RUIJIE

INNOVATION
Beyond Networks

YOUR TRUSTED PARTNER

Success Cases Booklet

RUIJIE

INNOVATION
Beyond Networks

Ruijie Networks Co., Ltd.

www.ruijienetworks.com

Contents

GOVERNMENT

GOVERNMENT

GOVERNMENT

The Institute of High Energy Physics of the Chinese Academyof Sciences

To Set Up the World's Leading Research Base

Project Background

- The Institute of High Energy Physics of the Chinese Academy of Sciences (hereinafter referred to as "IHEP") is a comprehensive research base for China's high-energy physics, advanced accelerator technology, advanced ray technology and ray applications, and the first large-scale campus network and cloud computing data center in China.

- A large amount of high performance business computing is hosted in IHEP, which involves a lot of confidential experimental data, thus posing great difficulty on IHEP to balance between efficiency and security.

Solution

- IHEP builds wired and wireless campus networks and both use Ruijie's switches and wireless devices.

- At the core layer, two RG-S8610 switches are deployed as the core of the entire network, which are virtualized as a single logical switch with VSU technology.

- RG-S5750 and RG-S2952 are used as the access switches to build a flat network, simplifying the network structure and saving efforts for network management.

- With the terminal access solution combining 802.1x and web authentication, "transparent and secure" network access is achieved to enhance user experiences with both security and efficiency.

Customer Value

- This solution provides IHEP employees with excellent online experiences in the campus through rapid and convenient access to the Internet.

GOVERNMENT

The Ministry of Civil Affairs

To Build an Intelligent Office Network

Project Background

- The Ministry of Civil Affairs of the People's Republic of China, which is a department of the State Council, is in charge of social and administrative affairs. It has been years since the office network was constructed. Some of the equipment has served for a long time, and the funnel architecture provides services which are independent from each other. Considering the current network services and its own service orientation, the Ministry of Civil Affairs finally chose Ruijie Networks.

Solution

- RG-2900E series secure the overall network stability with all gigabit access and full range of security protection against the terminal-accessed ARP virus, DDoS attacks, and NFPP (Network Foundation Protection Policy) isolation attacks.

- As the convergence of floor access, RG-S5700-E series provide three-layer routing and core switch connection.

- As the network core, RG-S8600E carries high-speed data forwarding throughout the entire network. VSU technology effectively simplifies the network structure and eases maintenance work.

- As business grows, cloud computing data center technology such as VXLAN and SDN can be used in the future to improve network extendibility and flexibility, laying a foundation for a virtualized cloud computing network.

Customer Value

- Standardized network structure is easy to maintain and flexible to extend. Safe and isolated 2-layer network guarantees business continuity. Investment is protected by meeting the needs of the current and future business development.

GOVERNMENT

The State Administration of Radio, Film and Television

To Establish a Cloud Platform and Undertake Automatic Cloud Monitoring

Project Background

- The State Administration of Radio, Film and Television, or SARFT, is in charge of the drafting of laws and regulations on radio, film, TV, audio/video programs on the network, as well as other businesses related to show biz.

- To cope with the regulatory tasks of monitoring and controlling mass audio and video programs and quickly completing the analysis, counting, monitoring and management work of various types of programs, SARFT decided to build a cloud platform for monitoring radio and television content.

Solution

- The main switching devices of the platform are Ruijie Networks' RG-N18000-X, RG-S6220-H, RG-S7800C, RG-S5750C-H, etc.

- VSU device virtualization, SDN and VXLAN functions are supported, and flattened large-scale 2-layer network architecture is deployed, enabling reduction in operation and maintenance costs and better flexibility in strategy management and orchestration of business data.

- The device supports smooth migration to 100G service expansion and SDN technology, bringing great convenience for future upgrade.

Customer Value

- The solution successfully copes with the analysis, counting, monitoring and management of thousands of channels by the supervision center, greatly saving the examination time and manpower, and satisfying the SARFT's requirements on business automation.

GOVERNMENT

Anhui Province Binhu Government Adminis-trative Park
To Achieve Unified Information Management and Control

GOVERNMENT

Beijing Public Transport
The Largest Free Bus Wi-Fi Network in China

Project Background

- In September 2016, Beijing Public Transport completed the upgrade of 18,000 buses. Since then, 20 million Beijing citizens could enjoy free Wi-Fi access on buses.

- As the construction operator of Beijing Public Transport Wi-Fi, 16Wi-Fi uses Ruijie's RG-MTFi mobile Wi-Fi, which lays a foundation to ensure superior user experience.

- In the past, common plug-in cables were used for the power connectors of mobile Wi-Fi products, which were loosened easily when the car was moving on bumpy roads. As a result, the device failed to connect to the network because of power disconnection. Or worse, the device was damaged due to repeated power on and off.

Solution

- The power connectors, equipment internal structure and installation of Ruijie's RG-MTFi products use onboard shockproof design, with the interfaces being changed to welded aeronautical components. The product comes with a standard 128GB SSD that supports both local and remote updates. It not only has higher reading speed and stability, but also stores hot APPs in MTFi's local space, which saves 4G charges significantly.

- Ruijie's RG-MTFi products can be automatically connected to Ruijie's mobile Wi-Fi platform, delivering software, cloud AC, and MCP advertising marketing platform by CMS media. Ruijie's RBIS traffic module's powerful functions can help operators calculate the number of passengers getting on and off in a period of time, the passenger flow along the bus lines, and the number of people at a stop to assist company staff to dispatch multimedia bus advertisements based on different regions and bus lines.

Customer Value

- Ruijie's RG-MTFi product decreases the access time for 30 users simultaneously from 20 seconds to 2 seconds, enabling Beijing Public Transport to move fast towards the goal of "smart transportation".

Project Background

- The Binhu Center, where the Anhui Provincial CPC Committee and its Standing Committee, the Provincial Government, and the provincial CPPCC organs are located, is in Binhu New Area, with a total land area of about 137 acres and a projected total construction area of 436,000 square meters. Ruijie Networks built multiple business networks such as E-government extranet and private network in Binhu Center Park.

Solution

- Deploying 4 sets of RG-N18014 data center switches, 16 sets of RG-N18010 data center switches, over 50 sets of RG-S6220-24XS 10G switches, and more than 550 sets of RG-S5750 series switches of Ruijie in the campus network.

- Deploying 5 sets of Ruijie Networks' RIIL integrated operation and maintenance platforms in a hierarchical deployment mode enables the Provincial Party Committee, the government, the NPC, the CPPCC and other institutions to control the in-building network themselves. The provincial economic information center can monitor all the networks in the Binhu Center through the unified management platform to ensure safe and stable operation of the entire network.

Customer Value

- High performance and high reliability basic network platform and unified integrated management platform system have simplified the network structure, improved the network performance, reduced management difficulty, and provided a flexible and high-speed channel for government affairs of various types and high-traffic applications.

GOVERNMENT

Fujian Local Taxation Bureau
To Assist the Construction of Data Center Network

Project Background

- With the continuous development of tax informationization, the national unified application software, such as the taxation administration information system, the value-added tax management system and the export tax refund system, have basically covered all levels and services of tax administration. The national tax system and most of local tax systems have been essentially centralized at the provincial level.

- With the gradual promotion of the Third Phase of Golden Tax Project, the overall goal of "one platform, two processing levels, three coverages and four systems" is about to be realized. As the core of the province's tax revenue collection and data centralization, the provincial data center has uplinked to the data center (Beijing) and the data center (South China Sea), and downlinked to the cities', districts' and counties' tax offices within the province. Horizontally, it is connected to relevant business units, and externally to collect tax through the Internet. This highly centralized service processing mode requires a high-availability, scalable, manageable, secure and controllable data center network carrier.

Solution

- Fujian Local Taxation Bureau uses Ruijie's data center core switch RG-N18010 as the core switch of the provincial local taxation data center to undertake the core exchange work of the entire data center network. Meanwhile, they adopt 25 sets of Ruijie RG-S6220 series data center switches for the access of each service division. A perfect network is built for the upper data center of Fujian Local Taxation Bureau by leveraging the rich data center.

Customer Value

- Based on the basic goal of the Third Phase Golden Tax Project, the construction of the data center network in Fujian Local Taxation Bureau has combined several key features and trends in the development of data center network technology in order to meet the overall tax service development in the next 5 to 8 years.

- Stable and reliable with virtualized system and high reusability, the platform not only meets the world's top standards, but also comes with Chinese characteristics and overall low investment cost.

TELECOMMUNICATIONS

Gehua CATV Network Co., Ltd.
To Escort the Cloud Platform with Ruijie's SDN Security Resource Pooling Solution

Project Background
- Gehua cloud platform is one of the first radio and television cloud platforms in China. In 2014, Gehua mapped out the strategy of omnimedia integration cloud platform. Within this strategy, omnimedia integration cloud platform infrastructure (IaaS) is planned; a self-improving radio and television omnimedia cloud ecosystem (SaaS) is to be built around Gehua omnimedia integration cloud platform (PaaS) by leveraging various resources.

Solution
- Ruijie Networks constructs 4 cloud data centers, with 2 high-end Newton 18010 core switches deployed at the core. While at the edge, two RG-S6220 10G TOR switches and one RG-S6000 switch are deployed to form a business unit. With VSU technology, two 10G TOR switches are virtualized into a logical switch for the connection with 10G port of the server. In addition, one RG-S6000 TOR gigabit access switch is deployed to connect to the management port of the server.
- Software-defined network (SDN) service chain technology enables data flow to go between servers as the security strategy of the cloud management platform required, making the data flow pass through corresponding firewalls, WAFs and other security devices.

Customer Value
- The innovative implementation of SDN security resource pooling solution enables better flow of business data from Gehua cloud platform, and makes sure it pass through security devices according to rules defined by security strategy, thus escorting radio and television cloud platform businesses.

TELECOMMUNICATIONS

TELECOMMUNICATIONS

Zhejiang Branch of China Telecom
To Help Build New ICT Services in all Respects with aWi-Fi solution

Project Background

- Based on China Telecom's intelligent cloud platform, aWi-Fi is an integrated Wi-Fi solution that helps corporate customers to offer visitors Internet access, push marketing information, and analyze online data and user's behaviors.

- With unified management of APs dispersed in different businesses via an open Wi-Fi management platform, new ICT services based on Wi-Fi's forward and backward services are provided to realize user management, service push, accurate positioning, data acquisition, behavior analysis, etc.

Solution

- In May 2016, Ruijie Networks was listed in the project of China Telecom Zhejiang Company's aWi-Fi thin AP/AC devices. The WLAN devices from Ruijie Networks can fully support the connection to aWi-Fi platform as well as the AC pool scheme + AC sinking and gateway type AP scheme led by Zhejiang Telecom, thus being widely used in various industries and fields in Zhejiang Province.

Customer Value

- To help China Telecom actively occupy mobile Internet accesses to realize rapid promotion of its services in the market of government and enterprises.

- To help China Telecom expand its services in every industry, including retail, hospitality, city Wi-Fi, government, finance, etc.

- To help China Telecom improve the Internet service experiences and satisfaction of Wi-Fi for businesses, thus increasing the popularity and passenger traffic of the sites for business operation.

TELECOMMUNICATIONS

Fujian Branch of China Unicom
The Construction of Ningde and Putian Data Center Network

Project Background

- Fujian Unicom provincial data center needs site interconnection, and Ningde and Putian are two pilot cities.

- Customer's requirements: Site interconnection between data centers is realized to create a MAN switching network; MAN switching network can handle high traffic, and high burst north-south and east-west traffic; business system redundancy, which can enable traffic forwarding at full wire speed with minimum delay; MAN switching network should achieve unified operation and maintenance management, and support SDN features.

Solution

- Ruijie deployed 4 sets of RG-N18010-X core switches at the exit of Ningde and Putian data centers to build MAN switching networks.

- The solution used a high-end data center switch instead of a direct-connected SR router. The data centers were connected by a special fiber optic cable so that the core switch could handle most of east-west traffic while part of north-south traffic was handled by the SR.

Customer Value

- Ensure a clearer MAN structure to contribute to the expansion of the data center network.

- Ensure the reliability of data center service to contribute to flow processing at full wire speed with low latency.

- Data center resources can be shared and scheduled on demand.

TELECOMMUNICATIONS

China Mobile Hohhot Data Center
To Assist the Construction of the Management Network

TELECOMMUNICATIONS

China Mobile Group Chongqing Branch
To Help Build Government & Enterprise Cloud with Virtual SDN Solution

Project Background

- China Mobile's Southwest Data Center is located in Chongqing, and China Mobile Group Chongqing Co., Ltd. has built a public cloud network for its government and enterprise customers.

- The project is a public cloud network, therefore the customer has put forward a variety of requirements including swift and effective responses of mobile network to cloud services to handle complicated and changing cloud service requirements of government and enterprise customers; standardization between cloud platforms and SDN network to realize effective decoupling; adaptive technical solution adopted by the SDN network for possible future network decoupling to avoid being bound by any service provider; and unified management to improve working efficiency of operation and maintenance, and the utilization of physical resources.

Solution

- Two RG-N18010 switches are accessed to the government & enterprise cloud server cluster. With virtual stacking, they are double uplinked to two RG-N18018-X core switches. An SDN controller is hung beside the core switches as an SDN gateway for virtualization of two SDN gateways. The core switches are then double uplinked to the outlet firewall that is connected to CMNET. To facilitate the future decoupling of SDN network in the machine room, the solution architecture enabling VXLAN VTEP on Vswitch and virtualizing VXLAN gateway is adopted. Besides, RG-N18018-X also has such data center characteristics as VXLAN, OpenFlow, VSU, etc.

Customer Value

- Ruijie's virtual SDN solution is more flexible and compatible, which brings more flexibility to future network expansion.

- With unified configuration management, network changes are driven by the demands of cloud platform, while management, configuration and policies can be issued with one single click to simplify configuration management.

Project Background

- The construction of China Mobile Hohhot Data Center that mainly hosts the private clouds of China Mobile Group is a benchmarking project of the Group.

- The construction scale of the second phase of Hohhot Data Center is very large, totaling about 24,000 servers. The Data Center's network mainly falls into business network and management network.

- The construction of Hohhot Data Center's management network puts forward complex requirements on the access switch, including configuration of 48 gigabit downlink ports, 4 10gigabit uplink ports, supporting virtual stacking mode, configuration of port expansion slot, supporting modular dual power supply for redundancy as well as -48v DC power supply.

Solution

- The RG-S5750-H switch from Ruijie Networks can fully meet customer's demands and is a shortlisted model in China Mobile's centralized purchasing. Taking into account various factors such as device function, performance, reliability and energy-saving, RG-S5750-H is highly suitable for the scene of the Data Center's management network.

Customer Value

- The switch provides a variety of benefits for customers, including industry-leading green and energy-saving technology thanks to an overall power consumption of only 50W, and it supports virtual stacking (Virtual Switching Unit, VSU) feature and OpenFlow 1.3 function with SDN feature.

INTERNET

INTERNET

Baidu
To Ensure Efficient Operations of the Ultra-large-scale Gbps-level Network

Baidu, the Internet search engine giant committed to providing "Simple and Reliable" services for its users, handles over a billion search requests from all over the world every day and is the earliest company to use the Gbps framework. As its business grows, Baidu faces increasing demands for network bandwidth, network stability, support for operation capabilities, etc. From 2013, Baidu's IDC applied Ruijie Networks' RG-S6220 series TOR switch on a large scale to ensure operational stability and efficiency.

INTERNET

Alibaba
To Help Embrace 25G/100G Era with High-performance Data Center Switches

Alibaba is the world's largest online transaction platform. With rapid growth in business, Alibaba's network structure is making the full transition to the 25G/100G era. With extremely large concurrent server groups and the high standards required by SLA services, there are stringent reliability and stability conditions that have to be met by network devices. In 2016, Ruijie Networks became an important provider of network devices for Alibaba after undergoing Alibaba's IDC mainstream network framework tests including next-generation 25G + 100G frameworks. Data center core switch and other products are applied to IDC at large-scale. At the same time, being the largest device provider for Alibaba's administrative network, Ruijie Networks fully participates in new development and expansion projects of all office compounds under the Alibaba Group umbrella, helping the Group embrace the 25G/100G era.

INTERNET

Tencent
To Accelerate the Evolution of the Network Framework

As one of the leading Internet value-added service providers in China, Tencent is experiencing rapid development of multiple services that requires prompt support and construction of massive infrastructures. Besides, the rapid evolution of new services and frameworks requires fast upgrades in both network hardware and software. All these factors have pushed Tencent under increasing pressure of operation and maintenance cost.

Since 2015, Ruijie Networks has participated in the construction of Tencent's gigabit IDC and 10gigabit IDC. It has been following up the evolution of Tencent's network framework, providing complete software and hardware products, and constantly supporting the adaptation and fast delivery of multiple services and new services. Meanwhile, Ruijie Networks has cooperated with Tencent in SDN and other fields to explore and innovate together. The visual operation solution provided by Ruijie can effectively reduce the operation and maintenance costs of Tencent network, and improve the operation and maintenance efficiency.

INTERNET

Qihoo 360
To Assist IDC Network Construction with High-performance switches

As a leading Internet security enterprise in China, Qihoo 360 has brought together the leading high-level security technology crews in China and developed 360 security products that are used by hundreds of millions. In addition, it also provides other Internet services like search engine, live broadcasting, games, films and television, etc.

As the main supplier of network solutions of Qihoo 360 Data Center, Ruijie Networks has built a number of IDC networks for the company, in which RG-N18018-X core switches and RG-S6220 series of 10giga-bit TOR switches have been deployed.

INTERNET

iQIYI
To Guarantee Smooth Video Watching Experience with Scenario-based Products and Solutions

Adhering to the brand slogan of " Always Fun, Always Fine ", iQIYI, a leader in the video industry in China, provides users with abundant, high-definition, smooth and professional video watching experience, and is committed to making it easy and equal for people to get more and better videos. iQIYI takes the leading position in both the number of monthly active users for domestic online videos and the APP coverage.

The development of iQIYI's video services has set a higher demand on IDC and CDN bandwidth, while live video services put forward a higher requirement for the response capability of the network to burst flows. Ruijie provides scenario-based solutions and products for iQIYI with egress capability of over 200Gbps for a single CDN node, and deals with the video flow burst perfectly by optimizing the cache queues.

FINANCE

FINANCE

Agricultural Bank of China
Wireless Outlets Marketing Solution, to Build the World's Largest Bank Outlets Wi-Fi Platform
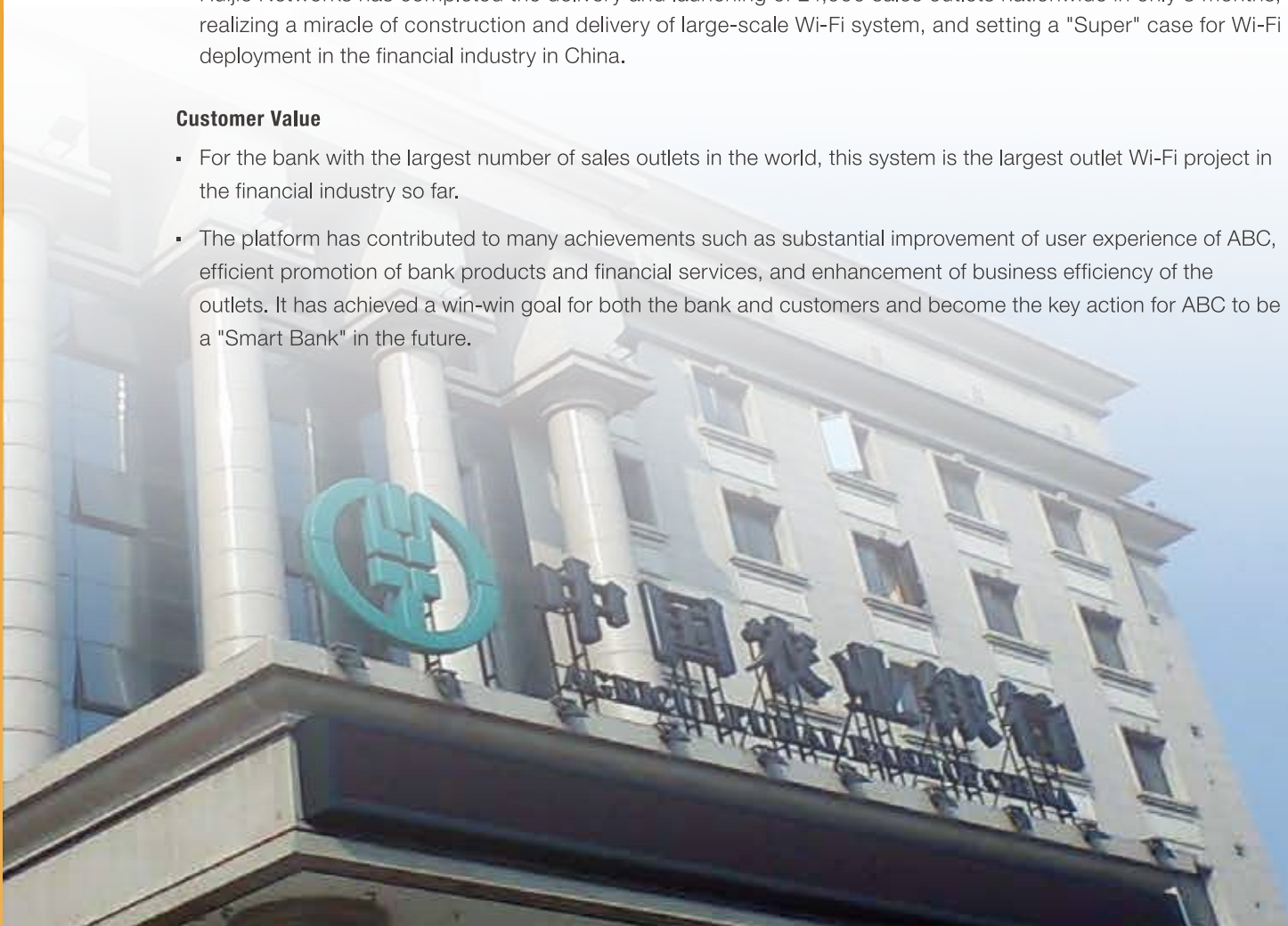
Project Background

- Agricultural Bank of China (hereinafter referred to as ABC) ranks top 7 in the "Top 1000 World Banks".

- Based on business requirements and research and analysis of similar systems in the same industry, ABC decides to adopt a self-built Wi-Fi portal system to establish a unified business promotion portal and provide Internet access services for outlets users throughout the country.

Solution

- Ruijie Networks has adopted an innovative financial outlets guest wireless marketing solution which has divided the overall network architecture into a three-level deployment: head office data center, first-level branch data center and outlets;

- The solution has adopted three major types of products, Ruijie wireless, outlet gateway and software, in dozens of product series of more than 40,000 sets in total.

- Ruijie Networks has completed the delivery and launching of 24,000 sales outlets nationwide in only 3 months, realizing a miracle of construction and delivery of large-scale Wi-Fi system, and setting a "Super" case for Wi-Fi deployment in the financial industry in China.

Customer Value

- For the bank with the largest number of sales outlets in the world, this system is the largest outlet Wi-Fi project in the financial industry so far.

- The platform has contributed to many achievements such as substantial improvement of user experience of ABC, efficient promotion of bank products and financial services, and enhancement of business efficiency of the outlets. It has achieved a win-win goal for both the bank and customers and become the key action for ABC to be a "Smart Bank" in the future.

FINANCE

Guizhou Branch of Bank of China
To Assist the Transformation of the 1# Network

FINANCE

China Construction Bank
To Help the Construction of Production Network in Data Center

Project Background
- The production network scale of Beijing Yangqiao Data Center of China Construction Bank (hereinafter referred to as CCB) increases continuously with the launching of the new-generation business system, along with increasing business pressure of the operation and management section in the production network.
- In order to meet the demand for the expansion and structural optimization of operation and management section, CCB starts to transform and expand the operation and management section.

Solution
- High-end data center switch RG-N18000, data center level TOR 10-gigabit switch RG-S6220 series and TOR gigabit switch RG-S6000 series from Ruijie Networks are selected.
- By deploying the three-level network infrastructure and adopting horizontal virtualization technology, the solution provides comprehensive support for transformation and optimization of the operation and management section of CCB from the perspectives of simplified management and easier expansion.

Customer Value
- The overall structure is clearer and more complete to realize simpler and more convenient operation, maintenance and management.
- With satisfactory scalability and applicability of the new infrastructure, CCB can deploy its business system more rapidly in line with business demands.
- For new server deployment, users only need to expand the switching equipment under horizontal virtualization infrastructure of Ruijie Networks, which saves a lot of time and labor cost.

Project Background
- Bank of China Guizhou Branch (hereinafter referred to as BOC Guizhou Branch) is a province branch subsidiary to Bank of China, with 8 second-level branches.
- The original 1# network of BOC Guizhou Branch was established in 2008. With the development of businesses, the overall performance of the devices can no longer meet the requirements of the current business development; therefore, BOC Guizhou Branch intends to purchase new devices for a replacement.
- 1# network transformation of BOC Guizhou Branch involves core switches of the entire network, downlink routers of the province branch, uplink routers of the second-level branches across the province, and core switches and external routers for the second-level branches across the province.

Solution
- Ruijie Networks has adopted RG-S8610E as the core switch of 1# network, which applies an advanced CLOS multi-level multi-plane switching infrastructure capable of providing continuous bandwidth upgrade and business support enough to meet the requirements for network development in the next five years.
- The key components of RG-S8610E, such as the main engine and the power module, are all in redundancy design. All redundant modules are hot pluggable, maximizing reliability and availability of the complete equipment to its largest extent.
- The downlink routers of the province branch, local convergence routers of the second-level branches and external routers are all RG-RSR77-X series routers from Ruijie Networks, which are capable of meeting various demands of users with their excellent performance and high scalability.

Customer Value
- The transformed network offers high performance, reliability and compatibility, adequately ensuring the bank's business expansion in the coming years.

FINANCE

Guangdong Branch of Bank of China
To Build the Largest Financial 4G Network in the Industry

Project Background

- Bank of China Guangdong Branch (hereinafter referred to as BOC Guangdong Branch) is the largest branch in the domestic system of Bank of China. In order to enhance the speed and convenience of network deployment of the outlets and improve market influence and competitiveness, BOC Guangdong Branch decides to transform the network access of the existing outlets.

Solution

- The solution has adopted the mode of "1 WAN line + 1 4G wireless line" to provide secure, stable and highly adaptive WAN access for the outlets.
- RG-RSR7708 core router is deployed at the core as the convergent LNS for the access of two operator lines, which achieves the redundancy and balance of the flow; RG-RSR20 series routers with 4G module are deployed at each outlet as the uplink equipment; RG-SNC network management system, CA server and ACS server are deployed at the center, realizing 4G network management, IPSEC certificate issuing and AAA authentication.

Customer Value

- The reliability and manageability of the products have been highly affirmed by BOC Guangdong Branch, for the business continuity of the bank has been significantly improved, complying with the assessment requirements of the banking regulatory department.
- With the help of Ruijie Networks, BOC Guangdong Branch has completed the 4G backup line upgrading project for more than 1,000 sales outlets across the province, achieved the first large-scale deployment of 4G solutions in the production network in the financial industry, and also become the first successful case to adopt the all-module mode to complete 4G deployment.

FINANCE

Wuhan Nanhu Data Center of China Construction Bank
To Exclusively Build the In-zone Network

Project Background

- Wuhan Nanhu Data Center, as the main center of "Three Centers in Two Cities" of China Construction Bank (hereinafter referred to as CCB), is the location of the main node and data center of the new generation core network. It has initiated a comprehensive, multifunctional and intensive data center in-zone network of various service capabilities integrating production, official businesses, management, operation and maintenance, business center and telephone bank. It has provided an all-around service and management platform for the "new generation business system" of CCB.
- CCB expects to achieve safety and controllability from sources such as manufacturers, products and solutions. Meanwhile, the operational requirements of the new generation business system should be met to achieve flexible and rapid deployment of multiple business application systems, such as production, official businesses, operation and maintenance, testing, voice, video and Internet, with flexible expansion capability. The wireless network in the zone achieves seamless access between indoor and outdoor areas to improve the efficiency of collaborative working and meanwhile meet the future network access demands of 7,000 people in the zone.

Solution

- Ruijie Network has selected the high-end RG-S8600 series switches to achieve 10-gigabit-wire-speed forwarding for backbones and 10G and 40G switching expansion capability.
- The new generation data center technology like virtualization is fully adopted to double the transmission bandwidth and successfully achieve "seamless" switching of hot backup of the devices.
- The adoption of the new design concept of "loose coupling and modularization" not only enables independent and effective integration of network resource from various institutions in the zone, but also brings more flexibility in network expansion.
- Ruijie wireless solutions have been deployed both indoors and outdoors of the park. High-performance wireless devices with smart antenna technology are deployed, featuring enlarged coverage and signals moving around the location of the terminal.

Customer Value

- The use of high-end switches ensures transmission efficiency of big data services (such as business process analysis) and future expansion capability.
- The new-generation data center technology like virtualization has realized the uninterrupted services of telephone banking center and the audio and video services in office management to enhance customer satisfaction.
- The wireless solution has ensured satisfactory wireless experience and improved office management and collaborative working efficiencies of the staffs.

ENERGY & ELECTRIC POWER

China Southern Power Grid Co., Ltd.

To Substantially Improve the Wireless Experience with Thousands of Aps Installed in the Base

Project Background
- To support the application of enterprise-level management system, China Southern Power Grid Co., Ltd. (hereinafter referred to as Southern Power Grid) planned to accomplish the mobile access of unified communication system in its new base.
- The wireless access in new base is not only required to support real-time business, such as voice, video communication, video meetings, multimedia meetings, etc., but also to ensure the security of enterprise management system access and the privacy of data transmission. It should meet the demands of wireless access system, wireless security engine, etc., on the basis of convenience and reliability.

Solution
- For the requirements of Southern Power Grid, the schematic design centering on businesses and scenario construction tuning, more than one thousand Ruijie APs were rapidly deployed in the shortest time.
- As for wireless security management, Ruijie provided the data transmission encryption and the integrative security management platform. The wireless network fully supports the encryption techniques of WEP, TKIP and AES, and uses the standard CAPWAP encrypted tunnel to ensure transmission security.

Customer Value
- The solution has realized the mobile access of unified communication system of LAN in the new base of Southern Power Grid and successfully accomplished staffs' demands of mobile office and Voice over Internet Protocol (VoIP) hosted by wireless IP in the base.
- More than one thousand high quality APs have tailored a new generation of wireless network, laying a solid foundation for smart office applications.

ENERGY & ELECTRIC POWER

ENERGY & ELECTRIC POWER

Datang Linqing Thermal Power Co., Ltd.
To Accelerate the Informatization Process through the Simplistic Network Construction

Project Background

- Founded in 2011, Datang Linqing Thermal Power Co (DLTP) engages in electrical power and thermal power generation and sales, as well as electrical tech consulting and support services.

- To accommodate various kinds of work, DLTP's basic network is divided into internal and external sections. The internal network serves as the core of power plant production. Its design plan should make clear the principle of division and isolation requirements for each safety zone, unify the control measures and strategies of each safety zone, and encrypt access control and data transmission at the network perimeter. The office area emphasizes open and convenient use of the external network. Its core of wireless network construction enables users to experience an optimal Wi-Fi signal so that they can make business communications smoothly and move seamlessly around the office.

Solution

- DLTP uses Ruijie's simplistic network solutions to provide plans that work for both internal and external networks.

- The RG-N18010 (Newton) cloud architecture network core switcher's "zero backplane" technology, converged virtualization, and VPN/Gatekeeper isolation ensure reliability and security of the internal network.

- In addition, DLTP also employs several innovative Ruijie Network technologies such as smart antennas to offer complete, high-quality wireless coverage for the entire office area, enabling efficient maintenance of both wired and wireless networks.

Customer Value

- The solution ensures the security of intranet applications and the open, convenient use of extranet applications.

- The wireless network structure greatly enhances the Wi-Fi experience to ensure unhindered business communication, and a seamless mobile office.

ENERGY & ELECTRIC POWER

Shengli Oilfield
To Help Push Forward the Mission of "Four Modernizations"

Project Background

- Basic data was input manually on-site, and manual inspection was used to spot problems and hazards, resulting in low-productivity oil fields, as well as safety and environmental risks.

- Shengli Oilfield needed to plan, design and deploy a network system that could meet the needs of oil production sites, cover the entire oil zone data collection process, and guarantee real-time, stable and reliable data feedback and video monitoring.

Solution

- Ruijie Networks offers tailor-made solutions and constructs a production wireless network that addresses complex factors such as oilfield data feedback, the remote location of the monitored site, extreme environmental conditions, as well as site construction, operation, and maintenance.

- Ruijie's AP high-speed bridge uses the latest standard 802.11ac technology, enabling a single base station to reach a speed of 300Mbps or higher.

- To provide security, the equipment supports a complete data security mechanism that can support WEP, TKIP and AES encryption technologies, ensuring complete safety of data transferred over the wireless network.

- The solution is highly adaptable to various environments, is perfect for use in a complex semi-open environment, and effectively prevents impact due to bad weather or inhospitable environments.

Customer Value

- This solution greatly facilitates oilfield production management and vastly increased production efficiency while lowering production costs.

ENERGY & ELECTRIC POWER

Shenhua Guohua Power Plant
To Build the Simplistic Network for "Intelligent Power Supply"

Project Background

- Shenhua Guohua Beijing Gas Thermal Power Plant aimed to utilize leading domestic technological innovations to create a network that was efficient, safe, reliable, scalable and easy to manage.

- Shenhua Guohua planned to build a network which could meet the company's basic production and office needs, provide controllable wireless access and manageable online activities, isolate the finance, production, and office systems, and ensure security of core tasks. In addition, it prefered a network that was tailor made for the power industry, which would become a powerful guarantee for Shenhua's new endeavors.

Solution

- Ruijie Network's simplistic network solution deployed two basic networks, each of which used two high-end switches as a network core and adopted VSU virtualization technology to ensure reliability.

- The network utilized physical unity and logical isolation of network topology, and separated and isolated various work systems using VLAN. To effectively prevent attacks from viruses and hackers, the solution utilized application security zones, ARP attack detection, firewall traffic filtering, intrusion detection equipment, and network management.

- Ruijie Network provided intelligent network management software which intuitively provided network management staff with overall network layout and equipment operation details, offered real-time views of network operations, and provided data for scientific management.

Customer Value

- The newly constructed smart network not only fully guarantees production and operation safety, but also plays a role in application support in terms of energy efficiency and pollutant discharge, and creates more space to develop "smart" power plants.

TRANSPORTATION

TRANSPORTATION

Shanghai Metro
To Build the World's Best Metro Area Network

Project Background

- With operating lines stretching for a total of 617 KMs and serving 366 stations , the Shanghai Metro's total operation mileage and scale are one of the highest in the world. Peak traffic volume exceeds 10 million in a single day. It is definitely a monumental challenge to create a system that provides wireless access service in in metro stations for passengers traveling inside the train.

- Urban rail transit has now come to the era when trains travel at 120kph. The types and number of services offered by the rail transit system continues to increase. Switching delay, packet loss rate and bandwidth stability in the train zone will be major factors that the subway's system must face when transmitting data.

Solution

- To achieve the above construction objectives, Ruijie first utilized 802.11ac technology to provide high-performance car floor bandwidth.

   In this solution, Ruijie's patented "quick roaming switcher" technology achieves rapid switchover between ms-class cars, ensuring zero data or packet loss during switching.

Customer Value

- Ruije's network for the Shanghai Metro successfully provided coverage for more than 600 trains and a total mileage of 617KMs (as of the end of 2015). Taking into account the back and forth journey, wireless coverage distance for this project exceeds 1000KMs.

- The project finally delivered a dynamic bandwidth of over 600Mbps, providing passengers with high quality video internet access. While ensuring efficient rail transit, the project continues to bring passengers an excellent travel experience.

TRANSPORTATION

Beijing Capital International Airport
To Help Realize Digital Scheduling to Ensure Punctuality Rate

Guangzhou Baiyun International Airport
To Empower a Successful Wi-Fi Upgradation

Project Background

- During the construction of the airport wireless network, Guangzhou Baiyun International Airport had always been focusing on the most practical using experience of passengers.

- To meet the requirements of wireless business development, more wireless operators and deployment parties were involved, which brought more wireless devices and management platforms to the terminal building, causing the problem of Wi-Fi signal interference. It got the airport into severe difficulties with management.

- In December 2015, Guangzhou Baiyun International Airport launched its fourth upgradation of the Wi-Fi network.

Solution

- With unified planning and considered designs, Ruijie has successfully deployed stable Wi-Fi hotspots, which effectively solved the problems such as Wi-Fi signal interference and weak signal coverage;

- The egress bandwidth adopts a dual-operator output. The main lines use a bandwidth output of 1G provided by China Mobile, while the backup lines are campus lines with a bandwidth of 100M provided by China Telecom. The floating route enables a dual-link redundancy backup;

- The virtualization technology of VSU switches are used in the main upgradation plans, enabling the redundancy of core devices. In addition, with aggregate port dual uplinks, the core layer and convergence layer are capable of maximizing disaster recovery capability of the key equipment

- All the software service systems are deployed in the Cloud Platform, which can take full advantage of the existing server resources, and meanwhile realize the redundancy of server-level hardware with the virtualization technology of the Cloud Platform.

Customer Value

- Ruijie's wireless solutions for network scenarios helped Guangzhou Baiyun International Airport pass the ACI evaluation organized by the Skytrax, an international civil aviation certification authority. With the solutions, the airport improved the travelling experience such as accessing the Internet and shopping;

- After the Wi-Fi network upgradation, the airport's hotspot number has increased from 721 to 865. Apart from the main terminal building, other areas including the parking lots are also covered with Wi-Fi services which can meet the requirement of up to 40,000 visits per day.

Project Background

- By the end of 2016, the passenger throughput of the Beijing Capital International Airport has officially exceeded 90 million, making it one of the busiest airports in the world.

- The rapid growth of airport traffic and frequent occurrence of "super haze" put increasing pressure on the airport ground operation year by year. Improvement on the punctuality rate and passengers'/aviation agencies' satisfaction with the airport, and reduction in security risk are among major concerns facing the airport.

Solution

- In response to the business needs of Beijing Capital International Airport, Ruijie Networks introduced a solution featuring simplicity, efficiency and low TCO to intelligently and wirelessly command and dispatch. The highly reliable, scalable and secure solution provides airlines, the airport and relevant airport-stationed units with mobile data protection all the way, enabling a visible multimedia closed-loop for dispatch.

Customer Value

- The joint efforts of the professional team from Ruijie Networks provide a new generation of security platform for airport and airlines and other business units to help Beijing Capital International Airport business units achieve digital scheduling, reduce the probability of business errors and improve the efficiency of ground service command and dispatch and monitoring efficiency.

TRANSPORTATION

Xiamen Gaoqi International Airport
To Build a Smarter Airport

Project Background

- Xiamen Gaoqi International Airport is one of the busiest airports of the areas along China's southeast coast. Its rank in global passenger throughput is constantly increasing. Building a smart airport can help Iport Group, one aspect of whose major business is Xiamen Gaoqi International Airport, get through the industrial chains, forming a closed loop of consumption after the passengers entering and leaving the airport. Thus, the signal of the Wi-Fi network needs to be great. Roaming management, quick access certification and well-controlled security are also essential.

Solution

- In 2015, Xiamen Gaoqi International Airport adopted Ruijie's Smart Airport Solutions for the Wi-Fi network coverage of Terminal 3 and Terminal 4 (T3 & T4), aiming to let passengers enjoy a more convenient, efficient and intelligent travelling experience;

- Combining the stream of people in each scenario and the features of application, Ruijie used a composition of products such as RG-AP320-I and X-Sense antennas matrix architecture to improve the coverage of Wi-Fi network, the capability of data processing and the speed of bandwidth, eliminating the blind corner of the signals and providing better services for accessing the Internet for passengers;

- During the construction of the Smart Airport project, Ruijie's MCP wireless marketing platform enabled a precisely customized marketing for users accessing the Wi-Fi network. Ruijie Business Intelligence Analysis System (RBIS), the precise location system and the data analysis platform can locate the users who are accessing the Wi-Fi services and implement data analyses.

Customer Value

- Ruijie's Smart Airport solutions help Xiamen Gaoqi International Airport streamline, modernize and upgrade the process for the public and business services so that it can provide rich and considerate internal services for the passengers.

TRANSPORTATION

Guangzhou Metro
To Help Support Efficient and Convenient Operation

Project Background

- There are 10 existing lines in Guangzhou Metro system with a total length of 309 kilometers, which ranks top in China and top 10 worldwide. The average passenger flow is over 6.8 million and the maximum reaches 9 million. It tops all the passenger flows nationwide. Guangzhou Metro has always held the idea of providing "secure, punctual, quick and convenient" services, aiming to let passengers enjoy safe and high-quality transportation services. Thus, there is a very high demand for the capability of providing a backbone bandwidth for the passenger Internet system and offering services to huge amount of parallel users, and the scalability of the system for future development. The construction of Guangzhou Metro network has to satisfy the requirement of millions of parallel users. Meanwhile, considered the demands for energy economy and efficient operation, multiple business convergence has become an essential requirement for the development of Guangzhou Metro.

Solution

- Ruijie's solutions for multiple and comprehensive metro business have built a 100 Gigabit wire and wireless backbone network for Guangzhou Metro that can cover the whole scenario. The network is able to provide a wireless wideband link of over 400Mbps for a train that is running at the speed of 120km/h.

- This solution will transmit and certify the plane separation, providing more reliable system services and more flexible and scalable system architectures. Based on the business requirements, the owner can divide the network into multiple secure and reliable links with different bandwidths and priorities for passenger Internet system, passenger info system and other production operations.

- The solution can provide and ensure a variety of network channels with different service levels and features for the high-volume requirement of building Internet services for millions of parallel users; for the high-performance requirement of realizing an extremely low latency of millisecond for the 100M bandwidth of the passenger info system; and for the requirement of covering a no-blind-corner network for the whole scenario of the production and operation business, to truly build a comprehensive network that can provide secure and efficient business support for multiple areas.

Customer Value

- Guangzhou Metro has fully met the requirements of the passenger Internet services and the passenger info system business, and provided a secure and reliable network data channel support for the management of metro energy, the patrols on daily operation and the scientific projects for national labs.

Solution

- 100 sets of backbone equipment together with 2 Ruijie S8606B core switches with Virtual Switching Unit (VSU), 47 S5750E PoE distribution switches and 58 S2900E PoE access switches are deployed in the project for the new gigabit ring. These devices provide high availability and scalability that can handle the increasing number of service requests without adversely affecting the response time and throughput.

- To stand out from the competition with other manufacturers, Ruijie did a POC to prove that our solution outperforms the others and is better fitted to KTMB's requirements. The performance of our ring protection is of carrier grade with sub-millisecond ring protection failover rate.

- With VSU technology, switches are managed as one logical device, which provides simplified and centralized management to streamline IT operation and management.

- Ruijie's SNC Network Management Software is employed to manage and monitor network performance by providing extensive features such as network topology display, performance monitoring, alarm management, etc.

Customer Value

- Provide a high-value and high-quality solution for KTMB's needs and offer a high-scalability network at a competitive price with devices that have out-of-the-box features for easy deployment.

- The whole network is well protected with our carrier-grade ring protection technology in case of any network failure so as to put the customer's mind at ease. Additionally, SNC is employed to help the customer monitor the network and prevent network failure.

TRANSPORTATION

Keretapi Tanah Melayu Berhad (KTMB) Railways
To Build a New Backbone Network

Project Background

- Keretapi Tanah Melayu Berhad (KTMB) is the main rail operator in Peninsular Malaysia. The organization was corporatized in 1992, but remains wholly owned by the Malaysian government.

- The railway network of KTMB consists of two major lines. The West Coast Line, which serves the West Coast states of Peninsular Malaysia, runs from Padang Besar railway station close to the Malaysia-Thailand Border in Perlis to Woodlands Train Checkpoint in Singapore, while the East Coast Line, which serves two of Peninsular Malaysia's East Coast states, namely Pahang and Kelantan, runs between Gemas railway station in Negeri Sembilan and Tumpat railway station in Kelantan.

- In this project, more than 60 stations from Klang Valley to Ipoh are covered. As the existing network was running on SDH and its throughput was limited, KTMB had difficulties expanding the networks to cater more rail services such as PA, ticketing, Touch n GO, etc. and therefore decided to create an additional gigabit ring for their future network expansion.

EDUCATION

EDUCATION

Tsinghua University
To Build the IT Operation and Maintenance Management Platform

Project Background

- Tsinghua University is one of the most famous and time-honored academic institutions in China.

- The information center has developed and put into operation nearly 100 school-level IT application systems, supporting IT work and life of more than 50,000 students and teachers in the campus.

- Besides R&D, there is a maintenance team of more than 30 members in the information center, which undertakes the development, maintenance and support services of important business systems. Relevant operation and maintenance services need to be managed through one platform to change the situation of manual operations, facilitate statistical analysis, and make it easy for personnel workload statistics and performance appraisal. In addition, asset allocation needs to be sorted out to build an accurate and unified asset allocation management library and thus enable the life-cycle management.

Solution

- With Ruijie's simplistic operation and maintenance solution, Tsinghua University effectively integrates the self-service desk and event management module into the existing work modes of the computing center. On one hand, problems submitted by users can be tracked to ensure the transfer and handling of work orders; on the other hand, sharing of information and knowledge can be realized to significantly improve the image of the computing center and make the internal workflow run in a more smooth way. With the project management in RG-RIIL system, everyone's duties are well organized, thus ensuring that the work of welcoming new students can proceed smoothly.

Customer Value

- Upon implementation of the project, the work modes of the computing center are effectively integrated and the efficiency of internal workflow is improved, which ensures the smooth and orderly performing of all tasks. In addition to integration of maintenance processes for users, the project also has powerful configuration display function to substantially improve maintenance with clear business management relationship.

EDUCATION

Wuhan University
To Build the Best Network for the Most Beautiful Campus

EDUCATION

Sun Yat-sen University
To Revitalize Fresh and Intelligent Energy through Simplistic Network

Project Background

- Sun Yat-sen University is a national key university of the "Project 985" and "Project 211". Its campus network covers 4 campuses with 74,213 network information sites.

- Under the requirements of the new teaching mode, Sun Yat-sen University hopes to build an "operational and high-qualified" wireless network in eastern student dormitory in the South Campus.

Solution

- Ruijie Networks "i-Share+" and WIS system use far lower cost than the traditional solutions to build the most intelligent wireless network, with its functions such as wireless network automation, intelligence, and fault intelligent diagnosis, self-healing being fully recognized by the school.

- Ruijie deploys i-Share+ Mini AP (RG-MAP552) and Master AP (RG-AM5528) according to the number of dormitories in each building. The Master AP connects to the switch of this building, and each building switch connects to the convergence gateway through Gigabit single-mode optical fiber.

Customer Value

- "i-Share" solution solves the problem of wireless signal quality caused by multiple dormitories and multiple corners, and enhances the online experience of teachers and students in an all-round way.

- "WIS" system and the three modules including intelligent network optimization tools, problem identification system and experience visual platform optimized the basic network and solved the problem of visualized dormitory network operations.

Project Background

- As one of the key universities of Project 211 and Project 985, Wuhan University, directly affiliated to the Ministry of Education, has up to 60,000 full-time students (over 50,000) and faculty members.

- In order to offer better services to the teachers and students, Wuhan University started the large-scale construction of dormitory Wi-Fi networks as well as the integration of campus networks, dormitory networks and existing authentication and accounting systems in 2015.

- The construction of the dormitory Wi-Fi networks of Wuhan University requires deep integration of the original three authentication and accounting systems into one system for unified management. At the same time, top-level design requirement is put forward for the original network architecture, so that integrated and easy management of the wired and wireless networks can be achieved with a simple, open, compatible, and superior network architecture.

Solution

- "Simplistic Network" solution put forward by Ruijie Networks uses the high-performance RG-N18010 switch for centralized authentication. With the flat network design and Ruijie's unique portal noise reduction technology, teachers and students only need one second-level authentication to access the high-speed campus network in a secure way. At present, the wired and wireless networks allow more than 30,000 concurrent users.

- The school only needs to manage one authentication and accounting system and one RG-N18010 switch to realize the access authentication of all wired and wireless networks. The maintenance work has been reduced completely by "Simplistic Network".

Customer Value

- With full coverage, rapid log-in as well as convenient and smooth usage, "Simplistic Network" has successfully eased the pressure of network operation and maintenance, improved users' Internet usage experience, and really reflected the beauty of Wuhan University with the integration of historical heritage and modern information technology.

EDUCATION

University of Malaya
To Build the High-performance Cloud Campus Network

Challenges

- Aging network equipment (end of support)
- Difficult to manage & control

- Old network design and architecture bottleneck

Ruijie Solutions

- S12000 Super Large Cores with VSU 2.0
- SNC Network Management

- S5700E 10G L3 WAN switches (VSU)
- ITSM (RIIL) to make IT as strategic assets

Customer Benefits

- New Architecture Design & Superior TCO
- Reliable & High Availability
- Manageable

- Scalable & Future Proof
- Out-of-box Features

EDUCATION

University Putra Malaysia
To Assist the Backbone Upgrade

Challenges

- Aging network equipment
- Support quality degrading

- Limited performance & 10G / 40G scalability

Ruijie Solutions

- S12000 Super Large Cores
- Distribution Core
- S5700E 10G L3 (POE) Aggregation switches
- SNC Network Management

- Backbone Core
- Data Center Core
- S5700S 10G L2+ Server switches

EDUCATION

University of Malaysia Sabah
To Improve the Wi-Fi Performance

Challenges

- Poor Wi-Fi performance caused an extremely bad learning experience to students

- Insufficient authentication capacity for the UMS Internet access

Ruijie Solutions

- **Guarantee Web Authentication**
  Enlarge the capacity of Web Authentication allowing over 10,000 students access to Internet concurrently by deployment of 2 units of RG-N18000

- **Centralized Management**
  RG-SNC provides an extensive features such as network topology display, device management, performance monitoring, configuration & software management

- **Unified Management**
  RG-SAM+ offers a single platform to provide AAA and captive portal service for authentication management and policy management

EDUCATION

Telkom University
To Accelerate the Network Infrastructure Upgrade

Challenges

- There are 30,000+ students in Telkom University now, and the number is growing every year. Previous network infrastructure can't support the large number of users which results in the bad authentication experience.

Ruijie Solutions

- High performance core switch acts as the centralized gateway for wired and wireless authentication

- Adopt "big layer 2" design, aggregation and access level switch only in charge of VLAN forwarding

- Combined with Ruijie AAA platform, providing comprehensive bandwidth management

Customer Benefits

- Seamless Authentication: Web Authentication takes < 2s to respond

- High performance: Core switch CPU utilization < 10%, support 100,000 users

- Unified Gateway: One gateway for wired & wireless, Simplified Architecture, Low Maintenance

- Flexible Policy & Management: Bandwidth management based time/location/user/device type, etc.

HEALTHCARE

HEALTHCARE

HEALTHCARE
Huashan Hospital
To Help Provide Intelligent Medical Care

Project Background
- Huashan Hospital is one of the most famous and international medical research centers in China.
- Due to the increasing number of patient visits, the original system structure could not support the huge data volume, and the upgrade of the core network is imminent.
- Outpatient and other key business areas must achieve a 7*24 mechanism to ensure the stability and reliability of outpatient business.
- The removing of hidden dangers in hospital IT information construction needs necessary firewall, IDS (intrusion detection), flow control and other equipment configured. Besides, the real name access to the Internet is also necessary.

Solution
- Ruijie Networks adopts the leading SDN Service Chain (Software Defined Network Service Chain) technology. The resource pooling of the security devices is completed by the "SDN controller" and "intelligent switch" to achieve unified traffic scheduling and management among different security devices, so that safety is controllable and manageable.
- Deploying Ruijie RIIL maintenance management platform to realize the unified, visualized and accurate management of resources and alarms.

Customer Value
- This basic network platform maintains the miracle of "zero failure", which provides powerful guarantee for the normal operation of the hospital business and its rapid expansion of future business. It indirectly enhances the hospital's economic and social benefits and is highly praised by users in the same industry.

HEALTHCARE
Healthy Guangdong Strategy
To Build a Cloud Platform for the Medical Data Center
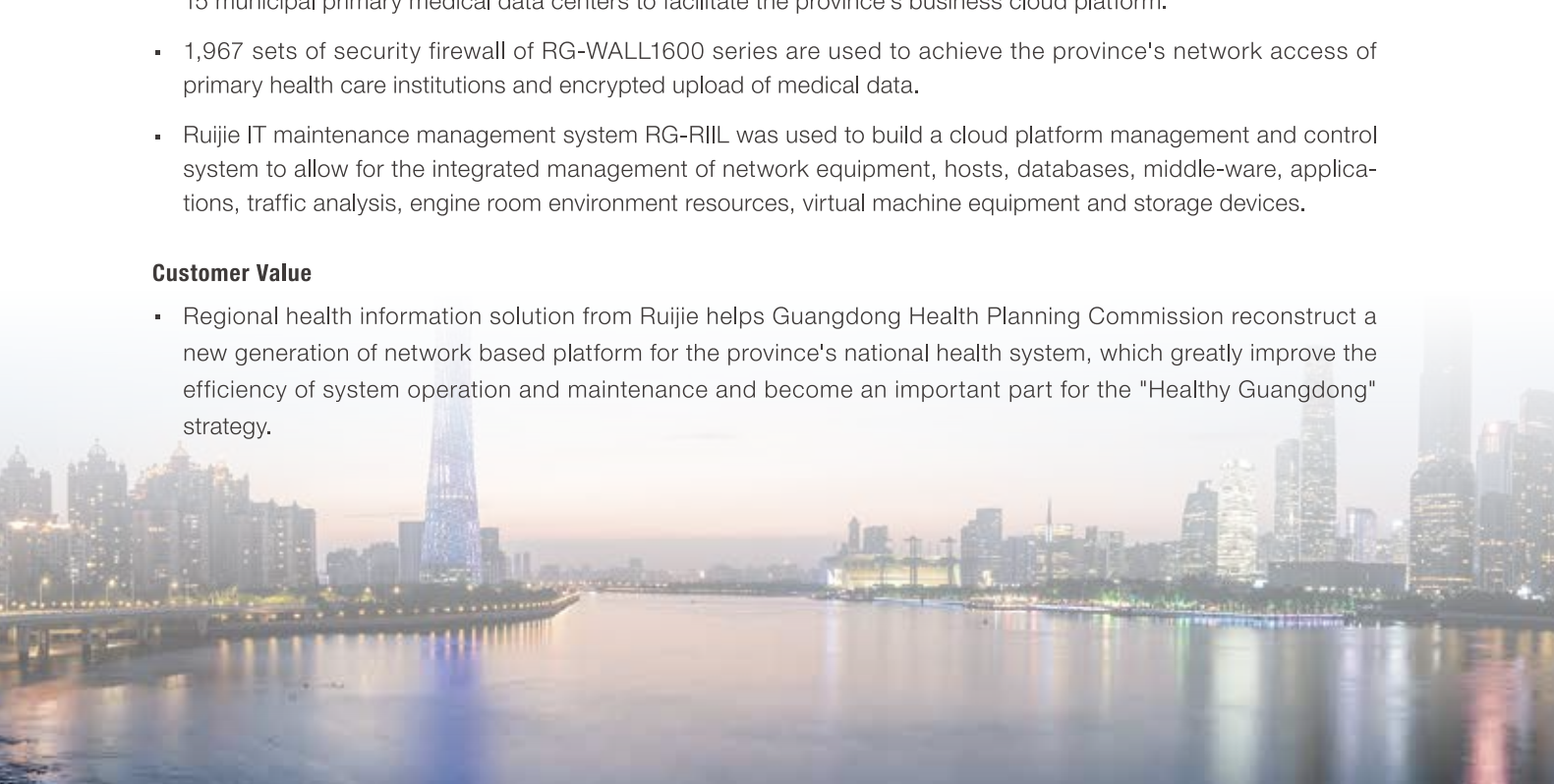
Project Background

- Against the backdrop of the new blueprint for "Healthy China", Guangdong Province endeavors to upgrade the service capabilities of primary medical and health institutions and put "Healthy Guangdong" strategy first, with infrastructure construction a more important starting point.

- The overall information level of grassroots health in Guangdong Province lags behind that of hospitals above the county level.

- First, information on health and medical treatment of residents in primary medical and health institutions cannot be shared across regions and agencies. Second, the system has few functions and needs to be improved, and its IT equipment is outdated and network service environment is relatively poor. Third, it lacks professional and technical personnel for health information construction, and system maintenance and management is not in place with little awareness of data security.

- In order to enhance the information application capacity of grassroots medical and health institutions, the Guangdong Provincial Health and Family Planning Commission (hereinafter referred to as "Guangdong Health Planning Commission") has formulated a management information system for them with a total investment of over 400 million yuan.

Solution

- Ruijie Networks reorganized and planned the existing health network to create a cloud platform of medical data center covering the province's business systems.

- RG-N18000 Series, RG-S8600E Series Cloud Core Data Center Switches, WAN Simplistic RG-RSR77-X Series Routers and RG-AD Load Balancing Devices were used to build a provincial primary health care data center and 15 municipal primary medical data centers to facilitate the province's business cloud platform.

- 1,967 sets of security firewall of RG-WALL1600 series are used to achieve the province's network access of primary health care institutions and encrypted upload of medical data.

- Ruijie IT maintenance management system RG-RIIL was used to build a cloud platform management and control system to allow for the integrated management of network equipment, hosts, databases, middle-ware, applications, traffic analysis, engine room environment resources, virtual machine equipment and storage devices.

Customer Value

- Regional health information solution from Ruijie helps Guangdong Health Planning Commission reconstruct a new generation of network based platform for the province's national health system, which greatly improve the efficiency of system operation and maintenance and become an important part for the "Healthy Guangdong" strategy.

HEALTHCARE
Jiangsu Provincial Tumor Hospital
"Zero Roaming" helps Create Warm "Healing" Network

Project Background

- Jiangsu Provincial Tumor Hospital is the only provincial-level tertiary hospital in Jiangsu province with the responsibility of prevention, diagnosis and treatment of some 80 million people in the province and some neighboring provinces.

- In the second half of 2014, the hospital started to build its mobile care system with higher requirements on the network. The hospital decided to build a wireless network that fully covers all ward floors. The wireless network should meet the requirements of simple access authentication, full coverage, no dead zone, high speed, quick retrieval of medical images, and uninterrupted service.

Solution

- Ruijie' zero roaming solution for mobile healthcare integrates the advantages of "installation + indoor distribution system". The "i-Share+" wireless structure in each room ensures that full signal in every corner of the room, perfectly allowing for wireless coverage in corridor.

- Through the deployment of Ruijie panel-shaped AP in the office area of the external network, the wired and wireless integrated accesses are realized. An information bridge for hospital and patient communication is set up by deploying Ruijie's high-quality AP in the outpatient building with WeChat authentication. Deploying Ruijie's high-density APs in the conference room to fully guarantee the quality of intensive meetings.

Customer Value

- The new wireless network not only enhances the work efficiency of nurses, but also improves the medical experience of patients, and delivers a truly "considerate" service to painful patients and anxious families.

HEALTHCARE
Fudan University Shanghai Cancer Center
To Help Practice "Digital Health"

Project Background

- The previous generation basic network of Fudan University Shanghai Cancer Center (hereinafter referred to as "FUSCC") dated from 8 years ago, and its performance and functions could no longer meet the ever-increasing requirements for business service.

- Now mobile medical services are widely used in hospital applications. The Wi-Fi network invested by a third party a few years ago can no longer meet the requirement of mobile medical services, which require rapid and accurate location of business faults. Therefore, the data center and network environment must be uniformly monitored, operated and maintained.

Solution

- In 2015, Ruijie Networks fully upgraded the basic platform of the hospital. In the core area, Ruijie RG-N18010 and Ruijie RG-S8600E switches were adopted to achieve high network reliability through network virtualization technology and full redundant architecture design.

- In 2016, FUSCC adopted Ruijie's 5G zero roaming solution under the ward environment of the hospital to address the impact of ward walls on wireless signals.

- The hospital further deployed Ruijie's RIIL (IT integrated business management platform) to supervise the basic resources and key indicators based on the hospital business and help maintenance personnel to accurately locate the cause of the malfunction.

Customer Value

- The service efficiency and information management level are improved.

HEALTHCARE
Zhongshan Hospital Xiamen University
An Efficient and Accurate Medical IOT Solution

Project Background

- As a research-based affiliated hospital of the national key university, Zhongshan Hospital Xiamen University (hereinafter referred to as "Zhongshan Hospital") has the outpatient visits and emergency room visits of more than 2.8 million and admits the patients of more than 60,000 every year, and is a provincial key contact hospital for high quality nursing.

- How to improve the nursing quality and patient experience by informatization means is a key challenge for Zhongshan Hospital which needs prompt resolution.

Solution

- The full closed-loop infusion management system in Ruijie's Medical IOT solution is first implemented to complete the closed-loop management of the infusion process in the hospital through the intelligent infusion monitor, the indoor IOT base station and the IOT platform.

- The new solution collects the information on infusion conditions via the infusion monitor (IOT terminal) to transfer the data to the indoor IOT base station and then forwards the data to the IOT platform through the IOT base station. Data is transmitted to various business platforms on the IOT platform by category for business presentation. Room-level Bluetooth signal coverage ensures that the infusion monitor can be installed in each ward and each bed can be provided with a monitor, with the concurrency meeting business demands.

- Ruijie's ISCP IOT platform manages intra-hospital IOT business. Not only can it undertake the current infusion monitoring business, but also can be expanded to other businesses based on the original deployment, such as Infant security and asset positioning.

Customer Value

- The medical IOT solution of Ruijie Networks improves patient experiences and ensures their safety to the largest extent by automatically collecting and intelligently processing various medical care business data. It has offered an efficient accurate "Smart Assistant" to busy medical staff, adding "Intelligence" to modern medical health care with the IOT technology.

ENTERPRISE

ENTERPRISE

ENTERPRISE

BAIC Motor
To Build a "Strategic New BAIC" with the Smart Interconnection

Project Background

- BAIC Motor is the platform of Beijing Automotive Group Co., Ltd. (BAIC Group) for complete passenger car resource integration and business development.

- During the "12th Five-Year Plan", for the target of enhancing the core competitiveness of the enterprise, BAIC Motor improved the comprehensive competitiveness of the overall value chain by adjusting and optimizing products and industrial structures, and established new industrial bases one after another in Huanghua, Jingdezhen and Zhenjiang.

Solution

- Ruijie Networks has established unified planning and hierarchical management strategies in Huanghua Base, Jingdezhen Base, Zhenjiang Base and other production bases in Changzhou and Qingdao. Physical isolation between production network and office network is adopted to ensure business security, and the redundancy of key equipment can guarantee business continuity.

- Wireless deployment is performed in the factories to meet the requirements of the production business, a total of 25 core switches are purchased successively, and nearly 1,000 sets of convergence equipment, 800 sets of wireless AP equipment and multiple sets of RIIL-BMC integrated business management platforms are connected.

- RIIL-IFMC data center management platform is deployed in the data center of Zhenjiang Base.

Customer Value

- Through the overall network planning and construction, Ruijie helps BAIC Motor build a "stable, useful and manageable" strategic network layout.

ENTERPRISE

BYD
To Assist the "Cloud Rail" Project with the Automatic Wireless Compensation Solution

Project Background

- Founded in 1995, BYD is a well-known Chinese automobile brand that produces business cars and family cars.

- "Cloud Rail" is a strategic solution launched and developed to tackle the problem of urban congestion in various countries in the world by BYD for 5 years with an investment of 5 billion yuan. It will provide convenient services for the residents in future travel.

- On October 13, 2016, BYD held the world's starting ceremony for the straddle-type monorail -- "Cloud Rail" in Shenzhen, declaring to enter the trillion-level rail transit field.

- Since 2017, BYD has successively put 7 cloud rail bases into operation throughout the country. The new cloud rail
- workshop is provided with MES and imports bar code management, with a large number of mobile PDA devices deployed in the workshop. Wireless network deployment becomes necessary, and the reliability of the wireless network becomes a key indicator of the production environment.

Solution

- The automatic blind compensation solution of Ruijie Networks has the advantages of no active scanning, no effect on user experience, rapid blind compensation and rapid recovery.

- The new solution first forms an AP "Map" based on the position of the APs and combines the adjacent APs to "Neighbors". When an AP fails, the AC controller increases the power of the nearby "Neighbor" to assist the failure equipment and compensates the blindness of its coverage space, and meanwhile the downlink PDA terminal is associated with the "Neighbor" AP, so that the service is not interrupted. After the failure AP is recovered, the "Neighbor" AP resumes normal power.

Customer Value

- The brand new automatic blind compensation solution proposed by Ruijie Networks successfully assists "Cloud Rail" to achieve the effect that the PDA devices are not interrupted in the production process, laying a solid network foundation for BYD's "Cloud Rail" strategy.

- Ruijie has therefore become the only wireless solution provider for BYD's "Cloud Rail" workshop.

ENTERPRISE
Yuntianhua Group Co., Ltd.
To Improve Innovation via "Smart Manufacturing"

Project Background

- Yuntianhua Group Co., Ltd. is a "National Technology Innovation Demonstration Enterprise" named by the Ministry of Industry and Information Technology and the Ministry of Finance, which ranks the 2nd place in the top 500 Chinese chemical companies and is a large-scale comprehensive enterprise group operating across regions, industries and ownerships.

- With the rapid development of the enterprise, the efficient operation of the company urgently requires a secure advanced flexible service network platform with high performance and reliability.

Solution

- The enterprise campus network data center and intranet security solution of Ruijie Networks conducts all-round transformation on the network in four aspects of network security, network management, network routing and network IP planning, and achieves good construction effects.

- With stable running of network devices, the solution has substantially reduced influence range of failures and network access delay, which has ensured network security and simplified network management.

- Visualized business monitoring data provides a powerful guarantee for business and network operation quality analysis, and cost efficiency, convenience and compatibility of network expansion have also been achieved.

Customer Value

- The successful implementation of Yuntianhua Group's enterprise campus network project has effectively guaranteed the development of key businesses in the enterprise campus and also ensured the security of enterprise information, helping Yuntianhua Group to support enterprise innovation with "Smart Manufacturing".

ENTERPRISE

Xiuzheng Pharmaceutical Group
To Demonstrate the Industry 4.0 Smart Plant with the "Wireless Plant" Solution

Project Background

- Xiuzheng Pharmaceutical Group is a large modern private pharmaceutical enterprise, which integrates patent medicine, chemical pharmaceutical, research, production and marketing of biological pharmacy, medicine retail chain operation and standard cultivation of traditional Chinese medicinal materials.

- To accomplish the transition to a smart plant, Xiuzheng Pharmaceutical Group is constantly building and improving ERP system to enhance production and management efficiency.

- In April, 2015, the enterprise officially entered WeChat market. Realizing the large influence of enhancement by network and mobile application on enterprise revenue, it becomes imperative for the enterprise to build a wireless network with wide coverage, high stability and rapid speed.

Solution

- The solution of "wireless plant" provided by Ruijie makes the egress devices incorporate the functions of router, flow control, load balancing, firewall, behavior management and VPN, etc., which largely reduces operation and maintenance efforts. The integration of wireless and wired network helps ease the management pressure while improving the network efficiency.

Customer Value

- "Wireless plant" solution perfectly supports the key ERP production system of customer. Moreover, thanks to the improved work efficiency and data accuracy, decision-making becomes more efficient, boosting its expansion in WeChat market with better profitability and management.

ENTERPRISE

Wuliangye Group
To Build Efficient and Secure Office Wi-Fi

Project Background

- Located by the Min River, north of Yibin city, Sichuan province, Wuliangye Group Co., Ltd. has become the world's largest liquor producer.

- With the expansion of the Group business and the popularization of intelligent terminals, mobile office has become a new working form of Wuliangye Group. Building a highly available, secure and easy-to-use wireless network has become the priority for mobile office.

Solution

- The BYOD wireless solution of Ruijie Networks adopts X-Sense smart antenna technology, and can dynamically adjust the antenna direction and gain according to the position and signal quality of the mobile terminal.

- By adopting the employee unperceived authentication and the visitor's "QR code" authentication mode, the network security is guaranteed with easy accessibility.

Customer Value

- The wireless network built by Ruijie Networks for Wuliangye Group has effectively realized mobile working in its office area, multimedia center, liquor culture museum and many other scenarios.

ENTERTAINMENT & HOSPITALITY

ENTERTAINMENT & HOSPITALITY

Fuzhou Tahoe Plaza
To Help Achieve "Smart Business"

Project Background

- Tahoe Plaza has a total built-up area of 300,000 sqm. The complex contains shopping, leisure, entertainment, dining facilities, as well as office and residential premises. It is the only large-scale integrated commercial complex in Northern Fuzhou and houses 4,000 sqm of leisure areas for residents. It is also the first shopping mall in Fuzhou to have "super escalators".

- As commercial competition becomes increasingly fierce, an important issue that malls have to address is how to understand customer habits through analysis, so as to improve customer experience and the management of malls on all levels.

Solution

- Through collaborations with Ruijie, Tahoe Plaza acquired smart and comprehensive solutions made for commercial malls. These include basic wired/wireless network systems, the MCP wireless marketing platform, Ruijie Business Intelligence Analysis System (RBIS), wireless positioning and navigation systems, user-behavior auditor systems, as well as capabilities for analysis and user-profiling based on big data collected across the entire suite of platforms. This is a step forward into the world of state-of-the-art commercial properties.

Customer Value

- Quality network experience made possible by high performance APs, bringing steady increase in Tahoe Plaza's customer volume, with substantial increase in single-day new customers.

- Customers rate Tahoe Plaza's Wi-Fi network very highly: "Fast online speeds, fast downloads, no lag when browsing webpages, quick connection to the network, very good network connection in all parts of the mall, and there is no more dropping off from the network."

ENTERTAINMENT & HOSPITALITY

Guangzhou Poly Central Plaza
To Help Build the "Closed Sales Loop" System

Project Background

The Poly Central Plaza project is situated in the eastern part of Guangzhou's central metro area and is an integrated project consisting of high-end residential complexes, office premises, hotel-style apartments, and a shopping mall. Poly Central Plaza's shopping mall covers a total built-up area of 60,000 sqm and is divided into two parts, north and south. There are has five floors of shopping areas and two floors of basement parking. Central Poly Plaza aims to:

- Provide free Wi-Fi for consumers, enhancing the shopping experience.
- Provide navigation services in indoor premises and vehicle location services using positioning systems over the wireless network, bringing the consumer shopping experience to a new level.
- Attract followers to the services' official account on WeChat through a series of marketing activities, and eventually turning followers into Poly members.
- Conduct consumer traffic analysis to guide the adjustment of retail offerings, tenant tenders, activities, etc. so as to improve sales.

Solution

Based on Poly's requirements, Ruijie Networks provided solutions for Poly Central Plaza that are specifically catered for the mall's wireless precision marketing:

- Wireless AP: Hundreds of APs are deployed throughout the premises with a combination of Ruijie's X-Sense Smart Antenna to provide full Wi-Fi coverage for Poly Central Mall, free-of-charge to consumers.
- Positioning engine: Triple-point wireless positioning technology is used to enable indoor navigation services, vehicle location services, etc.
- MCP platform: WeChat authentication - customers only have to tap on the link to Poly Central's wireless SSID to be automatically brought to the WeChat page, and can connect to the Wi-Fi network free-of-charge after following Poly Central's official WeChat account.
- Ruijie Business Intelligence Analysis System (RBIS): Senses the customer's mobile terminal and automatically activates Wi-Fi devices. Data is collected and analyzed using smart systems. This helps personnel monitor customer traffic, store-visit rates, length of time spent in stores, etc. The effectiveness of window advertisements can also be assessed to refine precision marketing campaigns.

Customer Value

- Gathering of followers: 50,000 followers generated in 3 months, a daily average of 213. The daily number reaches over 600 in the presence of activities, bringing 15,000 new members to Poly Central.
- Customer traffic statistics: Statistics of customer traffic are taken for normal days, weekends, and public holidays. These include peak-time situations and overall customer traffic situation of the mall/floor/anchor store. The number of customers, total customer traffic, walk-in customer traffic, customer retention, commercial customer traffic: An average monthly increase of 10.04%. Customer traffic at Northeast Tower: An Average monthly increase of 30% - 33%.
- Monitoring the effectiveness of events ("electric fence"): WeChat authentication processes allow the monitoring of customer traffic during marketing activities, which supports merchants in enacting business strategies, and also guides the planning of rental charges.
- Adjusting store size: By monitoring the customer traffic, stores that are popular with customers are expanded, stores that have decreasing customer volumes are downsized, etc.
- Data mining and analysis: Applying the results of the customer traffic data mining and analysis system onto the customer terminal; implementation of precise marketing.

ENTERTAINMENT & HOSPITALITY

Suning Commerce Group Co., Ltd.
To Assist Implementing O2O Strategies with Wireless Solutions Made for Retail Chains

Project Background

- Suning Commerce Group Co., Ltd. is a leader in China's retail industry. Products it carries cover traditional household appliances, consumer electronics, general products, daily necessities, books, and other sundries, as well as virtual products. The company runs over 1600 physical stores, while its e-commerce platform, Suning.com, is among the top three Chinese B2C companies. In 2016, it ranked second place in China's top 500 private enterprises in terms of revenue.

Solution

- Beginning in 2013, Suning installed stable, effective, blindspot-free wireless networks in over 600 stores using wireless solutions made for retail chains from Ruijie Networks. Customers are provided with smooth and fast wireless Internet access.

- Customer volumes across stores, customers visiting the stores for the day, average time spent at the stores, customer traffic situation of areas, etc. are monitored in real-time through basic user data over Wi-Fi, connected to third-party platforms. This allows the store managers to have a clear understanding of current customer traffic.

Customer Value

- Major improvement in the wireless usage experience.

- Precise consumer profiling and precise marketing can be achieved through big data analysis of customer traffic, ultimately enhancing the growth of sales.

Hefei Wanda Vista Hotel
To Create Great Wi-Fi Experiences for Customers
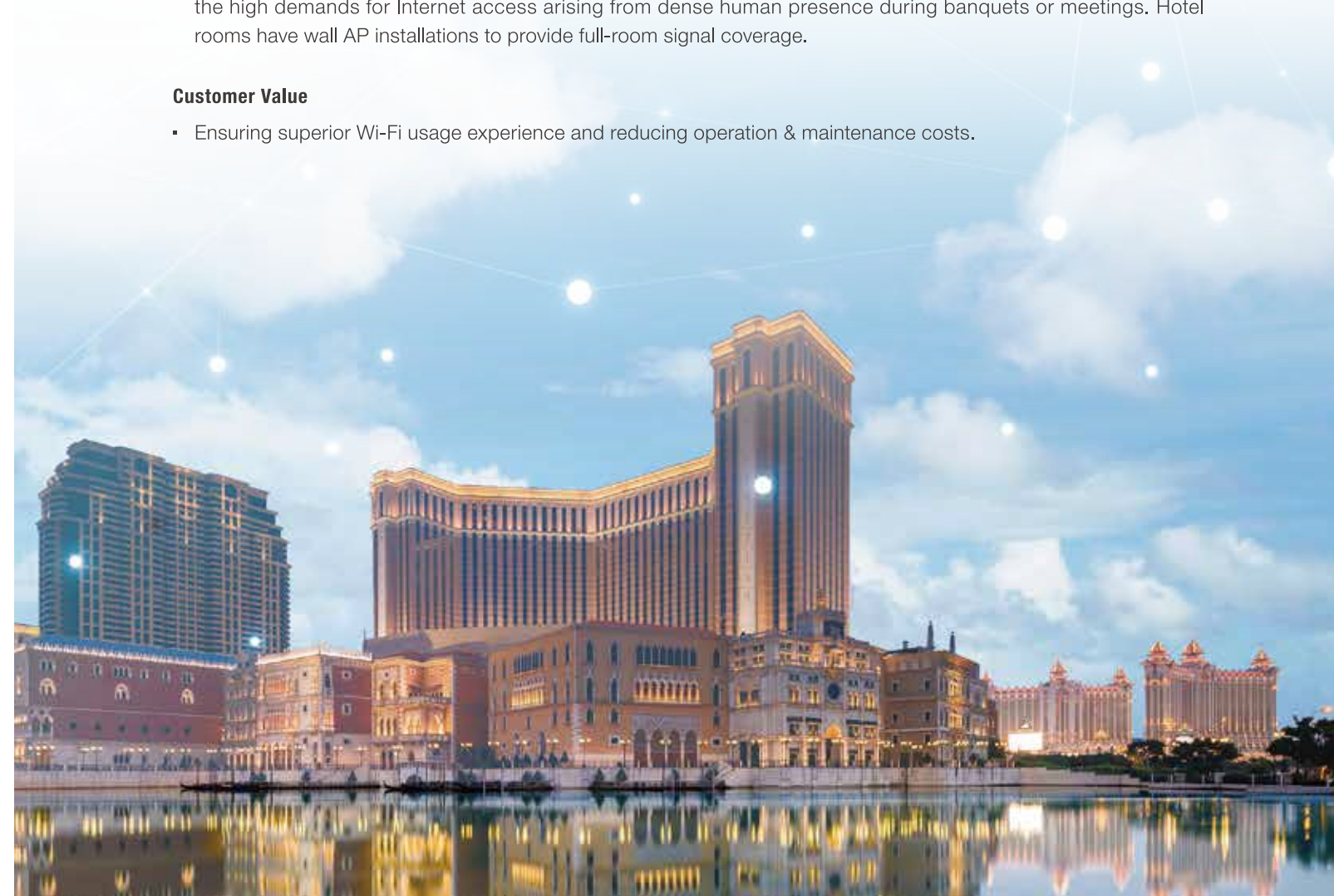
Project Background

- The Wanda Cultural Tourism City (Hefei) is located in the Binhu New District in the city of Hefei. The project occupies 3.5 million sqm and comprises 4 main constituents - cultural content, tourist facilities, businesses, and hotels. It receives up to 100,000 visitors a day and over 20 million visitors a year. Hotels in the City include Wanda Vista, Wanda Realm, Wanda Novotel, Wanda Pullman, and Wanda Mercure.

Solution

- From 2015 to 2016, Ruijie Networks successively provided services to Wanda Vista, Wanda Realm, and Wanda Novotel, meeting the strict and high standards of the hotel group and establishing wireless networks as well as weak grid systems.

- Public areas of the hotels (restaurants, meeting rooms) utilize high density AP installations for coverage, meeting the high demands for Internet access arising from dense human presence during banquets or meetings. Hotel rooms have wall AP installations to provide full-room signal coverage.

Customer Value

- Ensuring superior Wi-Fi usage experience and reducing operation & maintenance costs.

ENTERTAINMENT & HOSPITALITY

Yiwu Wanda Realm Hotel
To Help Improve the Wireless Experience

Project Background

- Yiwu Wanda Realm Hotel is a high-end 5-star hotel specially built by Wanda in the city of Yiwu and is situated within the Yiwu Wanda Plaza commercial center.

- Every room of the hotel is covered by Wi-Fi, with wireless signal quality held as an important indicator of the quality of the hotel's services as a whole.

Solution

- Ruijie Networks' special solution for luxury hotels (nicknamed the "Yi" network solution) uses cutting-edge smart sensing technology to allow wireless products to intelligently sense connection paths, making wireless networks highly versatile.

- By coordinating with Ruijie Networks' wireless controller products, wireless users are guaranteed seamless roaming on Layer-2 and Layer-3 networks and will not experience interruptions in data access during the process.

Customer Value

- Guests have access to wireless resources anytime, anywhere. Connections are never dropped.

- Whether in the hotel lobby, in the elevators, or in the rooms, the terminal IP remain the same. This ensures smooth operations for the user.

ENTERTAINMENT & HOSPITALITY

Dorsett Hotel
### To Enhance Guest Wi-Fi Experience

Project Background

- Dorsett Hospitality International, established in January 2007, is a subsidiary of Far East Consortium International Limited, listed on the Hong Kong Stock Exchange in 2010. It is an international hotel and hospitality organization with over 30 hotels in Hong Kong, China, Malaysia, Singapore and the United Kingdom.

- The existing Wi-Fi networks had poor Wi-Fi coverage and Dorsett had received complaints about the poor network connection from customers staying in their hotels. High investment cost will be required if traditional APs are installed in every guest room and the large number of APs will also be difficult to manage. Dorsett consulted Ruijie for a solution that reduces investment cost as well as simplifies the management of the large number of APs.

- This project focuses on building guest Wi-Fi networks for three Dorsett hotels in Hong Kong, one in Kuala Lumpur, Malaysia and one in Chengdu, China. Its aim is to provide memorable experience to customers with excellent hotel operations and services.

Solution

- Ruijie Wall APs are installed inside every guest room to provide full Wi-Fi Coverage. As of November 2017, around 1000 Ruijie AP130 Wall AP Series were deployed, providing guests with excellent Wi-Fi signal and network connection from any part of the guest room.

- The design of AP130 Wall AP Series is tailor-made for 5-star hotels. With an extensive choice of replaceable cover plates (gold, white, black and silver) to accommodate various interior design styles and the non-luminous AP design which will not affect the sleep of the guests, Ruijie provides seamless connection to Dorsett hotel customers with style and comfort.

Customer Value

- After deployment of the new Wi-Fi network for the project, Dorsett has received no complaints about their hotel's Wi-Fi coverage. The replaceable cover plates and non-luminous design of the APs perfectly fit in the harmonious hotel environment, providing guests with the ultimate comfort and hospitality service.

- The solution provides easy and centralized AP management to help streamline IT operation and management.
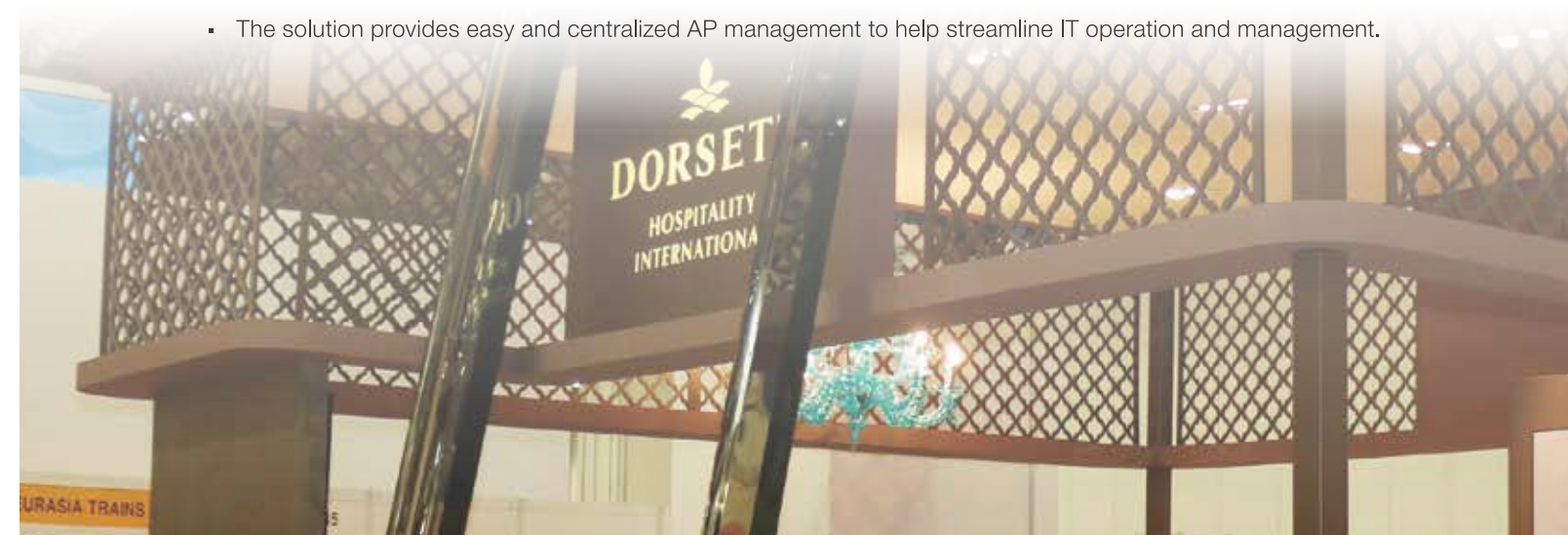
ENTERTAINMENT & HOSPITALITY

The Kimberly Hotel
4D Hospitality Total Solution

Project Background
- The Kimberly Hotel is a renowned hotel in Hong Kong, located in the bustling shopping and entertainment district of Tsim Sha Tsui in Kowloon. The hotel offers more than 540 guest rooms, 3 elegant restaurants and bar, a business centre, gym and health spa for their guests.
- The hotel received a lot of complaints from customers about the guest network due to the slow network speed and poor Wi-Fi coverage as APs were installed in the corridors.
- Located in one of the busiest districts of Hong Kong, Kimberly Hotel is always fully booked. Therefore, minimal interruption of the hotel operations is required during the AP installation process. The hotel also requires minimal cabling and interior design changes to maintain its glamourous outlook.
- Kimberly Hotel consulted Ruijie for a manageable and cost-effective Wi-Fi solution to provide their hotel with full Wi-Fi coverage in the guest rooms by adopting our 4D Hospitality solution.

Solution
- Ruijie delivered ubiquitous Wi-Fi, unified management and robust security to the Kimberly Hotel with our 4D Hospitality Total Solution, including switches, wireless, Internet security, central network management system and application control engine to provide the 10G and IPv6 ready Wi-Fi network.
- The comprehensive 4D Hospitality Solution adopts the flexible and cost-effective Wall APs to enhance the Wi-Fi coverage in guest rooms with no extra cabling, fast deployment and various Wall AP options.
- The solution is bundled with Ruijie Smart Network Commander (RG-SNC) Central Network Management System to provide proactive SMS and email alert as well as topology management

Customer Value
- Ruijie's 4D Hospitality Solution ensured the quality of Wi-Fi coverage in the guest rooms of Kimberly Hotel. The network is easier to manage with Ruijie SNC's proactive SMS and email alert if any abnormality occurs. The 4D Hospitality Solution ensures excellent Wi-Fi to guests at all times and Kimberly Hotel is highly satisfied with the solution.
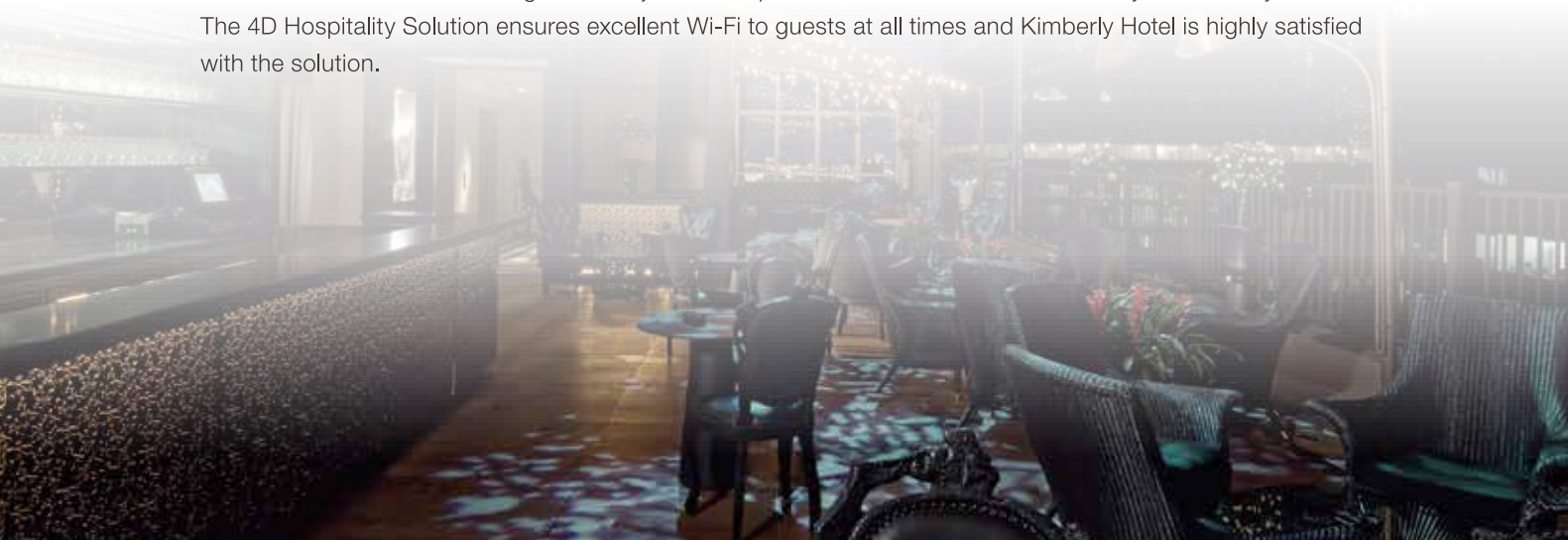
ENTERTAINMENT & HOSPITALITY

KL Gateway Mall
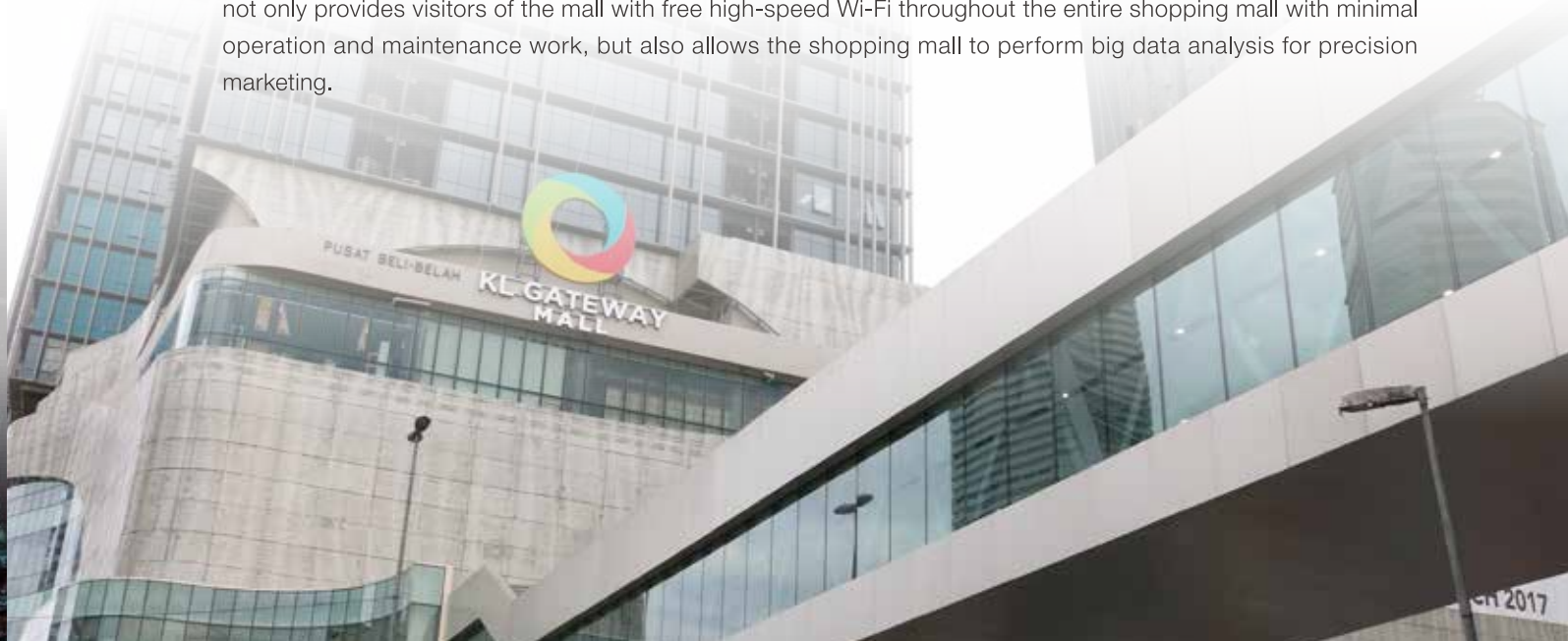To Provide Excellent Wi-Fi Performance

Project Background
- KL Gateway Mall, located along the Federal Highway in Kuala Lumpur, is built by the renowned developer Suez Capital Sdn Bhd. With an approximate gross floor area of 500,000 sq. ft., the KL Gateway Mall serves as a centre comprising corporate office towers, residential area and retail mall. Comprising children's education centre, an outdoor park with an extensive variety of outlets and fashion retail stores, the KL Gateway Mall is an excellent venue for retail therapy, social networking and relaxation.
- For this project, the customer requires a public Wi-Fi solution which not only provides full Wi-Fi coverage, but also helps to promote their new shopping mall, such as advertising the mall's latest promotions. The KL Gateway Mall would like to gather the guests' data and deploy big data technology to promote their shopping mall using precision marketing, which allows their management to monitor the behaviours of guests visiting their mall.
- Ruijie's Marketing Wi-Fi Solution is capable of delivering excellent user experience at a highly competitive investment cost compared to other solutions in the market, therefore KL Gateway Mall employed Ruijie to enhance their Wi-Fi network.

Solution
- More than 60 AP520-BT Indoor APs are deployed to provide full Wi-Fi coverage in the premises of the KL Gateway Mall. These APs are all managed using our high-performance RG-WS6008 wireless controller, which offers seamless and secure wireless control, delivering high transparency and visibility.
- The solution is integrated with third-party authentication and location-based services, and provides centralised management to help streamline the IT operation and management process.

Customer Value
- KL Gateway Mall is the first shopping mall in Malaysia to implement Ruijie's Marketing Wi-Fi Solution. The solution not only provides visitors of the mall with free high-speed Wi-Fi throughout the entire shopping mall with minimal operation and maintenance work, but also allows the shopping mall to perform big data analysis for precision marketing.

Solution

- More than 120 Ruijie AP520-I smart antenna indoor APs are deployed in the hotel corridor and shopping mall to ensure full Wi-Fi coverage of the whole area.

- Ruijie's RG-WS6008 wireless controller support Layer 2 and Layer 3 roaming, enabling clients to have video calls without disconnection when moving between different floors of the mall.

- 10 RG-S2910 PoE switches, which are all powered with smart web management, are deployed with CPP and NFPP support to protect the network from DHCP and ARP attacks, thereby reducing the workload of the IT management staff.

Customer Value

- Ruijie's cost-effective and scenario-based wireless solution provides superior user experience to Marvell City Mall and strong network signal to the hotel. The solution offers simplified management and maintenance with our plug-and-play devices. The wireless network has been operating for 12 months without any issues and the customer is highly satisfied with Ruijie's solution.

ENTERTAINMENT & HOSPITALITY

Marvell City Mall
To Achieve Zero-Deadzone Wi-Fi Coverage

Project Background

- Marvell City Mall, located at the heart of Surabaya, Indonesia, is a one-stop destination for shopping, entertainment and dining which opened in January 2017. Marvell City Mall is part of the Marvel City which has a hotel, school and 4 apartment buildings with more than 1,200 households.

- For this project, full Wi-Fi coverage is required in the shopping mall and hotel. The Wi-Fi signal for the guest rooms must be higher than -50dbi and support seamless roaming, in order to provide a zero-deadzone Wi-Fi coverage for the guests.

EXHIBITION

EXHIBITION

Helong Sports Center
High-quality Wi-Fi Coverage for the 55,000-capacity Center

Project Background

- The Helong Sports Center in Changsha spreads over 150,000 sqm and can accommodate 55,000 spectators. It is the fourth largest sports arena in China.

- The construction of wireless infrastructure in large-scale venues like sports arenas is especially difficult. Numerous APs are required to allow tens of thousands of connections. With frequency interference, the more number of APs deployed, the more serious interference becomes. On the other hand, insufficient deployment will result in signal blind spots, and that will be an embarrassment to the provider. The traditional AP + directional antenna deployment method relies on the setting of antennas, and the slightest error will have a major impact on results.

- On 23 March 2017, the "China vs Korea" soccer World Cup qualifying match was held, and China's team won. Backed by Ruijie Networks, Helong Sports Center successfully provided high quality Wi-Fi converage for 55,000 spectators.

Solution

- The "micro honeycomb" solution does not require very much setting of antennas, this reduces difficulties in adjustment processes and saves time. In addition, APs are deployed below seats. The coverage area of devices are controlled by making use of the signal blockage effect of the position of the seats, and this ameliorates interference issues and allows more deployment points, which in turn increases user-capacity and ensures connectivity in a situation of extremely high density of users. Compared to ceiling-installation of indoor APs, this will not have signals originating from above deflected off the ground, and signals are more easily controlled.

- This solution has 800 units of "micro honeycomb" RG-AP520 (HD) providing coverage for 55,000 spectators, offering high-speed, stable wireless network access. Soccer fans were able to view the match from various perspectives online, watch replays, etc. The greatly elevated spectator experience. Transformation of sports arenas, embracing future developments.

Customer Value

- Ruijie Networks' "micro honeycomb" solution gave thousands of spectators at Helong Sports Center fast Internet connections; it allowed a massive throng of fans to interact at another level.

- The deployment of wireless infrastructure at the stadium for this event built a solid foundation for future events. It also gives the stadium additional abilities to accommodate major events and concerts, slowly transforming it into a commercial stadium and allowing it to embrace future developments.

EXHIBITION

Tencent Global Partner Conference

To Showcase the Innovative and Scenario-based Wireless Solutions

EXHIBITION

National Tennis Center

To Guarantee Ultimate Wi-Fi Experience

Project Background

- The National Tennis Center is the venue of the China Open Tennis tournament. It is the largest tennis venue in the country and has become a new postcard landmark of the capital.

- In 2016, Ruijie Networks conducted a full IT upgrade for the National Tennis Center, using the industry's first "micro honeycomb" deployment method to provide for the wireless Internet access demands of thousands of spectators at the venue.

Solution

- Dual deployment of 2 RG-N18000 as cores of the entire network, meeting the connection requirements of thousands of users.

- Indoor AP installations in player areas and media areas are scenario-based to meet the mobile Internet demands of players and the demands of various media personnel in communications and the broadcasting of live match information.

- Seating areas are deployed with 300 APs using the industry's first "micro honeycomb" scenario-based deployment method, meeting the mobile Internet application requirements of fans in their real-time sharing of match information, interaction, entertainment, shopping, etc.

Customer Value

- Ease of planning and installation that does not affect the design of the venue: Indoor APs were installed using suction methods, while "micro honeycomb" deployment uses adhesives applied below seats. These offer ease of implementation and do not take a long time.

- One-time authentication, full-network roaming, high-speed Internet access without loss of connection, all of which enhance the Internet experience of fans.

- Rapid network deployment with high usability, ensuring the transmission and broadcast of national open tennis matches; positive feedback from various media outlets.

Project Background

- The annual Tencent Global Partner Conference is one event that points the direction that the Internet industry is heading.

- The 2016 conference saw higher requirements again, and Ruijie Networks once again demonstrated its technological edge in its innovative, scenario-based solutions. The "high-density, high-concurrency, high-bandwidth" application demands presented by the conference were met. 13,000 participants of the event were provided with clean, unobstructed wireless access to the Internet.

Solution

- Focusing on the three major requirements of the conference ("high-density, high-concurrency, high-bandwidth"), Ruijie Networks used 155 units of high-performance, scenario-based 802.11ac RG-AP520 to provide full coverage of the venue. To ensure the best user experience of data forwarding, security authentication and gateway application, Ruijie also deployed the RG-WS6812 high-performance wireless controller, RG-N18000 (Newton) cloud network core switch series, and the next-gen all-in-one RG-EG2000XE as the Internet gateway to ensure the best experience for internal data transmission, security authentication and gateway applications.

- The latest smart WIS (WLAN Intelligent Service) system was deployed, which could carry out optimization of channels, power, speed and other key parameters automatically through "one-click optimization".

Customer Value

- Using the innovative, scenario-based "micro honeycomb" AP deployment method, the numerous conference participants were provided with Internet connections for the use of Weibo, WeChat, scoring apps for the banquet, image uploads, interactive games, downloading and other purposes. It also supported the concurrent usage of WeChat Shake by the entire audience, live-streaming of popular Internet celebrities, and the high data and concurrency demands of the audience at back rows to access videos via Wi-Fi. The showcasing of Tencent's lineup of star products based on mobile Internet was flawlessly carried out.

EXHIBITION

APEC Summit 2017
To Provide Excellent Wireless Service

Challenges
- Bad Wi-Fi coverage using existing EnGenius
- A lot of channels overlapping due to no centralized management
- Difficulty in managing large numbers of APs
- Wi-Fi system can not cope with the APEC conference requirement about SLA, QoS

Ruijie Solutions
- Ruijie AP740-I (4x4 11ac Wave2) for high density area and Wall AP for guest room
- Ruijie HPoE switch (2900 Series) for stable PoE
- Wireless controller to conrol the system from single pane of view
- WIS Cloud Service for optimizing the complex Wi-Fi sytem

Customer Benefits
- Full Wi-Fi coverage with seamless voice roaming
- Improving operating efficiency by central management
- WIS service eases the IT Admin to visualize & optimize the wireless network
- Overall wireless speed and stability have been significantly improved