

# Enabling a High Performance and Low Latency Network Experience in a 100% Wireless Smart Building

Empowering business operations for TIANJIN ANJIE IOT SCIENCE AND TECHNOLOGY CO., LTD. in a device-dense environment through seamless connectivity

## Customer

Tianjin Anjie IoT Science and Technology Co., Ltd. (Anjie-IOT)

## Country

China

## Challenges

- A sensor-dense environment at Anjie-IOT headquarters required robust connectivity, without having to install a large number of access points (APs)
- The need for a reliable and secure wireless network to support Anjie-IOT business operations and office communications
- Heavy interference from the various networks and IoT standards deployed on-site i.e. 5G, NB-IOT, Zigbee, Bluetooth, and LoRa.
- The need for simplified network setup, operation, and management

## Solutions

- 12 units of CommScope Ruckus ICX switches
- 55 units of CommScope Ruckus 802.11ac Wave 2 APs



- 1 unit of CommScope Ruckus SmartZone controller
- CommScope Ruckus Smart Positioning Technology (SPoT) suite

## 100% wireless network provides stable and reliable service in a high-density environment

Tianjin Anjie IoT Science and Technology Co., Ltd. (Anjie-IOT) is a Chinese high-tech enterprise located in the Tianjin High-tech Zone. As an industry-leading

provider in integrated energy conservation management solutions, Anjie-IOT integrates Internet of Things, big data and cloud computing into an intelligent operation and maintenance systems to provide professional, safe and energy-saving solutions in the areas of power maintenance, HVAC, lighting, elevators, fire protection, security, water supply, and networking.

As the star enterprise in Tianjin, a metropolitan level city in northern China, Anjie-IOT has a wide customer-base, and



holds over 70% market share for energy and IoT management in the city. The company is continuously expanding its business with offices in Beijing, Shanghai, Guangzhou and Wuhan. To cope with this rapid growth, Anjie-IOT relocated their corporate headquarters to the Huayuan Industrial Zone in January 2019. The new headquarter offices would also be an ideal way to demonstrate technical and business leadership of the company through the complete portfolio of Anjie-IOT solutions for their customers.

The new headquarter building consists of five floors, along with a lower ground level. The building itself works as a small-scale IoT center – where operation and maintenance of HVAC, power, fire, lighting and other systems are centrally connected and managed through the Anjie-IOT system. The building is also the first in China to realize full wireless connectivity; the company's whole business operations, including desktop phones, video conferencing system and IoT devices runs on the wireless network, with no wired network deployed.

Before the move, Anjie-IOT utilized wireless products from a number of vendors with results that were deemed unsatisfactory. With more than 600 employees working in different offices across China, loss of network connectivity and slow switching between APs were common issues. It was also particularly challenging during major conferences, or with crowded meetings.

The company decided to explore a network refresh for the new headquarters, with a number of vendors deploying trial solutions from different brands over the company's many offices, and Anjie-IOT employees invited to provide input on their preferred vendor. Beijing Xinquan Technology Co. Ltd, a system integrator for Anjie-IOT, recommended CommScope to take part in the deployment test.

The trial area assigned to CommScope was the design department of Anjie-IOT, which occupies an area of 1,000 square meters. Previously, all design documents were transmitted through a wired network as due to the high volume of network traffic. Now, with the CommScope Ruckus wireless network in place, large design files are sent smoothly over Wi-Fi without hassle, impressing staff during the course of a three-month trial.

After the completion of the trial, Anjie-IOT decided to deploy CommScope Ruckus' comprehensive wireless network for the new headquarters building.

“The environment of Anjie-IOT new headquarters looked to be very challenging – with a high density of wireless terminals potentially causing severe interference that could greatly affect the stability of network. The anti-interference feature of the CommScope Ruckus access points is a perfect solution for the new building. CommScope Ruckus APs can also support concurrent access. Employees can enjoy smooth connections even under a high-density environment. Pre- and after sales services from Ruckus engineers were impressive. Several on-site inspections were carried out during installation and in the initial stage of implementation. We therefore highly recommended CommScope Ruckus solutions to Anjie-IOT.”

**Wang Xiaoyuan**  
General Manager, Beijing Xinquan Technology

## Industry-leading solutions save deployment space, while allowing reliable and speedy transmission in a condensed environment

The new Ruckus-powered Wi-Fi network covers the whole building, with total floor space amounting to 20,000 square meters. In total, 55 units of 802.11ac Wave 2 AP, 12 units of ICX switches, and one wireless network controller were installed.

At the end of the deployment, the number of APs deployed by CommScope was much lower than expected, greatly reducing the overall estimated project cost, while also significantly simplifying deployment complexity, yet still able to support the further expansion of IOT deployments in the future.

This powerful new network is intended to support an array of IoT sensors for PM2.5, PM10 particle monitoring, temperature and humidity, various wireless controllers and POE lighting systems which are installed in the building. These IoT devices transmit different wireless signal standards, such as 5G, NB-IOT, Zigbee, Bluetooth, and LoRa; as such it was important to Anjie-IOT that there was no interference which would impact performance.

Separately, traditional omni-directional antennas have the problem of radiating signals in all directions, resulting in an oversaturation of signals in certain environments. Ruckus APs incorporate patented BeamFlex+™ adaptive antenna technology that adapts the antenna to the direction of the client devices, extending coverage and mitigating interference. This provides an optimal user experience indoors, while also being ideal for high-density environments. At the same time, Ruckus APs use ChannelFly dynamic channel technology to automatically find the least congested channels through machine learning to achieve greater data throughput.



To manage both office and business networks, Anjie-IOT had appointed two IT specialists to the task. Therefore, it was also important that network administration and management should be as simple as possible. The CommScope Ruckus ICX switches used are ideally suited for Anjie-IOT, simplifying network set up and management, and allowing a high level of flexibility and scalability. At the same time, the low-latency, non-blocking architecture can support the operation of bandwidth sensitive applications, such as video, unified communications, VDI and mobile applications.

The CommScope Ruckus controller was also simple to deploy, allowing centralized management and automatic optimizing of the network.

The combination of CommScope Ruckus wireless APs, ICX switches, and controller, enabled Anjie-IOT headquarters to achieve transmission speeds of over a gigabit per second. A more stable and secure network also minimizes troubleshooting, while making further upgrades a simple matter. The deployment of

“The new Anjie-IOT headquarters is very unique and innovative. We are now the only office building in China that does not utilize a traditional wired network. All data transmission relies on CommScope Ruckus wireless network. We are very demanding with our wireless network capabilities as our business network, office network and monitoring system can be impacted by network delays. The performance of the CommScope Ruckus solution is the best among the brands trialed.”

**Mi Yumiao**  
Deputy General Manager, Tianjin Anjie-IoT Science and Technology Co. Ltd.

Ruckus solutions also helped Anjie-IOT solve various network instability problems that were present with the previous network setup. Today, a variety of terminals – mobiles, computers, desktop phones, wireless blackboards, iPads, PoE lighting systems and sensors - are connected to the wireless network quickly and easily, while switching between APs is seamless. The business and office networks of the headquarters building can now easily accommodate up to 1,000 clients daily, with that number is expected to hit 20,000 connections in the future.

Looking ahead, Anjie-IOT also deployed CommScope Ruckus' unique Smart Positioning Technology (SPoT) at their headquarters for internal testing. Ruckus SPoT is the industry's first cloud-based Smart Wi-Fi location-based services (LBS) user position technology suite that gives both carriers/service providers and enterprises the ability to track customer locations, and generate data to help them plan a wide range of value-added services, to increase their profitability while enhancing the customer experience.

Numerous shopping malls and supermarkets in Tianjin are customers of Anjie-IOT, for example, Hang Lung Plaza, Florentia Village, Outlets, and SM City Tianjin - the largest shopping mall in Asia. Anjie-IOT believes its customers can benefit from precise positioning services as part of their marketing initiatives, and plans to recommend SPoT to their customers who manage shopping malls, supermarkets, and smart buildings.

"We have shared the benefits of location services with many of our customers and we will work closely with CommScope Ruckus to promote the indoor location-based services. We look forward to working with CommScope Ruckus to deliver more products and services, and explore delivering our services to other shopping malls, supermarkets, hotels, retails, stadiums – fully utilizing big data to improve overall operational excellency."

**Mi Yumiao**  
Deputy General Manager, Tianjin Anjie-IoT Science and Technology Co. Ltd.

"Anjie-IOT is an important customer and key business partner. Our stable and efficient network solution greatly minimizes the area for installation, seamlessly connecting its IoT terminals and fully supporting the operation of the headquarters building in a 100% wireless and secure environment. We look forward to work closer with Anjie-IOT to set up smart network infrastructure solutions for smart buildings and business environments in the region."

**Kelvin Wang**  
Ruckus Business Sales Director of China, CommScope

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