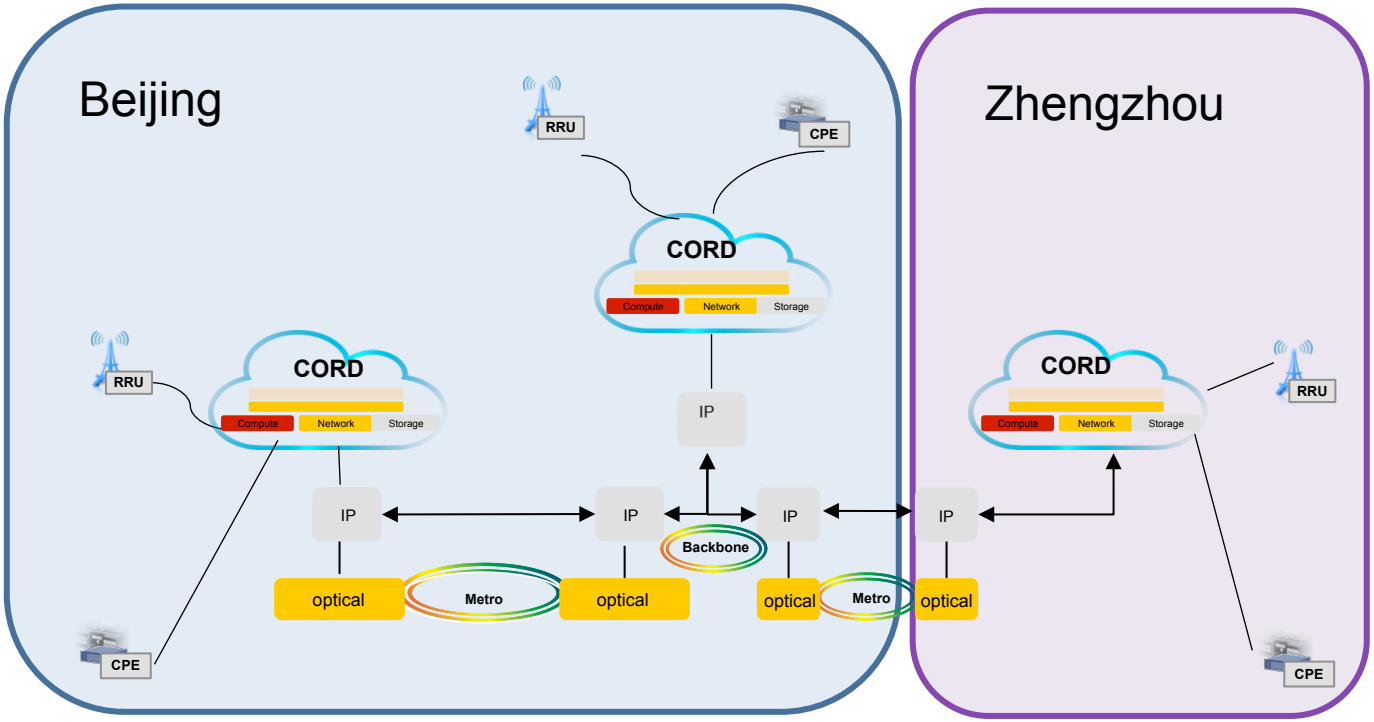
Contents

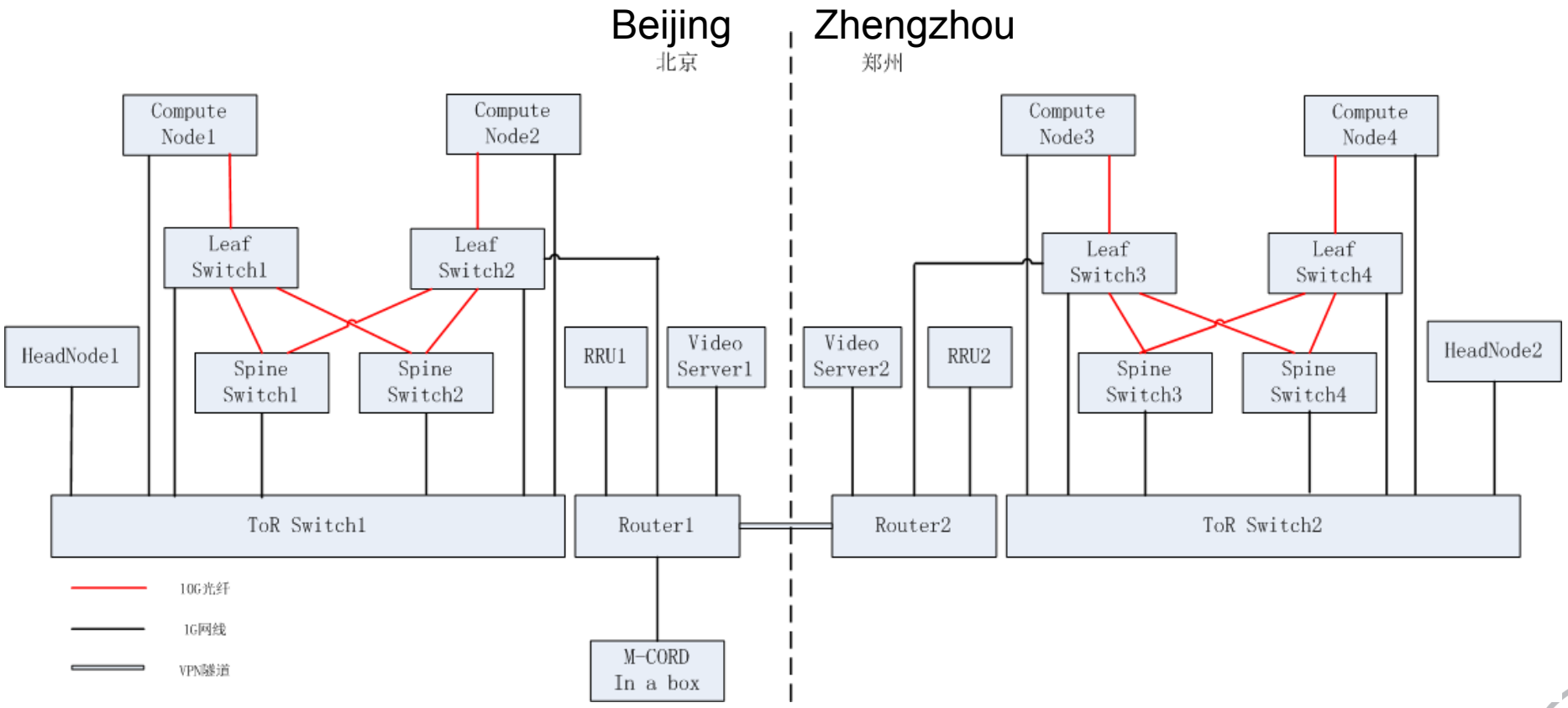
- M-CORD Trials in China Unicom (CU)
- CU's Proposed Next Step: New ONF RD(s)
- Envisioned Use Cases for Multi-Access Edge Cloud

M-CORD Trial: System Architecture



- Three Instances of M-CORD
  - Beijing: a Physical PoD & a CIAB instance
  - Zhengzhou: Physical PoD
- Multiple cross-domain collaboration
  - Beijing to Zhengzhou
- Network Slicing
  - Support E2E network slice
- Enhanced PCC function
  - Achieve 5G PCC architecture
  - Provide network capabilities

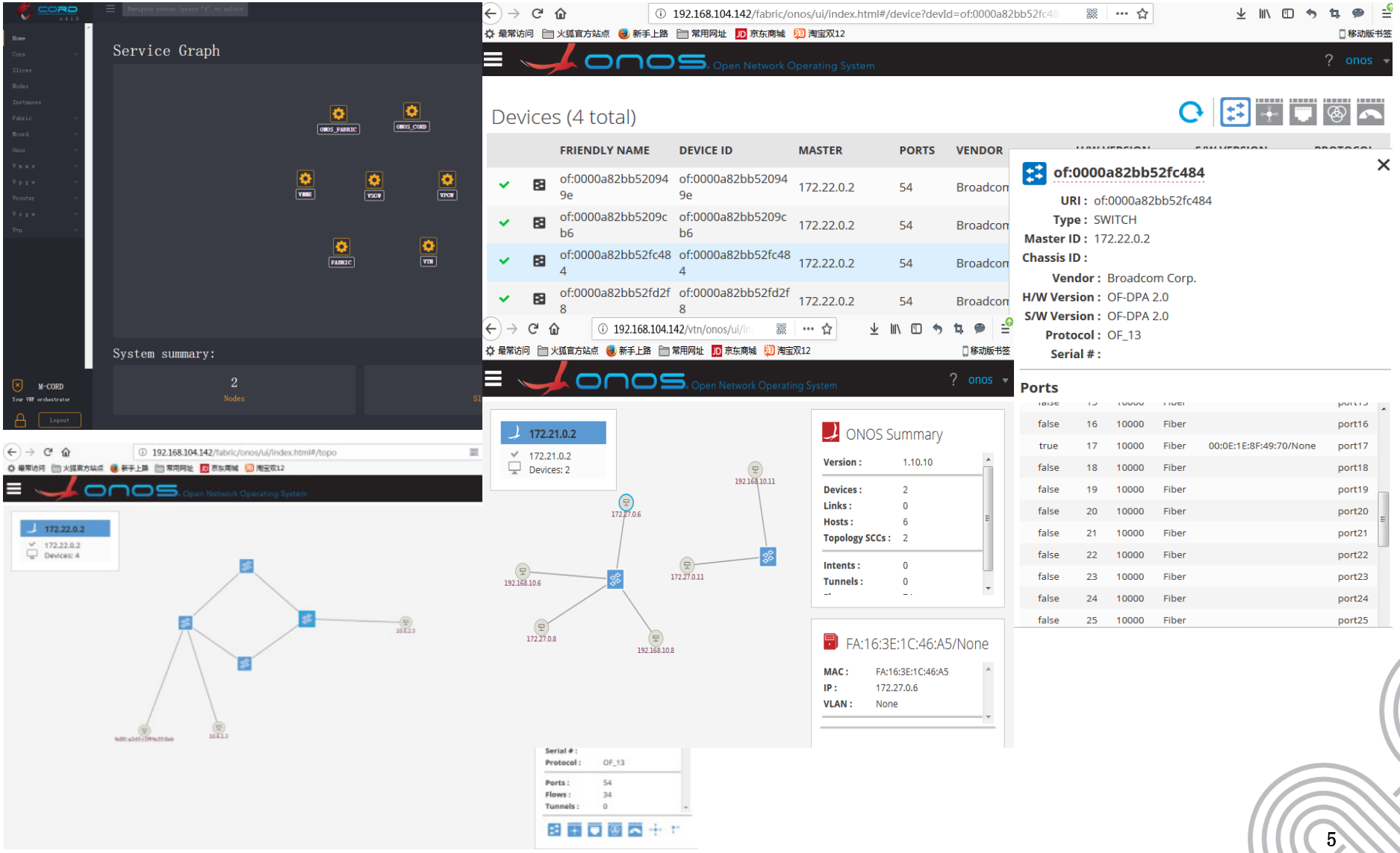
M-CORD Trial: Physical Architecture



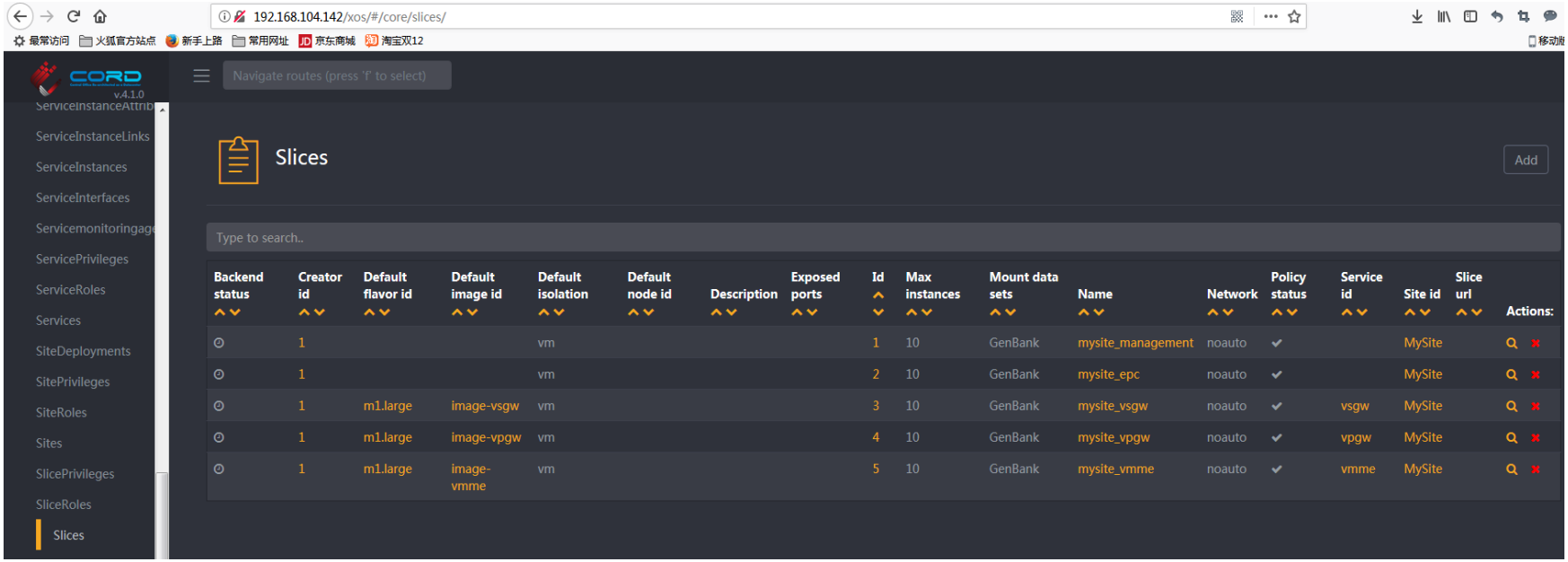
System Hardware of M-CORD at CU

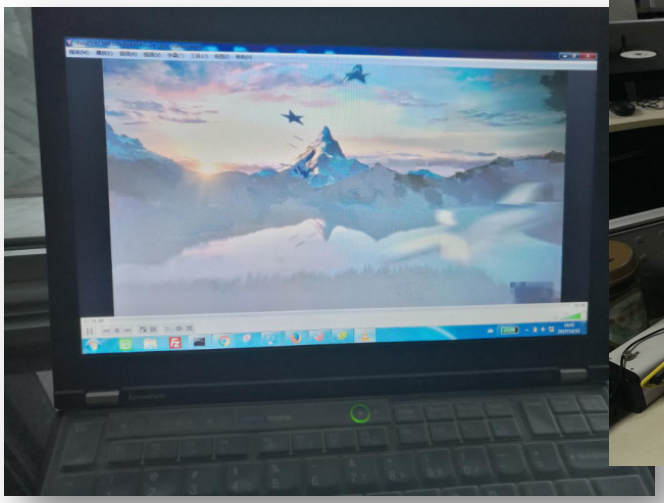
- 7 Dell R720 Servers
- 8 EdgeCore Accton 5712White box switch
- 2 ToR Switch
- 2 Smallcell

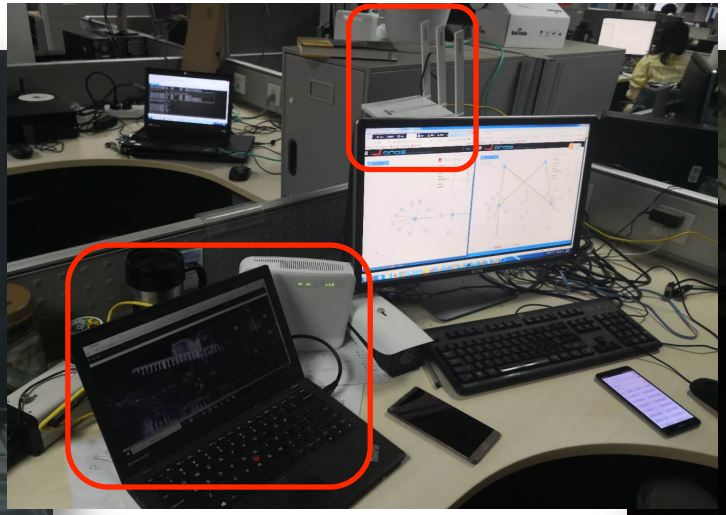
ONOS & CORD Displays of M-CORD at CU

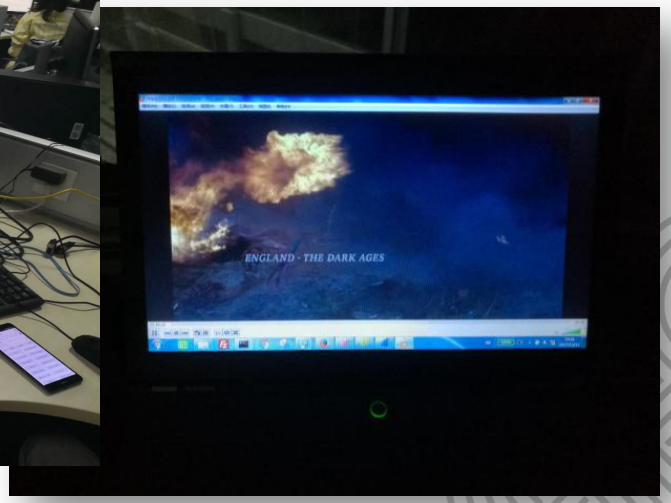


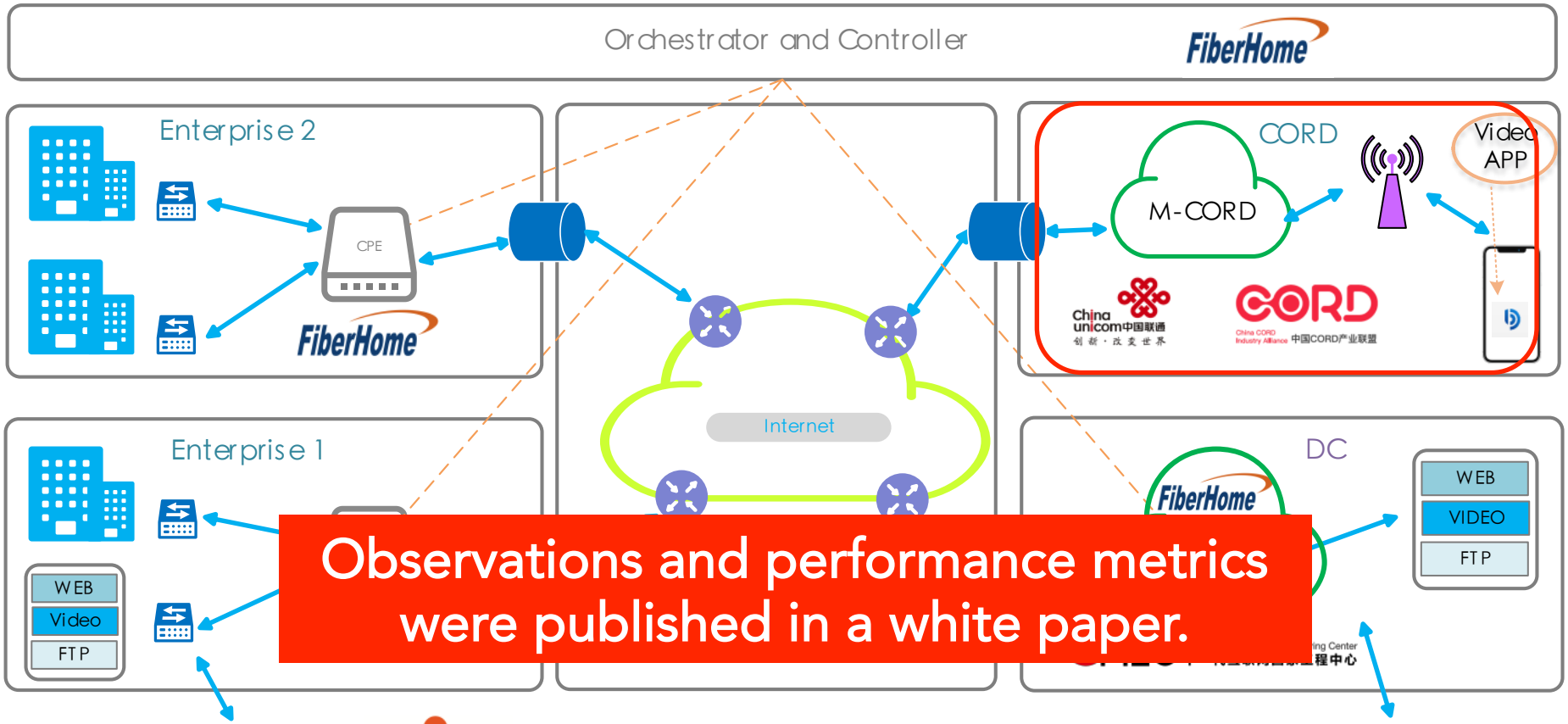
Network Slicing at CU: XOS of M-CORD Display









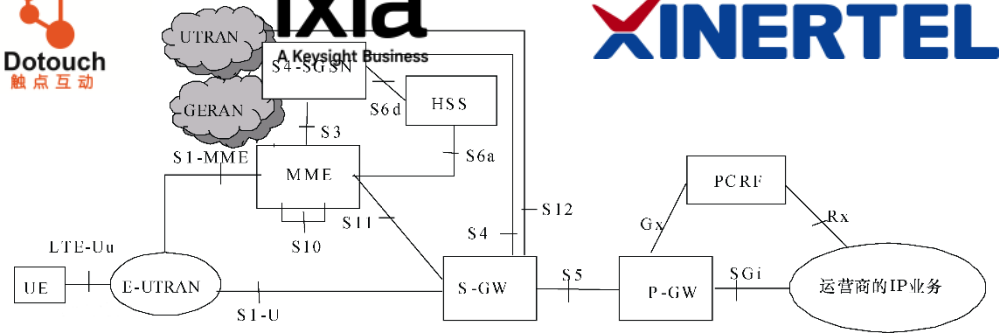


Observations and performance metrics were published in a white paper.

Dotouch 触点互动

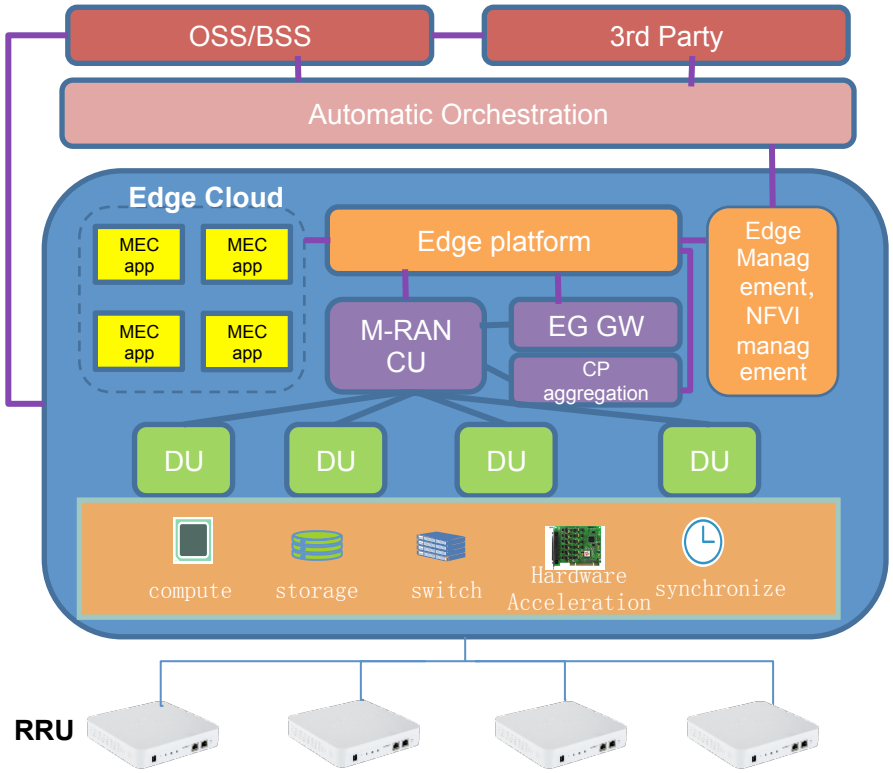
ixia A Keysight Business

XINERTEL



Contents

Next step: Reference Design Proposal-1



2019 Reference Designs & Exemplars

Multi-Access Edge Cloud

+

Converged Access & Core RD

PROPOSED TO ONF TLT
in November, 2018

Next step: Reference Design Proposal-2

China unicom中国联通
创新·改变世界

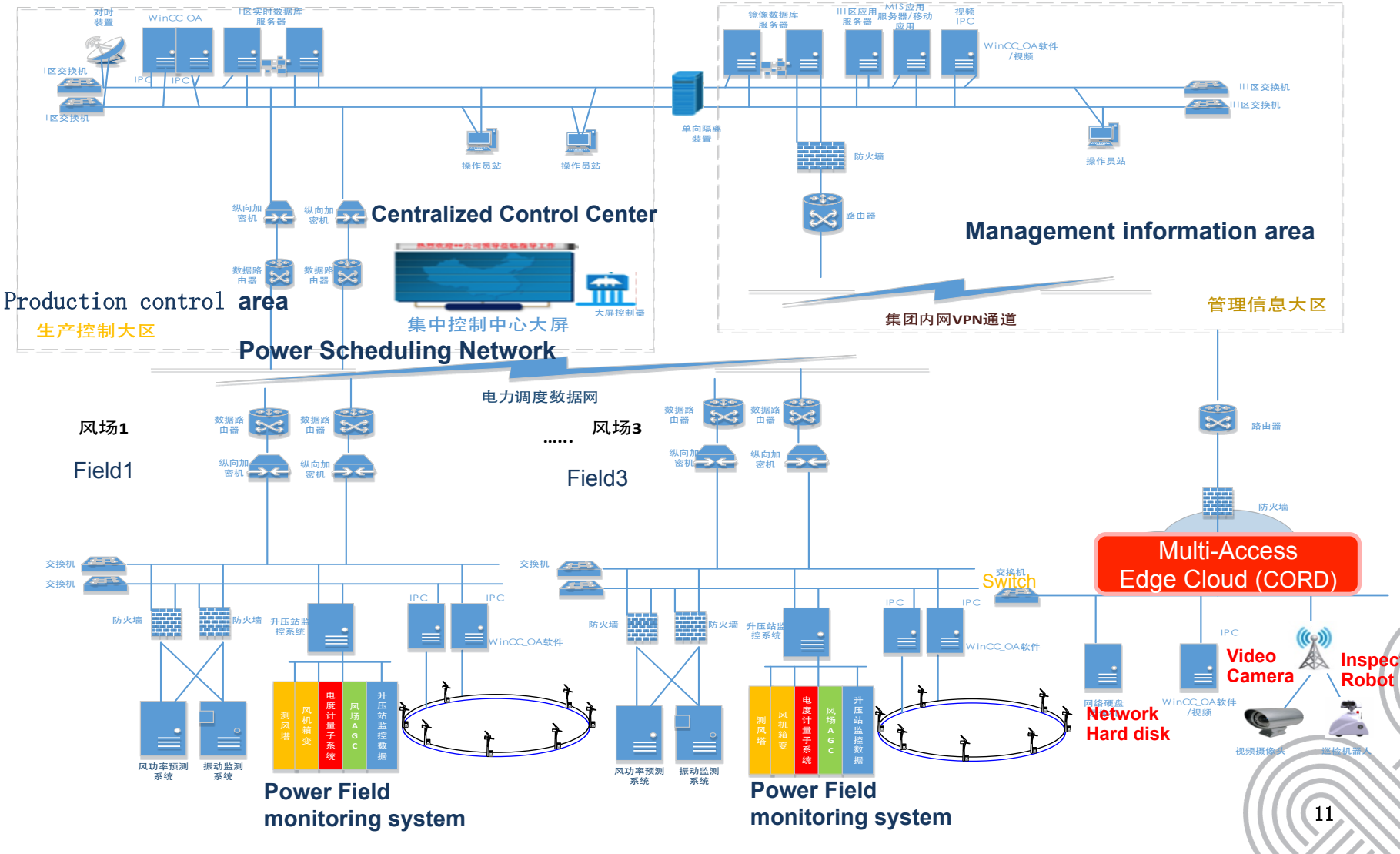
- What resources are needed from the ONF?
  - Stable and secure vEPC function
  - Support joint testing of vEPC and white-boxed small cell
- Key components to be leveraged by the Reference Design & Exemplar Platform:
  - NFV Fabric RD(Trellis EP)
  - UPAN RD(UPAN) Unified Programmable Automated Network
- Anticipated timeline to achieve DRAFT status:
  - 12-24 months

10

Next step: Pilot Industrial Application

Power Field Asset Inspection & Monitoring

Edge Architecture based on CORD



Next step: International Open Lab

ONF

Open Networking Foundation

TELECOM INFRA PROJECT

TIP

Technology driven

Use case

China unicom中国联通

China Unicom

Member participation

Scene

Industrial customers

Community feedback

Internal incubation

Ecology

Cooperation

Other external lab

Ecology

Joint import project

International Open Lab

Leading import project

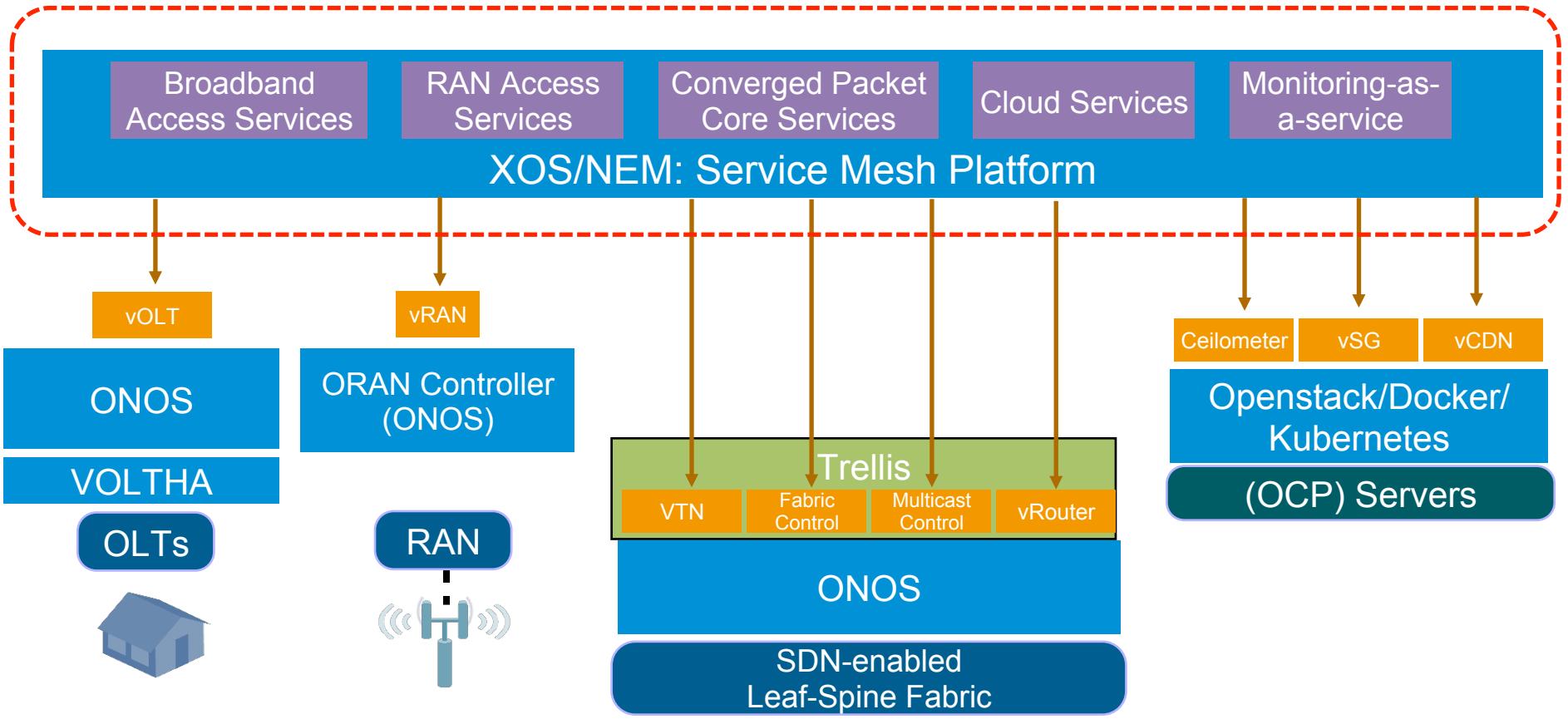
China unicom中国联通

Network Research Institute

Ecological Partner

Ecological Partner

Final step: PON+vRAN Integrated Edge Platform



Our Vision for the ONF Multi-Access Edge Cloud Platform

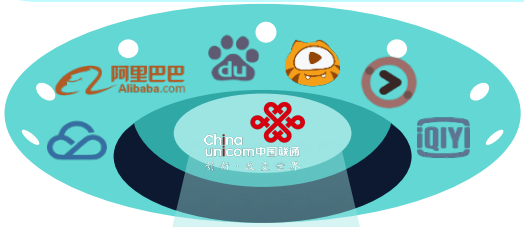
Contents

Use Case 1: Edge Streaming Service

At the "2018 Edge Cloud Eco-Partners Conference" China Unicom unveiled "Edge-Video" business with Tencent, Ali and Baidu

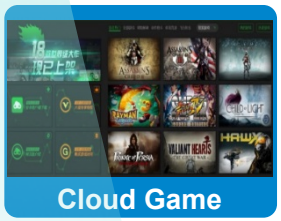
- Completed Cloud VR live broadcast, Cloud Game, 4K/8K and other business verification based on MEC edge cloud. , paving the way for 5G scale commercials.

Edge-Video



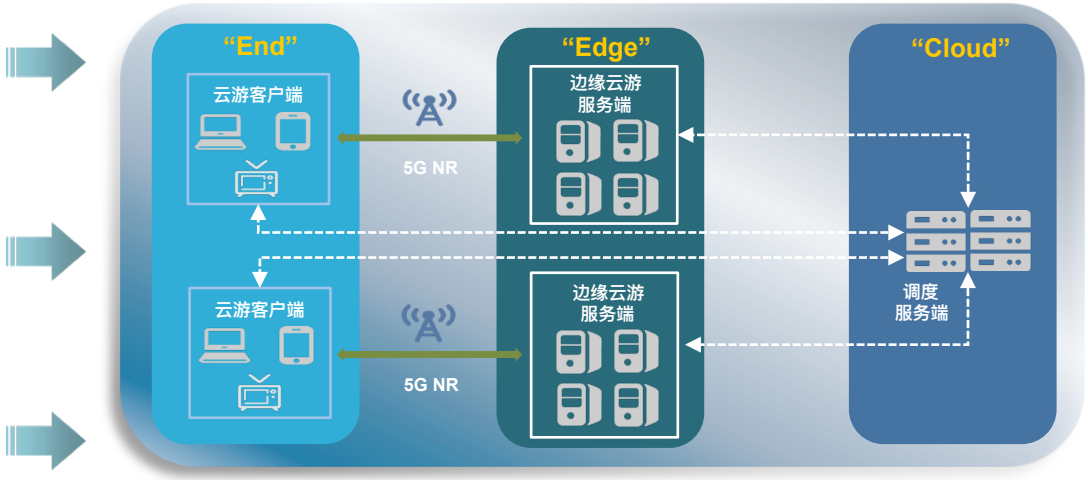
Edge Streaming Service


VR Live


Cloud Game

Custom CDN Distribution

HD video



Use Case 2: Smart Winter Olympics

As the key technology of 5G, Edge Cloud helps realize smart Winter Olympics

- **High-bandwidth video transmission, low-latency synchronization control, and edge-side real-time rendering.**

Smart

Human flow intelligent sensing control, logistics intelligent tracking and monitoring


Brilliant

360* full landscape game, portable wear high speed shooting


Safe

Drone face recognition, wireless high speed video probe


Use Case 2: Smart Winter Olympics

CUE VIDEO

Use Case 3: Edge AI Smart Security

China unicom中国联通 创新·改变世界

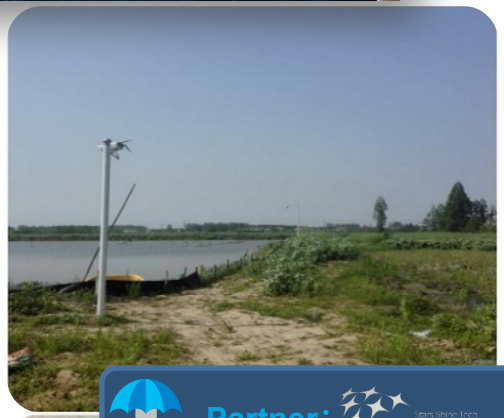
Goal: Rebuilding the network system of security monitoring system with Edge Cloud

- **Video preprocessing at the edge, local decision on AI Inference, real-time response; cloud center for AI Training, side cloud collaboration.**

Edge-eye

Commercial Applications

Zhejiang Hangzhou Xueliang Project



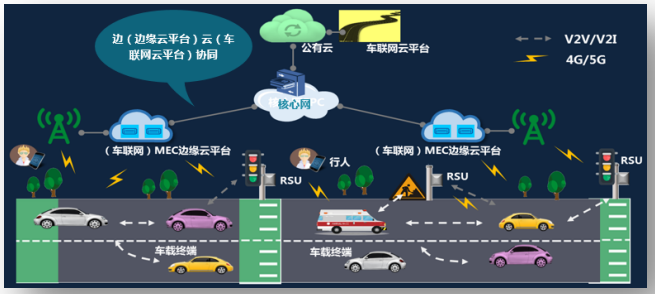
Hubei Qianjiang Crayfish Breeding Base

Partner: 星耀科技 SANTU 海康威视 HIKVISION intel

Other Use Cases for Multi-Access Edge Cloud

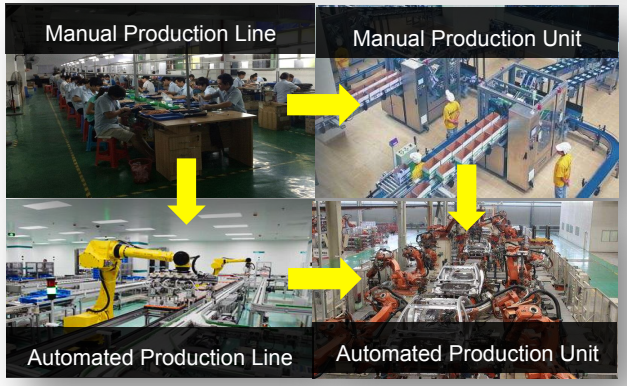
China unicom中国联通
创新·改变世界

Smart Traffic



Smart Ports

Smart Manufacturing



In Summary

China unicom中国联通
创新·改变世界

- In 2019, China Unicom will actively participate in ONF activities: Multi-Access Edge Cloud, and Converged Access & Core, based on M-CORD
- CU has identified multiple use cases where these ONF platforms may be deployed in our networks
- We welcome the ONF ecosystem to join us at the China CORD Industry Alliance

China unicom中国联通
创新·改变世界

Thanks!