



5G Edge Computing Exploration and Practice from Tencent

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Edge Computing enables 5G, IoT and AI for industries



Scenarios



Cloud Gaming



Smart Office



Industry Internet



Connected Car



Intelligent Medical



AR/VR



Live Streaming



HD Video



Problems & Requirements

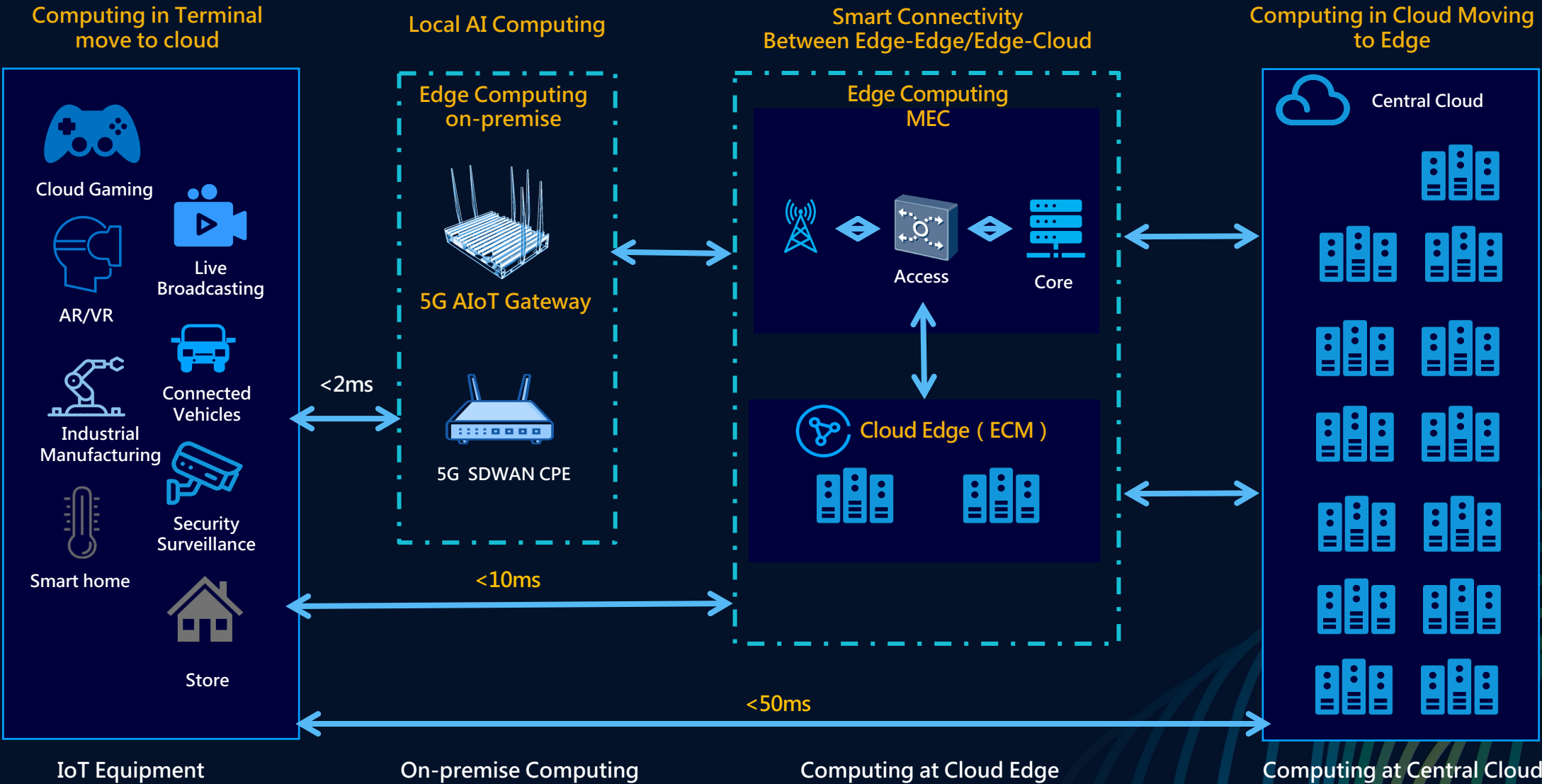
- Higher network bandwidth and lower latency to enable service into edge cloud
- Reduce the device cost and bandwidth cost, e.g., cloud gaming
- High network availability



Technologies

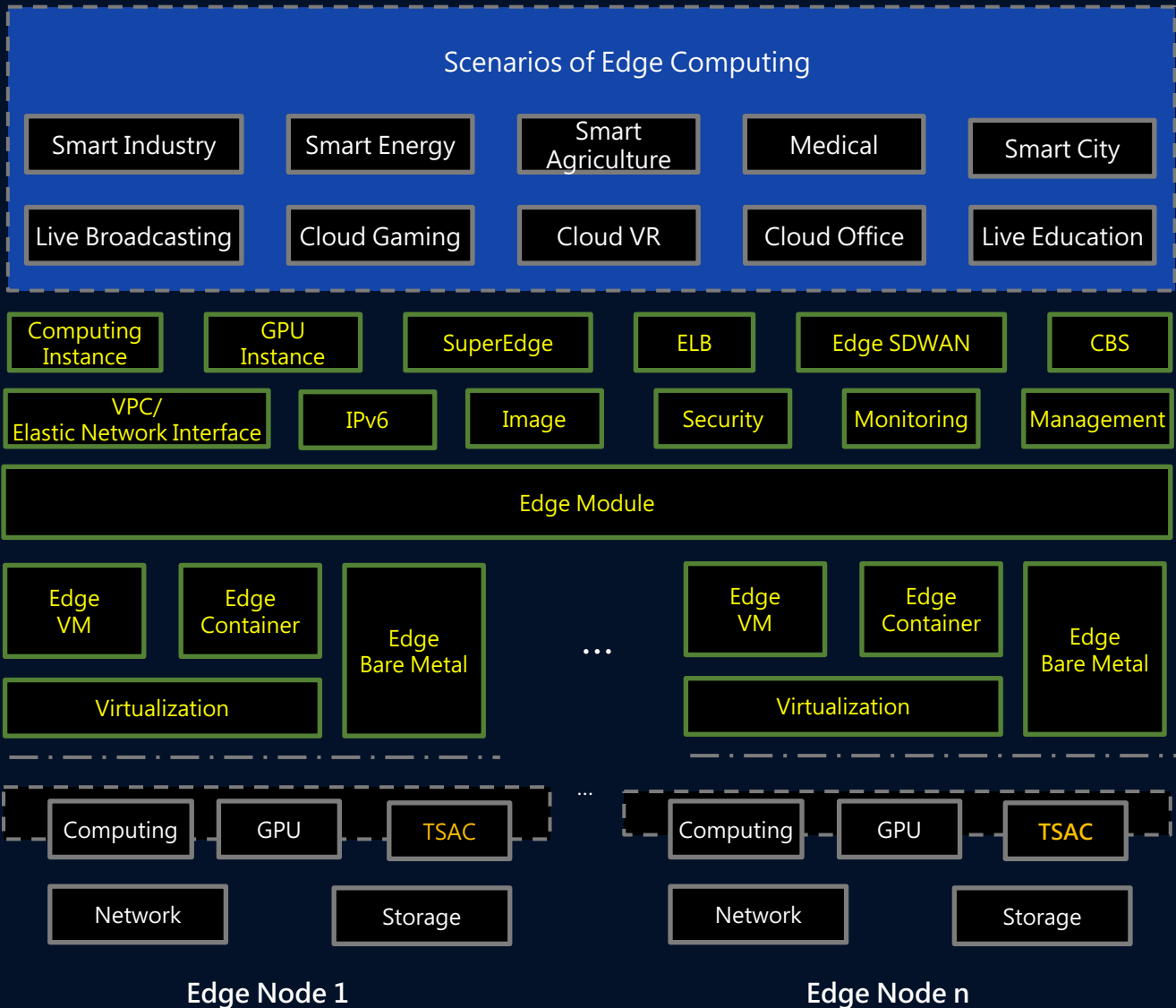
- Edge computing
- Security
- AI in Edge
- IoT capability enhancement
- 5G acceleration: Slice/QoS

5G Smart Edge Computing Enables E2E infrastructure





ECM build Cloud Edge infrastructure



ECM : Edge Computing Machine



Low Cost



Cloud-Edge Collaboration, Consistent Experience



Low Latency



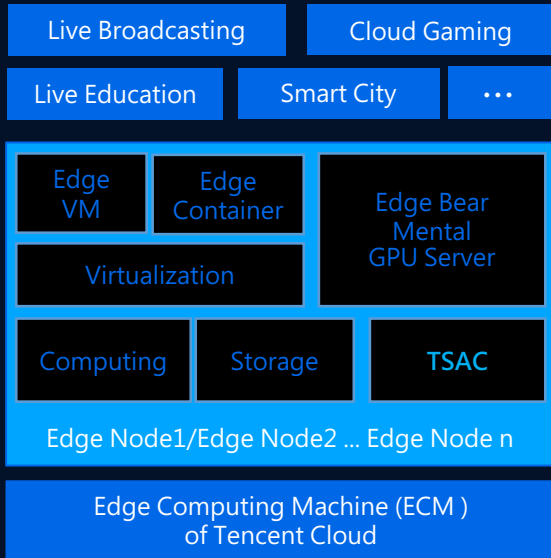
Mobile User Access (4G/5G)



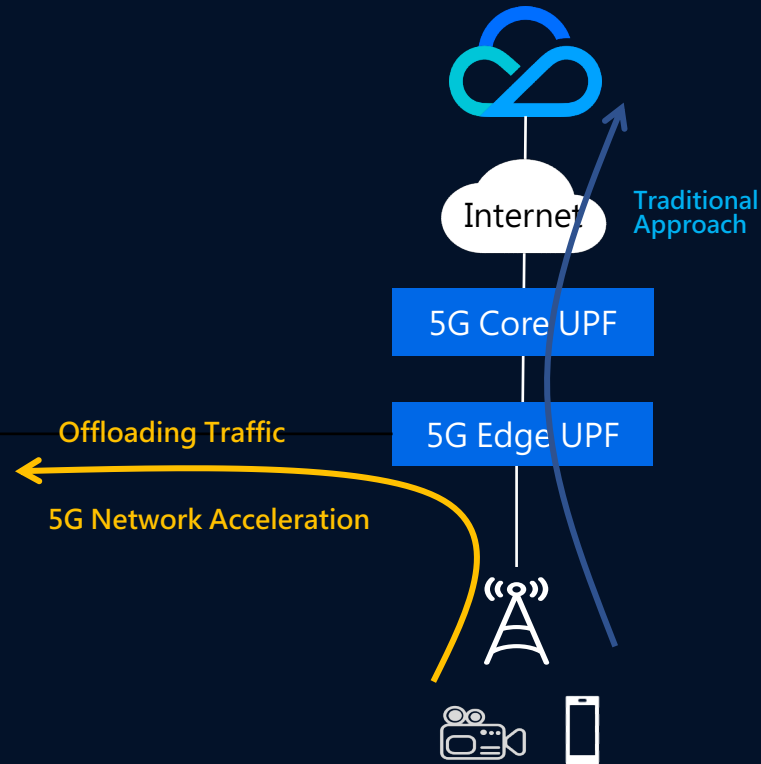
Fixed/WIFI Access

TSAC+ECM : Providing 5G Edge Capability of "Computing" and "Connecting"

Edge Cloud and Service



Center Cloud and Service



TSAC : Tencent Smart Access Connector



Low Latency 5G User Connecting to the edge Service

- Network delay reduced by 20%~50%
- Traffic offloading based on IP address or DNS domain name



Network Acceleration

Testing result in case of 5G network congestion :

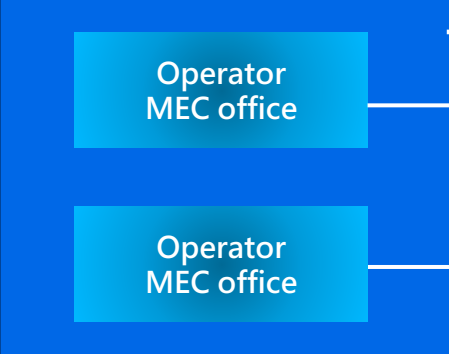
- Without Slice : Frame-Rate 30 FPS · RTT 41ms · Bit-Rate 4.5Mbps
- With Slice : Frame-Rate 60 FPS · RTT 20ms · Bit-Rate 12.7Mbps

Practice 1: Tencent 5G Edge Computing Center is officially Opened at Binhai



Tencent 5G-Edge Integration Center

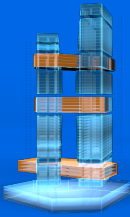
Scenario	Cloud Gaming	4K Live Interaction	Robots control	Zhiwei	JiShi	Tencent Exhibition Hall Control
PaaS	Cloud Gaming Platform		IECP	Live Platform		Tianmu
IaaS	ECM TSAC mini T-Block, T-SWITCH, Xingxinghai Server, SD-WAN Dragon AIoT Gateway					



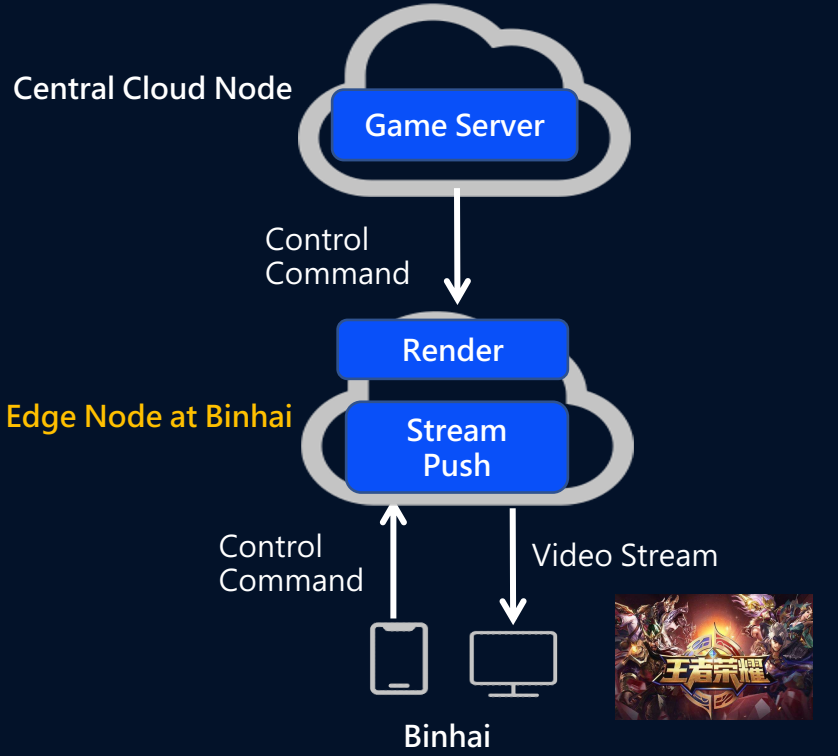
5G Macro Base station (Public Network)



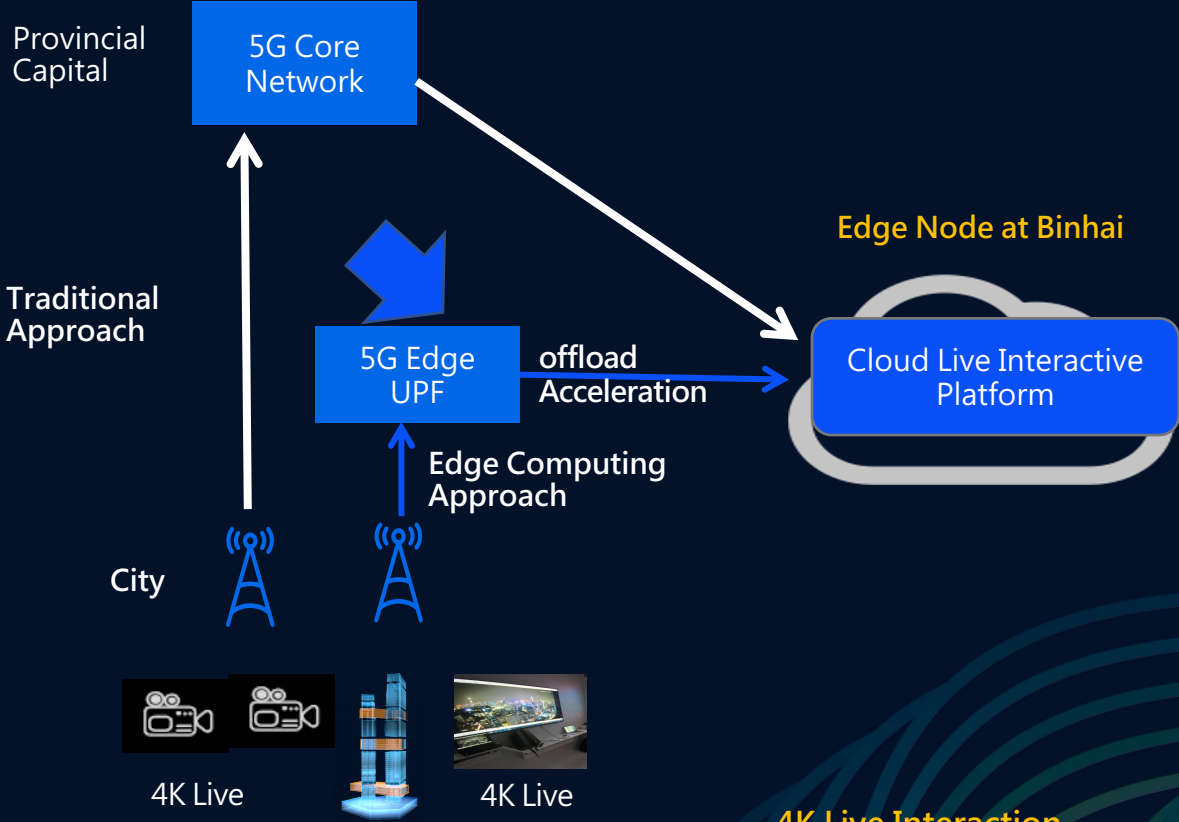
5G Dedicated Room Division Multiplexing Base Station (Private Network)



>>> Practice 1 (Cont.): Cloud Gaming, 4K Live Interaction



Cloud Game
Nearest rendering, low latency, large bandwidth, low bandwidth cost

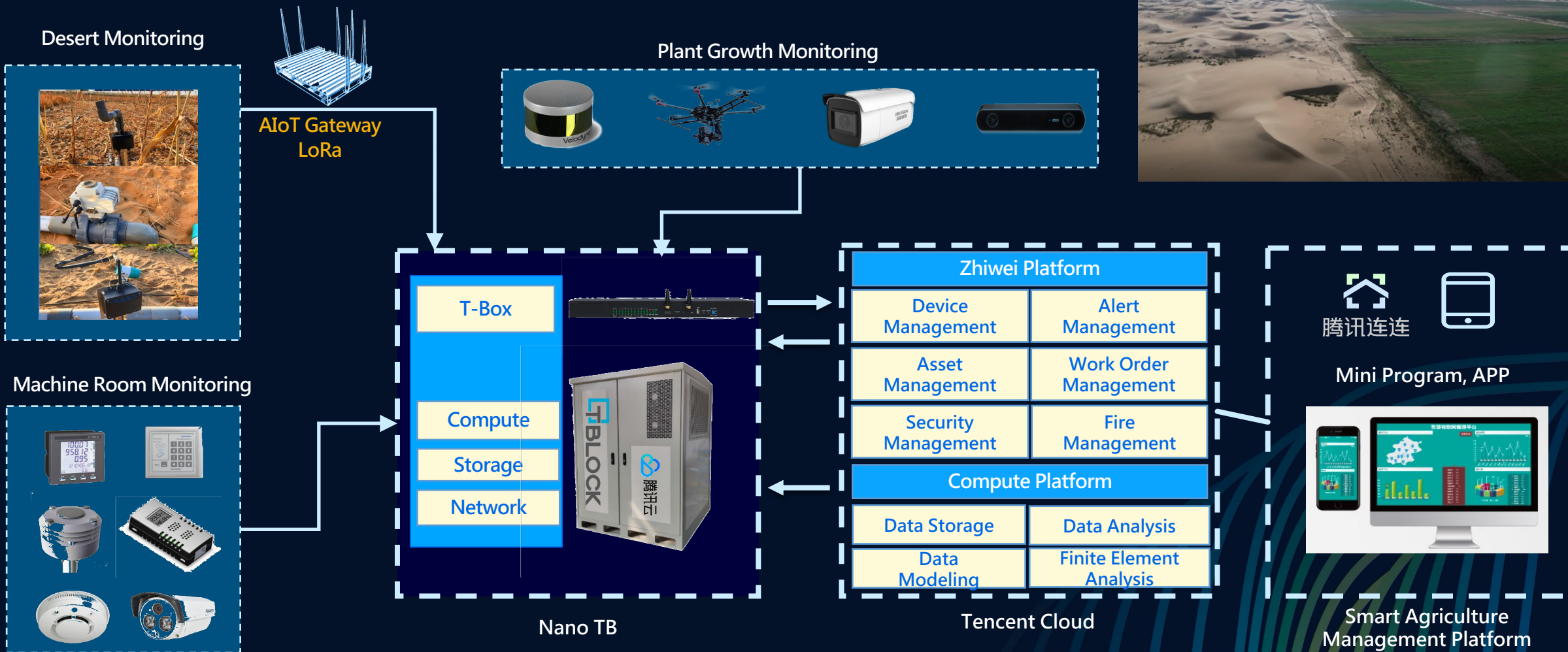


4K Live Interaction



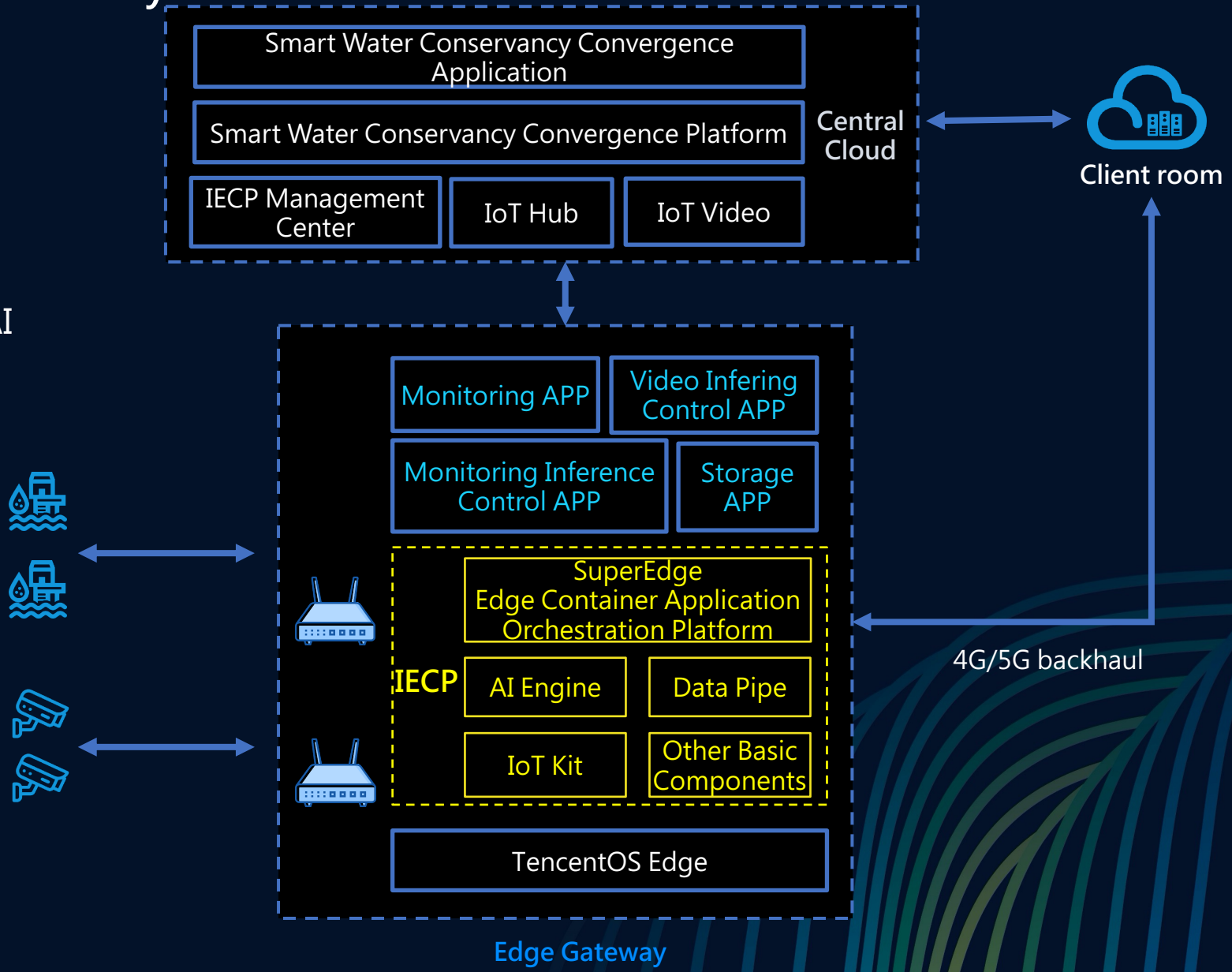
Tencent Cloud Interactive Live Broadcasting Platform and Solutions

Practice 2: Boosting the Soil Transformation of Alashan Desert and Restoring the Ecological Environment



Practice 3: Smart Water Conservancy

- 1. out-of-the-box experience
- 2. Cloud edge collaboration with the powerful capability of AI reasoning and AI training





Thanks!

