

# Blueprint: Robotaxi

Baidu

 THE **LINUX** FOUNDATION

 **LF** EDGE

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# General Blueprint Introduction

- ❑ The Robotaxi Blueprint focuses on establishing an open source MEC platform combined with AI capabilities at the autonomous driving scenario.
- ❑ The first release of the Robotaxi Blueprint is targeted at Q2, 2020.
- ❑ The Robotaxi Blueprint is sponsored by Baidu, Intel, Arm, and Vmware.
- ❑ Contact: Hechun Zhang (zhanghechun@baidu.com)
- ❑ Refer to: <https://wiki.akraino.org/display/AK/The+AI+Edge%3A+RoboTaxi>



# Blueprint Use cases

## ■ Urban Scenarios with autonomous driving vehicles

Avoiding blind spots or safer autonomous driving and accelerating efforts in implementing driving fleet solutions.

- Autonomous drive sharing: reducing the cost-per-kilometer by 50% compared to current private car and taxi costs
- Low-speed unmanned logistics vehicles
- Unmanned minibuses in closed parks
- Unmanned buses on city roads



autonomous ride sharing



low-speed unmanned  
logistics vehicles



unmanned minibuses



unmanned buses



# Blueprint Use cases

## ■ Use cases for Valet Parking

- Deploy sensors on vehicles and parking lots, combined with high-precision positioning, allowing vehicles to engage in fully autonomous parking.

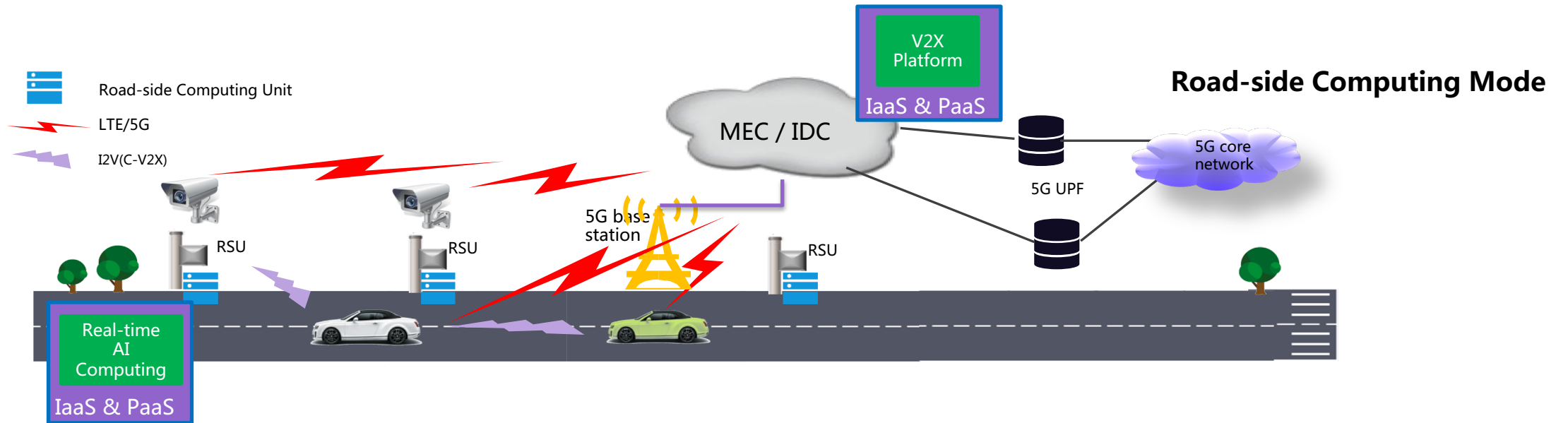


## ■ Regional upgrade for autonomous driving vehicles

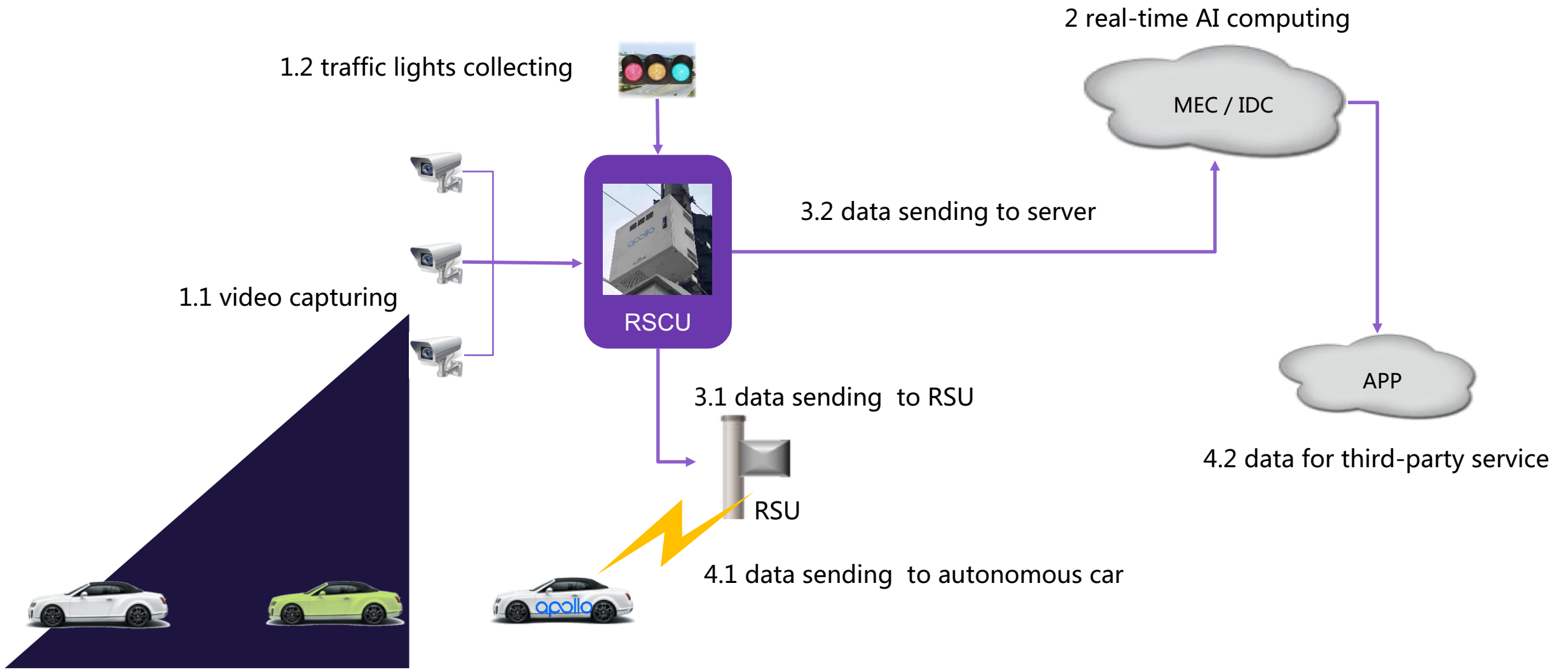
- With roadside sensing equipment, the vehicles can get more road condition information and make the driving mode more intelligent.



# RoboTaxi Network Components

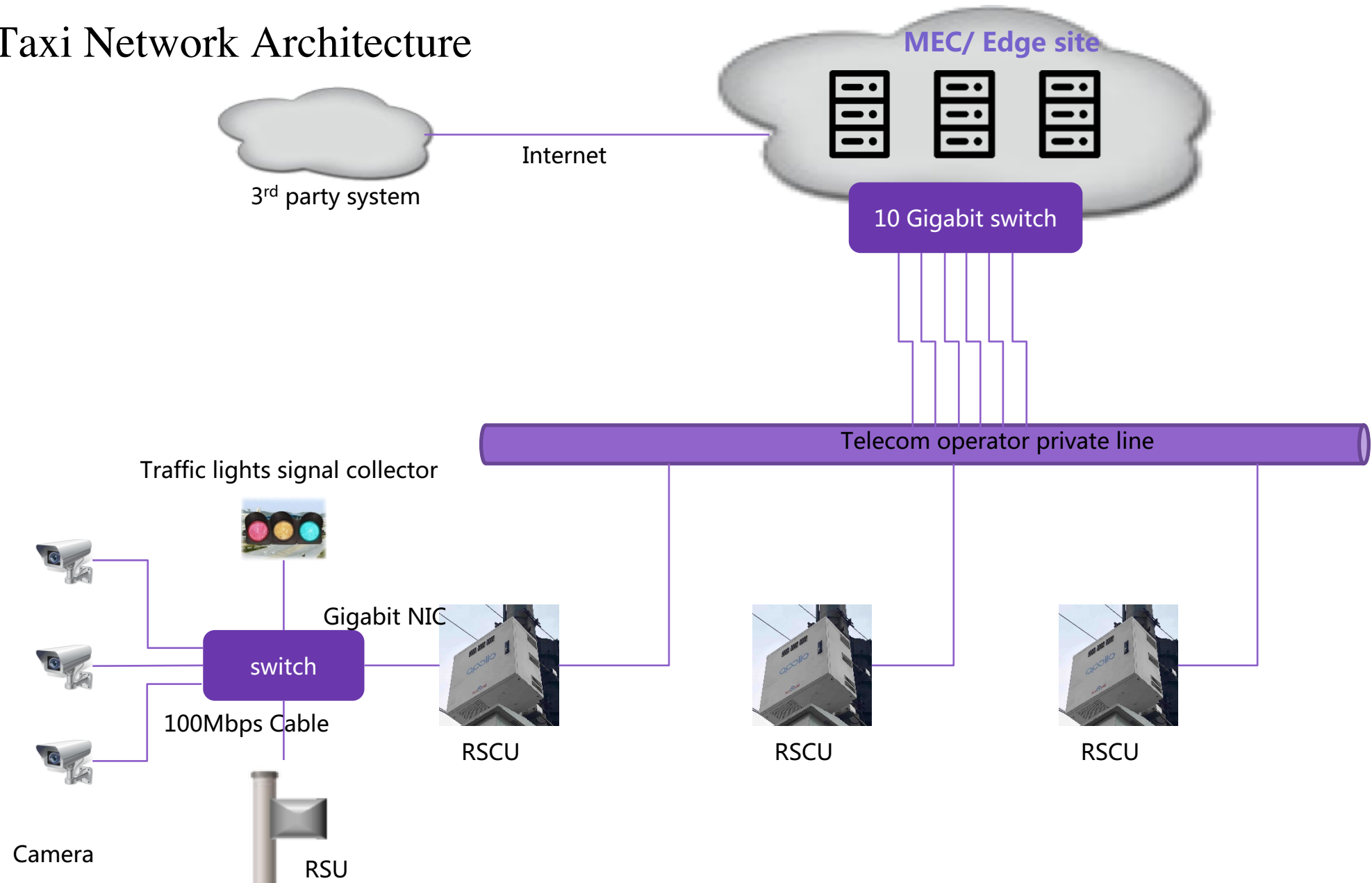


# RoboTaxi Network Architecture

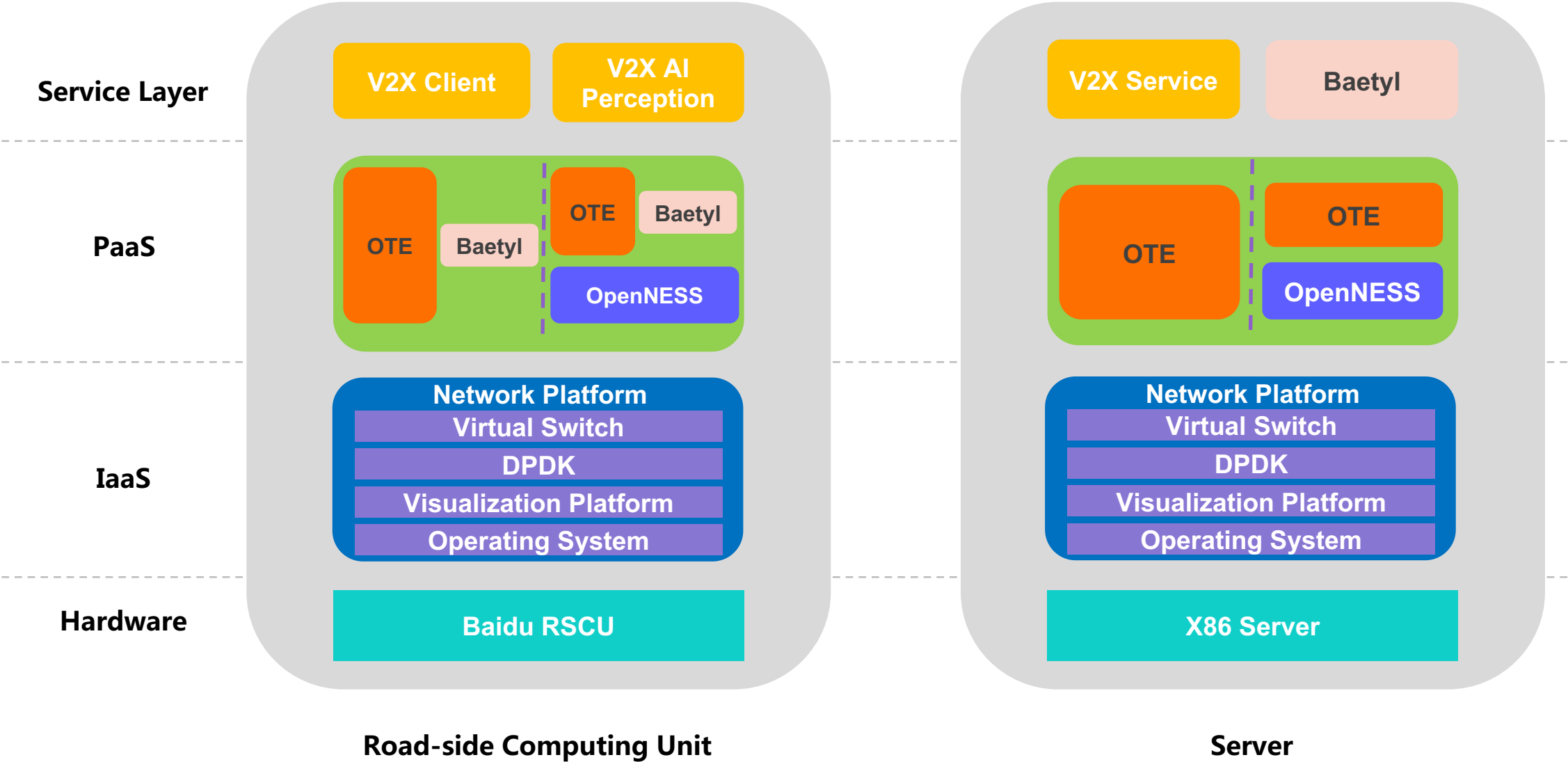




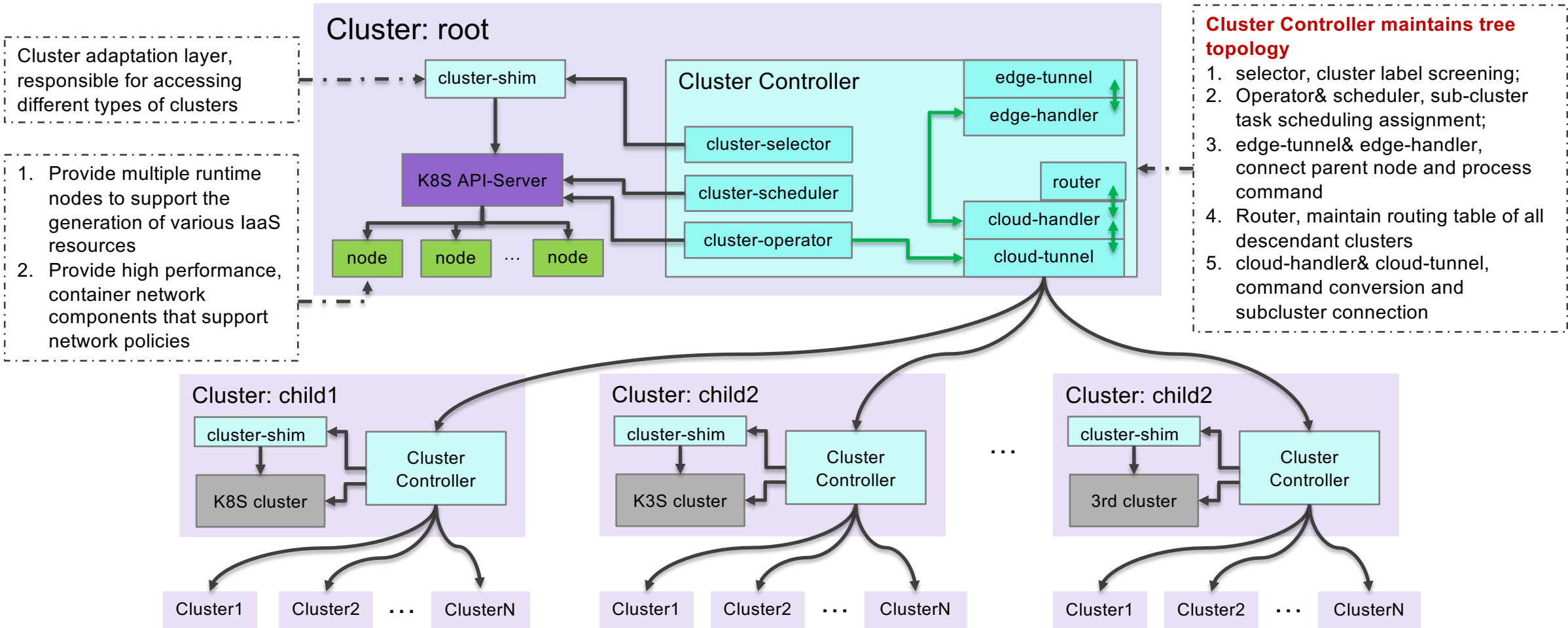
# RoboTaxi Network Architecture



# RoboTaxi MEC platform software architecture



# Physical Topology of OTE Stack MEC Platform





# Future Plan

- ❑ The first demo of the RoboTaxi Blueprint is targeted at Q1, 2020.
- ❑ The first Akraino version will be released in Q2, 2020.

# The Robotaxi Blueprint Criteria

Case Attributes	Description	Informational
Type	New	
Blueprint Family - Proposed Name	The AI Edge	
Use Case	Autonomous driving taxi	
Blueprint proposed Name	Robotaxi	
Initial POD Cost (capex)	Leverage Unicycle POD - less than \$150k	
Scale & Type	Up to 4 servers, x86/Arm server or deep edge class With nVIDIA Tesla P4/T4 GPUs	
Applications	Autonomous driving taxi	
Power Restrictions	Less than 10Kw	
Infrastructure orchestration	Docker 1.13.1 or above K8s 1.12.5 or above- Container Orchestration OS – CentOS 7.0 or above	
PaaS	OTE Stack + OpenEdge + OpenNESS	
SDN	Calico container networking, or OVS-DPDK	
Workload Type	Containers	
Additional Details	N/A	

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