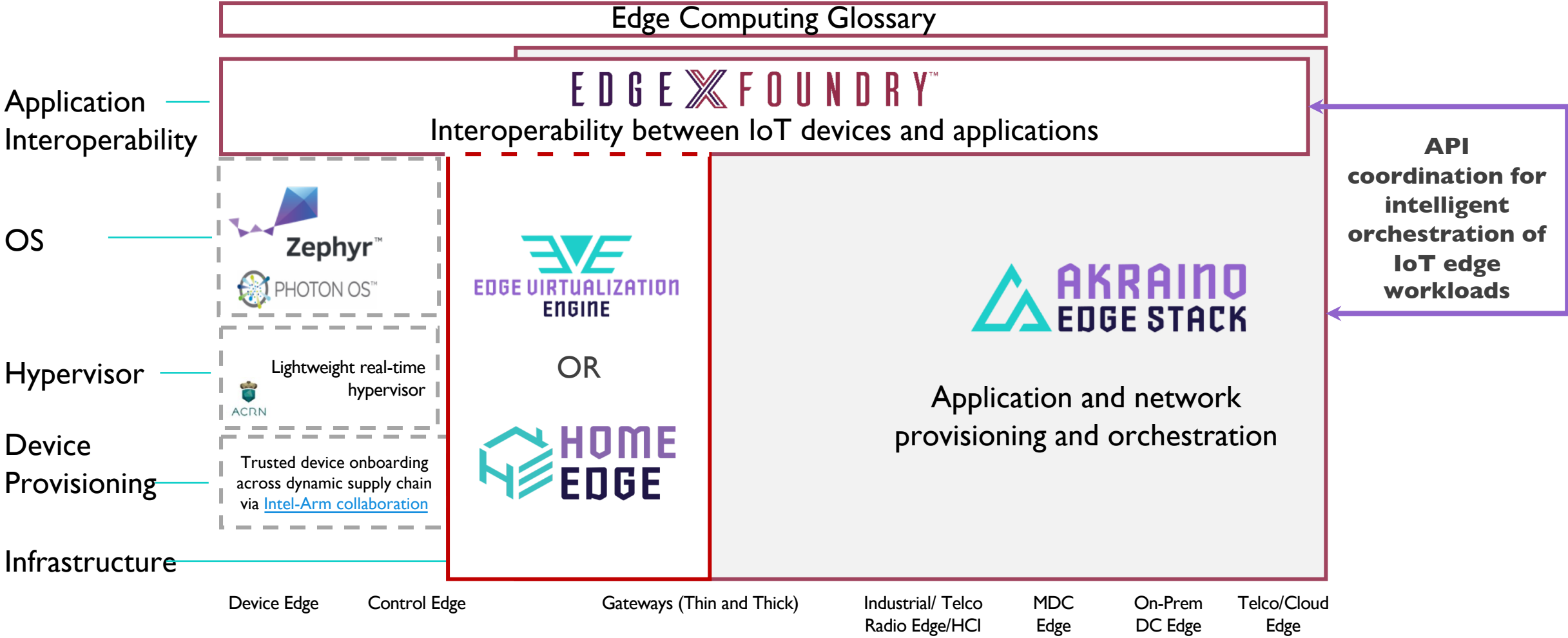


## Incubation Projects

Fledge

OpenEdge

# Scope of LF Edge



# Akraino Edge Stack Overview



# Akraino Executive Summary



Zero Touch  
Edge Cloud  
Automation

## **Akraino is an Edge project targeted to**

- › Address Telco, Enterprise and Industrial IoT use cases

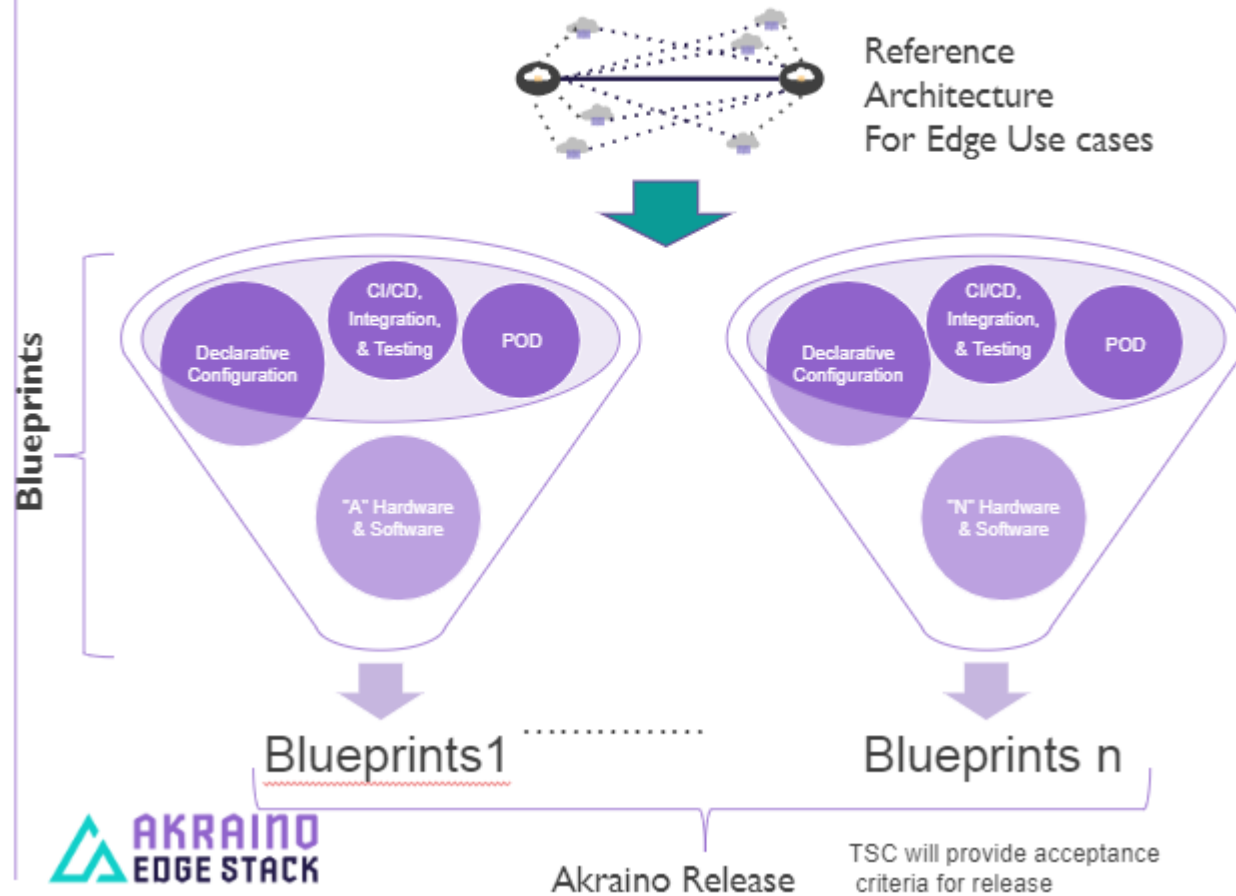
## **Mission:**

1. Create end to end configuration for a particular Edge Use case which is complete, tested and production deployable meeting the use case characteristics {Integration Projects - Blueprints}
2. Develop projects to support such end to end configuration. Leverage upstream community work as much as possible to avoid duplication. {Feature Projects}
3. Work with broader edge communities to standardize edge APIs {Upstream Open Source Community Coordination - For example, Socialization, so community tools and Blueprints can interoperate. This work can be a combination of an upstream collaboration and development within the Akraino community [i.e. a feature project]}
4. Encourage Vendors and other communities to validate Edge applications and VNFs on top of Akraino blueprints {Validation Project - ensures the working of a Blueprint}



# Akraino R1: Tested & Validated Blueprints

## Akraino Blueprints & release



- 11+ Blueprint families, 20 Blueprints under development
- Community-tested & validated on real hardware, Akraino Labs by members and community.

**Blueprints** - approved & tested declarative configuration based on use cases, set of hardware, POD & software

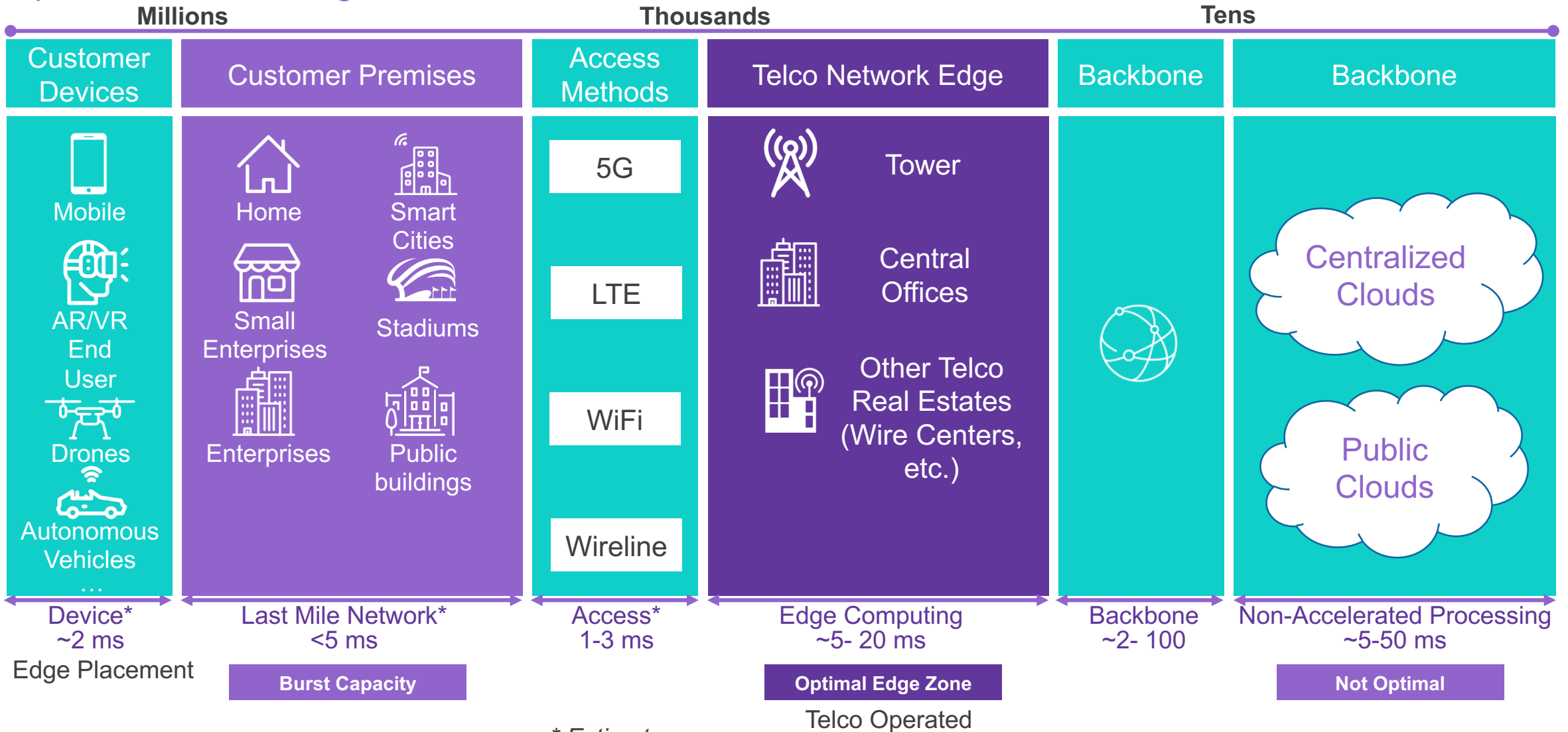
**Reference Architecture** - defines Akraino building blocks

**Declarative Configuration** - hides lower layer complexity to user

**CI/CD, Integration & Testing Tools** - drive product quality

# Use Case 1: Operator's Owned Network Edge

Optimal Zone For Edge Placement



\* Estimates

# Use Case 2: IOT Driving the New Edge for Enterprise

Retail, Transportation, Healthcare...



Cloud Automation

Network Automation

IOT Automation



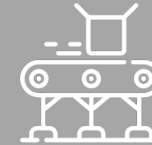
Retail



Hospitality



Healthcare



Manufacturing



Transportation & Logistics



Enterprises



Enterprise & Data Centers



Public Buildings



"Southbound" Devices, Sensors and Actuators

# Akraino R1: Unifying the Edge

NEWS

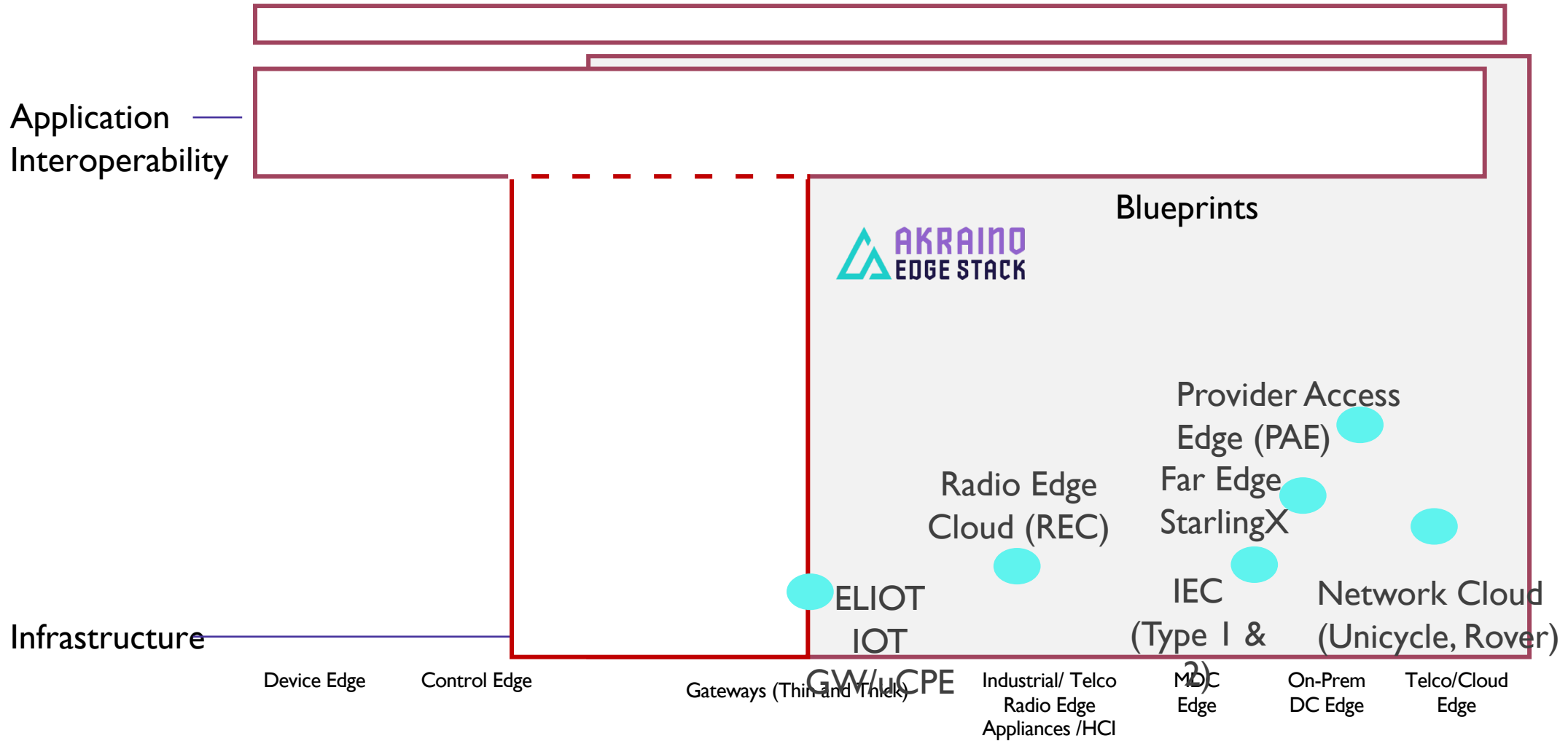
## Akraino Edge Stack Issues Premier Release, Sets Framework to Enable 5G, IoT Edge Application Ecosystem

- *Inaugural release unifies multiple sectors of the edge across disciplines, including IoT, Enterprise, Telecom, and Cloud*
- *Delivers tested and validated deployment-ready blueprints*
- *Creates framework for defining and standardizing APIs across stacks, via upstream/downstream collaboration*

SAN FRANCISCO – June 6, 2019 – [LF Edge](#), an umbrella organization within the [Linux Foundation](#) that aims to establish an open, interoperable framework for edge computing independent of hardware, silicon, cloud, or operating system, today announced the availability of [Akraino Edge Stack](#) Release 1 (“Akraino R1”). Created via broad community collaboration, Akraino’s premiere release unlocks the power of intelligent edge with deployable, self-certified blueprints for a diverse set of edge use cases.

Under Embargo, June 6, 2019, 8AM PST

# Functional View: R1 Blueprints in Akraino Edge Stack



# Akraino RI Blueprints Details

Blueprint Family	Blueprint	Primary Use Case	Industry Target	Blueprint Summary
<b>Network Cloud (NC)</b>	Unicycle with SR-IOV	Telco Edge use cases (Multi Server). Multiple applications	Telco, Enterprise	NC blueprint family enables hardware configuration and automated deployment of telco grade multiple edge sites from a remote regional controller.
	Rover	Telco Edge use cases (Single Server). Multiple applications	Telco, Enterprise	
	Unicycle with OVS-DPDK	Telco Edge use cases (Multi Server). Multiple applications	Telco, Enterprise	
<b>Telco Appliance</b>	<b>Radio Edge Cloud (REC)</b>	Appliance for Radio Access Network (RAN), RAN Intelligent Controller and Near realtime Edge MEC Appliance	Telco 5G, Enterprise	Appliance tuned to support the <a href="#">O-RAN Alliance</a> and <a href="#">O-RAN Software Community's Radio Access Network Intelligent Controller (RIC)</a>
<b>Integrated Edge Cloud (IEC)</b>	Type 1 (small Edge)	Telco or enterprise application deployment on Arm servers	Telco, IOT and Enterprise	IEC enables the new functionalities and deployment model on the network edge. It supports ARM processors and architecture.
	Type 2 (Medium Edge)	Telco or enterprise application deployment on Arm servers	Telco, IOT and Enterprise	
<b>StarlingX</b>	<b>Far Edge Distributed Cloud</b>	Enterprise edge and Far edge. Multiple applications	Enterprise & IOT	Addresses edge and Far edge use cases at high density locations such as malls, airports and sports stadiums to support value added services at these events and locations.
<b>Kubernetes- Native Infrastructure for Edge</b>	<b>Provider Access Edge</b>	vRAN and MEC (AR/VR, Machine learning, etc., )	Enterprise & Telco	Blueprints in the Kubernetes-Native Infrastructure for Edge family leverage the best-practices and tools from the Kubernetes community to declaratively and consistently manage edge computing stacks from the infrastructure up to the workloads.
<b>Edge Lightweight and IOT blueprint (ELIOT)</b>	IOT Gateway	IOT	IOT & Enterprise	ELIOT targets on making the edge node a lightweight software stack which can be deployed on limited hardware capacity.
	uCPE	uCPE	Enterprise & Telco	

# Akraino R1: Key Takeaways & What's Next in 2019

1. LF Edge Projects gaining community support with Akraino aimed at accelerating time to deployment -> Projects to Products & Production
1. Akraino establishes unified framework for Edge collaboration & validation across projects & community with Blueprints
1. Akraino's R1 releases 10+ Blueprints for IOT, Enterprise and Telco Edge Cloud



## ***On the Horizon***

- › New blueprints (Gaming, Connected Cars...) + enhancements to existing blueprints
- › Tools for automated blueprint validations
- › Edge API's in collaboration with LF Edge projects
- › New community lab hardware

# Key Goals for this mini-summit

1. Share R1 and R2 Blueprints implementation and project backlog details
2. Maximize collaboration between Blueprints and projects
3. Open discussion on R2 goals
4. Developers collaborations
5. Help new members/developers to onboard to Akraino