

Pioneering in 5G SA

ZTE

ZTE

Phase I of the Chinese operators' 5G projects



Beijing



Shanghai



Guangzhou



Shenzhen

350 + large-scale urban 5G deployment

30+ urban area, with more than 800Mbps continuous coverage

Excellent Gbps-Level Experience of Flagship Network

140K BS in 2019

25% of world's total

Phase II of the Chinese operators' 5G projects (and beyond)



China : World

180bn

Investment
(RMB)

530k
580K

Base stations
(by 3 operators, 2020) (by CBN, 2020-2021)

480K

Base stations

RAN Capex

33% of world (avg.)

Source: Gartner

Base station : world (2025)

3.5 mn : 6.5 mn

Source: Wiseguyreport.com

5G subscribers

38% of world (avg.)

Source: Omdia

5G coverage (of population) : world
(2025)

47.17% : 25.92%

Source: GSMA

NSA & SA evolution paths of the operators



2019

2020

2021+

Deployed area
(NSA only)



NSA+SA dual
mode



SA

Dual mode to be kept for better support of 5G international roaming

Non-deployed
area



SA



SA

5G not available to international 5G users roaming with NSA-only UEs



China Telecom China Unicom

Deployed area
(NSA only)



SA

5G not available to international 5G users roaming with NSA-only UEs

RAN sharing

RAN sharing

Non-deployed
area



SA

RAN sharing

Helping to Deploy the World's Largest Commercial 5G SA Core Network for China Mobile



2C



- ◆ Control plane: won **6** among **8** regions
- ◆ ZTE won the bid for nearly **30%** shares in **12** provinces, including Shandong, Anhui, Fujian, etc.

2B



- ◆ **31 provinces**
- ◆ **9M** capacity, **1.25Tbps** throughput

40M

Capacity

34Tbps

Throughput

35%

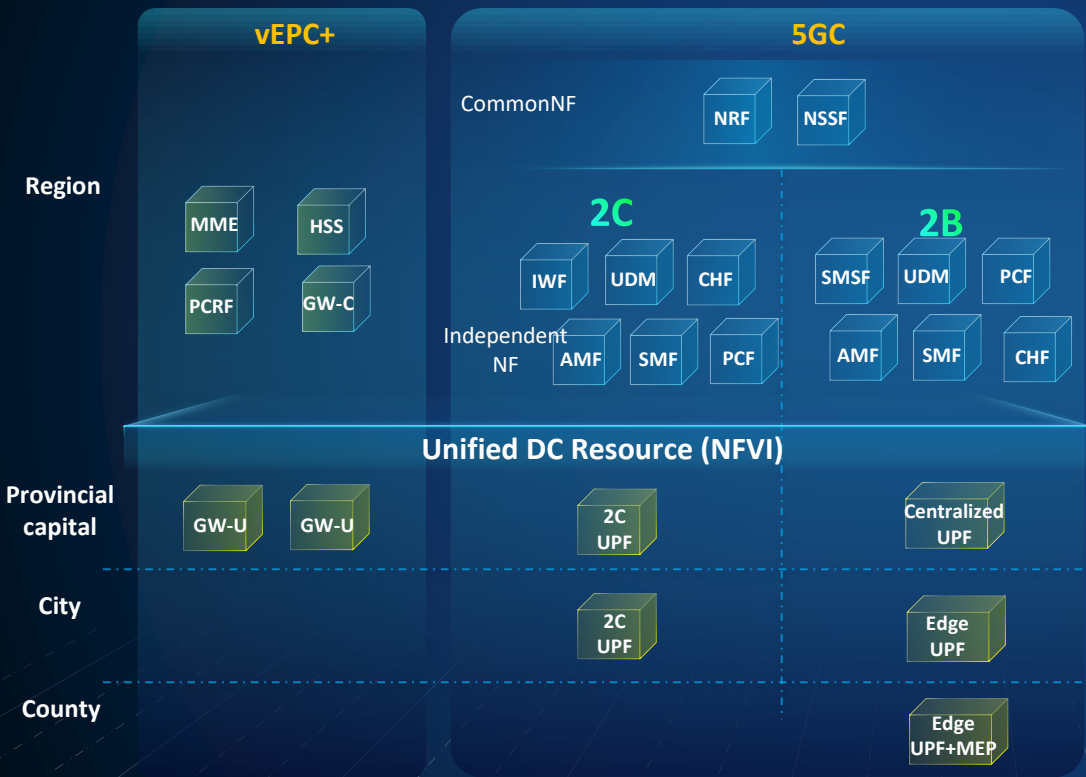
Share



ZTE takes the lead and outperform in China Mobile's 5GC test with **3200+** items

(function, performance, network management, slicing, security, networking, IOT)

ZTE Common Core Accelerates 5G Construction for China Mobile



- The control plane is physically centralized, and the forwarding plane is deployed to edge, accelerating the innovation of 5G applications



- High-performance integrated UPF + **SmartNIC**, constructing powerful 5G networks

- Multi-scenario MEC deployment, enabling 5G edge clouds



- ZTE's **patented** IWF Provisioning-Free solution, facilitating smooth evolution

- E2E AIC, enabling **automatic** NFV delivery



- 5G end-to-end slicing, helping to explore the blue ocean of 2B value

Helping China Telecom and China Unicom to Construct the World's Leading 5G SA Commercial Network



- ◆ 2C&2B integrated 5GC wins the bid for the projects in **15** provinces, occupying **45%** of market share
- ◆ Win the bid for the 2B IoT base in Nanjing, **50%** of market share



- ◆ ZTE got **14** provinces: **12.48M** registered users, **2.6Tbps** throughput
- ◆ ZTE Common Core won the bid with **27.4%** shares in total amount

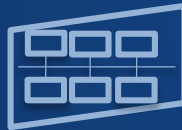
SA vs NSA in technical advantages

SBA



Functional componentization, deployment on demand, low TTM, and rapid service innovation

Network Slicing



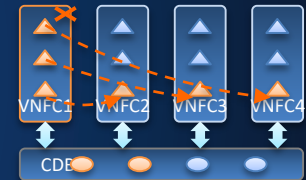
One physical network to meet diverse needs of vertical industries

MEC/CUPS



Flexible deployment of user plane to meet network requirements of low latency, high density and high speed

Stateless



Separation of data and service logic to meet network requirements of high reliability and high performance

Compared with 4G, 5G Core adopts a new architecture, infrastructure and O&M

New business model for 5G SA

B2C

B2B

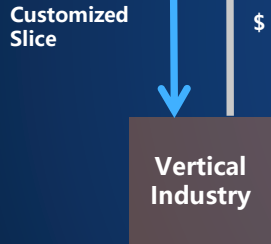
B2B2C



- ✓ Experience Classify
- ✓ Precise Marketing



Customized on demand



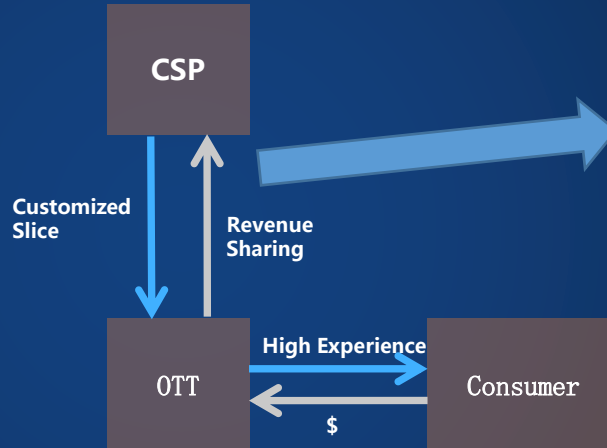
- ✓ Customize on-demand
- ✓ Self-management



Automatic workflow



End-to-end



- ✓ Differentiated services
- ✓ Forward/Backward Charging



Intelligent optimization



SLA assurance



Safety isolation

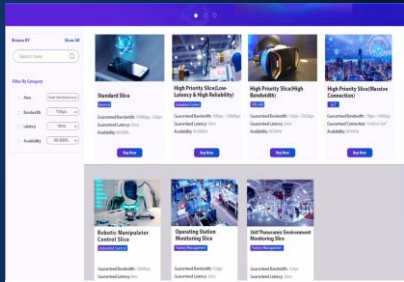
5G Slice Store

Standard Slice

High Priority Slice
(Low latency & High reliability)

High Priority Slice
(High Bandwidth)

High Priority Slice
(Massive Connection)



Selling three types of network slicing under SA mode to vertical industries

Soft Slice, Full Sharing

5G+ New Media,
LiveTV, ...



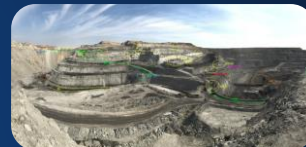
Soft/Hard Slice, Exclusive Use of Some Slices

5G+ Port ...



Hard Slice, Exclusive Use of All Slices

5G+ Mine, ATG...



Typical
Scenarios

Implementation
Solutions

Sharing of All Network Slices

5GC Control Plane Sharing

5GC User Plane Sharing

Carrying Soft Slices

Wireless Sharing

Exclusive Use of Some NEs

5GC Control Plane Sharing

5GC User Plane Exclusive + MEC

Carrying Soft/hard Slices

Wireless Priority Assurance/Resources Reservation

Exclusive Use of All NEs

5GC Control Plane Exclusive

Dedicated 5GC User Plane + MEC

Dedicated Bearer

Exclusive Use of Wireless Carrier Frequency

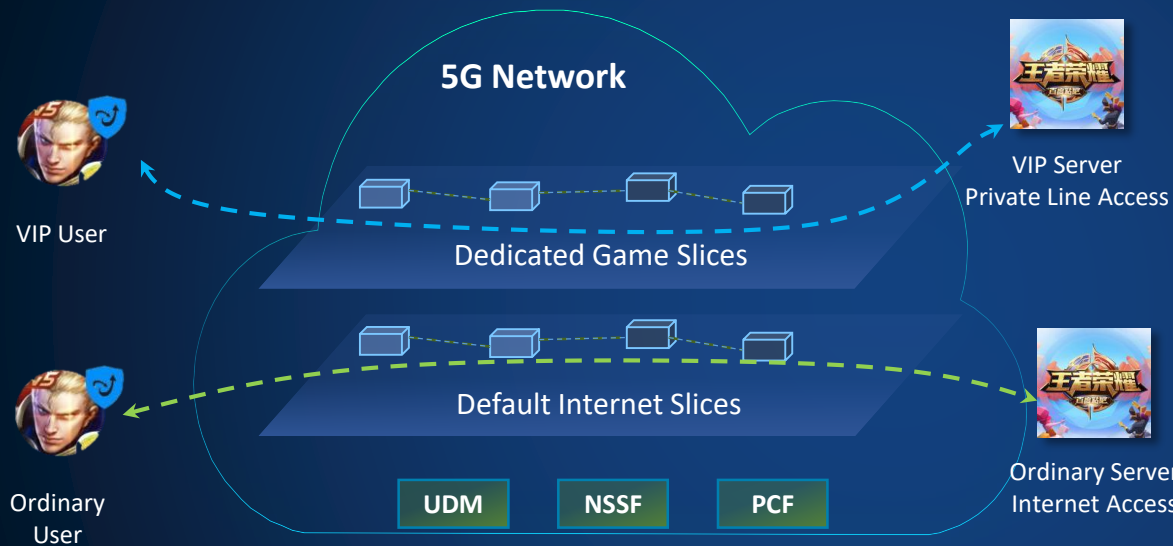
Sharing of Private Network

Hybrid Private Network

Exclusive Use of Private Network

Soft Slice: Agility and Low Cost

5G + Cloud Game



6-10ms

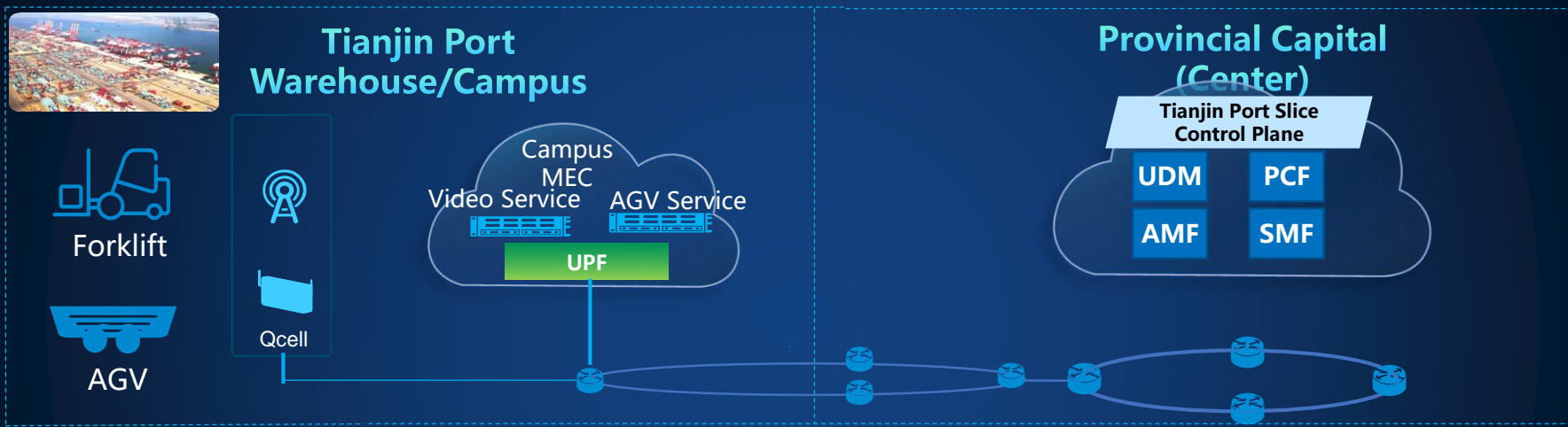


60ms+




Isolate service logic through network slicing, QoS and DNN, meet the customer's priority requirements for network bandwidth, latency, and reliability, and support flexible and on-demand configurations.

Soft/Hard Slice: For both Security and Experience



Smart quay crane


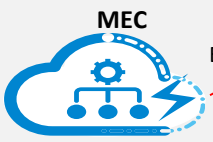


Crane intelligent platform
Ethernet
CPE

This block features an image of a red smart quay crane and icons for a steering wheel, a crane hook, and a circular sensor. Below the icons are the labels 'Crane intelligent platform', 'Ethernet', and 'CPE'.

Port control center

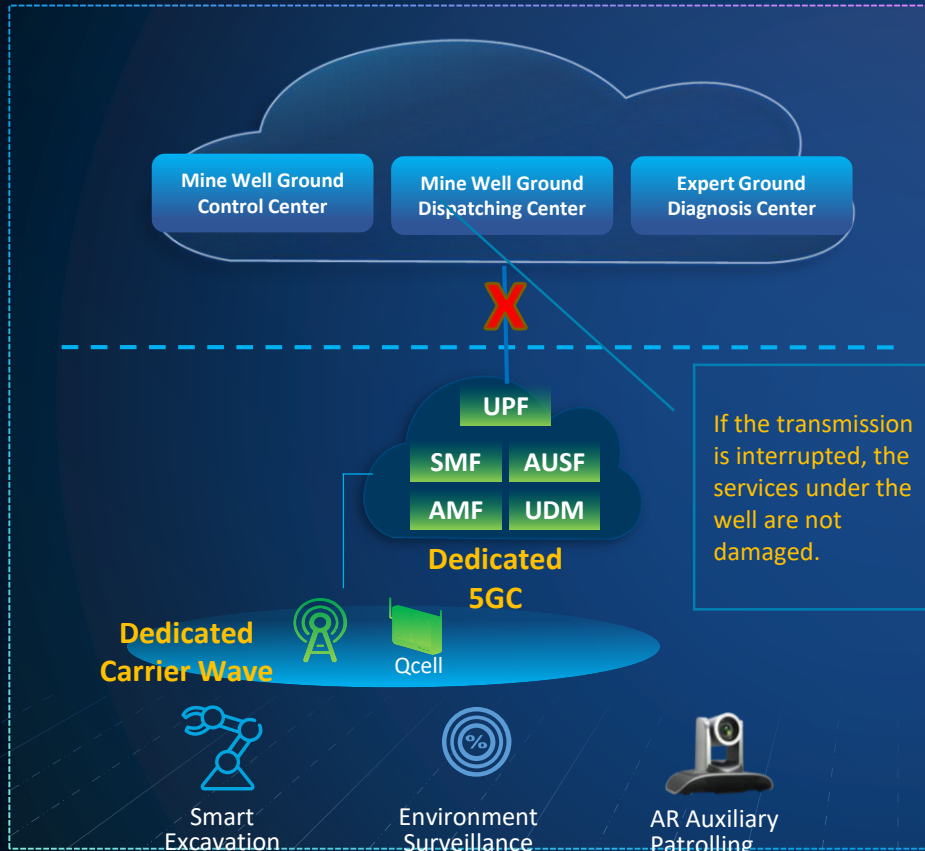
Quay Crane Control System



MEC
Ethernet

This block features an image of a control room with multiple monitors and a desk. To the left is a cloud icon labeled 'MEC' with a gear and lightning bolt, connected to the control room by a dashed red line labeled 'Ethernet'.

Hard Slice: Full Exclusive, High Security & Strong Isolation



5G+ Mine

Requirements and Pain Points

- High security requirements: Services cannot be interrupted due to faulty links in the well.
- HD video backhaul in the coal excavation and coal transport channels
- Real-time environment monitoring and high-precision positioning of mining machines
- High network coverage, explosion-proof, dust-proof, and waterproof requirements in a complicated environment

Solution

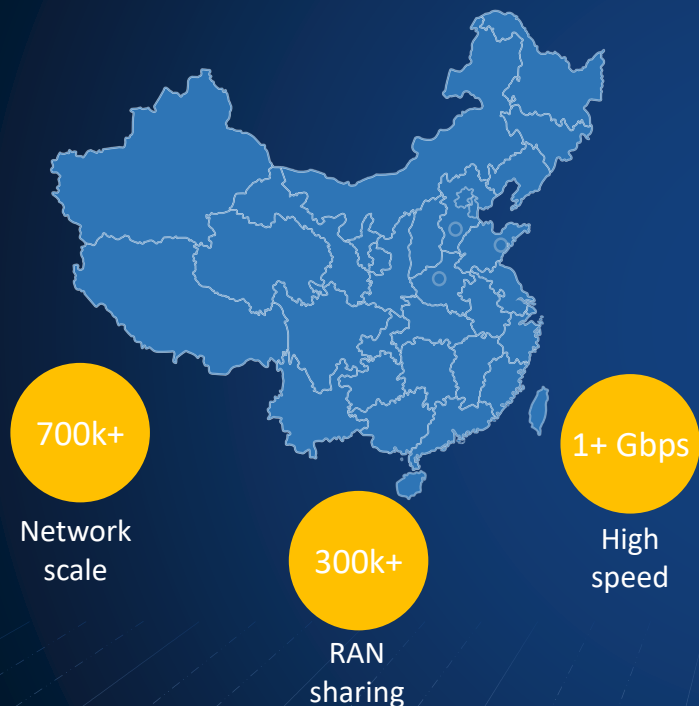
E2E hard slicing realizes high security and high reliability:

- Dedicated CN, dedicated carrier wave
- The transmission breakdown along the well does not influence the operation of the services under the well.

Implementation Effect

- OPEX saving: Wireless network coverage simplifies wired network deployment and easy O&M.
- Benefit improvement: 5G-based intelligent excavation, preventive maintenance, and O&M improve mining efficiency.

Take Away:



1. SA maturing earlier.
2. SA supply chain maturing faster including terminals.
3. SA getting more economically feasible.
4. SA the most diverse deployment scenarios for vertical industries.
5. 2B business model maturing faster.

China's 5G SA rollout benefits the world in both technology & sustainability. ZTE will continue to share the experiences & cutting-edge technologies with our customers around the world.

ZTE

Thank You!

Leading 5G Innovations