5G MEC Practice and Future Plan of China Unicom

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Agenda

- 5G MEC Value Proposition
- China Unicom's Practice on MEC
- Future Plan for MEC

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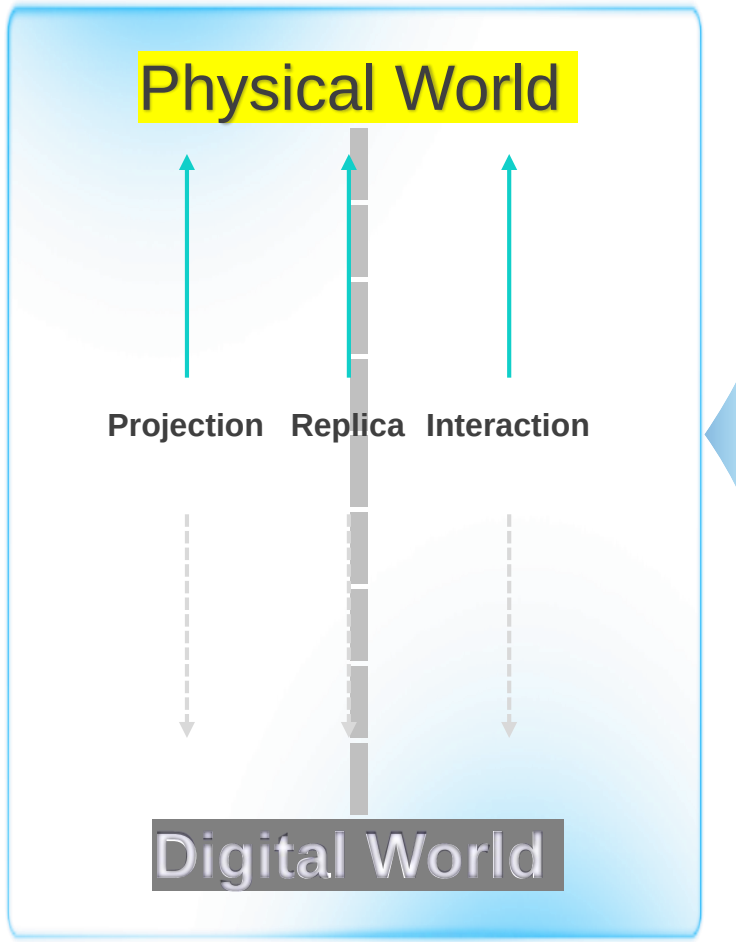
5G + MEC Value proposition

- Leverage the new network tech and move computing/function closer to business



Function

- ✓ Model
- ✓ Data
- ✓ Monitor
- ✓ Analytics
- ✓ Simulation
- ✓ Control

Performance

- ✓ Ultra-reliable low latency
- ✓ Extreme high bandwidth
- ✓ Wide mobility coverage
- ✓ Massive machine type communications

Move the computing close to device & people

5G + MEC

Leverage the new network tech to improve the latency and bandwidth

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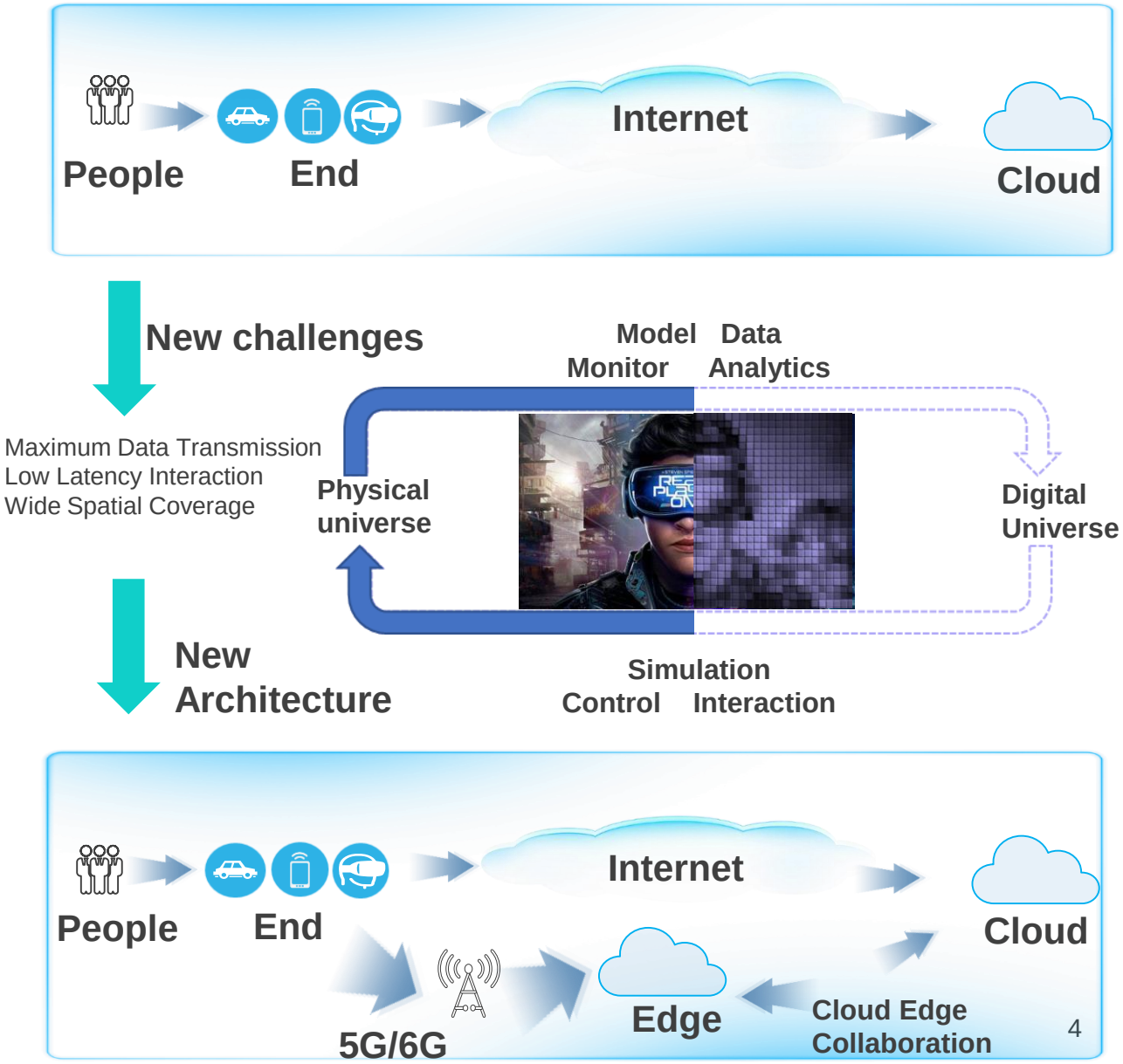
Challenges and Gaps

- Architecture transformation : from “Cloud-End” to “Cloud-Edge-End”



- Virtual body interaction: virtual reality, industrial control, remote driving, etc
- Challenges: extreme bandwidth, extremely low latency and mobility challenges
- Architecture evolution: transformation from "end + cloud" architecture to "end + 5G + edge + cloud" Architecture
- Technical realization: digital human, AI, micro display (near eye display), VR \ AR, dynamic capture, 5G, MEC , etc

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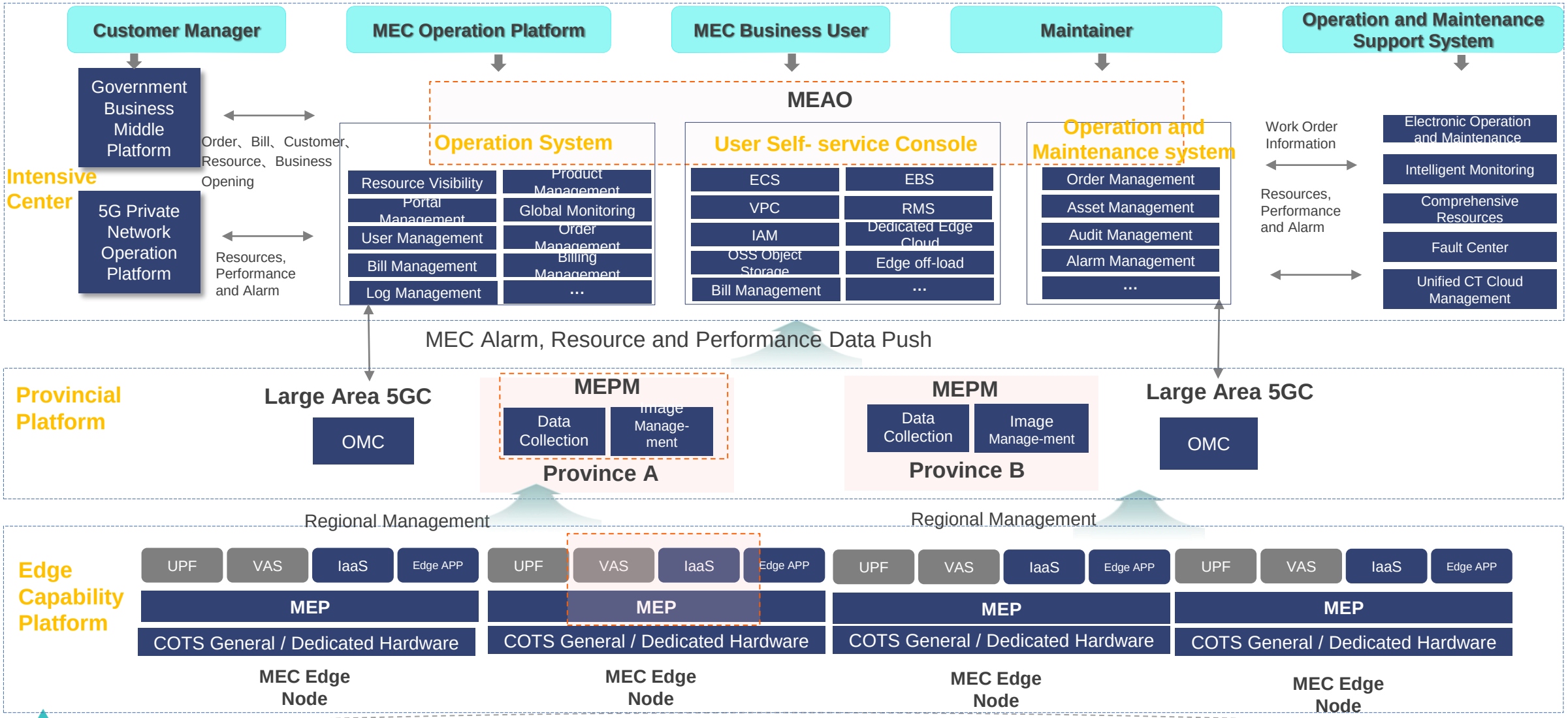
MEC Platform Design of China Unicom



Cross-Region Edge Orchestration Case： Ferro Tech

Cross-Region Demand

- Most leading industry companies are always with multi-region factories or branches
- How to mange cross-region edge resource

China Unicom MEC Solution

- Linking MEC sites with China Unicom virtual DDL for on-promise edge-2-edge connection
- Provide a central ops portal to users for monitoring and management in a self service way.

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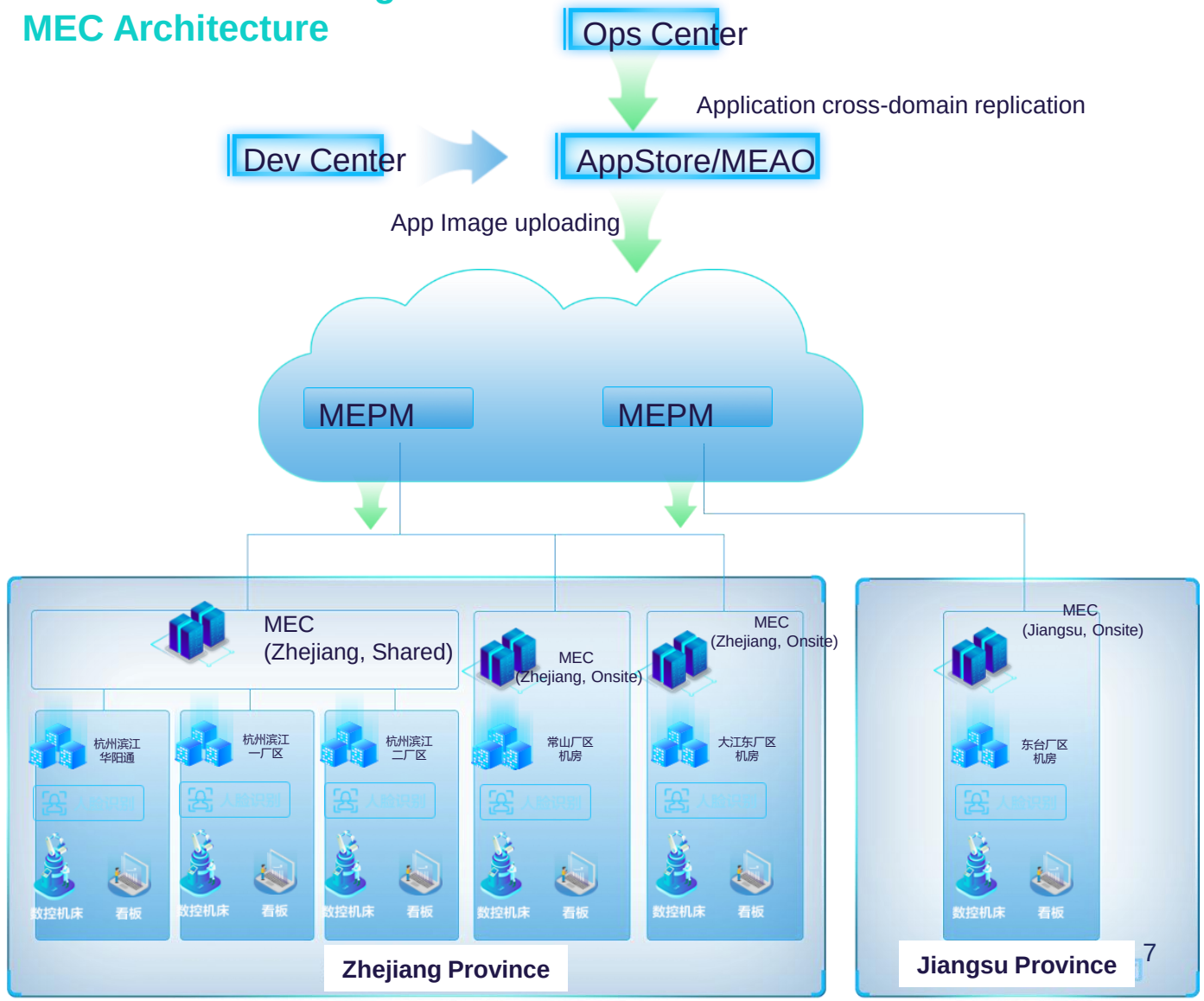
FerroTech Cross-Region MEC Architecture



Smart Coal Mining Case： PangPangTa Coal Mining

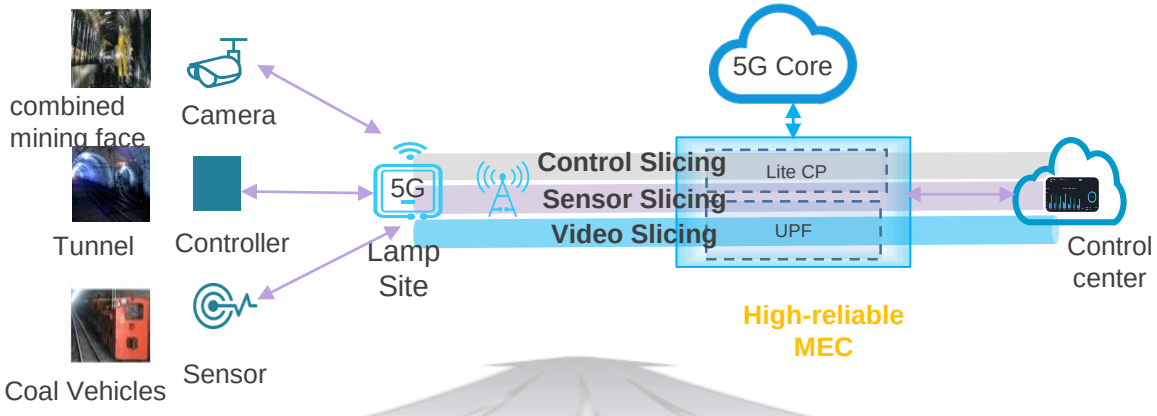
Unmanned surface remote digger

Underground staff monitoring

Underground sensing equipment connection

Application	Scenario	Network Requirement
Control system	The coal mining surface coal machine is controlled remotely and centrally	Latency<50ms Reliability>99.999%
coal mining Sensor	Underground environment and machine operation monitoring	>5000+ Devices
HD video streaming	Work surface, digging surface, transport reprint point, distribution video	Upstream bandwidth>1.6Gbps

Explosion-proof BBU/HUB/PRRU



- Dedicated wireless + Dedicated MEC
- MEC local traffic redirection
- Edge MEP + Vertical applications
- Network Slicing for isolation

Reliable Network

Intact Data

Low latency

Board bandwidth for video

Business isolation

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The Evolution Stages of China Unicom's MEC in the Future

- Edge-Native Ecosystem & Keep Exploration in a New Area W/O Reference

01

(2019)Standard Compliance

- 3GPP
- ETSI

Key Differentiate

- 5G network edge traffic
- Edge Computing Pool

Gaps

- UE(User Device) included, but forget user
- Copy UX from cloud
- Central Ops v.s Extremely distributed resource
- Security for 5G network protection

02

(2020)Beyond Standard/Copy Cloud UX

- Optimize Arch beyond standard
- Self-Service for 5G edge capability with security ;World's first case in Mp2 enabling
- Centralized Ops for extremely distributed edge sites

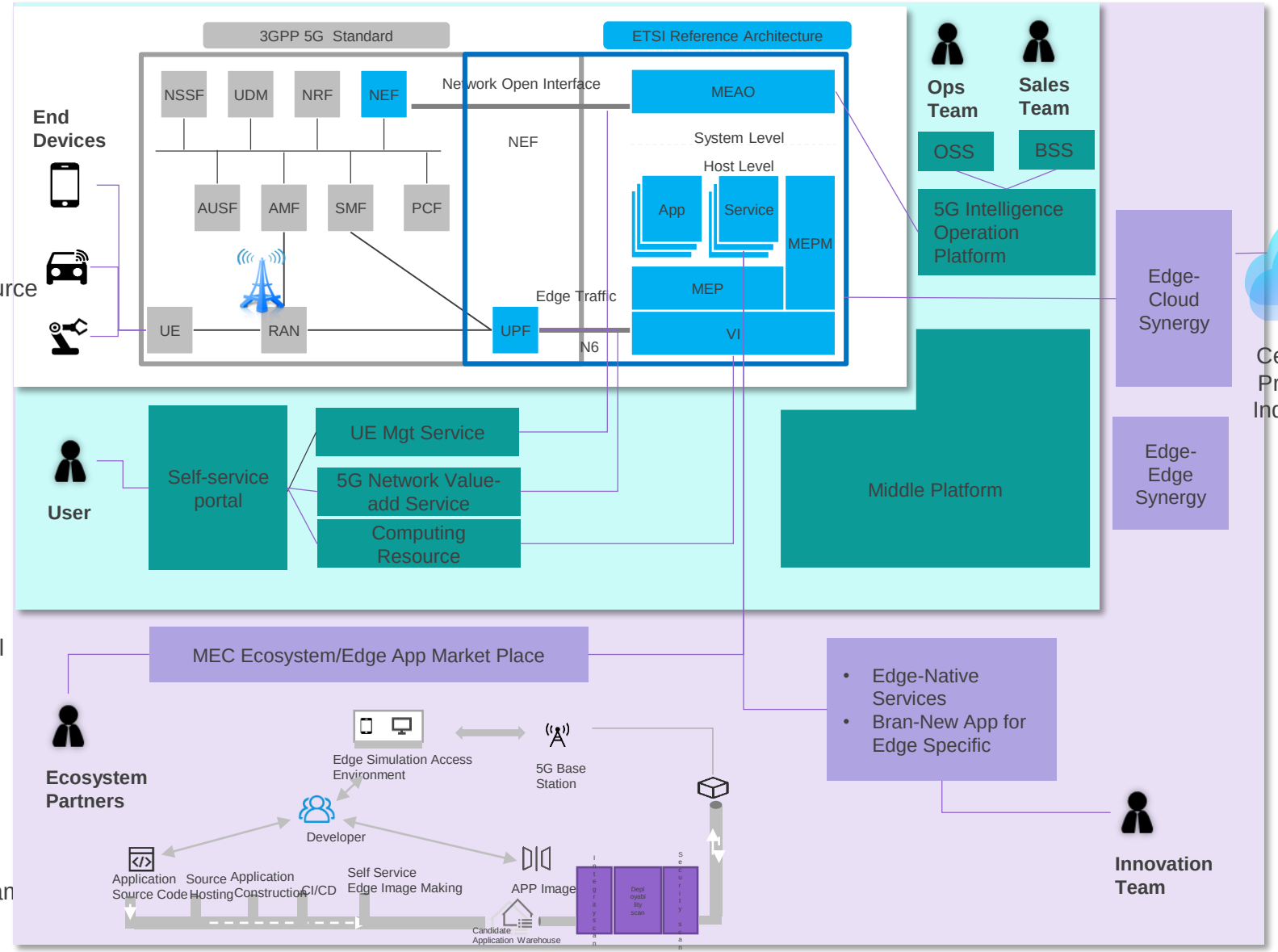
Gaps

- Ecosystem: migration from existing vertical
- Bran-new features
- Cloud-Edge synergy

03

(2021~) Edge-Native service & Ecosystem

- MEC Ecosystem
- Cloud-Edge Synergy
- Edge-Native features:
  1) Data-fabric for auto drive data roan
  2) Coal Mining underground MEC
  3) …



Edge Computing Innovation Products of China Unicom

Dedicated MEC Products

1. General Edge all-in-one EdgePod

Provide "plug and play integration" services for customers in hospitals, ports and mines

2. Industrial Edge Integrated EdgePod-1

Serve for industrial scenes to provide low delay, high reliability and stable services

Shared MEC Products

3. Shared Edge Computing Products

Provide multi-tenant shared edge services for customers of government departments, enterprises and institutions

4. Video Edge Computing Products

Focus on edge video processing scenarios and services

5.V2X (Future) Edge Computing Products

It is oriented to wide area vehicle road cooperation and meets the requirements of low delay and cross node agile switching of edge services

MEC Value Added Application Products

6. Edge Cloud NAS

The edge node is linked with the home gateway C system to provide near source digital storage services for home scenarios

7. Edge Gateway CDN

Provide CDN services based on layout edge nodes and home gateway resources

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- Fixed Access
- Edge Native
- Cloud
- Computer Service
- Network Service Enhancement
- Automatic Opening of Intensive Management
- User Self- service

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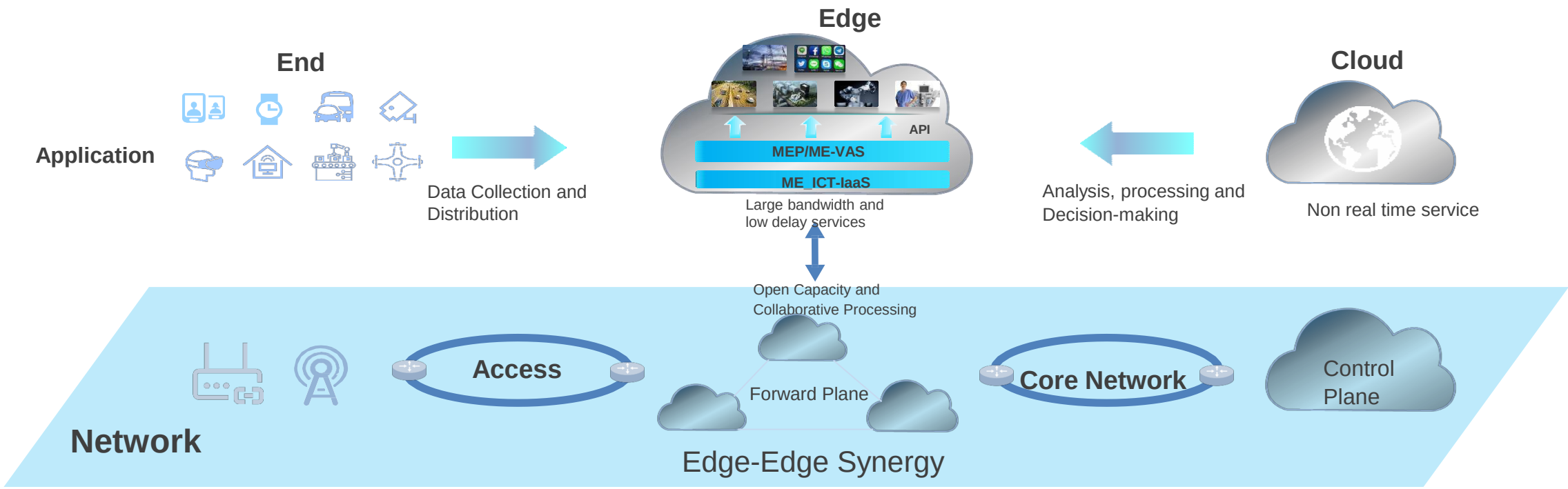
Future Plan for the Edge Computing Network

- Architecture transformation： “Cloud-Edge-End-Industry” Synergy



- **Original Edge Native of Edge Platform:** MEC supports heterogeneous computing and carries business distribution applications
- **Virtualization of Network Function:** Use general server to realize data network function and provide general programming ability for edge application developers
- **Ubiquitous Edge Node Resources:** Flexible scheduling to achieve user consistent and continuous experience

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Thank you.