ZTE 5G Industrial Use Cases

5G Enables Innovation in Vertical Industries

Content

Preface

In the development of the digital economy, the new-generation network infrastructure, such as 5G and industrial Internet, will play an important role. All countries around the world take 5G as a priority in promoting the digital economy, and there will be various 5G applications for many vertical industries. 5G applications are accelerating the modernization of our entire society, promoting the penetration of information and communication technologies into all of the industries, and transforming our future in to digital era.

By leveraging key technologies like 5G, big data, artificial intelligence, and Internet of Things (IoT) onto the digital transformation of vertical industries, ZTE has accumulated fruitful achievements in the areas of Manufacturing (Industry 4.0), Automotive, Rail Transit System, Media, Education, Energy, Health, Public Safety and Smart City, etc.

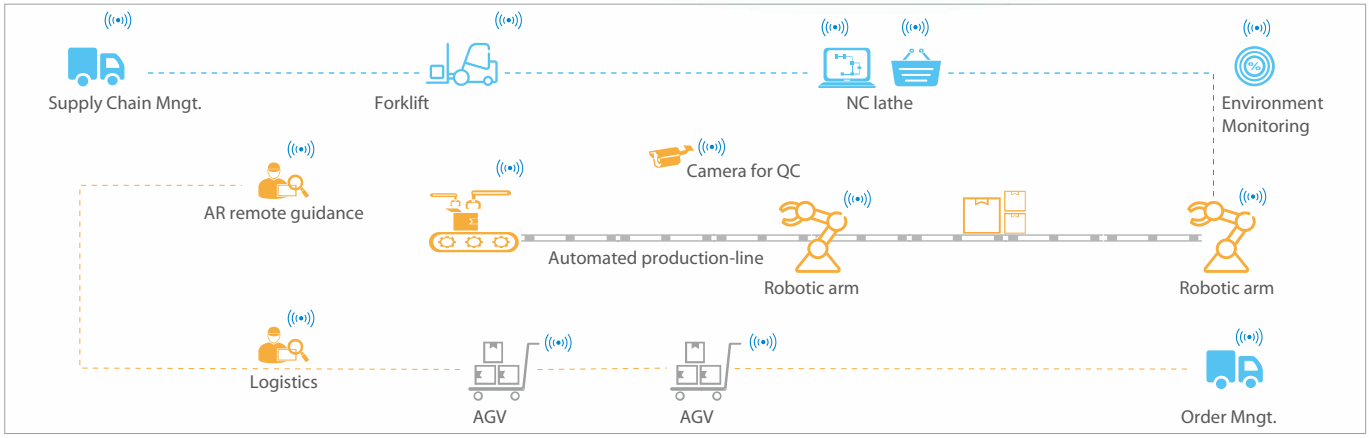
As a pioneer in 5G, ZTE attaches great importance to the R&D of 5G key technologies, products and solutions to underline ZTE's innovation power to enable the digitalization of the vertical industry. ZTE is continuing to build basic 5G capabilities for vertical industries, and provide high-quality wireless networks, with capability of peak rate 10 times of 4G, milliseconds level latency, and massive connections. ZTE will also persevere in providing terminals that can be utilized in consumer and industrial markets. Additionally, ZTE will construct key enabling platform such as MEC platform, AI platform and big data, precision positioning platform, robotics platform and security platform, and offer the end-to-end network slicing solutions to help operators reshape their business model.

ZTE is willing to work and cooperate with the partners from all areas and innovate together for a 5G world of intelligence and digitalization.

5G-based Intelligent Manufacturing Unleashes the Huge Potential of Industrial Internet

In the intelligent manufacturing era, more wireless connections will appear in factory, which promotes the continuous optimization of the network architecture for factory. The network-based collaborative manufacturing and its management efficiency will be improved continuously, and the full connectivity in the entire product lifecycle can be expected and assured.In the future, all smart units in factories can be connected through 5G wireless network. The combination of production processes and smart devices can be adjusted rapidly and flexibly to adapt to the changing market and the trend of personalized and customized customer requirements.

Vision of 5G+ Future Plant



Value Propositions

Industrial image and machine vision

The advantages of 5G high bandwidth and mobility support real-time wireless transmission of HD images such as industrial wearable devices, industrial AR and industrial cameras. The application can be converged intelligently at network edges, improvinge work efficiency and reducinge overall cost.

More secure and larger-scale scheduling and dispatching

Compared with Wi-Fi, 5G can provide more extensive and continuous coverage, provide higher security, and support remote control and large-scale scheduling and dispatching of mobile devices.

Replace wireline cables for real-time control

The unique ultra-reliable low latency communication (uRLLC) feature of 5G makes it possible to apply wireless technology to real-time control in the industry. 5G will become a powerful supplement or replacement to the wired control network.

IoT and industrial big data

Compared with the traditional narrowband IoT, the 5G network can support the access of higher density of industrial sensors, converters, instruments, meters and intelligent equipment, with high concurrency and large data volume communication.

Quasi-private network service assurance

The MEC local distribution solution and network slicing technology are adopted to build 5G quasi-private network for industrial enterprises. It can implement carrier-class QoS guarantee for intelligent manufacturing services and ensure end-to-end network resources required for production.

The gradual maturity of 5G network and its application in the industrial field will promote the in-depth integration of 5G and intelligent manufacturing, and provide a new path for operators migrating from selling network pipes in 3G/4G to brand new service offerings in 5G. Adhering to the concepts of openness, innovation and win-win cooperation, ZTE has been actively working with operators and industrial partners involved in fields such as construction machinery, industrial automation, robotics and equipment manufacturing to continuously research and develop 5G-based intelligent manufacturing application scenarios and 5G industrial standards, and jointly accelerate the transformation and upgrade of the manufacturing industry.
The specific practices include:

Working with SANY to Promote Digital Transformation of 5Gbased Engineering Machinery

SANY Heavy Industry Co. Ltd is a leading engineering equipment manufacturing enterprise. Its excavating machinery, piling machinery, caterpillar lifting machinery, and road machinery are leading in the industry. Concrete machinery is the first brand in the world. At present, SANY has established a global collaborative industrial Internet, which is in the forefront of the industry in the exploration and use of cutting-edge technologies such as real-time remote control, AR collaboration, autonomous driving, and high-precision positioning.

In March 2019, ZTE signed a comprehensive strategic cooperation agreement with SANY Heavy Industries in the Changsha Industrial Park, and will work together nationwide to explore the deep integration of 5G technologies and industry applications. Both parties will comprehensively deepen 5G cooperation in high-end applications, jointly promote the upgrade of the smart

manufacturing industry, and accelerate digital transformation.

ZTE and SANY Heavy Industries will conduct pilot projects in their Beijing and Changsha Industrial Parks. ZTE will continue to research and explore 5G-based service application scenarios in fields such as industrial AR, industrial control, autonomous driving, and unmanned security in the park, and will vigorously promote 5G-based service scenarios in other industrial parks.

The 5G network can support massive high-concurrency IoT connections in small-scale scenario like manufacturing workshop. IoT platform is deployed at the MEC platform to meet the latency and reliability requirements for real-time control of secure production.In production and O&M process, front-line personnel can use AR glasses to call back-end experts. With the release of both hands, remote UHD audio and video communication can be implemented through the large bandwidth of the 5G network, and video sharing based on electronic whiteboards can rapidly improve on-site operation efficiency.The high bandwidth and low latency features of 5G are suitable for fast transmission of HD images and sensor data, so that robots can be used to replace human beings to carry out security inspection in complex and harsh environments. Data is analyzed and processed at the MEC in a unified and real-time manner. Compared with the traditional mode of Wi-Fi + local intelligence, 5G+ cloud intelligence can greatly reduce the overall cost of deployment and O&M.

Working with China Telecom as a Pioneer in the Intelligent Manufacturing of Electronic Equipment in Hunan

ZTE's Smart Factory is a demonstration base for smart manufacturing designated by the Ministry of Industry and Information Technology, as a pioneer in the implementation and verification of 5G in the industrial manufacturing field. In March 2019, multiple 5G applications such as AGV through visual navigation and cloud-based scheduling were piloted in ZTE's smart factory. After large-scale deployment, the flexibility of the production process can be greatly improved to enable flexible production and intelligent manufacturing.

5G fully meets the high bandwidth and low latency requirements, and can support larger-scale AGV network scheduling compared with Wi-Fi. The visual navigation system deployed at the MEC platform is more flexible than the magnetic stripe and optical line guidance system, and greatly lowers the cost of a single AGV compared with than laser navigation. The 5G service scenarios of ZTE Smart Factory include AR remote expert guidance, industrial data collection, factory 360° VR monitoring, and machine vision quality detection. 5G networks are used to remodel industrial interconnection, massive application data is accessed in real time and intelligent analysis is deployed in MEC cloud to achieve automatic control with lower latency. Compared with traditional deployment, the TCO can be reduced significantly.ZTE will continuously apply 5G technologies throughout the full lifecycle of product R&D, design, testing, production, and O&M to build a smart 5G manufacturing model by itself.

Working with China Mobile and SUPCON to Guarantee Production Safety in the Chemical Industry in Zhejiang

SUPCON is a leading supplier of automation and information technologies, products, and solutions. China Mobile, SUPCON, and ZTE are working together for multi-scenarios in 5G-based industrial automation field in Zhejiang. As one of the leading chemical enterprises in the chemical industry, Wynca has a strict industrial production process with its thousands of data collection units such as hydraulic monitoring, gas leakage monitoring, pressure control, and gate control. After data collection terminals are converged and connected to the 5G network of Zhejiang Mobile through a centrally-controlled PLC, they can be visually monitored in real time on the control platform. Once abnormal data is detected, alarms can be immediately triggered and the reverse control system can be trigged.

This innovative service makes full use of the advantages of 5G high reliability, low latency communication, and massive connections. The end-to-end latency is less than 20 ms on average, meeting the strict requirements for safe production.Industrial data collection terminals rely on high reliable 5G networks for data transmission and control, thus reducing construction and maintenance costs comparing with wireline network deployment and also greatly improvinge production efficiency.

Based on the achievements of this innovation, Zhejiang Mobile will continue to cooperate with SUPCON, Wynca and ZTE in the industrial fields for a long term to explore more innovative 5G industrial internet applications, helping enterprises transform from traditional manufacturing to intelligent manufacturing.

Working with China Mobile to Build 5G Cloud Smart Robot for SIASUN in Liaoning

SIASUN is a leading robotics enterprise that has the world's most complete robotic product line and a core competitive edge in the digital and intelligent manufacturing field. In January 2018, ZTE and SIASUN signed a strategic cooperation agreement. The two parties have established a long-term and stable partnership in the industrial chain at different levels, including overall solutions, business development, project promotion & delivery, and service operation for smart manufacturing and industrial 4.0 technologies based on 5G network.ZTE has established in-depth partnerships with SIASUN's multiple BGs in mobile robots,

smart transportation, smart factories, service robots, and other products. ZTE and SIASUN have been actively engaged in the transforming and upgrading of AGV and security inspection robots supported by 5G network connectivity and cloud-based intelligence. Compared with Wi-Fi, 5G can support larger-scale schedule and dispatch communication. Based on 5G and MEC edge cloud, 5G constructs robot cloud intelligence, which can greatly reduce the hardware cost of the robot and enlarge its operating duration.The strategic partnership between ZTE and SIASUN will further promote the acceptance of 5G network technologies in the industrial field, and make new breakthroughs in the new prospective application research of Industry 4.0.

Working with China Unicom to Help Shandong Lingong Construction Machinery (SDLG) to Achieve the First 5G Remote Control Excavator Case in China

The excavators in the smart mine comprehensive lab base in SDLG are connected to the remote control room through the 5G network to synchronize the real operation scenarios with panoramic video. The driver in the control center can control the autonomous excavators located in the mine field in real time.

The control signals and video signals of the excavator are transmitted to the control center through the 5G network. The overall control signal delay is only 25 ms, and the video signal delay is 300 ms (including the encoding and transcoding delay of 275ms from the camera), which is far more better than the 4G network in terms of bandwidth and latency. This project is the first 5G remote control excavator case in China, achieving excavation in a harsh environment and will open the window for enablinge smart mining by 5G.

SDLG plans to build a remote diagnosis system based on UHD voice and video interaction in 5G network. Leveraging technical

means like wearable devices, AR/VR application and real-time audio and video communication, SDLG can teach its students remotely using real physical objects, and provides real-time guidance for front-line service engineers, this will boos the skill of the service engineer and troubleshooting efficiency, and alleviate problems such as uneven distribution of service resources.This project will lead the transformation and upgrading of the equipment manufacturing industry, and transform the development model of the engineering and machinery industry.

With the Leading Position in 5G Enablement, ZTE Attended the 5G-based Intelligent Manufacturing Industry Innovation and Development Conference in Jiangning, Nanjing

On May 15, on the eve of the International Telecom Day, the government of Jiangning District, Nanjing, together with ZTE and Jiangsu Telecom, held the 5G-based Intelligent Manufacturing Industry Innovation and Development Conference in Jiangning, Nanjing. As a representative of the organizer, ZTE unveiled its innovative 5G solutions and services. Mr. Xu Ziyang, President of ZTE, delivered a speech at the conference, advocating global partners to work together to build a 5G ecosystem and promote the sustainable development of the 5G industry.

Xu Ziyang said: "As a world-leading supplier of 5G commercial equipment and solutions, ZTE continues to adhere to the business philosophy of independent innovation and win-win cooperation, and jointly promotes digital transformation of the industry by opening up our world's leading capabilities of 5G like 5G wireless, 5G bearer, 5G big video, 5G network slicing and 5G industrial terminals to our core partners in the ecosystem. In the manufacturing industry, ZTE has worked with SANY, SUPCON, SIASUN and other industry leaders to comprehensively deepen 5G cooperation and bring in respective resource advantages such as talents, technologies, and markets together, to jointly explore the deep integration of 5G technologies and industry fields, and has already made significant progress in remote O&M, cloud-based robots and AGV, remote operations, wireless positioning, real-time control, and park surveillance. ZTE has also successfully built several model sites for 5G applications in thosee industrial fields. "

ZTE Signed Strategic Cooperation Agreements with China Telecom(Jiangsu)and Jiangning District Government

This conference took the 5G production line of ZTE's Nanjing Smart Manufacturing Base Project as an opportunity to be put into production within the year. It is intended to attract and complement a batch of "China's Top-Level and International Top-Level" 5G Industry upstream and downstream production chain projects, thus creating a 5G industrial cluster that has a significant influence nationwide.More than 400 people, including officers from government departments, enterprise leaders of the organizers, representatives of experts and scholars, representatives of enterprises in related industry chains, and representatives of the news media, attended the conference.

Multiple Innovation Shows and Strategic Releases

The conference was held in a 275-square-meter exhibition hall in the Jiangning Convention and Exhibition Center. With the theme of "Endeavour the Future through 5G," three exhibition areas were set up, including the "ZTE in 5G" brand image area, 5G end-to-end solution exhibition area, and 5G empowerment. In total, 12 solutions were showcased, demonstrating ZTE's leading position in the 5G field, and demonstrating ZTE's capabilities as a pioneer in innovation for the vertical industries.

The "ZTE" brand image area showcased the bionic robot solution and the 16-channel HD live broadcast solution, and focused on enhancing interaction with guests and reflecting the features of 5G large bandwidth. The 5G end-to-end solution exhibition area is divided into a simplified network area and a terminal exhibition area. The 5G end-to-end simplified network showcased a 5G multi-scenarios coverage solution, which truly represents the 5G end-to-end solution. The 5G enablement exhibition area shows 5G charm in the aspects of education, life and public security with 8 solutions, demonstrating ZTE's brand image as a pioneer in the 5G+ intelligent manufacturing field.

Strategic Cooperation among ZTE, China Telecom and Jiangning District Government

At this conference, ZTE reached a strategic framework agreement with Jiangsu Telecom and the government of Jiangning District. Leaders of the Provincial Industry and Information Technology Office and Jiangning District Government unveiled the "5G+ Intelligent Manufacturing Public Service Platform." This platform was jointly launched by the Jiangning District Government, China Academy of Information and Communications Technology (CAICT), Southeast University, Jiangsu Telecom Branch of China Telecom, and ZTE. It provides technical infrastructure support for upstream and downstream industrial chain innovation and collaboration, reduces the technical entry barriers of enterprise innovation, and accelerates the upgrade of industry. At the conference, ZTE, the Jiangning District Government, Jiangsu Communications Authority, and Jiangsu Communications Association launched the second "Blooming Cup" 5G Application Competition (Jiangsu).

With an open and innovative industrial ecosystem and an advanced open 5G laboratory platform, ZTE helped launch the 5G application competition.Combining the demonstration zone of 5G industry alliance intelligent manufacturing (Binjiang) in Jiangsu and ZTE's Binjiang intelligent manufacturing base, ZTE enables the combinatorial advantages of the industry innovative solutions and ZTE's global delivery capability and builds a strategic win-win operation relationship, in the fields of 5G high-speed communication, IoV, industrial Internet, smart grid, big video, IoT and AR/VR.

At the meeting held on the morning of the March 15, Lu Ping, Vice President of ZTE, hosted the session between experts and scholars. Cao Jinde, Chief Professor of the European Academy of Sciences, and Yu Xiaohui, Chief Engineer of the China Academy of Information and Communications Technology, delivered their keynote speeches. The experts and representatives discussed the theme of "5G Enablement Intelligent Manufacturing ," reflecting the professionalism and high standards of the conference.

As one of the organizers of this conference, ZTE has fully demonstrated the image of the leader of 5G pioneers.

Working with China Unicom (Guangdong) and Help Zhanjiang Steel Step into the 5G Era

On May 17, 2019, Zhanjiang Steel joined hands with China Unicom Guangdong Branch in commissioning the 5G pilot network of Zhanjiang Steel. This marked the first step in opening "5G+ Smart Manufacturing" for Zhanjiang Steel. Zhanjiang Steel has also become the first steel production and manufacturing base for applying 5G industrialization·

Ao Aiguo, Deputy General Manager of Zhanjiang Steel, made the first 5G UHD video call with Feng Huajun, Deputy General Manager of China Unicom Guangdong Branch. The video call was fully smooth and clear. The representatives of both parties inspected the real-time video monitoring and device operation data of No. 1 and No. 2 OG fans in the steel-making area based on 5G network transmission, and fully appreciated the advantages and features of high-speed, low-latency, and high reliability in the 5G network.

Zhanjiang Steel said that with the rapid development of the new generation of information technology represented by 5G, the convergence of new information technology and smart factory will come soon. As an innovative development demonstration area of "5G+ Smart Manufacturing" Zhanjiang Steel had the courage to perform the first test in 5G and industrial Internet, in order to accelerate R&D and application innovation.The "5G+ Smart Factory" project is the first 5G-based industrial internet demonstrative application in Guangdong Province created by China Unicom and ZTE, integrated technical, industrial and service advantages from both sides. It is the first 5G intelligent production line commissioned in Guangdong Province.

Working with China Telecom to Help SUPCON Build 5G Intelligent Service Platform – PLANTMATE

PLANTMATE,Smart Service Platform for SUPCON's industry clients

As the largest supplier of industrial automatic control solutions in China, SUPCON has tens of thousands of enterprise customers. The huge customer base poses severe challenges to the operation and maintenance capabilities and troubleshooting efficiency of SUPCON.The factory environment is complicated, with many devices and potential high risks. When a fault occurs, the local maintenance personnel may find it difficult to locate and solve the issue. The current solution is to provide on-site support and guidance by experts. However, this solution leads to long-time waiting for the availability of experts and thus result in low maintenance efficiency problems. This solution not only incurs huge economic losses caused by equipment shutdown, but also generates risks of deteriorated on-site fault conditions.

To deal with this industry pain, Zhejiang Telecom, ZTE Corporation and SUPCON jointly and innovatively developed the 5G AR remote maintenance system – PLANTMATE. The on-site maintenance personnel move quickly to the faulty site according to the abnormal location indicated by PLANTMATE, and upload the on-site HD video to the 5S store through the micro-image transmission system embedded in AR glasses and the 5G network of China Telecom. After receiving a remote help request, the technical personnel of the 5S store immediately diagnose the current problems of the enterprise. In case of any difficult fault, PLANTMATE immediately connects the HQ experts to provide more professional instructions and detailed operation procedures to the remote enterprise site in real time with the help of 5G virtual reality.

With the access to the 5G network and AR smart glasses, HQ experts and technical personnel from the 5S store are free from the annoyance of travelling to the remote enterprise site. This not only saves travel costs for enterprises, but also saves valuable time for experts and technical personnel, thus improving O&M efficiency.

Build Red Lion Cement 5G+ Demonstration with Zhejiang Telecom and SUPCON Lanzhuo

Together with Zhejiang Telecom and SUPCON Lanzhuo, ZTE has built the 5G + MEC + supOS industrial internet platform, which can implement visual analysis of the production process, collection of equipment status data, monitoring of personnel security status, and remote equipment maintenance. Through 5G enablement of the industrial Internet, ZTE can facilitate the upgrading of traditional industries.

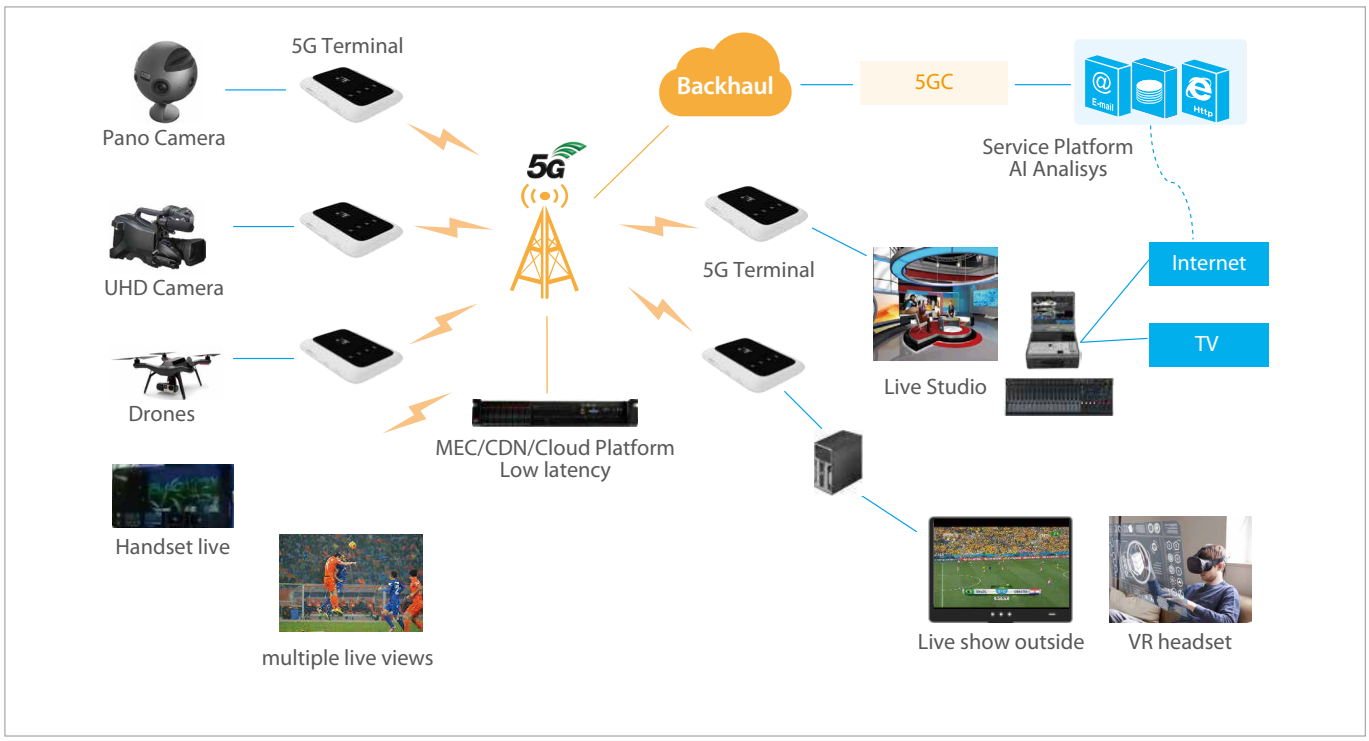
On the field site of Hongshi Cement, the 5G+ machine vision and video monitoring system of the cement production line was put into trial operation. The HD camera picture of the cement feeding port was transmitted through the 5G network, and the cement production line was visualized with remote data collected. The equipment operational status was monitored dynamically, like the belt deviation, material break detection and alarms were generated. The video system intelligently detected and analyzed the process at the feeding port.

5G+4K/8K for Media Convergence Innovation

Leading 5G Innovations

The integrated development of traditional and emerging media is based on advanced technologies and content construction, to achieve in-depth integration of content, channels, platforms, operation, and management. A new platform-based, open, and interconnected media architecture is under development. Based on this architecture, new media will be extended to mobile terminals across the cities, and counties, and regions.With the development of 5G technologies, the transmission bandwidth limitation is greatly improved, and video services have become the main form of media transmission. In addition, based on users' endless pursuit of video quality, video services will enter the ultra-high-definition era enabled by 5G high speed, 8K ultra-definition, and AI.

Based on an in-depth understanding and leading technologies in the aspects of 5G, bearer and big video, ZTE has launched a series of solutions such as 5G+4K/8K ultra-HD live video broadcast, 5G+4K/8K VR live broadcast, 5G+ smart stadium, 5G+ drones live broadcast, 5G+ mobile live broadcast, 5G+ mobile phone live broadcast. These solutions can be used for news outbursts, remote multiple venues, sports events, concert venues, marathons, bicycle races, golf, enterprises, public institutions, and family activities etc. to provide flexible and fast ultra-HD live broadcast and real-time HD video interaction connections anytime and anywhere. ZTE provides a full range of industry-leading products, including 5G radio network, core network, bearer, terminal, integrated CDN, and cloud VR platform, etc. providing convenient and efficient real-time transmission and distribution for media collection and playback, and facilitating the development of media transmission towards ultra-HD, mobile, depth, and wide area.



Value Propositions

Experience of ultra-HD and high-speed video through LiveTV broadcast

The 5G technology brings fine ultra-HD video immersive service experience.

Rapid deployment of News LiveTV Broadcast

For sudden news events, it helps media agents to rapidly deploy and take action, then immediately establish live news broadcast and event interaction.

LiveTV broadcast service mode is flexible and diversified

For large-scale activities such as marathons, based on the 5G network, various shooting modes such as mobile location follow-up shooting and drone shooting are adopted to provide viewers with live broadcast services with more angles and scenes.

Full coverage of LiveTV broadcast

For large-scale sports events, multi-angle live video broadcast is provided based on the 5G network and MEC platform. Based on AI analysis, real-time display of players and event data is introduced to provide rich experience in event viewing. For small-scale activities involving governments, communities, and enterprises and institutions, etc. 5G single-camera shooting can achieve various flexible live broadcasts, enrich people's daily lives, and improve the brand image of relevant companies.

ZTE Helps CCTV and Xinhua Achieve the First 5G LiveTV Show in Mar, 2019

During the two sessions (National People's Congress and The Chinese People's Political Consultative Conference) held in Mar, 2019, the news centers of the two sessions first used the "5G+4K" technology for mobile LiveTV broadcast of news media, bringing latest update and faster reporting experience for the audiences.

At the press conference, CCTV reporters collected HD images with 4K cameras, and transmitted the video stream for CCTV live broadcast via Axon 10 Pro 5G mobile phone. In addition, 5G mobile phones can implement pilot operation for switching between different shooting positions, making up for the shortcomings of limited fixed shooting position and fully reflecting the integrative and portable features of 5G mobile phones.

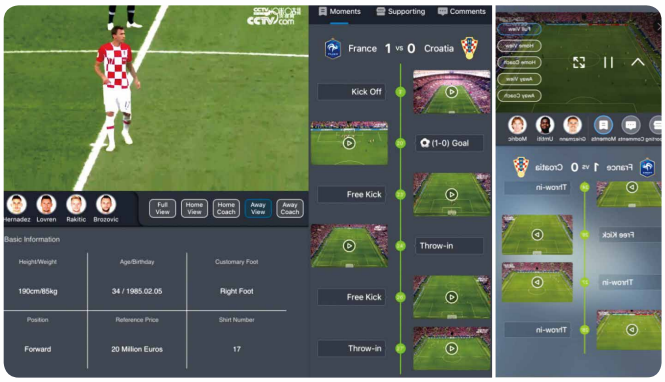
At the third press conference of the Second Session of the 13th Session of the Chinese People's Political Consultative Conference (CPPCC), Xinhua News Agency used the ZTE Axon

10 Pro 5G mobile phone to provide the full chain live broadcast – filming through the 5G mobile phone, realizing real-time transmission through 5G networks, and real-time presentation on 5G mobile phones.

The ZTE Axon 10 Pro provides 5G full-band coverage and ultra-high-speed service experience of multiple times higher than 4G. The debut of live broadcast through a 5G mobile phone at the press conference held during the two conferences is an important sign of the upgraded news reporting format by 5G.

ZTE, China Mobile Migu and Qualcomm Jointly Launched the LiveTV Solution for 5G Smart Stadium

During the Mobile World Congress 2019, ZTE worked with China Mobile Migu and Qualcomm to build a 5G smart venue live broadcast solution. With the 5G LiveTV app, users can enjoy a new and vivid 5G live TV experience, such as "Instant Shooting, Instant Broadcast" with multi-dimensional player information display, and experience of wonderful moments for automatic editing and sharing. In addition, using the data model based on advanced action training, the system can generate short videos from multiple angles in real time for the hot spots such as goals, fouls, and free kicks. This solution also supports uploading, reviewing, and releasing UGC(User Generated Contents) contents, and provides surrounding catering service information.



The 5G live broadcast solution combines 5G large bandwidth, MEC, and multi-channel UHD video broadcast, and is applicable to large-scale sports events, concerts, and other live broadcast scenarios. With the approaching of the Beijing Winter Olympics in 2022, ZTE will continue to work with partners to accelerate the application of live broadcast solutions for 5G smart venues, and create brand-new competition experience for users.

Working with China Mobile to Complete 5G Ultra-HD Live Broadcast of the Wuhan University Sakura Festival

On 24th Mar, 2019, the 5G real-time live broadcast platform built by ZTE and Hubei Mobile brought online viewing experience of famous sakura in Wuhan University to remote users.This live broadcast achieved great success. 15 well-known media including Xinhua News Agency, People's Daily Client, People's Daily Weibo, CCTV News+, Changjiang Cloud, Voice of Hubei, official WeChat/ Weibo of Wuhan University, Pengpai News, Sina Weibo, TikTok, and Migu achieved synchronous live broadcast. During the live broadcast, more than 10 million people clicked the content, and more than 1.5 million people watched the live content. The audience highly appraised the clear, smooth, and stable live broadcast.

This live broadcast uses ZTE's 5G end-to-end solution. The ultra-HD images collected by the 15 shooting positions (including professional camera, drone shooting and mobile phone shooting) and 360° HD panoramic camera are uploaded to the video service platform through the 5G network in real time. The success of this live broadcast activity marks another important breakthrough in the process of 5G commercial acceleration. ZTE's end-to-end 5G solutions and a full range of commercial products have also been fully verified through this successful practice.

Working with China Telecom to Implement the First Commercial Case of 5G HD &VR Live Broadcast in Qingdao CBD

On 20th Feb, 2019, the Qingdao Municipal Government held a folk activity of the lantern festival in the Central Business Area. On February 16, the vertical marathon challenge was held in the Haihang Center, the first high-rise building in Qingdao. Together with Shandong Telecom, ZTE completed continuous multi-station coverage in Qingdao CBD, and took the lead in commercial use of HD video broadcast in 5G SA networking. More than 11 HD videos (including drone videos and 360-degree VR videos) are broadcast live on 5G networks (such as Phoenix Web and Dazhong Web). Through 5G, people in Qingdao had the new HD and immersive panoramic experience on viewing marathon brought by 5G technologies.

This is also the first trial commercial use of the 5G+ HD video live broadcast service. The commercial use of the 5G network and the successful combination of the big video end-to-end solution provide an important reference for the dense urban area coverage of the 5G network and the implementation of basic service capabilities.

Xiong'an – ZTE Works with China Telecom to Realize the First 5G VR Cross-Province Live Broadcast

From 19th, to 21st , Oct, 2018, the Ministry of Industry and Information Technology and the People's Government of Jiangxi Province jointly held the 2018 World VR Industry Congress in Nanchang, Jiangxi. ZTE and China Telecom jointly completed the first cross-province VR live broadcast in the industry through the 5G network. Through the large bandwidth capability of the 5G network, the 360-degree ultra-HD full-view video in the Xiong'an Baiyangdian area was transmitted to the Nanchang World VR Industry Congress in real time. Users could enjoy the beautiful scenery of Xiong'an Baiyangdian scenic area thousands of miles away, experiencing the immersive services.

The large bandwidth feature of 5G networks and the cloud platform provide strong technical support for ultra-HD video service transmission and distribution, and greatly promote the development of ultra-HD live broadcast services.

ZTE's "5G in China" Helps the 2nd Youth Games Build 5G+ Sports Demonstration Sites

In May 2019, ZTE's "5G in China" exhibition vehicle came to Taiyuan, Shanxi Province.

ZTE will work with Shanxi Mobile, Shanxi Broadcast TV, and Shanxi Sports Bureau to build a 5G demonstration area in Taiyuan. ZTE will take the lead in using 5G networks to cover sports venues, and use 5G multi-perspective and personalized live sports to help the second Youth Games. In this way, the atmosphere will be warm for on-site viewers and meet their hobbies. Remote viewers will have more choices. 5G lights up a different Youth Games, and makes the world focus on Shanxi.

Working with China Telecom to Help 5G HD Broadcast of the 4th "Wulin Wind . Dragon Duel"

On 17th May, 2019, the Canadian Xinflix Media Group joined hands with the Canadian Sports and Cultural Industry Group, the Canadian Thai Boxer Association and Henan Satellite TV, to create the China-Canada top free-fight classic tournament —— The 4th "Wulin Wind · Dragon Duel" held in 2019. Like the 2nd tournament held before, this event has strong support from China Telecom and ZTE Corporation at concert hall 8 of Henan Satellite TV Station Two Chinese telecommunications giants deployed various 5G devices in the studio, allowing users and the audience with 5G mobile phones to experience the latest 5G live broadcast

technology.The viewers can control the viewing angle and focus of live broadcast, making live broadcast experience more free, more independent, and more interactive.

ZTE Provides Guaranteed Services for 5G HD Live Broadcast of Multiple Marathons

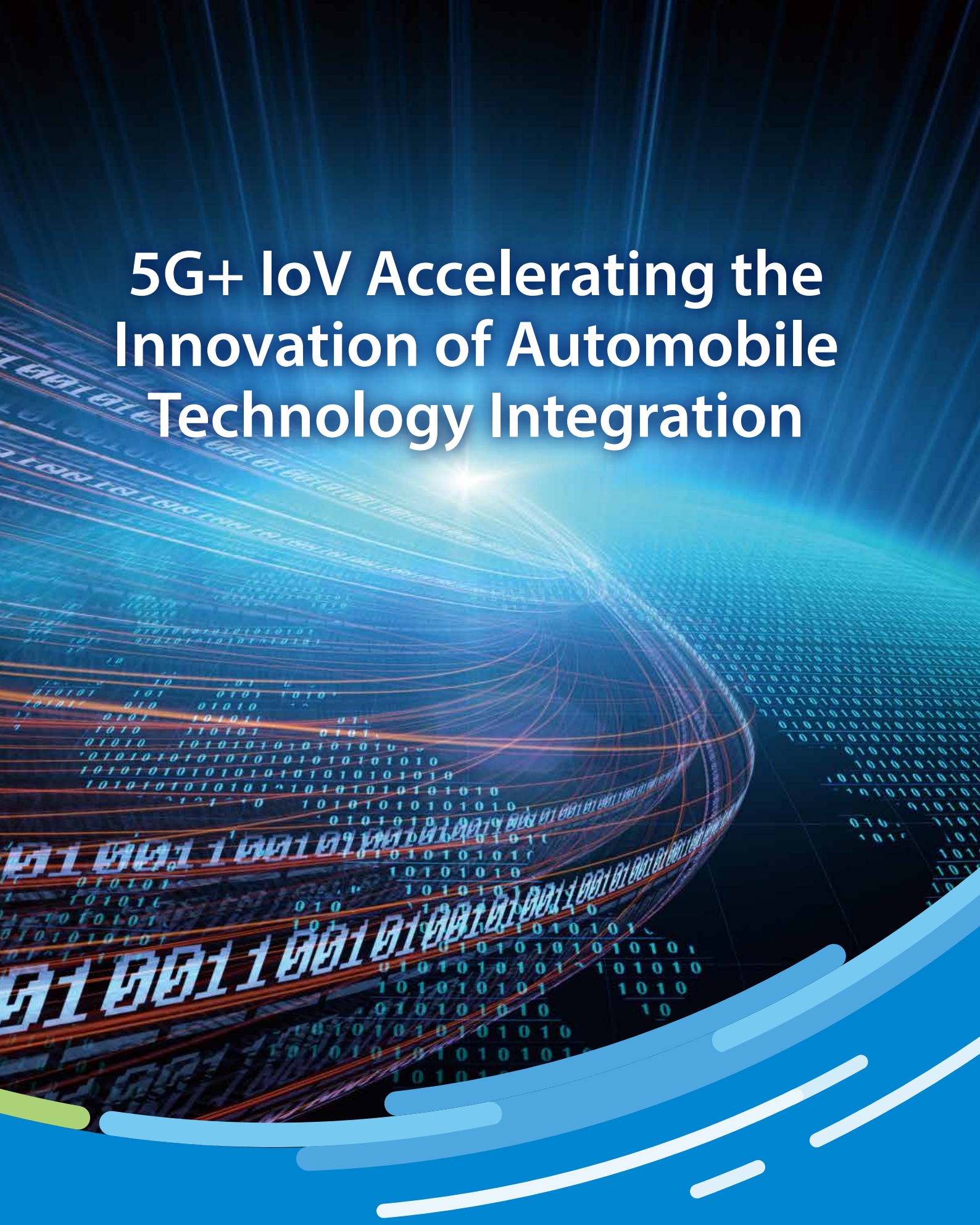
On 7th Apr, 2019, "Heze International Marathon in Peony City of China" was launched. ZTE completed 5G signal coverage of the area along the way together with China Mobile, and helped Migu in the new form of "national streaming media + national fair event." HD video was broadcast in real time and on the air in the marathon.

On 14th Apr, 2019, "Dongfeng Renault Wuhan Marathon" started in the beautiful city of Wuhan.Provided with technical support by ZTE and Hubei Telecom, this event achieved the first 5G+8K+VR Wuhan Marathon live broadcast in the province through 5G network backhaul. The high-speed and low-latency 5G network enables mobile HD live video broadcast. This allows millions of fans to watch a "picturesque river city" while enjoying the event.

On 14th Apr, 2019, Yang Ling's international marathon in the Nongke City International Marathon was launched in Yangling Convention and Exhibition Center of Shaanxi Province. During the competition, Shaanxi Mobile and ZTE jointly carried out HD live broadcast of the marathon through the 5G network and China Mobile's commercial live broadcast platform, so that the majority of runners and viewers could directly watch the exciting competition scenes through live video. "5G+VR" live broadcast is a major technical highlight of this activity, and the most dazzling VR full-view live broadcast mode is used. Bringing the 360°-degree video of the marathon to the national audiences, so that the audiences can enjoy the unique charm of the marathon.

On 21st Apr, 2019, the "Jingzhen International Halfway Marathon" opened in Yangzhou on the bank of the beautiful slim lake. The Yangzhou marathon, which boasts the title of the IAAF event and the gold-medal event of the Chinese Athletics Association, has become a new business card of Yangzhou city. In this Yangzhou marathon, Yangzhou Telecom and ZTE jointly and innovatively applied the 5G features of large bandwidth, low latency and massive connections to the Yangzhou marathon live broadcast for the first time. From the start of the race, the end point of mini marathon and the race end, the 4K HD live broadcast and 360VR live broadcast provided an immersive experience for the vast number of sports lovers

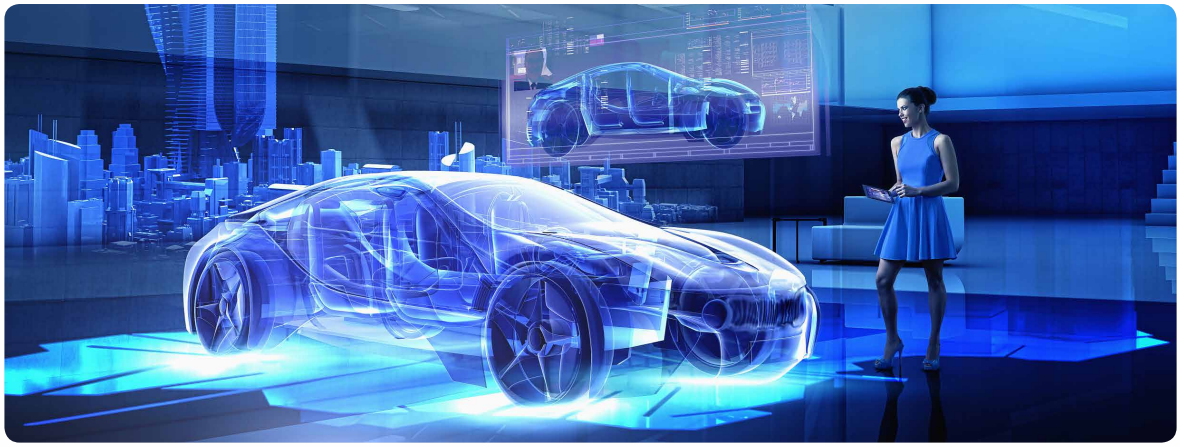
5G+ IoV Accelerating the Innovation of Automobile Technology Integration

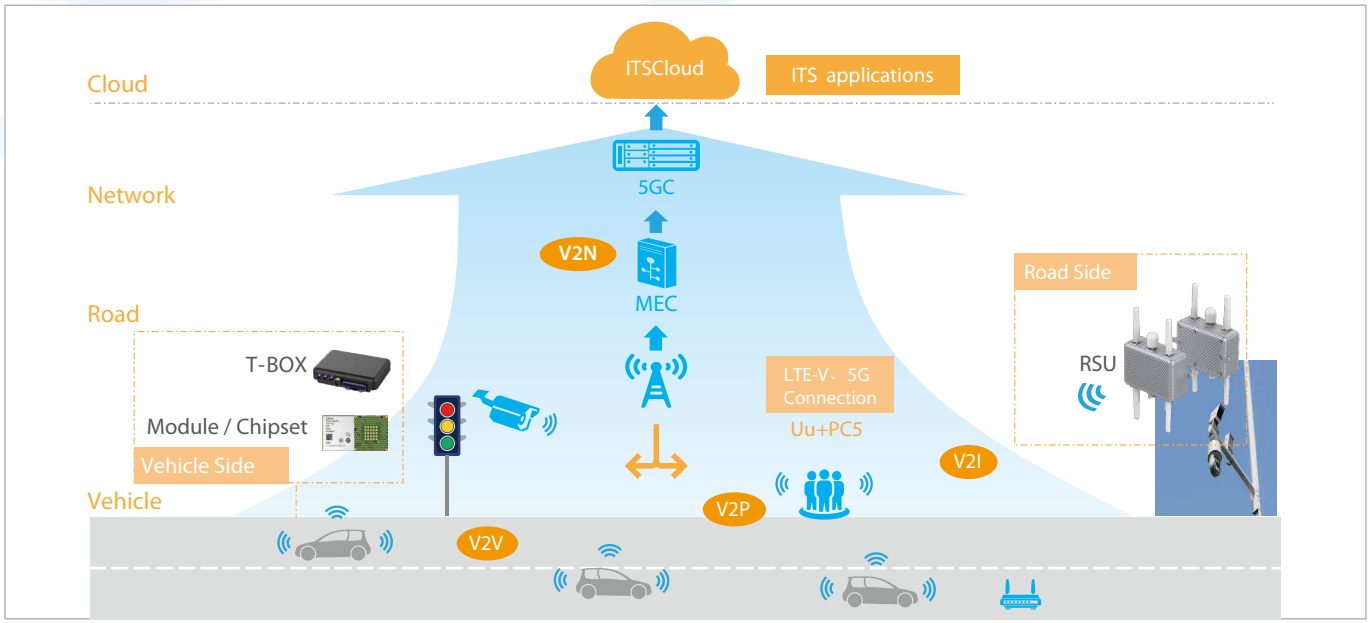


5G technology will be deeply integrated with the automotive industry, change the traditional mode of automotive use and transportation, and lead the development of V2X to a more convenient, faster and safer direction.

At present, there is not a mature system in the Internet of Vehicles (IoV) technology based on smart transportation. The main reason is that the IoV network support is not perfect. With the increasing demand of transportation for the network, 5G mobile communication technologies provide a more flexible architecture in low-latency, high-reliability, high-bandwidth, and high-mobility IoV scenarios to address the challenges posed by differentiated performance indicators in diversified IoV scenarios, and enable vehicles and vehicle-mounted terminals to achieve better performance at high speeds. In the meantime, MEC edge computing, network slicing, and other new 5G technologies are continuously improved to provide IoV localization services with short-distance, ultra-low latency, high reliability, and high bandwidth.

In the future, 5G networks that meet high bandwidth and mobility requirements can provide Internet of Vehicles users with real-time, accurate road and weather services, effectively improving driving experience and security. Through the information convergence of vehicles, road conditions, and weather information on MEC edge computing nodes in the 5G network, vehicle driving plans can be dynamically adjusted, and vehicle operation policies can be coordinated to improve road traffic conditions and transportation efficiency, improve traffic safety, and implement multiple Internet of Vehicles (IoV) service scenarios, including vehicle platooning, remote driving, and remote parking. In the near future, 5G technologies will be deeply integrated with the automobile industry, and the traditional modes of vehicle use, preservation, and transportation will be changed leading the development of Internet of Vehicles towards a more convenient, faster, and safer direction.





Value Propositions

More reliable security guarantee

5G V2X communication provides high-speed downlink and uplink data rate, so that high-quality data, audio and video communication can be implemented between vehicles and vehicles, between vehicles and mobile terminals, between vehicles and roadside facilities. It also supports real-time communication when the vehicle speed is at 500 km/h.

Broader application scenarios

5G V2X can fully support the perception of blind spots in high-speed and complex scenarios (such as street corners and intersections), improve the communication capability of vehicles and roads, and enhance the security of autonomous driving in complex environments.

More effective interactive experience

The 5G V2X technology meets the communication requirements of a large amount of information exchange between people, vehicles, roads and clouds (such as decision-making information and perception information), solves the problem of collaboration and communication between vehicles, thus realizes vehicle platooning and car-road coordination services in complex scenarios.

More intelligent analysis and decision-making

The MEC-based AI technology combined with vehicle/road coordination technology improves the perception integration and decision-making computing capability of complex road environment and driving condition.

In terms of cooperation, ZTE and First Automotive Works(FAW) are working together to launch 5G-based smart vehicle networks, smart manufacturing, and smart campus security pilot projects. ZTE signed a strategic cooperation agreement with Harbin Bus Group, and carried out research on 5G-based smart monitoring and on-board live mobile advertisements, and speed up the implementation progress. Working with Southeast Automobile, Fuzhou University and Fujian Mobile, we have created the first demonstration of remote driving application of 5G+ in colleges and universities in Fujian. We will promote the application of intelligent remote driving technology in automobile enterprises, Pingtan autopilot test base, Meizhou Island autonomous driving base and other places over the whole country, and promote the development of related technologies and industries.

First 5G Autonomous Driving Test in Xiong'an with China Telecom and Baidu

In March 2018, ZTE, together with China Telecom and Baidu, completed the unmanned vehicle test based on the 5G network in Xiong'an New District, Hebei province. This is the first unmanned vehicle test in China in the 5G network environment, opening the door to the application of the 5G network in the autonomous driving field. In October of the same year, ZTE, Baidu, and China Telecom worked together to complete the acceptance of China's first 5G integrated autonomous driving test in China. Unlike the normal autonomous driving test in a closed environment, this field test was conducted in the actual open road scenario in Xiong'an. It covers such key autonomous driving technologies as basic functional specifications of V2C and V2V, HD digital maps download and update, automatic re-planning path of the unmanned driving vehicle, and other 5G supporting ICT integration. The test results show that the 5G network can support autonomous driving based on HD digital maps in typical scenarios, in terms of throughput and transmission delay.

In November 2018, ZTE worked with UISEE in tests of remote control driving in the 5G network environment, providing the basic infrastructure support for unmanned vehicle tests and comprehensive management in Xiongan.

Based on the real 5G network environment, this test presents multi-angled and all-round vehicle information through 5G remote video, and uploads the environment data collected by various IoV sensors to the remote control center through the 5G network. The control center delivers control instructions through the 5G network to implement remote unmanned driving of vehicles.

Working with China Mobile to help Guangzhou Automobile Group (GAC) Complete the First 5G-V2X Remote Autonomous Driving Test.

On 1st Mar, 2019, ZTE, Guangdong Mobile and GAC Research Institute jointly completed the first 5G-V2X autonomous remote driving test under real complex road conditions. Through the 5G network, ZTE implemented remote control of vehicles located 10 km away, and completed such operations as acceleration, deceleration and turning. The network latency is less than 6 ms, which is only one tenth of that of 4G.

This test is the follow up of application verification of first 5G-based V2X demonstration project jointly released by the GAC Research Institute, Guangdong Mobile, and ZTE in 2018. The verification content covers all parts of V2X, including intelligent path planning, smart obstacle avoidance, line-of-sight surrendering, blind zone alarms, traffic lights passing through, and vehicle platooning.The verification of remote driving indicates that the 5G network has the preliminary service support capability in autonomous driving. The 5G-based V2X autonomous driving will facilitate the communication between vehicles, between vehicles and people, between vehicles and roads, and between vehicles and networks in promoting the development of the autonomous driving industry.

After this test, the three parties will cooperate and discuss the specific application of 5G V2X to accelerate the process of combining 5G technology with autonomous driving, laying a solid foundation for the future wide applications of 5G in autonomous driving.

ZTE Unveils Its "Future" Remote Driving System

On 15th May, on the eve of the Telecom Day, the government of Jiangning District, Nanjing, together with ZTE and Jiangsu Telecom, held the 5G+ Intelligent Manufacturing Industry Innovation and Development Conference at the Jiangning Convention & Exhibition Center, Nanjing. As a representative of the sponsors, ZTE unveiled its innovative 5G solutions and services, fully demonstrating ZTE's leading role in 5G and its innovative capabilities in vertical industries.

During the conference, ZTE and the Jiangsu Smart Travel Future Automotive Research Institute fully demonstrated the technologies of remote control, experience of real motional environment, and vehicle decision-making and control. With the high bandwidth and low latency features of 5G communication, the "Future" unmanned vehicles located eight kilometers away from the conference center were fully connected and remotely controlled. The driver's operation instructions are transferred to vehicles through the 5G network in real time to forward, brake, and turn vehicles easily. In addition, on-site road HD videos are transferred to the screen of the remote cockpit through the 5G network at a high speed, showing vehicles' various motional postures such as jolting, acceleration, and braking in real time. The remote end-to-end control latency is less than 20 ms, which is a breakthrough in autonomous driving and Internet of Vehicles.

5G remote driving has a wide range of application scenarios. In special environments such as fire disaster recovery, road repair, and emergency management, 5G remote driving can greatly improve disaster recoery efficiency, reduce work risks, and protect personal safety. 5G remote driving achieves remote accurate operations in ports, mining sites, construction sites, and logistics bases, greatly reducing labor intensity and improving work efficiency. With the advent of the 5G and autonomous driving era, new business ecology and service models will continue to emerge to make people's lives better.

5G Remote Driving, the Vehicle in Ningbo but the Steering Wheel in Hangzhou

Recently, ZTE and Zhejiang Telecom, Ningbo Industrial Internet Research Institute, and Zhejiang University School of Control jointly demonstrated the 5G remote driving service in Ningbo and Hangzhou.

In this exhibition, the cockpit is located in Hangzhou Telecom's Wu Lin Exhibition Hall, and vehicles are located hundreds of kilometers away in the Ningbo Industrial Internet Research Institute. Through the ZTE 5G module, the on-board HD cameras of remote vehicles in Ningbo send the road conditions and driving conditions in HD videos back to the cockpit in Hangzhou. In addition, the cockpit in Hangzhou also sends control signals back to remote vehicles in real time. The real-time remote control is realized through coordination between the two places.

This demonstration is based on the real requirements of industrial sites, the harsh environment of industrial sites is always a problem that cannot be avoided by factory operations. 5G remote driving, by deploying various sensors and execution modules on vehicles, can effectively deployed in remote locations, like toxic operating areas, high temperatures, and high radiation places, and provide new technology support to ensure personal safety of employees. After large-scale adoption, labor costs can be greatly reduced.

The demonstration verified the effective operation of remote unmanned driving and the 5G high bandwidth and low latency features in the industrial environment. In the future, all partners will make full use of the technological knowhow of the Ningbo Industrial Internet Research Institute and Zhejiang University School of Control based on 5G technologies. The advanced 5G networks of Zhejiang Telecom and ZTE's end-to-end 5G solutions will continue to innovate and support the development of building a general platform solutions for industrial parks, so that the industry can be empowered through 5G.

Working with China Unicom to Show 5G High-Precision Positioning Network Equipment

On 10th May, 2019, China Unicom held a conference on 5G innovation and development with the theme of "China Unicom 5Gn, Witness the Future Together" in Xiong'an, and held a grand opening ceremony of China Unicom Smart City Research Institute at the conference.On this opportunity, China Unicom established the 5G+ Bei-Dou High-Precison Positioning Open Laboratory. At the conference, ZTE, as a member of the first batch of open laboratories, worked with China Unicom Network Technology Research Institute to showcase carrier-class 5G high-precision positioning network equipment.

China Unicom Network Technology Research Institute and ZTE have carried out multi-dimensional cooperation in high-precision technology research, equipment R&D, and industrial promotion. The high-precision "synchronization network + positioning network" provided an operator-level solution to solve the service problems in urban and indoor scenarios.

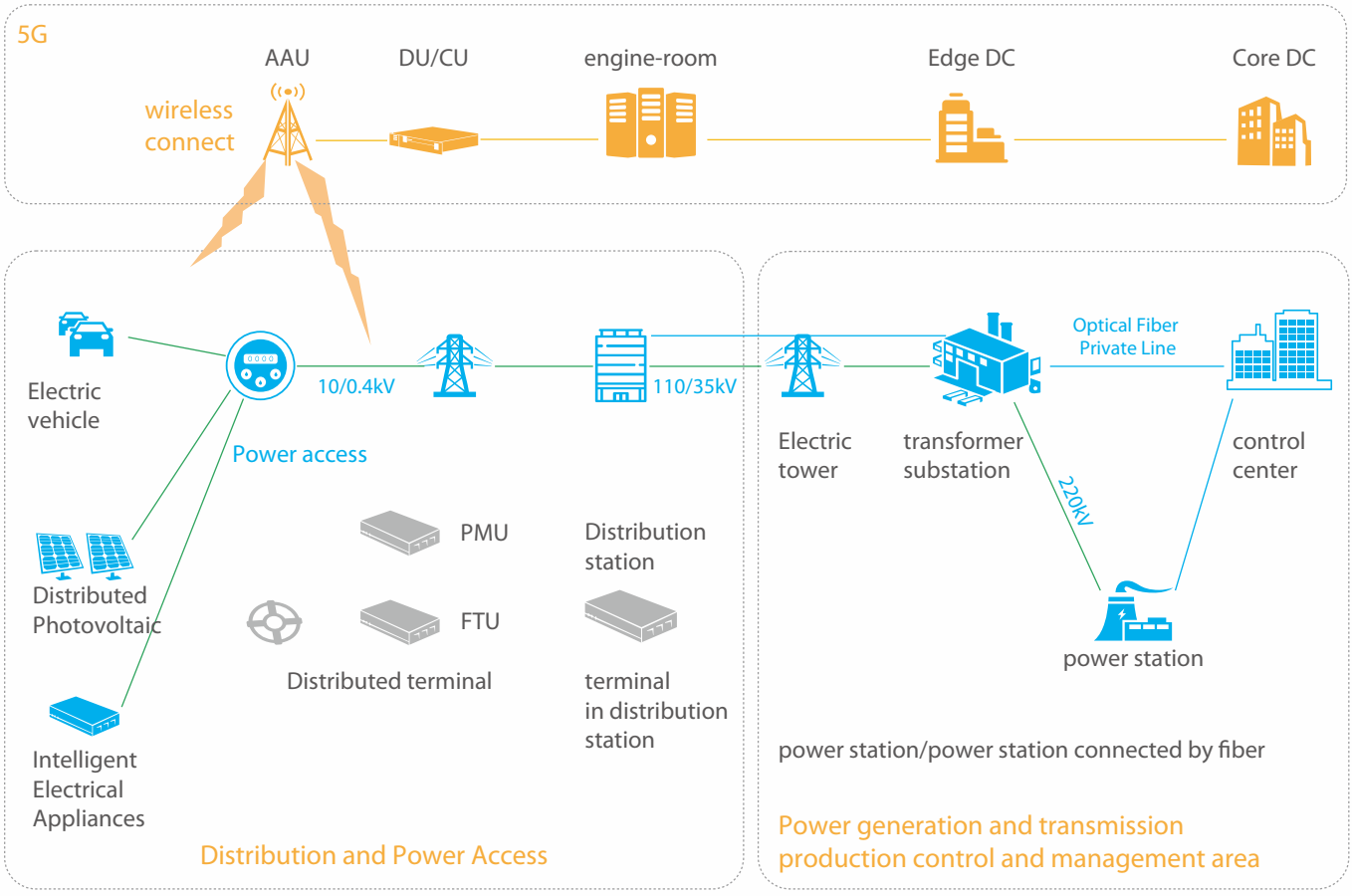
ZTE's high-precision positioning network devices include high-precision synchronization devices and high-precision positioning devices. High-precision synchronization devices enable nanosecond synchronization networks, and high-precision positioning devices can achieve the average positioning precision at meter level in complex scenarios. Based on the wide-area and high-precision positioning solution of the 5G in-band high-precision ground positioning network, ZTE can implement indoor and outdoor seamless high-precision positioning for km-level coverage, greatly improving the positioning precision of traditional base stations from a hundred meter precision to meter level precision.

China Unicom and ZTE are long-term strategic partners. In the coming 5G era, China Unicom and ZTE will work together in smart cities and smart transportation to develop various emerging intelligent services based on high-precision positioning technologies.

5G+ Builds a New Industrial Dedicated Network for Smart Grid, Assisting the Construction of Energy Internet

With the development of the energy Internet, secure and efficient networks are required in power generation, transformation, transmission, distribution, and use of electricity.

In each aspect of the energy Internet, facing the geometrically growing power terminal devices, elaborate power service management, and rapid response to power consumption requirements, the traditional optical fiber, 4G, NB-IOT, and 230M LTE communications cannot meet the requirements of power service development in terms of cost, delay, security, reliability and bandwidth. The advantages of 5G, such as low latency, high reliability, high bandwidth, and massive connections, and the 5G network slicing capability will become important options for solving the communication problems of the smart grid. It is applicable to power distribution automation, WAN protection, power line inspection using drones, intelligent routine inspection, remote video monitoring of power distribution rooms, intelligent meter reading, and asset management, etc.



Value Propositions

provides a better solution for wireless access of power distribution network services.

The demands for a large number of terminals, smart routine inspection, and differentiated electricity use are booming, requiring a "ubiquitous and full-coverage" power distribution communication access network. The 5G network provides communication support.

Provides highly reliable and secure isolation for services in different partitions of the grid

5G network slicing provides different layers of security isolation for services in different zones, such as physical and logical layers, and constructs a power quasi-private network to provide better security guarantee for grid services.

Provides differentiated network connection service capabilities for different services of electric power

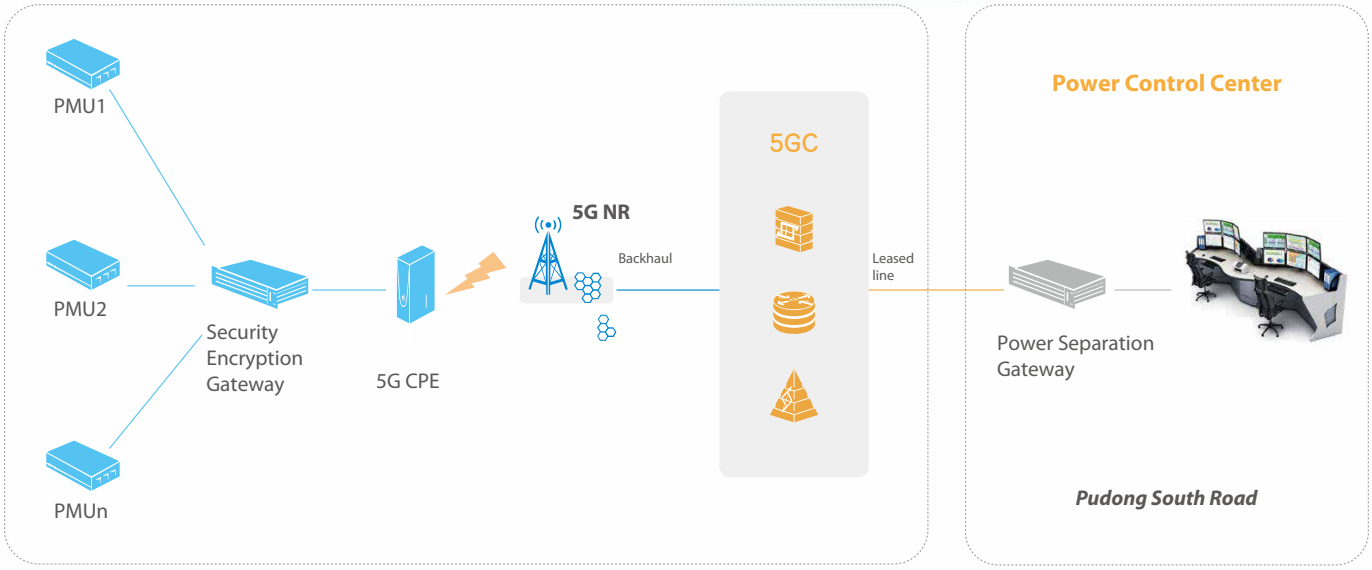
Smart grid services require a wide range of services in different scenarios, and 5G network slicing services can more effectively meet communication and transmission requirements.

Provides efficient and flexible operation and management capability for mass access terminals.

By using the open capabilities provided by 5G, ZTE provides innovative services such as terminal device connection management, device management, service management, and network slicing management.

In terms of cooperation, ZTE cooperated with Shanghai Electric Power and Shanghai Mobile to launch a pilot project of 5G PMU (Phaser Measurement Unit), and works with China Southern Power Grid to carry out research based on 5G network slicing, precise timing, and business models, and carries out pilot applications in Guangzhou. ZTE collaborated with NARI Group to launch 5G-based demonstration applications such as grid dispatch, wave recording, sensor IoT, and differential protection in Nanjing to promote the application of 5G in the smart grid field and build a benchmark.

5G Enables Power Innovation: ZTE, Shanghai Electric Power Co., Ltd., Shanghai Mobile, and Shanghai Electric Power Co., Ltd. Took the Lead in Demonstrating the Application of the Synchronous Phase measurement of Distribution Networks



In 2018, ZTE worked with Shanghai Electric Power and Shanghai Mobile to carry out a demonstration application of distribution network PMU in Shanghai in accordance with the national "Smart Grid Technology and Equipment" project and research on micro synchronous phasor measurement in smart distribution grid. This project uses the low-latency and high-reliability features of 5G networks to collect and transmit power data at a high frequency. Base on this case, ZTE carried out research on 5G network slices to verify and evaluate the feasibility and applicability of secure isolation and reliable transmission of 5G network slices for the core service applications in the grid.

In February 2019, ZTE, Shanghai Electric Power and Shanghai Mobile took the lead in field tests under the real 5G network. The results show that the 5G network can meet the requirements for communication frequency, time delay, and data diversity in the power distribution network.

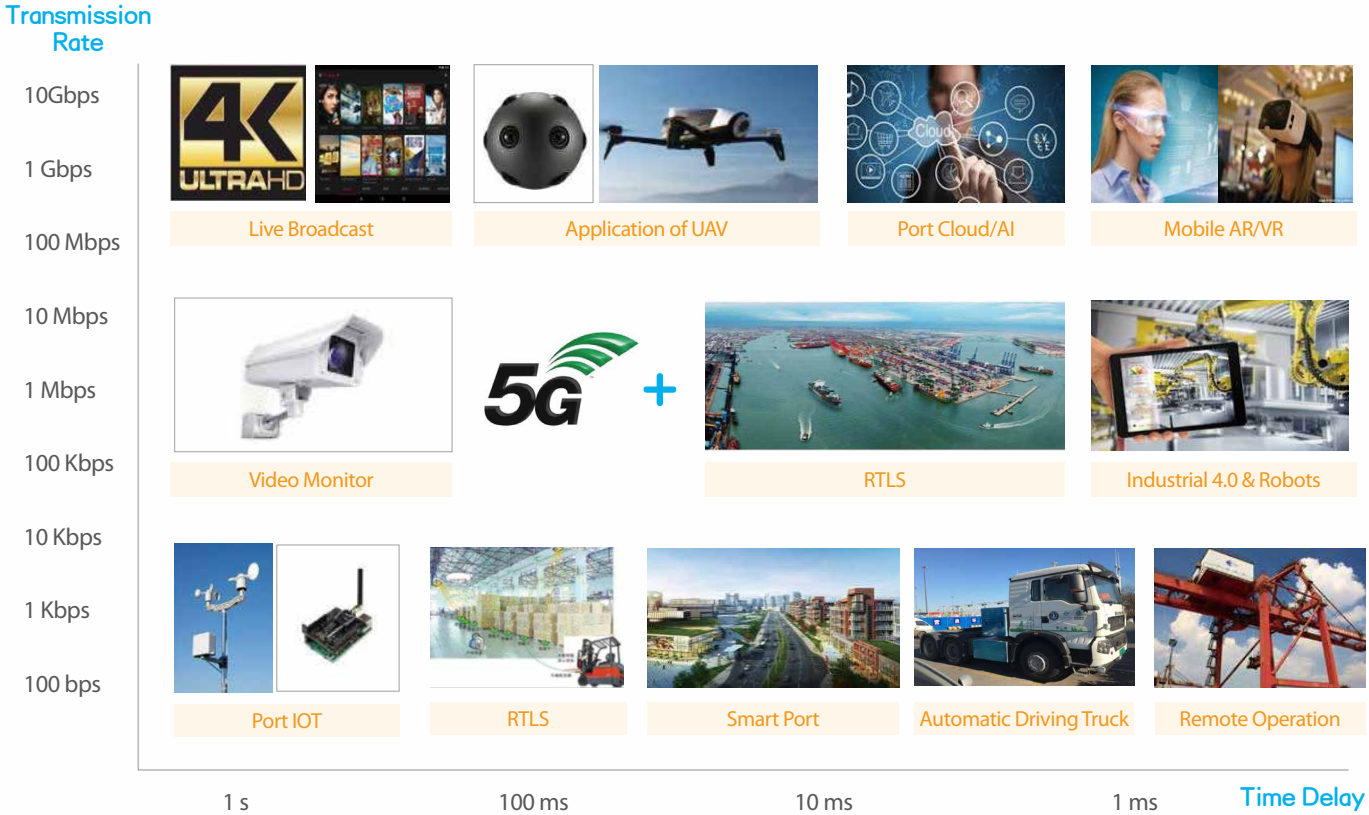
In February 2019, ZTE, State Grid Shanghai Electric Power, and Shanghai Mobile successfully applied for the first 5G-based Test Bed of the Industrial Internet Alliance (AII) based on this project, facilitating the replication of 5G smart grid solutions and the improvement of relevant communication technology standards.

This pilot project verified the application of the 5G low-latency high-reliability feature in the smart grid, which provided a basis for the promotion of 5G in the smart grid field. On the premise of guaranteeing security, the construction difficulty and cost of the power communication network were reduced, and the end devices of the power distribution network were also guaranteed. In addition, the 5G smart grid and ubiquitous power IoT network were promoted to a higher level.

5G+ Smart Port Speeds up the Port Construction Towards Digital Transformation of Automation and Intelligence.

The gradual maturity of 5G technologies will accelerate the full integration of port information and services, and the convergence of various shipping elements such as logistics, business flows, information flows, freight flows, and people flows, thus accelerate the transformation of traditional ports into automated and intelligent smart ports. The combination of 5G technologies and docks opens a brand-new imaginative space for future ports.

As a mandatory node in the international logistics and supply chain, the port has always been an important position in information construction. From the information ports to digital ports, to the current smart port construction, China's ports have entered a key digital transformation period, and the network communication capability of ports has become an important cornerstone for smart port construction. Because wireless transmission in the 4G network cannot meet the millisecond stringent requirements such as end-to-end latency, high stability and reliability of port devices. Global ports still face the following problems: Complex device structures, high cost of manufacturing, operation, and maintenance, and insufficient security management capabilities. The low-latency, high-reliability, high-bandwidth, and large-capacity features of 5G technologies can provide a brand-new solution for ports to solve the communication problems of automation equipment. Therefore, 5G technologies gradually replace the old communication measures of traditional ports, so that it will meet the requirements for synchronous and reliable transmission of control information and multi-channel video information of various operation devices in the automatic docks. In this way, the services of autonomous driving, drone security inspection, smart shore bridge remote operations can be implemented, providing a brand new communication solutions for smart ports.



Value proposition

Improve operation efficiency

5G will promote the leap-forward progress of IoT in the port, realize wireless interconnection of various large mechanical equipment and sensors in the port, and provide feedback for the production situation in real time and make adjustment to improve the operation efficiency accordingly.

Provide communication guarantee

5G low delay and high bandwidth will provide communication guarantee for autonomous driving in ports/parks.

Enhancing management capability

The 5G technology makes it possible to transmit wireless HD video data, combined with AI analysis such as real-time face recognition, hence make it possible to combine the computing capability with the communication capability to improve the port security management capability.

Working with China Unicom to Build the World's First Application Demonstration of 5G&MEC Smart Port

On December 18, 2018, Tianjin Unicom and Tianjin Port Group, ZTE Corporation, and Zhuxian Technologies held a joint conference on 5G&MEC Smart Port Application, which marked the successful implementation of 5G&MEC Smart Port application in Tianjin Port. With the support of 5G technologies, smart ports will also enter a new stage of development.

Under the cooperation of China Unicom, Tianjin Port, ZTE Corporation and Zhuxian Corporation, the panoramic HD video of the unmanned intelligent container truck is used for remote and real-time monitoring supported by the high bandwidth and low latency of the 5G+MEC network, to provide technical guarantee for the autonomous driving of heavy unmanned trucks. It meets the manual remote controlled autonomous driving requirements in the abnormal cases in the port area, and improves the safety and management capability of unmanned vehicles. ZTE's MEC port solution is used to complete pilot cargo individual inspection, solving the problems of poor wireless coverage, long delay, and low speed in the original port area, and improving the inspection efficiency and problem tracking speed.

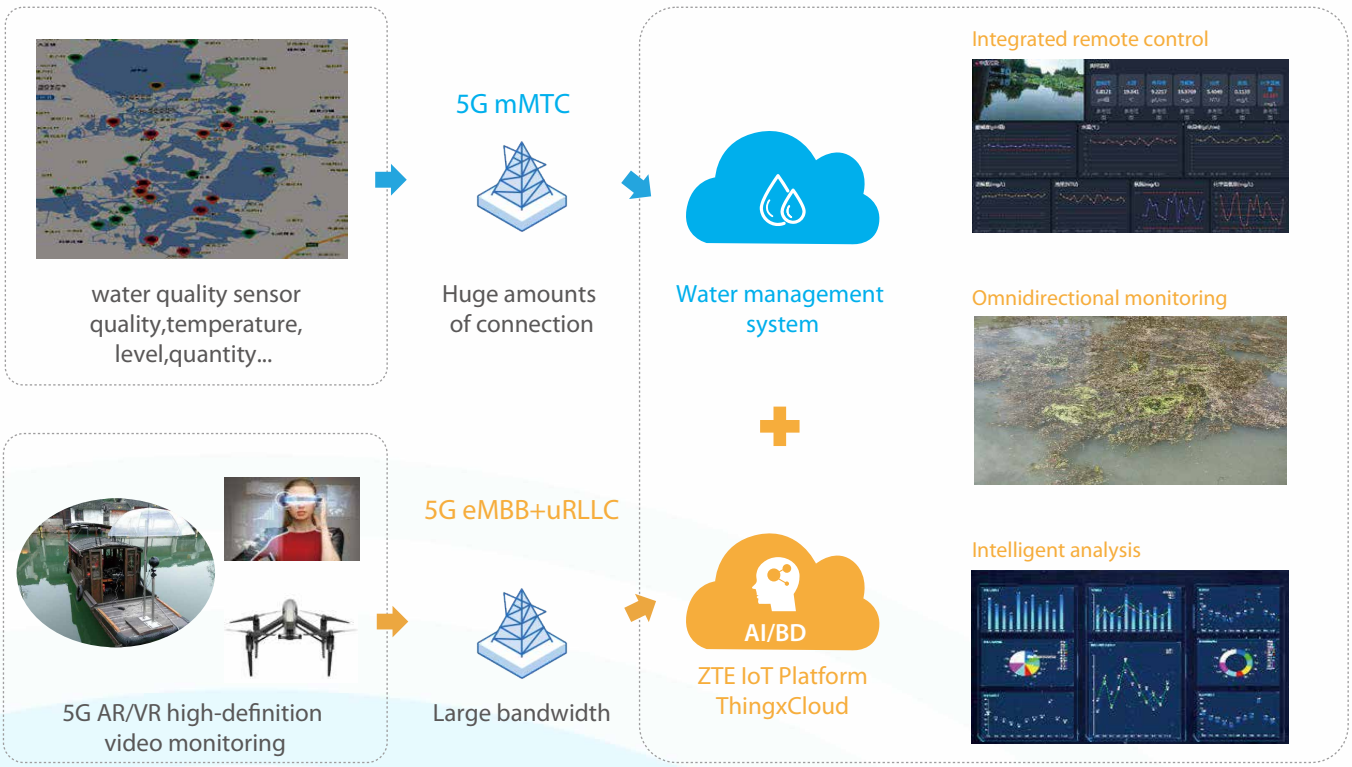
In the future, ZTE and Tianjin Unicom will work together to accelerate the deployment of 5G networks, increase the demonstration application of 5G, and implement a series of industrial applications such as customs inspection devices, drone, dock wireless monitoring, and unmanned shore bridges to help build "smart ports" for new achievement.

5G+ Smart Environment Protection Accelerates the Intelligent Transformation of the Environmental Protection Industry

The global water environment is confronted with severe challenges. To solve the issues of the traditional water control system with low information level, few monitoring points, difficult data sharing and high construction cost, ZTE has been exploring and innovating continuously, upgrade its IoT platform by introducing the cutting-edge big data and artificial intelligence technologies, and combining them with the 5G technology, and finally creating an integrated intelligent water control solution of 5G+ABC (artificial intelligence, big data and cloud platform).

This solution brings new 3C (connection, control, and convergence) capabilities to the environmental informationization.

5G enables IoT of industry -Intelligent Water Governance



Intelligent Water Governance = IoT monitoring + 5G HD Video Patrol + AI intelligent analysis

Value proposition

Timely and comprehensive monitoring

Deploying intelligent patrol inspection with large bandwidth of 5G network, and support multichannel HD video transmission in real time. Using the data from water quality detection terminal, three-dimensional water source monitoring can be implemented.

Lightweight and convenient collection

The 5G low delay transmission capability is used to realize the remote control of drones and unmanned vessels, thus reducing the cost of on-site collection.

Scientific and intelligent governance

These multi-dimensional data are aggregated on the integrated platform, processed intelligently to form the analysis of pollution or flood trend of the whole watershed, and at the same time integrate into the remote command and dispatching, video conferencing and other systems on the platform, to realize the full coordination of governance.

This solution and practice won the "2018 PT exhibition ICT award" in the full-media Communications World, and the most outstanding performance award in the 5G+IoT application field. In addition, it was awarded the "METIS Award" by the Mobile Smart Terminal Technology Innovation and Industry Alliance, attracting wide attention of the industry.

The 5G smart comprehensive water control solution helps China's booming long-term development for river chief system, and effectively guarantees the security of secondary water supply, which is a milestone for the intelligent construction of the national water environment in the future. ZTE is willing to provide the basic communication and information capability of 5G+ABC. Together with major operators, information service providers in the environmental protection industry, and terminal equipment manufacturers, ZTE is willing to extend the application service capability to air, soil, and land applications in order to make bigger contributions to the digitalization and informatization of the environmental protection industry.

5G Realizes the Dream of Green Hills and Green Water : Successful Practice of ZTE's Smart Water Management Business in XiaJiang Village, Qiandao Lake

In April 2019, ZTE's smart water management service was successfully implemented in Xiajiang Village, Qiandao Lake. This service guarantees the intelligent management and three-dimensional monitoring of the waters of the XiaJiang Village in Qiandao Lake, and it also further promote Zhejiang Telecom's 5G networks and ZTE's end-to-end 5G solution in commercial trial practice .

"The Green Water and Green Hill is Jinshan Yinshan," was put forward by Xi Jinping in 2005, to indicate the harmonious development of economic development and environmental protection and symbiotic relationship between man and nature. As a grassroot contact point of Zhejiang Province, Xiajiang Village has been awarded the "National Priority in Primary Party Organization" and the "Beautiful Village" of Zhejiang Province. "Xiajiang Village " has won the prize of Qiandao Lake Region as one of its ten new scenic spots and passed national AAA-level scenic spots acceptance in 2015. At the same time, the water in Xiajiang Village is also one of the water sources of Qiandao Lake, so water quality protection is particularly important.

Water quality protection and treatment requires the support of modern communications and information technologies. With the advantages of Zhejiang Telecom's 5G network, such as large bandwidth, low delay, and wide connections, ZTE's smart water management service can implement monitoring and management methods such as drone patrol, HD video monitoring, and VR remote control. It can also be combined with artificial intelligence, big data, and IoT platforms to achieve scientific water management in the Xiajiang Village. The launch of the 5G smart water governance service is a successful trial of Zhejiang Telecom, ZTE, and Xiajiang Village in pursuit of water quality protection. As a pioneer in 5G, ZTE provides end-to-end 5G solutions including terminal products. In the future, ZTE will work with Zhejiang Telecom and Xiajiang Village to develop and implement more 5G application solutions. The three parties plan to deepen cooperation in the environment goverance, smart security, smart education, and other industries in the future, to facilitate the construction of beautiful villages in Zhejiang province and the development of the economy in Zhejiang province for intelligent transformation of traditional industries.

ZTE and China Telecom Deployed 5G Water Management in Baiyangdian

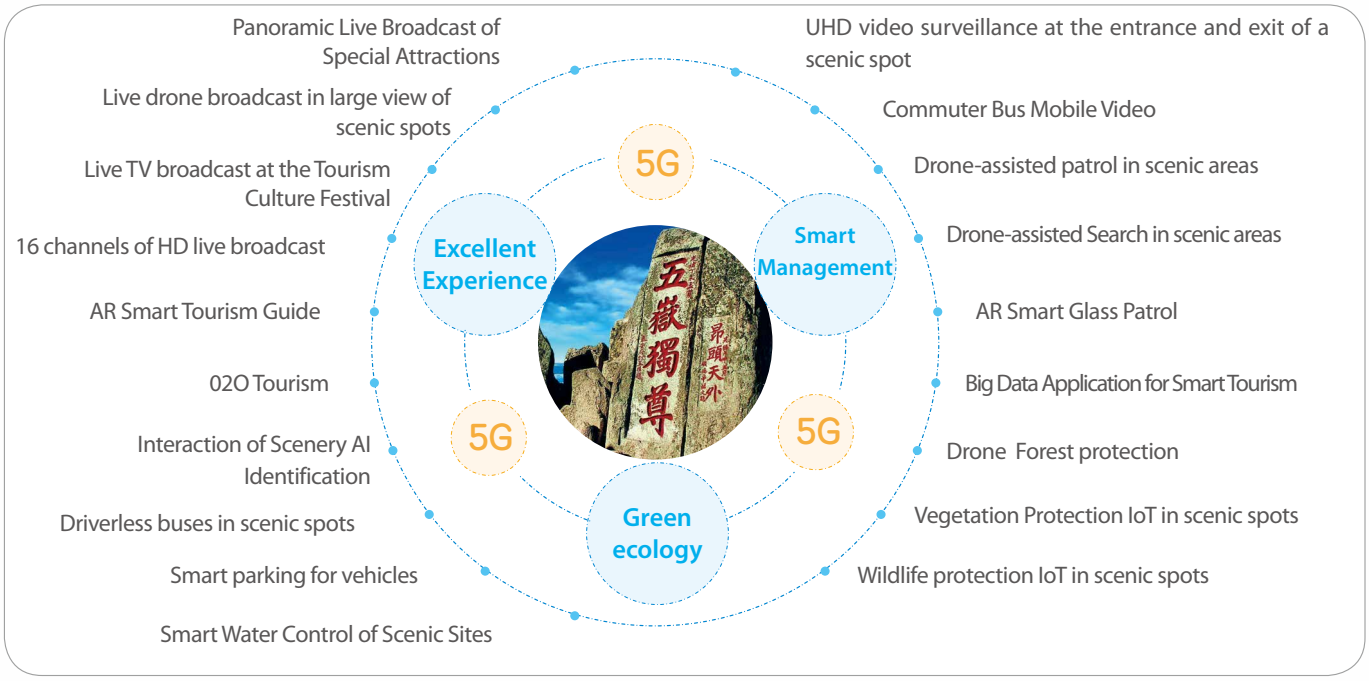
ZTE, together with China Telecom, Xiong'an Management Committee, DJI, Feichuang UAV, and NORPU Tech water quality terminal manufacturers, developed and deployed the Xiong'an 5G Smart Water Control System after extensive research and in-depth research and six months localized product development, providing innovative technical means for the protection and treatment of the BaiyangDian water in Xiongan New District. It is one of the typical services released on 5.17 Telecom Day, and it has also become the first demonstration in the industry to apply the 5G + AI big video inspection and AI analysis to the field.

The construction of Xiong'an New Area will explore new modes of optimal development and ecological habitation in densely populated areas. The water quality data can be collected by smart water control buoy, patrol boat and drone. The water quality monitoring cost is 40% lower, and the inspection period is 70% shorter comparing the traditional approach. To enhance the efficiency of environmental inspection; Use the 5G network to transmit HD pictures and videos to gain the on-site access, pollution identified rate increases from 80% to 95%, quickly identify the cause of pollution, AI, tens of model algorithms, multi-parameters prediction, trend analysis early prevention and control, help making reliable disaster prediction basis with accuracy of over 95% . With the promotion of these advanced technologies in Xiong'an New Area, we can set an example for building a new smart city to create a good ecological environment. Subsequently, we worked with our partners to make further breakthroughs in 5G continuous coverage of drone/unmanned vessel remote control, AI and big data disaster prevention, early warning governance, law enforcement, emergency multi-system joint processing. This will help to form a good situation for large-scale commercial use.

5G+ Smart Tourism Enables Intelligent Management of Scenic Spots and Creates New Experience Of Travelling

Global tourism has become the direction of today's tourism transformation and red tourism is an important part of tourism culture. Making full use of the high reliability, low latency, and massive connections features of 5G networks, 5G+ smart tourism provides excellent experience for tourists, provides safety protection for tourist areas, and helps build a green environment for tourist areas.

Application Scenarios and Service Planning of 5G+Smart Tourism



Value proposition

Smart management

Relying on the intelligent video analysis capabilities such as face recognition and license plate recognition, with drones, mobile vehicles/persons and HD cameras as the carrier, it realizes the integration of open space three-dimensional joint defense, and fully guarantees the security of tourist areas.

Ultimate experience

Innovative service modes such as feature scenic spot VR panoramic live broadcast, scenic large view drone live broadcast, 16-channel HD video live broadcast, AR smart sightseeing guide, and unmanned bus in scenic spot bring the ultimate tourist experience.

Green ecology

The water quality monitoring of large scale scenic water area with the assistance of 5G+ABC can achieve three-dimensional monitoring, intelligent analysis and accurate control, and help the ecological protection of scenic spots.

ZTE and China Mobile Achieved the Viewing of Rhododendron Hundreds of Miles Away Through 5G Network in the International Rhododendron Festival

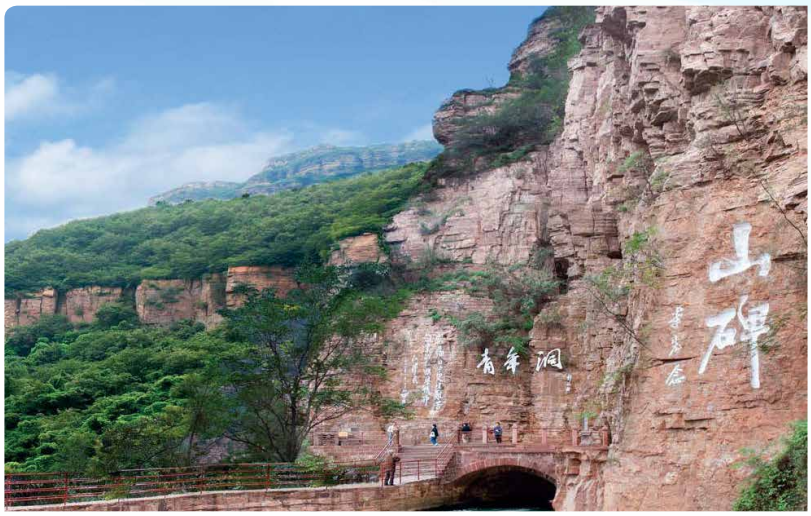
Baili Azalea is a national 5A-level forest park with various species such as the Lantana, the dew Rhododendron and the cluster Rhododendron. The scenic area covers a total area of 125.8 square kilometers and a stretch of over 50 km. It is known as "the largest natural garden in the world." On March 2019, Guizhou rhododendron watching festival, Bijie Mobile and ZTE jointly develop to cover a large area of scenic spots with a 5G network. With the 5G network, the beautiful rhododendron scenery captured by drones at a height of 100 meters was transmitted back in real time. The traditional way of watching flowers makes people feel exhausted. With 5G, images collected by HD panoramic cameras in scenic spots are transmitted to large screens inside sightseeing cars in real time, so that visitors can enjoy real-time scenery without dead corners. The "hundred-mile rhododendron" scenic spots are hidden in mountains. Traffic

inconvenience makes visitors who have not enough time can only "sigh." But the use of 5G network provides HD images of scenic spots on the live screen. The 4K HD screen images of the azaleas' scenic spots can be broadcasted in real time through commercial live broadcast and China Mobile Migu mobile platform, making it possible to view the scenic spots while even being thousands of miles away.

Longhushan New Tourism Experience, Establishing the First 5G Scenic Area Together with China Telecom

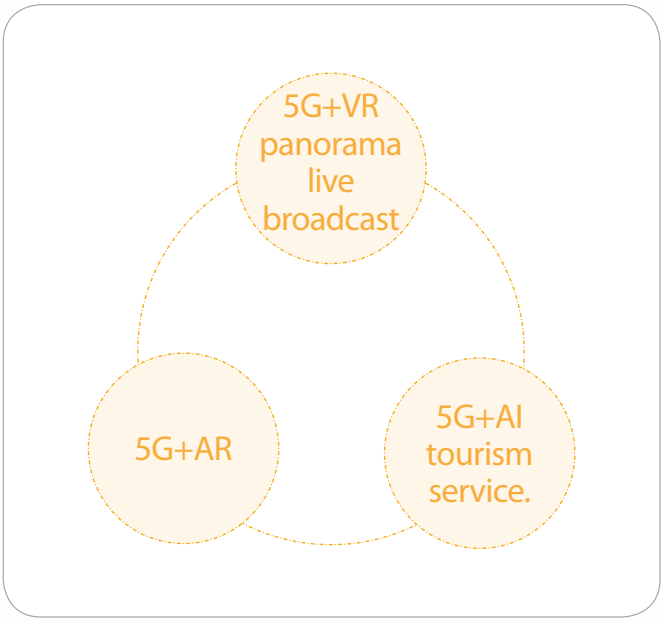
Longhushan is the world's natural heritage, a world geopark, and a national 5A scenic spot, its unique green mountain and clear water, large-scale cliff grave constitute the “three attractions” of Longhushan scenic spot.In February 2019, ZTE, together with Jiangxi Telecom and Yingtan Government, promoted the 5G+ smart tourism. With the 5G large bandwidth feature, a 5G panoramic camera was deployed on the special bamboo raft. The visitors can enjoy Longhushan bamboo drifting through VR glasses at thousands of miles away without leaving home.The Longhushan 5G+ smart tourism can meet the needs of the vast number of tourists when the consumption is upgraded, and will bring greater value to the Longhushan tour brand

Working with China Unicom to Build Domestic 5G+ Tourism Application - Hongqiqu Smart Tourism



The Hongqiqu Scenic Area is a 5A-level national scenic area, and is a representative of the classic revolutionary tourism areas in China. It inherits revolution genes and promotes the Hongqiqu spirit as its primary task. It has always adhered to the development philosophy of "Innovation Driver and Technology empowerment."

In December 2018, China Unicom and ZTE set up a "Cultural Tourism - 5G Innovative Application Demonstration Base" in Hongqiqu scenic area, and carried out a series of 5G smart tourism application pilot projects such as 5G+VR panorama live broadcast, 5G+AR and 5G+AI tourism service.5G has been put into use for the first time in China's educational tourist areas, and facilities of smart scenic spots will be fully upgraded , officially opening a new era of integrated development of smart tourism.



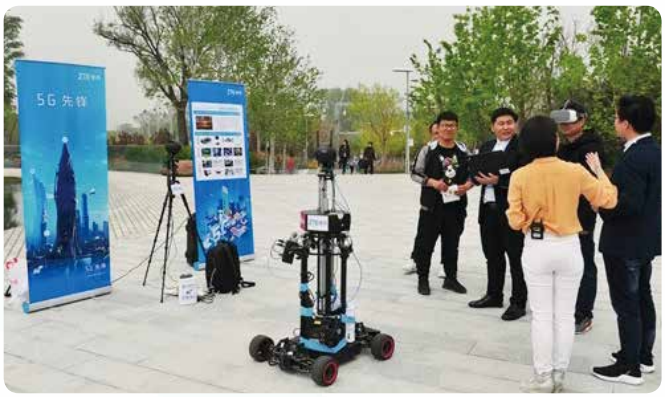
5G+AR Fantasy Museum Services Successfully Showcased at China Unicom Partner Conference

From April 23 to 25, the Shanghai 5G Innovation and Development Summit and the Global Partner Conference of China Unicom were held in the Shanghai World Expo Center. At this summit, ZTE successfully demonstrated the Wonderful Museum of 5G+AR. The audience hold AR probe glasses to identify collections. The AR probe glass can display a live collection through audio and video, vividly display the story behind the collection, and replace the original voice interpreter of the museum. The audience can also identify the local characteristic values of the material pictures for further interpretation, making the user experience more interesting.

Based on the 5G+AR enhanced reality and AI technology, the cultural connotation behind the museum heritage exhibits is presented to the audience in the form of handheld terminals and digital content to improve the service level of the museum digitization. Content is integrated on handheld terminals to be used as a value-added service of museums to expand services. In addition, a batch of AR products can be developed to improve the long-term service capability of the museum.

ZTE 5G Helps Beijing Expo to Bring Technology and Nature Together

On April 28, 2019, the Beijing World Horticulture Expo in China officially opened in the Beijing Yanqing District. About 110 national and international organizations attended the Green Convention. As a strategic partner of Chinese operators, ZTE helped our partners to provide technical support for the conference's communication network facilities, and provided powerful support for network construction, 5G service verification and demonstration, and coverage optimization of key roads and venues.



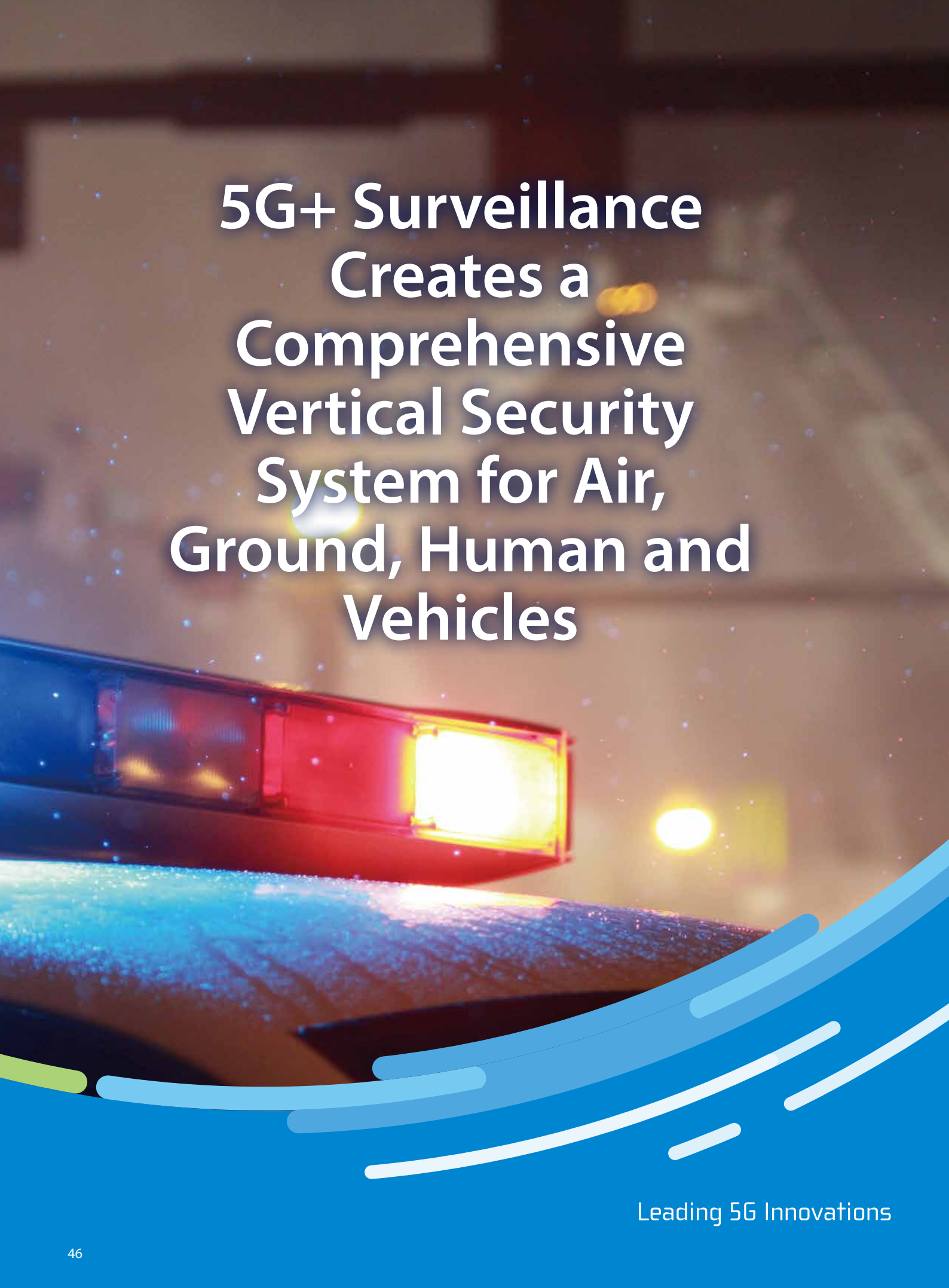
By providing all-round three-dimensional network construction and guarantee, ZTE helps operators build excellent network experience. At the same time, the 5G based 360-degree panoramic live broadcast and VR experience from Xinhua News Agency has really let 5G enter our daily life, integrated with nature world, and available to the public!.

Integration of Technology and Art, ZTE Successfully Showcased the "5G+AI Artist" Service

On May 15, 2019, the 5G+ Intelligent Manufacturing Industry Innovation and Development Conference was held at the Nanjing Jiangning Convention and Exhibition Center. At this conference, ZTE successfully demonstrated the 5G+AI Artist service. The robotic arm scans human body characteristics data, and matches the art style suitable for people experiencing the service from the art database in real time through the 5G network. It selects three most matching art styles, and forms an AI artist image of three styles through deep earning. It paints and prints real-time photos for people experiencing the service. This service combines new technologies and art, and becomes the most popular service experience in the conference.

Working with China Mobile (Fuyang) to Build the First 5G Experience Hall in the City

On May 17, 2019, Anhui Mobile Fuyang Branch together with ZTE held a 5G Experience Show at the Qinghe Road Business Hall, officially launching the city's first 5G Experience Hall for service. At this exhibition, the experts presented the 5G smart life to the attendees through four major scenarios: 16-channel 5G+4K HD video live broadcast, VR experience, remote robot arm control and connected drone. Through demonstration, experience, and interaction in the exhibition hall, visitors can fully feel the glamour of mobile information technology, further improving people's understanding and recognition of new technologies, and vividly showing their information management and application in government, education, finance, transportation, commerce, and other industries.

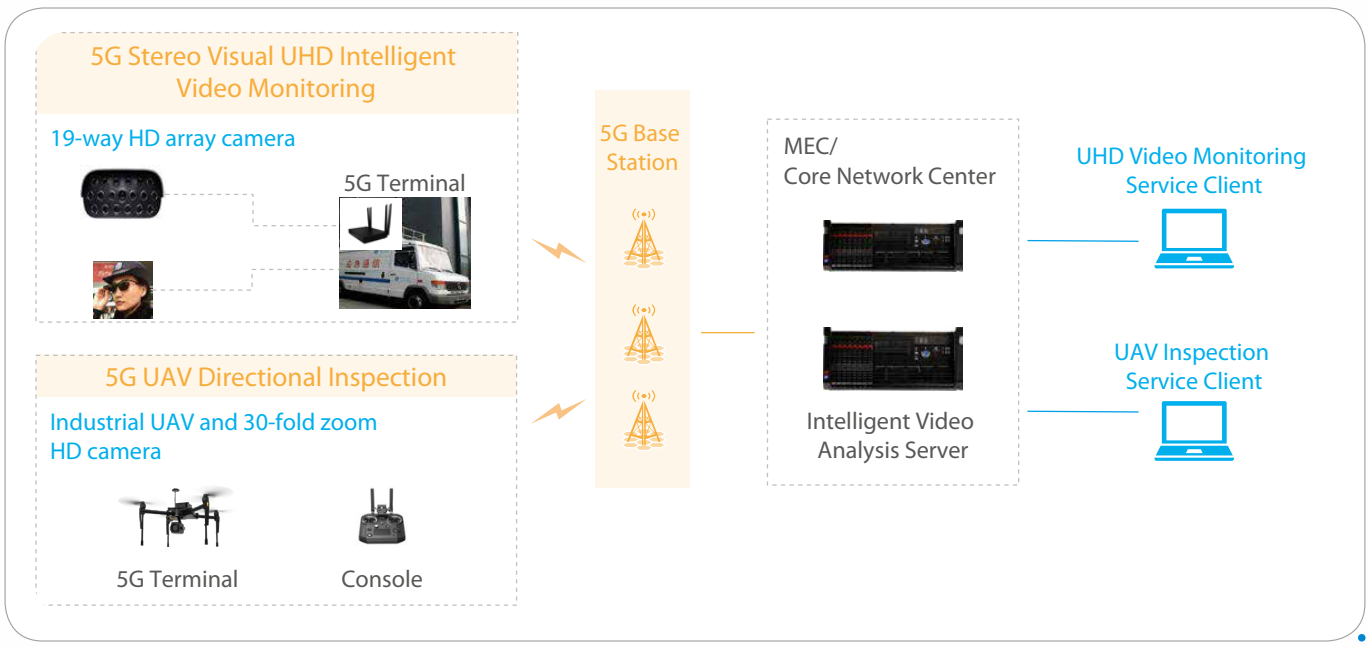


5G+ Surveillance Creates a Comprehensive Vertical Security System for Air, Ground, Human and Vehicles

5G drones carry directional video inspection with zoom HD cameras to further extend the monitoring angle to the airspace, providing all-round security assurance in a three-dimensional manner.

With the new anti-terrorism situation, police criminal investigation, public security prevention and control, public service, and other security issues, 5G HD video surveillance has become the basis for building smart security. By deploying HD array cameras with wide viewing angles in key areas, 5G emergency vehicles can collect HD images in real time and transmit them to remote monitoring clients by using the high-speed, high-reliability, and low-latency capabilities of the 5G network. In this way, global monitoring and clear identification can be implemented in key areas. In addition, 5G drones carry directional video inspection with zoom HD cameras to further extend the monitoring angle to the airspace, providing all-round security assurance (sky-ground-person-car) in a three-dimensional manner.

The 5G HD video solution can provide customized security requirements for different monitoring areas, angles, and distances. Combining artificial intelligence analysis and AR display technologies, the solution can rapidly and efficiently trigger the application potentials in face recognition, face comparison, surveillance alarms, vehicle detection, license plate recognition, and vehicle model recognition, etc. It helps to achieve the smart security system.



Value Propositions

Full scale three dimensional security and protection

with command vehicle as the core, the combination of human, vehicles and drones helps build an three dimensional security system.

Wide application scenarios

The solution is widely applicable to areas such as plazas, airports, railway stations, bus stations, tourist attractions, port docks and stadiums. It is of wide application value in anti-terrorism and social security scenarios such as emergency command, temporary control, remote detection and low-altitude protection in smart and safe cities.

Ultra-HD, ultra-long distance and concealed and flexible

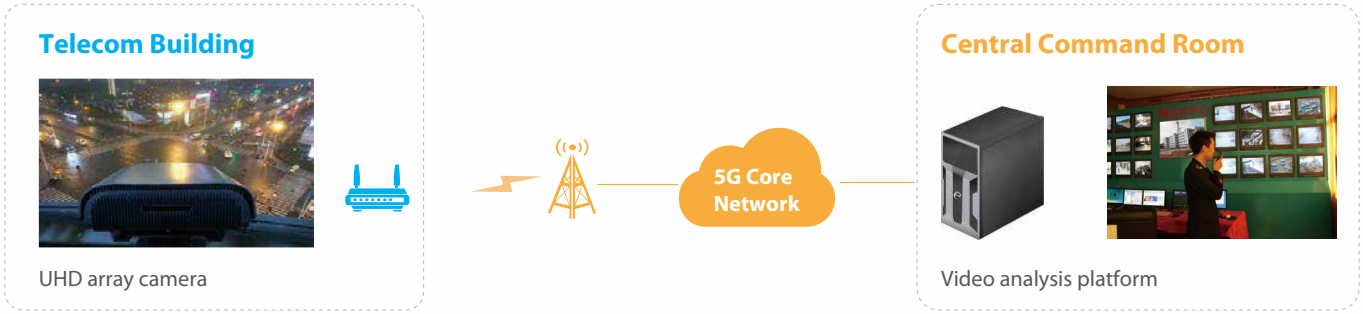
array camera captures ultra-HD images with a total pixel size of 107 million. The distance for clear identification of key parts can be up to 96 meters. Industry-class drones can fly for 40 minutes. The lightweight AR security glasses are flexible and concealed, and can quickly present alarm information to enhance the alarm recognition capability.

Working with China Telecom and DJI to showcase the 5G-based Drone Surveillance System

In November 2018, at the second meeting of the Special Committee on the Development of the IoV Industry of Xiong'an hosted by the Ministry of Industry and Information Technology, ZTE, together with China Telecom and DJI, launched the 5G UAV application test solution, and demonstrated the first UAV security case based on the 5G network in China. This is the first test using the 5G+ AI technology for outdoor low-altitude security. It opens a new space for rapid three-dimensional defense through 5G smart security solutions.

The drone provides low-altitude wide coverage monitoring to prevent coverage holes. It can improve the transmission monitoring quality and improve the accuracy of background AI in identifying sensitive persons and objects with a precision rate of 10%. At the same time, the background emergency dispatching and command vehicles can use 5G communication to free themselves from wired connection and reduce the probability of wireless channel congestion in case of large-scale events. In the future, ZTE, together with major operators, DJI, FeiChuang, and other professional drone manufacturers, will utilize the continuous coverage capability of 5G networks to achieve 5G low-latency remote control of drone. This will break through the limit of low-altitude handle control for security, and insert smart wings into modern security.

Working With China Telecom to Implement UHD Video Monitoring by Utilizing 5G and Hundred Millions of Pixels Array Camera



On January 7, 2019, ZTE and Suzhou Telecom jointly launched the demonstration of 5G+ "UHD Hyper-pixel Array Camera Monitoring," to take the lead in implementing the important scenario of "capturing all the details in a large-field of viewing monitor" in the security industry.

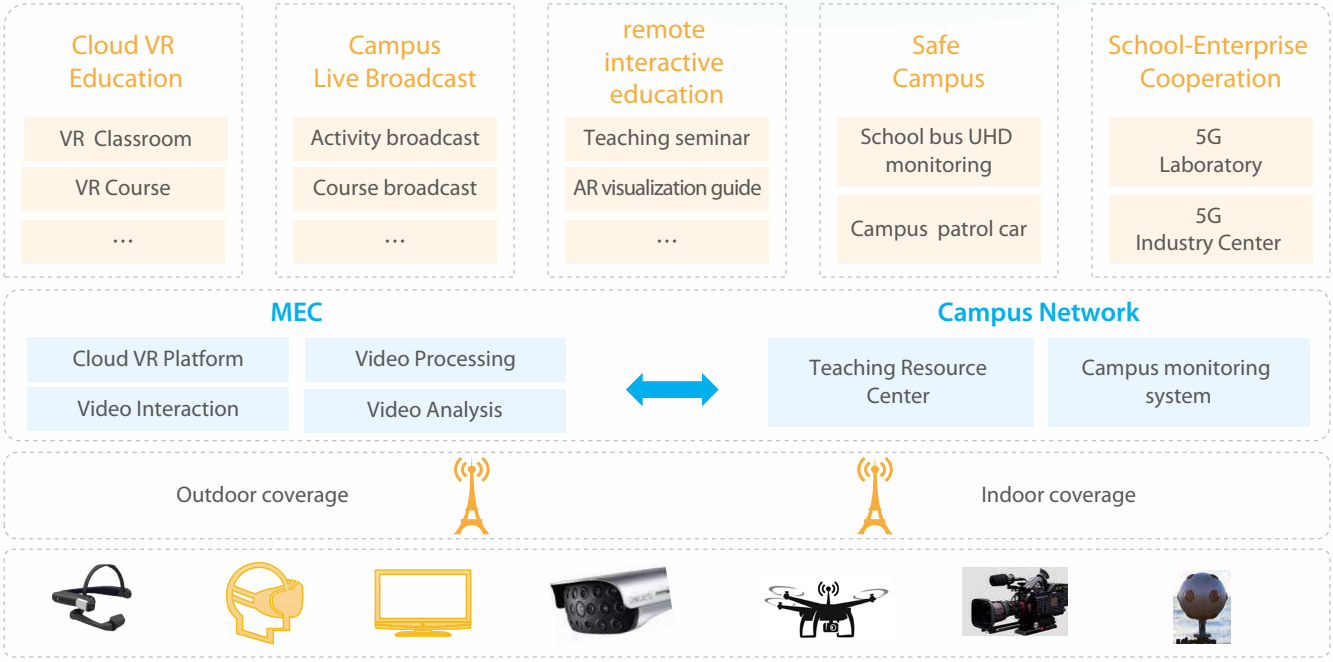
Relying on the high-quality 5G network with large bandwidth and low latency, and combined with the 150-degree large-angle and ultra-HD image capturing capability of 19-channel array cameras, ZTE's 5G+ array camera ultra-HD monitoring system enables end users to control the top-quality images of a key intersections through displays without visiting the scene, helping Suzhou Telecom build a high-quality exclusive service experience for users at the far end.

In the future, 5G HD video surveillance, as the basis for building smart cities, will continue to grow rapidly and have huge market spaces. It will play an important role in urban law enforcement, heavy maintenance, people's livelihood, scenic spots, and residential monitoring. The increase in the order of magnitude of data acquisition and imaging range collected by 5G cameras has greatly expanded the application of smart analysis technologies in the security field, and will definitely promote the development of next-generation smart security technologies.

5G+ Education Creates a New Model of Smart Campus

The new-generation information technology led by 5G will accelerate in-depth integration and application with education and teaching, facilitating 2.0 development of education informationization. By integrating cloud VR/AR, ultra-HD audio and video technology and intelligent video analysis technology with 5G technical features, ZTE works with its partners to create demonstrations of 5G+ smart campus applications for education, teaching, industry-university-research cooperation, and campus security.

Application Scenarios and Service Planning of 5G+Smart Education



Value Propositions

Promotes the development of remote education

5G will accelerate the application of ultra-ultra HD video and VR/AR in distance education and teaching, and bring in immersive and interactive advantages to alleviate the unbalanced problems of educational resources in cross-campus and cross-regions restrictions.

Accelerating the commercial use of VR education products

By using the edge cloud capability of 5G MEC, we have solved the commercial problems such as the terminal cost and computing power of AR/VR, gathered third-party VR education content, and introduced high-quality educational resource content into the mobile Internet.

Campus security is more intelligent and three-dimensional

5G combines such technologies as MEC, AI and drone to perform mobile, high-definition, all-rounded video monitoring and real-time intelligent video analysis on the campus to enhance the security capability of the campus.

Cloud AR/VR Opens a New Chapter in Remote Education

In 2019, ZTE showcased the application of 5G cloud VR in the form of AR+VR mixed reality in distance learning. A teacher can manage, play, and provide guidance for cloud courses, observe the VR observation field of each student and then provide guidance.Students can view 3D images by holding a magic cube and using the AR application as a supplementary VR service.

5G will accelerate the in-depth application of AR/VR in education and teaching, promote the application of VR technology in fields such as higher education and vocational education, experimental and demonstration courses, promote the construction of education and teaching environments such as VR classroom and VR laboratory, promote the development of new methods of education and teaching such as virtual course preparation and virtual teaching, promote the individualized learning focusing on learners, and accelerate adoption of new teaching methodology.

Working with China Unicom to Help Zhengzhou University Carry out 5G Smart Campus Application

As the only first-class university in Henan province, Zhengzhou University has taken the lead in establishing the national technology park, which is equipped with key laboratories such as 5G lab, AR/VR lab and robot lab. The Zhengzhou University has achieved remarkable results in smart education and teaching.

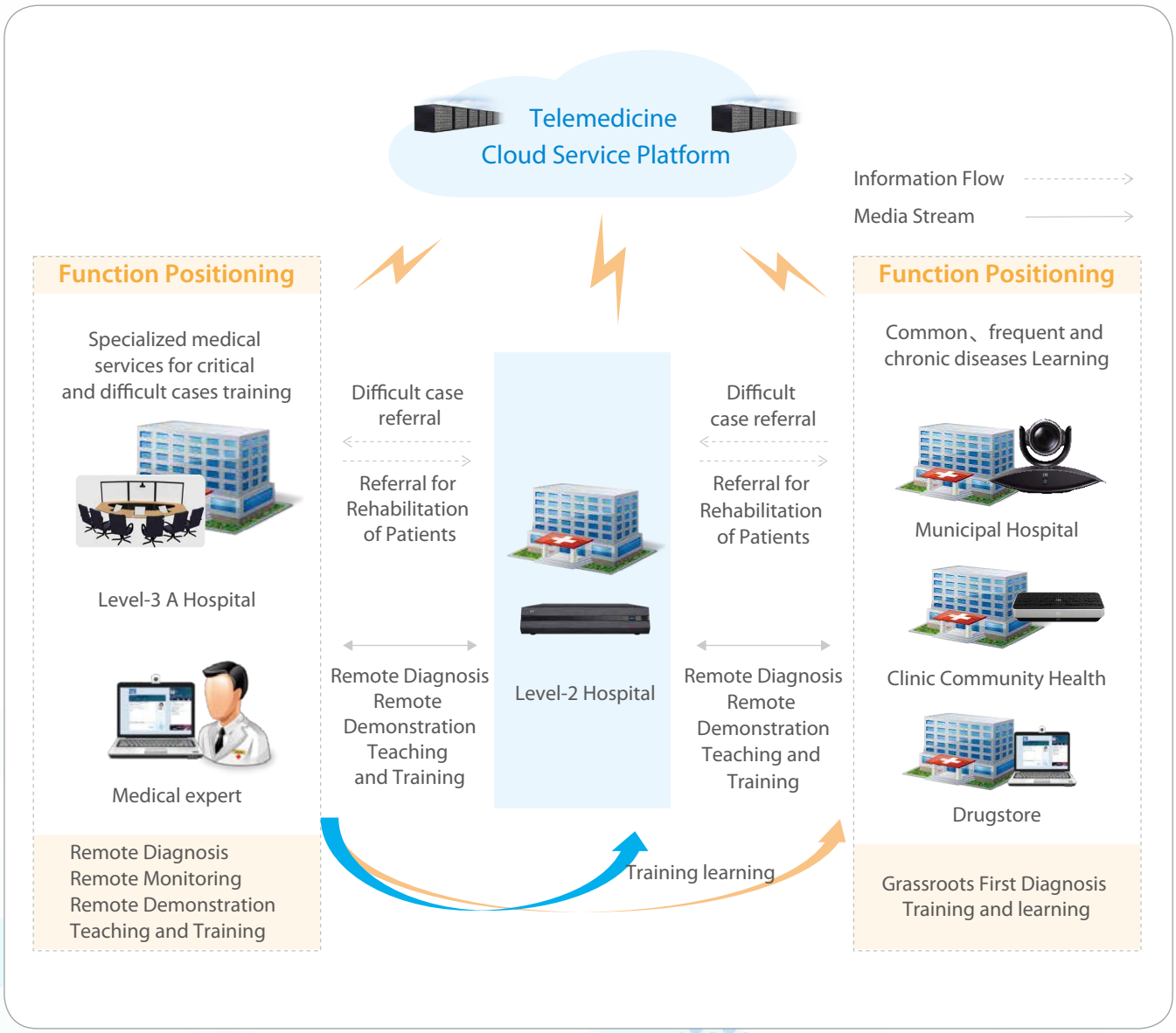
In January 2019, ZTE, together with Henan Unicom and Zhengzhou University, reached a tripartite partnership on the 5G smart campus. The School of Information Engineering of Zhengzhou University uses 5G key laboratories to carry out research on 5G-based Internet of Vehicles (IoV), VR, and robot-related technologies, and converts the corresponding research results into industrial advantages. In addition, the advantages of 5G are incorporated into the smart class, remote interactive classroom, and other teaching scenarios of Zhengzhou University to further enhance the experience and value of smart teaching.

In accordance with the characteristics and requirements of the Zhengzhou University, using large-scale edge computing capability of the MEC, ZTE took the lead in building the first comprehensive 5G experience park for colleges to implement smart monitoring, smart energy, smart parking, and smart green work applications. In the 5G era, Zhengzhou University, China Unicom Henan Branch, and ZTE Corporation worked together to achieve mutual benefit and win-win results, helping Zhengzhou University build the first exemplary 5G smart university in China.

5G+ Wireless Healthcare Opens a New Era of Remote Diagnosis and Treatment

With the deepening of national health reform policies and the promotion of the "Internet + medical health" strategy, new-generation technologies such as 5G, mobile Internet, and artificial intelligence are being used to provide remote medical services such as remote diagnosis, remote electrocardiogram (ECG) diagnosis, and remote image diagnosis to the grassroots community. The capability of grassroots community medical services will be continuously improved. High-speed, high-reliability, and low-latency 5G networks will guarantee efficient, fast, and secure transmission of telemedicine services anytime and anywhere, promote the development of the telemedicine industry, and improve the level and efficiency of telemedicine services.

Application Scenarios and Service Planning of 5G+Smart Telemedicine



Value Propositions

Promoting the development of telemedicine

The rapid development of telemedicine requires a ubiquitous network connecting doctors, patients and medical equipment anytime and anywhere. The 5G network will realize the rapid development of telemedicine towards wireless, mobile and intelligent.

Improving the efficiency of telemedicine

According to the request of the doctor, the 5G network can transmit HD images to diagnose diseases anytime, anywhere and in real time, and guide the doctor to carry out telemedicine activities quickly, thus improving the efficiency of telemedicine.

Enhancing the telemedicine capability

The 5G system can support multiple channels of HD videos and carry out telemedicine services such as VR/AR applications anytime and anywhere. 5G can provide ms-level low latency, and support telemedicine to carry out tele-tactile delivery, eyeball tracking and other medical operation services, such as remote surgery.

Working with China Mobile to Complete China's First 5G+MR Remote Pulmonary Surgery in Jiangsu

On the afternoon of May 13, Chen Liang, Chief Physician of the Department of Thoracic Surgery, Jiangsu Provincial People's Hospital, guide remotely the team of the chief physician of the Department of Thoracic Surgery, Jiangbei Pukou Branch to conduct a real-time operation on the 5G network. In two hours a 67-year-old female patient underwent a segmentectomy operation. This is the first 5G + MR (mixed reality) remote real-time lung cancer operation in China.

The transmission speed of a 5G network is 10 to 20 times faster than that of a 4G network, and the latency is reduced from dozens of milliseconds to several milliseconds. With the support of the mixed medical reality and remote consultation system, the image data of patients is reconstructed and shared remotely by using the artificial intelligence's 3D system on the cloud. During the operation, the expert guidance are imposed to the doctor's endoscopic field of view in real time. The effect is similar to that of an expert's on-site collaboration and "zero-distance" face-to-face communication.

This operation is based on the collaboration of the mixed reality remote collaboration technology and the 5G network. The two expert teams can share HD video, patient image data, operation solutions, and other data to improve patient safety and operation quality. This operation also provides valuable experience for the further development of high-quality medical resources to grassroots community, and for the construction of an online and offline integrated medical service model.

Working with China Unicom (Shenzhen) to help Southern Medical University Achieve 5G Telemedicine

On April 13, 2019, ZTE helped China Unicom (Shenzhen Unicom) achieve a new combination of 5G technology and medical first-aid in the Shenzhen Hospital of the Southern Medical University, protecting the life of patients.

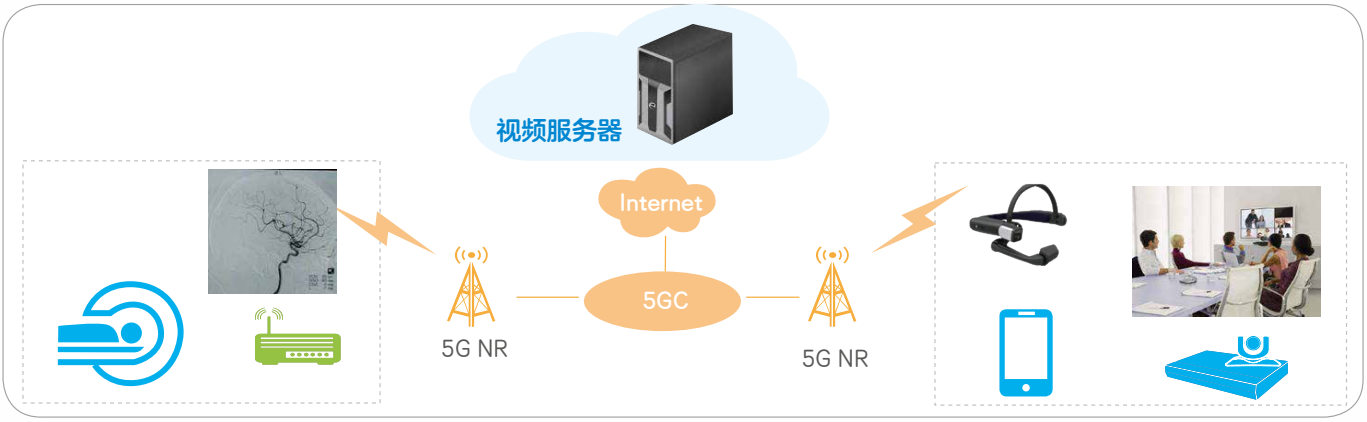
The first meeting of the National Summit of Endovascular Interventional Therapy and Neurology Interventional Specialist for Ischemic Stroke Summit was held in 2019 in. the Academic Report Hall of Shenzhen Medical College of Southern Medical University, in the hall, a surgery was being broadcast live through China Unicom's 5G network. According to the ultra-HD video recording, the images of each step in the operating room are transmitted on the display in Yangzhou in real time through the 5G network. Brain thrombus experts guide the operation and discuss the disease.

Working with Jinan Central Hospital to Achieve 5G-Based Remote Surgical Demonstration

In April 2019, Jinan Central Hospital, China Mobile and ZTE successfully completed remote teaching of cardiac pacemaker implantation and coronary angiography.

The theoretical transmission speed by using 5G can reach the peak value of 1 Gb per second, which is hundreds of times faster than that of the 4G network. Its features of high speed, large bandwidth and low latency, and can effectively guarantee the stability, reliability and security of HD live broadcast. Jinan Central Hospital attaches great importance to building "Smart Hospital". 5G networks are built in the hospital area. 5G base stations are divided into macro base stations and indoor distribution base stations for 5G coverage. The 5G macro base stations adopt the 2.6 GHz frequency band, the single-user peak rate is 1G, the peak transmission rate of the site can be 10Gbps, and the air interface latency is lower than 5 ms, thus achieving ultra-high rate and ultra-low latency. Professor Su Guohai of Jinan Central Hospital conducted the operation in the interventional therapy department, and completed the live broadcast of the surgical operation in the Big Data North Center of National Health Center. Mayor Sun Shutao and other municipal leaders watched the operation process in real time and listened to the case report on the application of 5G+ medical innovation. With the continuous development of science and technology, the healthcare industry is entering the 5G era. ZTE will continue to explore the 5G+ smart healthcare field, implement a long-term hospital diagnosis and treatment based on 5G, and balance medical resources, and contribute to the construction of a cross-regional interconnection health management system.

Working with China Unicom to Build a Demonstration Project of 5G Smart Medical Treatment in TEDA Hospital



Founded in 1990, the TEDA Hospital in Tianjin is a level-3 general hospital.The Stroke Center of Tianjin TEDA Hospital is a national stroke treatment center. It is often necessary to carry out live video surgery and remote consultation with other hospitals to improve their medical level.

Together with TEDA Hospital and Tianjin Unicom, ZTE has carried out 5G telemedicine application exploration and pilot programs, and set up 5G base stations around the hospital to achieve full coverage of 5G signals in the hospital. The speed of 5G networks is 10 times that of 4G networks. With almost no latency in network transmission, the images of the brain blood vessels on the computer screen are much clearer, while the remote communication is smooth. Now, based on remote consultation, the accuracy of treatment can be guaranteed to patients. After large-scale commercial use of 5G, with faster 5G network, hospitals will provide mobile inquiries, telemedicine consultation and guidance for grassroots community medical care. 5G enables the hospital more intelligent, and allows the vast number of patients to benefit from advanced medical services without time and space restrictions.

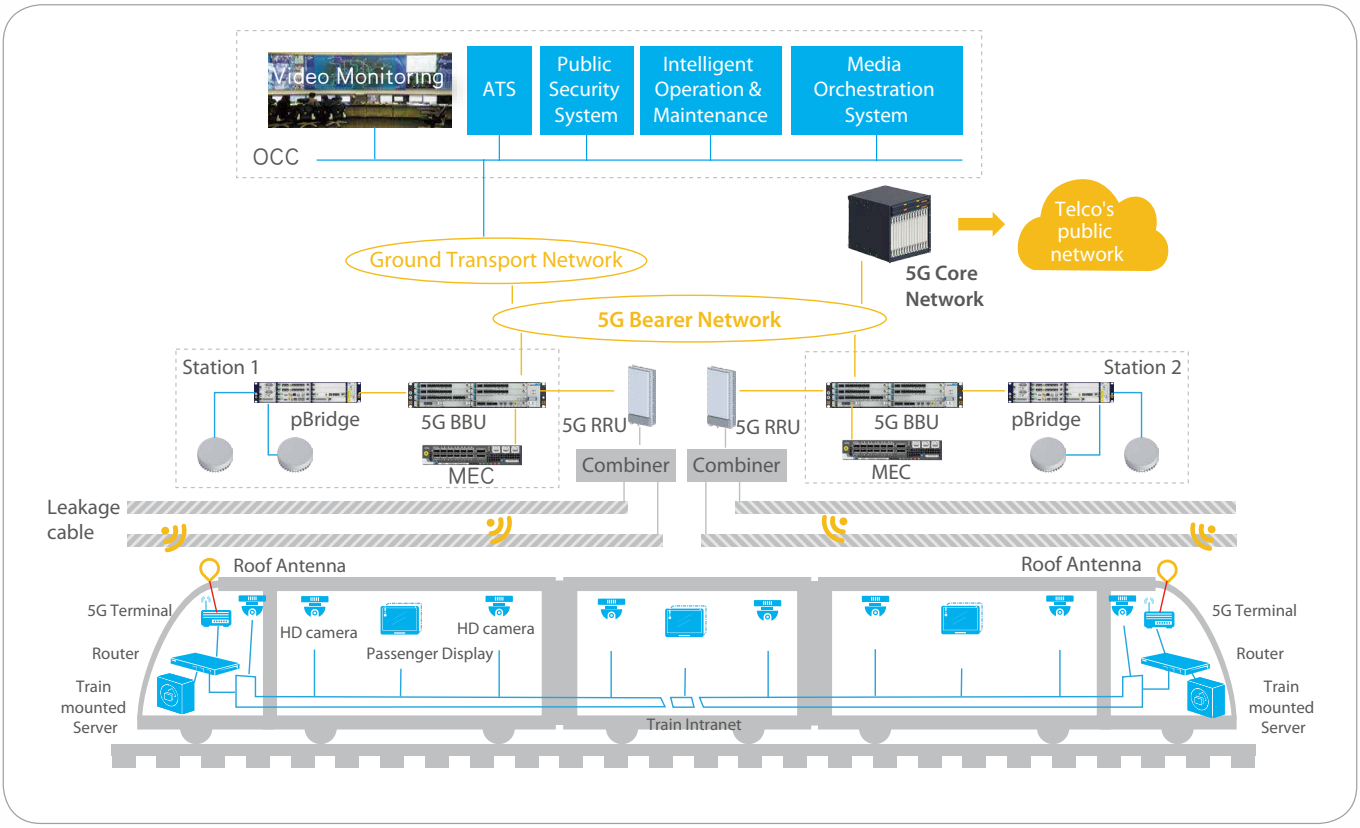
5G+ Rail Transit System Opens a New Era of Convergent Communications

The rail transit system has outstanding advantages: large capacity, intensive and efficient, energy-saving and environmental protection. It is the backbone of the public transit system in big cities, and an important part of the comprehensive city transport system. And it provides support and leadership for city development.

Due to the increasing passenger traffic and complicated social environment on the metro side in each city, operation security risks are increasing, and operation management is facing enormous pressure and challenges. The existing metro operation management is affected by many aspects such as technologies. The problems such as the delay of passenger flow monitoring, the low accuracy of passenger flow prediction, and poor time-effectiveness restrict the further development of smart operation of metro. These problems will be easily solved with the advent of new 5G technologies.

Based on the latest 5G technologies and features, utilizing the 5G high bandwidth, low latency, large connection and slicing security capabilities of the full line coverage of rail transit platforms, tunnels and ground viaducts can support fast deployment on many 5G applications such as HD video, PIS, face recognition and security inspection, and 5G smart patrol inspection of meter facilities to ensure the security and reliability of subway operation.

ZTE's 5G Smart Railway Transit Solution



As shown in the figure, the architecture of this solution consists of three subsystems: control center subsystem, station subsystem, and vehicle-mounted subsystem.

Control center subsystem

It is mainly to place 5G core network used by the metro, and interconnects with the service application system of the metro to transmit the ground service system data through the 5G network.

Station subsystem

It is the location of BBU, which is the baseband processing unit of the 5G base station.The tunnel section is covered by the leaky cable connected via 5G RRU, and the BBU and RRU are connected via optical fiber. The station hall/platform is covered by Qcell, and the BBU is connected to pBridge and pRRU to implement 5G wireless coverage of the station hall/platform and meet the requirements for civil communication.

Vehicle-mounted subsystem

Includes 5G vehicle-mounted data terminals and various on-line surveillance equipment of vehicles. Vehicle-mounted online monitoring devices are connected to vehicle-mounted 5G terminals through internal LANs, and communicate with track-side leakage cables and base stations through external roof antennas to implement real-time backhaul of vehicle-mounted monitoring data. In addition, 5G mobile phones on vehicles can communicate with passengers through leaky cables and base stations to meet 5G civil communication requirements.

At present, the metro communication system consists of three communication networks: Dedicated metro communication network, public security communication network, and public communication network. With the maturity of 5G technologies and the security of slicing technologies, the metro system is approved by all parties. Metro applications will be integrated into one network to simplify the operation and management of metro communication networks, improve the operation efficiency of metro, save energy, and reduce emission.

ZTE and PCI Tech Jointly Built the "5G Rail Transit System Joint Innovation Lab"

On May 14, 2019, ZTE and PCI Tech held the "Joint Innovation Laboratory for rail transit system 5G" signing ceremony.

PCI Tech was founded in 1986, the company is a key high-tech enterprise under the national torch program and a key software enterprise within the planning range of the country. It is a leading provider of smart city products and solutions in China. ZTE is a world-leading provider of integrated communication solutions. Founded in 1985, ZTE is the largest listed telecommunications equipment company in China. Both parties will explore the deep integration of technologies such as 5G, cloud computing, big data, artificial intelligence, big video, virtual augmented reality, and other technologies with the industry, and carry out comprehensive cooperation on overall solutions, pilot demonstration, market expansion, project promotion, delivery, and operation services.

The two parties agree to make use of ZTE's advantages in 5G technologies and products of PCI Tech to study and explore service application scenarios based on 5G, and carry out in-depth cooperation based on 5G network construction, 5G innovation application scenarios, solution research, related standards, and subject application submission to accelerate the R&D and commercialization process of new 5G applications, so as to jointly build an application demonstration in the 5G industry. ZTE uses its own 4G, 5G, and SDN/NFV network, laboratories to provide a test and prototype verification environment for the forward-looking application research for both parties.

5G+ Smart Airport Creates A Safe, Green and Humanistic Airport

In the coming 5G era, all civil aviation entities are working together to promote the application of new airport technologies in the future, plugging the wings of the digital economy into the civil aviation field, and building more international leading digital demonstration airports.In the future, the intelligence of future airports with 5G coverage as standard will exceed people's expectations.

While our airport has experienced the stages of “electronic airport”, “digital airport” and “intelligent airport”, with the development of IoT, big data, cloud computing, mobile Internet, and other technologies, the "Smart Airport" concept has gradually been proposed and promoted. As an important comprehensive transportation hub, the airport includes many 5G application scenarios related to equipment, transportation, and communications. In the current smart airport construction, self-service, data mining, AI technology, service cloud, WeChat-based service quality evaluation, and other technical applications will all be better carried out with the improvement of 5G communication technology networking construction capabilities. Integrating with high-speed, low-latency, and large-bandwidth 5G technologies, 5G will play an important role in the applications of IoT, automatic scheduling and dispatching, artificial intelligence, self-service, and luggage tracking at airports. In addition, the application of innovative technologies, such as smart robots, unmanned vehicles at airports, and 5G connected UAV, will become possible.

Terminal Building	VIP Hall	Parking Apron	Logistics Support Center
			

Diversification of Scenes

Business Diversification — High Speed (eMBB) — Low Latency (URLLC) — Big connection (mMTC)

VR Video/Game	Content Cache	Device Management	Remote Control
			

Value Propositions

Adapts to complex requirements and improves performance management

The features of 5G large bandwidth, low latency and massive connections are very suitable for the construction of information management in the airport. They help solve the current problems such as complicated network operation and maintenance, poor coordination among various systems and lack of effective management for a large number of terminal devices, and adapt to the surge of new services.

Provides brand-new technologies and convenient travel experience

Integrating with network slicing and multi-access edge computing technologies, the 5G network can provide high-speed, reliable, low-latency and high-security integrated information communication services, bringing more convenient travel experience to the vast number of visitors.

Working with Nanjing Lukou International Airport to Build 5G Smart Airport

In March 2019, ZTE and Nanjing Lukou International Airport officially signed a strategic cooperation agreement, aiming to provide in-depth cooperation on 5G communications to help the airport communication network construction. The airport communication network is an important infrastructure to support the development of Lukou airport and ensures the normal operation of the airport. It provides high-security, high-reliability, and high-efficiency information transmission channels for various service platforms such as airport shipping, terminal, logistics, dispatch management, and logistics. ZTE plans to use 5G technologies to assist in airport communication construction, and build an international leading 5G smart airport. ZTE provides personalized communication services for different scenarios such as terminal buildings, VIP lounges, logistics support centers, logistics centers, dispatch centers, and emergency command centers.

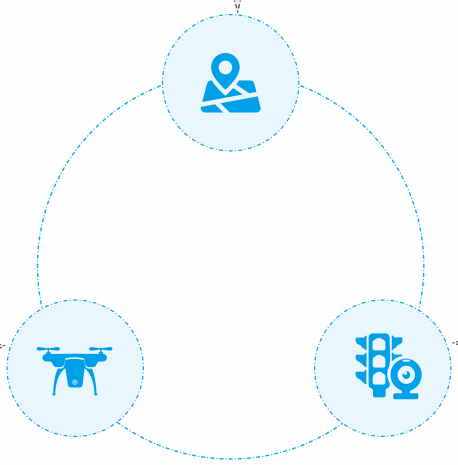
5G+ Smart Highway: Efficient Collaboration of Vehicle-Highway-Cloud Creates a New Mode for Highway

In 2018, Ministry of Transport in China issued a circular notice that China's nine provinces (cities) of Beijing, Hebei, Jilin, Jiangsu, Zhejiang, Fujian, Jiangxi, Henan, and Guangdong will accelerate the promotion of new-generation national traffic control networks and smart highway pilot projects. The notice focuses on six directions: Infrastructure digitalization, road and transportation integration, Beidou high-precision positioning and integrated application, integrated road network management based on big data, "Internet +" road network integrated services, and new-generation national traffic control network. Smart Highway will become one of the important means for convenient services in the transportation industry.

With strong R&D strength and years of experience accumulated in the transportation industry, ZTE's 5G+ smart highway solution emerges to create a new road transportation model in the 5G era. This solution achieves efficient coordination of vehicle-highway-cloud.

Coordinated control

5G, combined with MEC and AI technologies to timely sense the traffic conditions such as road surface, congestion and accidents, etc. provides comprehensive information for traffic control, and make traffic control more scientific and reasonable.



Widely application

5G, combined with AI, VR and UAV can be applied to the management, preventive maintenance, maintenance and quick emergency services of smart highway. Improve the comprehensive management and control capability of roads.

Seamless Perception

Through the 5G network, blind-free perception of road can be realized. Combined with UAV technologies, it can help handle remote accidents more conveniently and quickly divert traffic to ensure the, smooth access of roads.

Working with China Mobile to Help Guangdong Transportation Group Build 5G Smart Highway

In March 2019, ZTE and Guangdong Mobile jointly completed the verification of 5G services in the high-speed Panyu section of Guang-Ming High-Speed Project, achieving the normal 5G services at 100 km/h and verifying the high-speed 5G scenario.

The Guang-Ming Highway connects the Panyu District of Guangzhou and the Gaoming District of Foshan City. It is a typical highway scenario with wide roads, large traffic volume, and high speed. In this test, the system is optimized for high-speed scenarios, including channel estimation enhancement, fast beam tracking, and frequency offset correction, and the 5G application in highway scenarios is successfully implemented. In the scenario with a speed of up to 100 km/h, the system achieves 100% handover success rate and downlink rate higher than 300Mbps, and has accumulated valuable high-speed engineering experience, laying the foundation for the future large-scale 5G high speed application of highway.

As a major expressway province with a mileage of over 8,000 kilometers, Guangdong is ranked top in China. The 5G high-speed verification not only complements the application of key 5G scenarios, but also meets the service development requirements of Guangdong Mobile in the future.

Working with China Mobile to Build Smart Highway by Applying 5G to Road Traffic Monitoring and Electric Power Patrol Inspection

The Nansha Bridge, formerly known as the Humen 2nd Bridge, is a cross-river corridor connecting the Nansha District of Guangzhou and the Shatian Town of Dongguan City in Guangdong Province of China. It is located on the main stream of the Pearl River and the west end of the Guangzhou-Longchuan highway. It is another world-class bridge built in the Pearl River Delta after the Hong Kong-Zhuhai-Macao Bridge. The Nansha Bridge commenced construction on December 28, 2013. On November 20, 2018, the bridge was successfully completed arch span closure. It was opened for public service on April 2, 2019. As the first super project to be put into use after 《The development plan for Guangdong-Hong Kong-Macao Greater Bay Area》 was promulgated, the construction of the Nansha Bridge is attracting attention.

Guangdong Province is one of the first pilot provinces in the new-generation national traffic control network and smart highway pilot project of the Ministry of Transport. Guangdong Mobile and Guangdong Transportation Group have signed a strategic cooperation agreement. As a participant in the joint construction of the smart transportation network, Guangdong Mobile has been actively promoting the network construction of the smart highway pilot project for a long time, and coordinated the development and application of vehicle-integrated AI of 5G enhanced technology. Both parties cooperated with each other to use the Nansha Bridge as a "Smart Highway" pilot site to build a benchmark for the industry and build a new paradigm of 5G industrial solutions.

In road traffic monitoring, 5G and drone-based intelligent preventive maintenance inspection are used to return the real-time road traffic. The monitoring back end can check the road conditions in real time, dispatch resources to deal with sudden traffic accidents, divert traffic congestion, and effectively clear blind areas in road monitoring to reduce monitoring costs.

In addition, the power supply bureau took the lead in applying 5G networks and drone to the routine power inspection of the Nansha Bridge. Intelligent preventive maintenance of UAV-based power supplies: Images and data can be transmitted back in real time. The real-time visibility of scene can be viewed in real time, and real-time communication of on-site command can be conducted to guarantee the power supply of the Nansha Bridge.

With mobile 5G networks, TV stations successfully send live broadcast signals to studios, meeting the real-time transmission requirements of programs. The 5G technology features high rates and low latency. The 4K ultra-HD video images can be transmitted smoothly through the 5G network, and the transmission effect is stable. This technology also shows broad prospects for the large-scale application of the ultra-HD video technology in the 5G era.

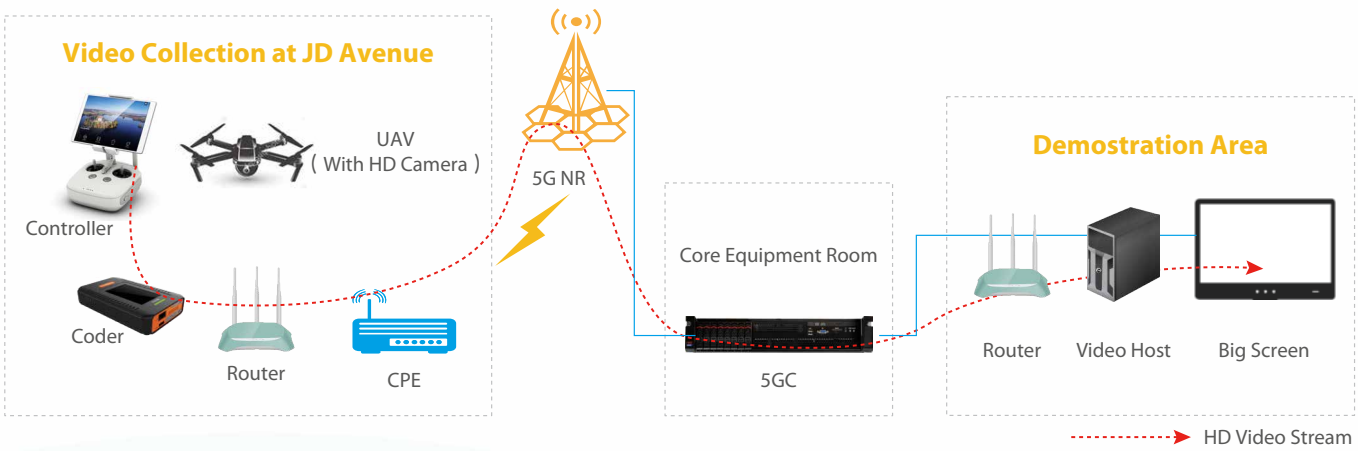
5G+ Drone to Achieve Industrial Inspection and Logistics Distribution

With the development of the 5G industry chain, the real-time control of UAV will be improved significantly, and the dependence of UAV on GPS will be greatly reduced in combination with machine vision, greatly improving the accuracy of UAV flight routes and placement. The flight area is covered by 5G network. The drone uploads real-time videos to the flight control handle, which is connected with the CPE and directly transmitted back to the 5G base station through the CPE. Therefore, 5G+ UAV is widely used in the industry, which can promote the development of the smart city and create a smart and beautiful new life.

Working with China Unicom to Help Jingdong Achieve 5G Drone Distribution in Their Northeast Logistics Base

On March 15, 2019, Shaanxi Unicom and ZTE jointly completed 5G-based drone video backhaul verification in the Jingdong Logistics Base, Xi'an. The 5G network transmits 4K HD videos to demonstration halls located more than ten kilometers away in real time, implementing the real-time control of the 5G technology on the long-distance timeout distance of UAVs. Combined with machine vision, the 5G technology can greatly reduce the dependence of UAVs on GPS, and greatly improve the precision of UAVs in flight routes and placement. The clear and smooth return video allows industry partners to intuitively experience the large bandwidth and low latency features brought by 5G.

JD.com Logistic Service Demo - UAV Video Backhaul



方案说明

- A drone is flying over JD Avenue, and the flight area has completed 5G network coverage;
- The drone's video is uploaded to the flight controller, which is connected to the CPE and directly transmitted back to the 5G base station
- This demo reflects the 5G features of high bandwidth, high reliability, and mobility.

ZTE and Sunway Jointly Establish 5G Drone Power Patrol Inspection Application

Recently, ZTE and Sichuan Zhongfei Saiwei Aircraft Technology Co., Ltd. officially signed a strategic cooperation agreement, to cooperate in 5G drone in the electric power inspection field to speed up the implementation of innovative achievements in 5G drone power inspection and build a demonstration application of 5G drone power inspection.

With the rapid development of drone technology, drones play an increasingly important role in electric power applications. These drones are mainly used for fine preventive maintenance inspection of transmission lines and towers, inspection of transmission lines and channels, emergency rescue, three-dimensional modeling of transmission lines and channels, and three-span measurement.

Due to the low transmission speed and high delay of the communications network, the existing data is stored in the TF card of the drone. After the data is checked, the data is exported for manual processing. The timeliness, interactivity, and intelligence are all insufficient. 5G has the features of large bandwidth, low delay and wide connection. 5G+ UAV patrol inspection can effectively solve the existing problems, provide targeted solutions and timeliness: The 5G network can remotely transmit the video captured by UAV back to the monitoring hall in real time. The power operation inspection department can find and record faults in time, and mark them to improve the timeliness of patrol inspection. In terms of reliability and interaction, the 5G network can provide multi-camera coordinated 360° panoramic shooting and data redundancy collection, thus reducing the problem of image missing due to inconsistency with the inspection target diagonal and light. The ground station cooperates with the management center in internal and external field operations to discover problems and re-collect images in a timely manner, thus improving the interoperability of preventive maintenance. In terms of smart improvement, the 5G network can remotely

perform preventive maintenance without needing human intervention, and automatically record and mark problems on video and images through the AI technology. In this way, preventive maintenance reports can be automatically generated to improve work intelligence.

The electric power industry imposes extremely high requirements on network security, and requires dedicated networks. 5G network slicing can also provide secure and reliable dedicated networks for electric power services, and provide network bearers for the electric power ubiquitous IoT development that is being promoted by national electric power departments.

By virtue of profound experience accumulated in their respective fields and the principle of friendly cooperation, close coordination, complementary advantages, mutual benefit, win-win, and development together, ZTE and Zhongfei Saiwei reached a strategic partnership. With the accelerated commercial use of 5G, key technologies such as drone image transmission and data transmission can be fully combined with the features of low latency and high bandwidth in 5G networks, helping UAV make patrol inspection more intelligent and efficient.

Cooperation, Innovation, and Win-Win to Build a Prosperous 5G Ecosystem

As a 5G pioneer, ZTE attaches great importance to the construction of the ecosystem, and has achieved very good results. First of all, we actively participate in relevant standard organizations and industry associations, such as 5GAA, 5G ACIA, AII, GSMA, CCSA, IMT-2020 and ITU-T, and contribute to the formulation and promotion of 5G standards. Second, we establish cooperation with industry-leading enterprises to explore the application of 5G in the industry and implement typical service scenarios, such as cooperation with SANY HEAVY INDUSTRY, SUPCON in the industrial field, Guangzhou Automobile in the Internet of Vehicle (IOV), Shanghai Electric Power and China Southern Power Grid in the energy, and cooperation with Xinhua News Agency's new media center for convergent media construction. Thirdly, we work with industry-leading solution providers to launch 5G-based solutions for different industries, such as MEC+SUPOS solution for intelligent manufacturing jointly with SUPCON, and MEC-based Cloud XR solution jointly with Nibiru.

ZTE has always adhered to the attitude of openness and mutual benefits, and joins hands with partners in various fields to share resources and innovate together. ZTE believes that the 5G industry will surely shine with the joint efforts of ecological partners.

Opening and Innovation for Win-win Cooperation

Fujian Provincial Government

In May 2019, ZTE visited the provincial government of Fujian. The two parties held friendly talks and signed strategic cooperation agreements on 5G technologies, industrial applications, digital city construction, and transit system. Both parties will jointly promote the in-depth integration of 5G, cloud computing, big data, artificial intelligence, big video, virtual enhanced reality, and other technologies to be integrated with traditional industries, and provide services for people's livelihood, government affairs, urban management, emergency management, public security, etc. And conduct pilot demonstration trial in the related fields.

Sports Bureau of Shanxi Provincial & Shanxi Broadcasting and TV Station & China Mobile (Shanxi)

On May 17, 2019, ZTE signed a strategic cooperation agreement with the Sports Bureau of Shanxi Province, Shanxi Broadcasting and TV Station, and Shanxi Mobile in Shanxi Provincial Sports Center. The four parties plan to work together to speed up the construction of 5G infrastructure, improve the quality of live broadcast, promote the integration and development of the UHD and sports industry, and promote 5G industrial alliance to improve the brand competitiveness of all parties.

Xinhua News Agency's New Media Center

On May 31, 2019, ZTE and the new media center of Xinhua News Agency officially signed a 5G+ strategic cooperation agreement in Beijing. Both parties will thoroughly implement general secretary Xi Jinping's important instructions and upgrade the traditional media services of Xinhua News Agency through intelligent solution such as 5G+AR+AI to develop innovations of new media on site delivery.

Tencent

In May 2019, ZTE and Tencent signed a memorandum of cooperation on 5G. Both parties will strengthen cooperation on 5G network technologies and application innovations, and promote the maturity and deployment of 5G edge computing, QoS acceleration, network slicing, network capability openness, and other technologies. They will explore 5G edge computing service applications and innovative business cooperation models together to promote the industrial development of 5G.

China Mobile (Nanjing) & CRRC Corporation Limited（CRRC）

In May 2019, the first 5G park in the Jiangbei New Area was jointly built by Nanjing Mobile and ZTE in the CRRC Digital Technology Park. This marks the 5G era of CRRC Digital Technology Park. The three parties officially signed a strategic cooperation agreement based on 5G application innovation. This agreement continuously deepens the application and innovation capabilities of 5G in smart rail transit system, smart park, and other fields, and promotes industrial transformation and upgrade.

Yibin Municipal Government

At the China International Smart Terminal Industry Development Conference held in Yibin, Sichuan Province, the people's government of Yibin officially signed a strategic cooperation agreement on 5G with ZTE Corporation. Both parties plan to promote the integration of 5G achievements and industry innovation in Yibin, and promote industrial upgrade. This provides comprehensive support for Yibin to build the "Yibin Strong Support for One Trunk and Multiple Support" strategy in the province.

China Railway Eryuan Engineering Group CO.LTD（CREEC）, Chongqing

In May 2019, ZTE signed a strategic cooperation agreement on 5G with the Chongqing Branch of China Railway Eryuan engineering group CO.LTD（CREEC）. Based on the agreement, both parties will explore innovative applications based on three communications network scenarios: Dedicated rail transit system communications network, civil communications network, and public security communications network, and promote the integration of the three networks. The three networks will be researched and developed with focus on train operation scenarios, operation and maintenance scenarios, passenger use scenarios, and security inspection scenarios.

China Telecom (Jiangsu), Jiangning District Government

On May 15, 2019, at the 5G+ Intelligent Manufacturing Industry Innovation and Development Conference, ZTE reached a strategic cooperation agreement with Jiangsu Telecom and Jiangning District People's Government of China. Jiangsu Provincial Industry and Information Department and Jiangning District Leader unveiled the "5G+ Intelligent Manufacturing Public Technical Service Platform." The three parties will explore the deep integration of 5G technology and industrial field by taking the formal production of the 5G line of the ZTE Nanjing Intelligent Manufacturing Base Project as an opportunity, and build industrial 5G application models.

China Mobile Migu Corporation

On May 16, 2019, China Mobile's Migu Corporation and ZTE officially signed a strategic cooperation agreement in Hainan, announcing that both parties will further strengthen cooperation in 5G ultra-HD joint R&D, smart STB, smart hardware, IPTV platform, overseas market expansion, and enterprise services.

Mengniu Dairy Corporation

In May 2019, ZTE and the Mengniu Dairy Company reached a strategic cooperation agreement. Both parties will jointly explore the innovative application of 5G in the collection, production, and storage of dairy products, thus tracing the entire process and ensuring the security of dairy products.

Xi'an High-Tech Park

On May 11, 2019, Xi'an High-tech Zone, Xi'an Mobile, and ZTE signed the 5G Strategic Cooperation Framework Agreement to jointly promote extensive 5G cooperation among enterprises in the high-tech zone, and promote the transformation and upgrade of manufacturing industry to the direction of digitalization, network, and intelligence.

China Mobile (Zhengzhou) & Zhengzhou Bus Corporation & Zhengzhou Tiamaes Technology Co.,Ltd.

On May 21, 2019, ZTE signed 5G strategic cooperation agreements with Zhengzhou Mobile, Zhengzhou Public Transportation Corporation, and Zhengzhou Tiamaes Technology Co.,Ltd. The autonomous driving ecological laboratory for 5G public transportation jointly built by ZTE and Tiamaes Technology was officially unveiled. The three parties will join hands to deepen research and innovate in the 5G smart public transportation field.

Deloitte Enterprise Consulting (Shanghai) Co., Ltd.

On May 8, 2019, ZTE and Deloitte China held a strategic cooperation signing ceremony in Shenzhen for joint development of 5G era. Both parties will make full utilization of their respective fields of talent, technology, market, and all other resources to establish a comprehensive strategic partnership.

Guodong Group

In May 2019, ZTE and Guodong Group signed a strategic cooperation agreement on 5G. Both parties will take 5G as an opportunity to cooperate on the market and technologies in 5G smart towers and other fields, and conduct research, pilot and development on the 5G Internet of Things (IoT), edge computing services, and other 5G-related topics based on 5G smart towers and 5G smart data centers.

State grid Nanjing Automation Co., Ltd.

In May 2019, ZTE and Guodian Nanjing Automation Co., Ltd signed a strategic cooperation agreement in Nanjing. Both parties carried out in-depth cooperation on the application of 5G technologies in the electric power field to provide innovative technical solutions for service scenarios to achieve mutual benefits and win-win results.

NanJing Nari-Relays Electric Co.,Ltd.

In May 2019, ZTE and NanJing Nari-Relays Electric Co.,Ltd. reached a strategic partnership. ZTE and NanJing Nari-Relays Electric Co.,Ltd. planned to carry out in-depth cooperation on the integration of 5G technologies, strong smart grids, ubiquitous power IoT, wired and wireless private networks, and cloud computing to provide two-network solutions, products, and services.

Xu Ji Electric Co., Ltd.

In May 2019, ZTE and Xu Ji Electric Co., Ltd signed a strategic cooperation shelf agreement in Zhengzhou. Both parties will actively explore the innovative applications of 5G in power distribution networks, integrated energy, multi-station integration, and smart parks.

Shanxi Cloud Era Technology Co., Ltd.

On May 17, 2019, ZTE and Shanxi Cloud Era Technology Co., Ltd. signed a strategic cooperation framework agreement in the headquarters building of Shanxi Cloud Era Technology Co., Ltd., to jointly promote the development of industrial applications such as the information industry and intelligent manufacturing industry in Shanxi province.

Nong Xin Tong Group.

On May 21, 2019, ZTE and Nong Xin Tong Group signed a strategic cooperation agreement on 5G. All partners will join hands to deepen innovative cooperation in 5G digital agriculture and agricultural information systems.

Wuhan Broadcasting and Television Station & China Telecom

On May 19, 2019, Wuhan Broadcasting and Television Station, China Telecom and ZTE Corporation signed a strategic cooperation agreement to work together in the 5G media field. This was the official agreement in which the three parties joined hands after successful cooperation between them in Hanma, Yangtze River Lighting Show and World Flyer Congress 5G+4k live broadcast.

Jinan Broadcasting and TV Station

On April 17, 2019, Jinan Broadcasting and TV Station, Jinan Branch of China Mobile Communications Corporation Shandong Co., Ltd., and Shandong Branch of China Mobile Corporation Shandong Co., Ltd., signed a "5G Joint Innovation Application Cooperation Agreement" to jointly build a new 5G media port.

Nanjing University of Posts and Telecommunications

On April 29, 2019, ZTE and Nanjing University of Posts and Telecommunications signed a strategic cooperation framework agreement. ZTE proactively built an all-round partnership between universities and enterprises, and worked closely on 5G networks and applications, campus informationization, "smart campus" construction, and technological innovation.

Tianjin University of Science and Technology

In May 2019, in Hexi Campus of Tianjin University of Science and Technology, ZTE and Tianjin University of Science and Technology signed the "5G Strategic Cooperation Agreement." Both parties plan to deploy 5G network on the campus, and carry out the integrated application of 5G, AR/VR teaching and smart classroom. In addition, ZTE will plan 5G, video surveillance, preventive maintenance, and other applications based on the university's campus requirement, to build a new-generation smart campus with 5G.

GE Digital

In April 2019, ZTE and GE Digital signed a strategic cooperation agreement in Shanghai to explore the deep integration of 5G, edge computing, big data, artificial intelligence and IIoT (Industrial Internet of Things).

SANY HEAVY INDUSTRY

In March 2019, ZTE signed a comprehensive strategic cooperation agreement with SANY HEAVY INDUSTRY in the Changsha Industrial Park, and will work nationwide to explore the deep integration of 5G technologies and the industry.

Nanjing Lukou International Airport Technology Co., Ltd.

In March 2019, ZTE and Nanjing Lukou International Airport Technology Co., Ltd officially signed a strategic cooperation agreement, aiming to provide in-depth cooperation on 5G communications to help with the airport communications network construction.

SUPCON

In November 2018, China Telecom Zhejiang Branch, SUPCON and ZTE signed a strategic cooperation agreement on 5G to exploit the professional advantages of their respective fields and jointly explore the application of 5G in the industrial Internet field.

PCI TECH

In May 2019, ZTE and PCI Tech signed a strategic cooperation agreement in Guangzhou. Both parties will make full use of their advantages and complement resources to build a joint 5G rail transport lab to explore innovative 5G applications in the rail transport field.

China Transinfo Co., Ltd.

In May 2019, ZTE and China Transinfo signed a strategic cooperation agreement in Beijing. ZTE and China Transinfo will carry out comprehensive strategic cooperation to achieve mutual benefits and win-win cooperation in major related fields, including urban transportation, highway, rail transportation, intelligent network connection, and vehicle-road collaboration based on 5G empowerment.

Xingmin Intelligent Transportation Systems (Group) Co., Ltd.

In May 2019, ZTE and Xingmin Intelligent Transportation Systems (Group) Co., Ltd. officially signed a strategic cooperation agreement. Both parties will cooperate in the 5G application field to explore new business and new models for fulfill the actual requirements of the industry.

CATARC Automotive Industry Engineering(Tianjin) Co.,Ltd.

In April 2019, ZTE signed a strategic cooperation agreement on 5G in Tianjin with CATARC Automotive Industry engineering(Tianjin) Co.,Ltd. Both parties will carry out in-depth cooperation on 5G technologies in the Internet of Vehicles, autonomous driving, and smart transportation.

Motovis

In April 2019, ZTE and Motovis signed a strategic cooperation agreement to study the autonomous driving technology based on 5G and explore the multi-field applications of 5G smart driving.

Zhongtong Consulting Design Institute Co., Ltd.

In April 2019, ZTE and Zhongtong signed a strategic cooperation agreement in Nanjing. By sharing resources and complementing advantages, both parties are working together closely to explore industrial innovation applications based on 5G technologies.

SIASUN

In January 2018, ZTE and SIASUN signed a strategic cooperation agreement. Both parties reached long-term stable industrial chain partners based on all aspects of 5G intelligent manufacturing and industrial 4.0.

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