HUAWEI ENTERPRISE ICT SOLUTIONS A BETTER WAY

Huawei WLAN Interoperability Cases

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Introduction

- **Huawei WLAN products provide interoperability with authentication servers and terminals from mainstream vendors in the industry, and can adapt to various interoperability scenarios.**
- **Huawei WLAN products have been verified with over 10 mainstream authentication servers used in current markets and projects, such as Cisco ACS/ISE, Microsoft Windows Server 2003/2008, Symantec Endpoint Protection (SEP), Srun, FreeRADIUS, Aruba ClearPass, and iMC.**
- **Huawei WLAN products have been verified with 211 terminals, covering mainstream operating systems and chip manufacturers in the market. Operating systems include iOS, Android, and Windows phone, as well as Windows XP/7/8/10 and Mac OS; chip manufacturers include Intel, Broadcom, Atheros, and Realtek. Terminals include tablets (Apple iPad), all-in-one computers (iMAC), wireless phones (Flyingvoice IP622W and Cisco DX70), wireless printers (Zebra QL220 Plus and HP Color LaserJet Pro/OfficeJet Pro 6230), data collectors (Motorola Symbol MC32N0/Symbol MC7090CN, SEUIC AUTOID8R-S5W4, and Intermec CK3R), and laptops (Dell INS15UD-4748S, MSI GT80, and Lenovo ThinkPad X260).**
  Server interoperability test report:
  http://e.huawei.com/cn/marketing-material/onLineView?MaterialID={E9EB369F-E985-4F20-841B-4576C5C4750C}
  Terminal interoperability test report:
  http://e.huawei.com/cn/marketing-material/onLineView?MaterialID={A7794774-9BCD-4D56-88E1-B756761F2E23}

- **Huawei WLAN products have been interoperated with diverse authentication systems, covering various industries and scenarios such as education, finance, healthcare, shopping malls/supermarkets, warehousing/logistics, wireless city, and large venues. This document will introduce seven typical cases, involving mainstream authentication systems such as SAM, IBM, Exands, and TSM.**
  For more project cases, see http://e.huawei.com/cn/marketing-material/onLineView?MaterialID={5B758E66-34D2-4A8A-A81B-AD48EB7D54F6}.

WLAN Coverage in Student Dormitories of Wuhan University

Background and Requirements

Wuhan University is a key university directly under the Chinese Ministry of Education, and is also a member of both the Project 985 and Project 211 universities. This project involves WLAN coverage in 94 student dormitories (14,874 rooms) of Wuhan University.

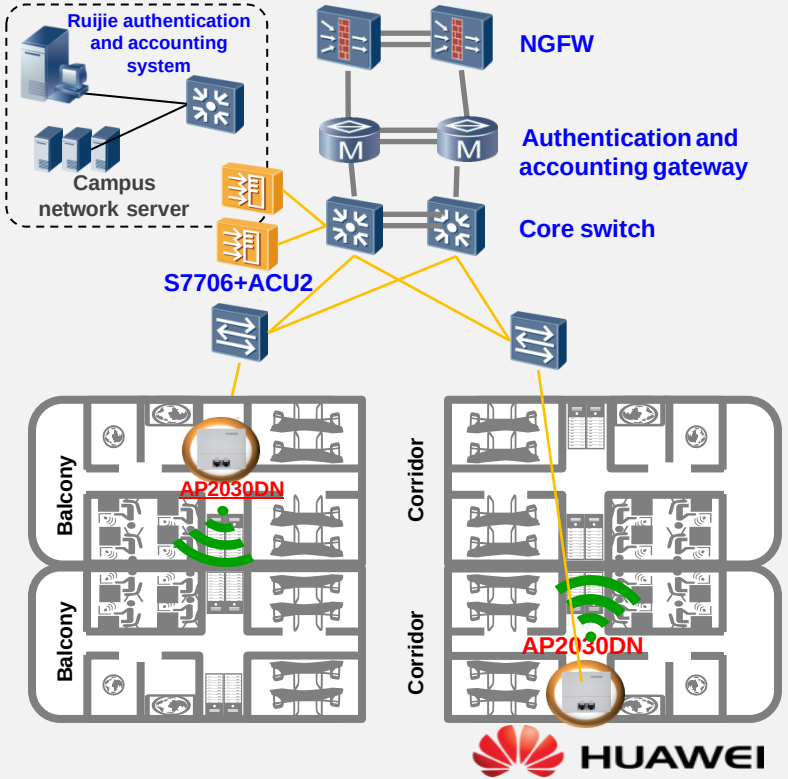
- Easy WLAN construction and deployment, without the need for recabling
- Good WLAN coverage that enables students to access resources through a high-performance WLAN
- Interworking with the current authentication system Ruijie-SAM

Solution

- Supplied PoE power to all wall plate APs. Compared with intelligent distributed APs, this power supply mode does not require hole drilling or cabling.
- Deployed over 7500 AP2030DNs, each of which covered two dormitory rooms.
- Used AC cards (WLAN ACU2) to interwork with the existing authentication system.

Benefits

- Provides good signal coverage and high user access performance.
- Significantly reduces labor and construction costs, and shortens the WLAN delivery period.
- Interworks with the existing authentication system, reducing CAPEX.



Southeast University Campus Network Project

Background and Requirements

Southeast University is a comprehensive university under the direct administration of China's Central Government and Ministry of Education, and is listed as a key university in Program 985 and Project 211. There are more than 32,000 full-time students and over 2,700 teachers. The project reconstructs the campus core network and WLAN for the Jiulonghu Campus of the university.

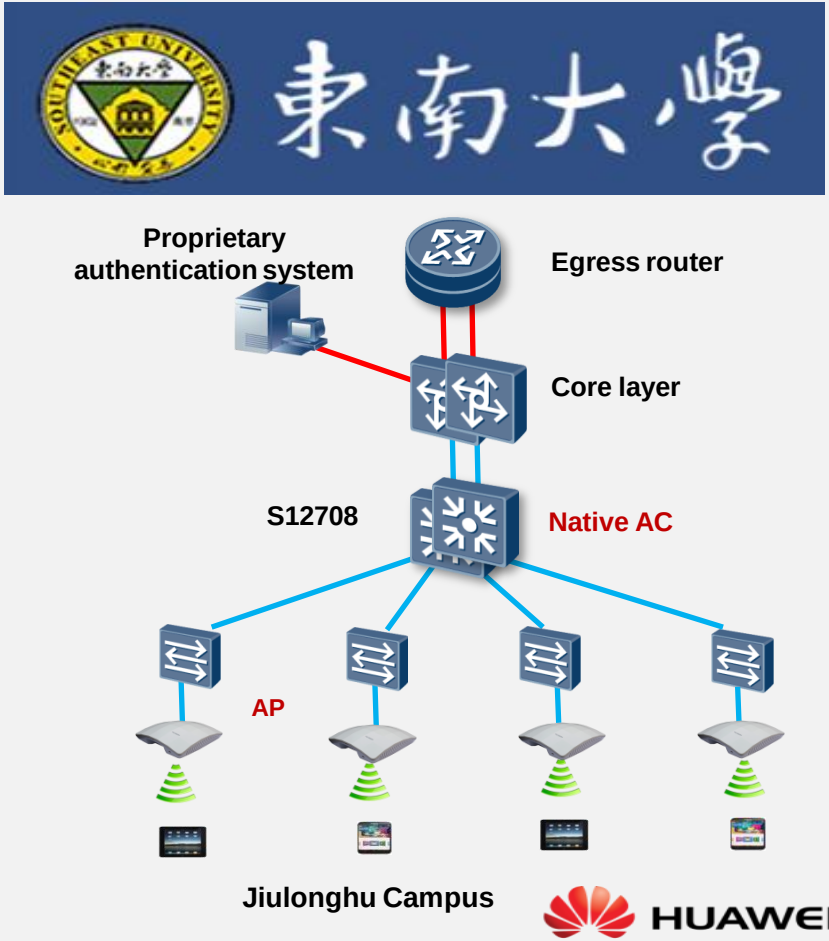
- Device and link redundancy for core devices to ensure high reliability
- Large-capacity WLAN to deliver brilliant experience for teachers and students
- Pervasive wireless coverage to provide high-speed user access
- Simple authentication and management enabled by the proprietary authentication system

Solution

- Used CSS2 to achieve 1+N MPU backup in a cluster and enhance network reliability.
- Deployed agile switches to provide a large-capacity, low-latency core network.
- Used native AC to support wired and wireless convergence as well as unified authentication and management; implemented protocol and interface adaptation with the university's proprietary authentication system.

Benefits

- Ensures network reliability based on CSS2.
- Constructs a large-capacity, low-latency network, creating an excellent user experience.
- Achieves unified authentication and management based on wired and wireless convergence, and leverages the proprietary authentication system to reduce network investment.



WLAN Project for Everbright Bank Kunming Branch

Background and Requirements

China Everbright Bank was established in August 1992. It completed the shareholding reform in January 1997 and became the first national joint-stock commercial bank with both state-owned holdings and shares held by international financial organizations.

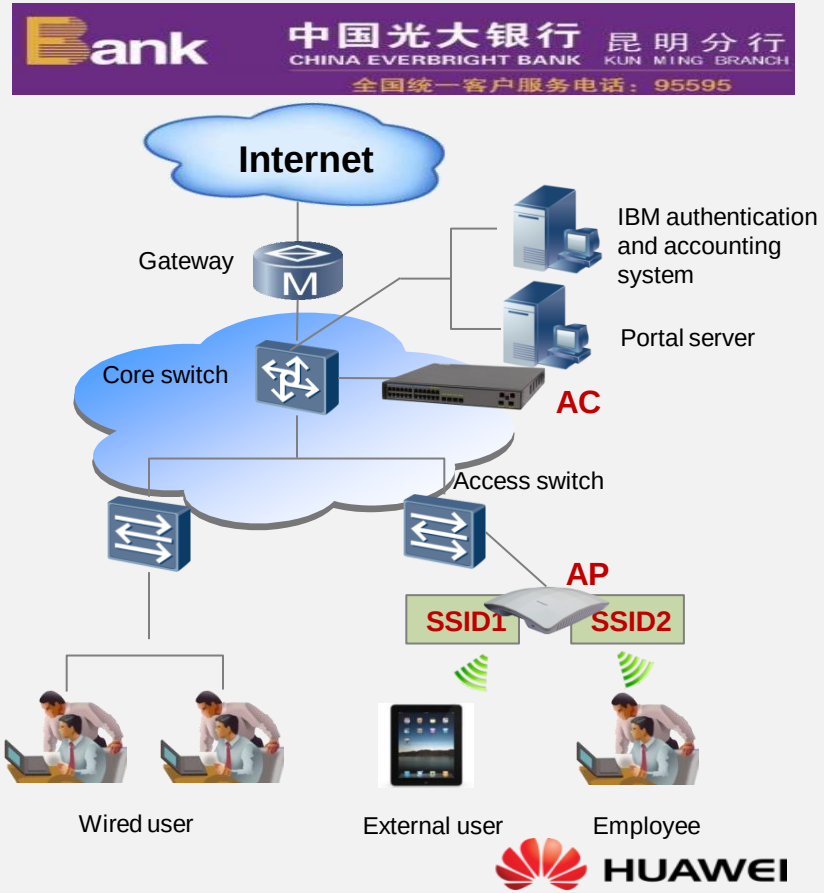
- Devices on the live network can be reused to implement wired and wireless convergence.
- In business halls, customers can connect to the WLAN for free to browse product information and handle financial services, or log in to online banking or mobile banking to deal with financial transactions.

Solution

- Connected a Huawei box AC to the core switch in bypass mode and performed interworking and commissioning between the AC and IBM authentication and accounting system.
- Provided users with 802.1x authentication and deployed the authentication point for wired and wireless users on the original IBM authentication management system.
- Planned two SSIDs based on customer requirements (one for clients and the other for employees), and implemented seamless roaming.

Benefits

- Leverages existing transmission and access resources and background authentication and accounting system, reducing network investment.
- Isolates internal and external users through SSIDs, which improves user satisfaction without affecting services.
- The network is easy to deploy and maintain, and users are managed in a centralized manner.



Red Star Macalline IT Reconstruction Project

Background and Requirements

Founded in 1986, Red Star Macalline has been committed to building comfortable and harmonious homes and enhancing customers' tastes of home life. Now, it has become China's leading home furnishing brand.

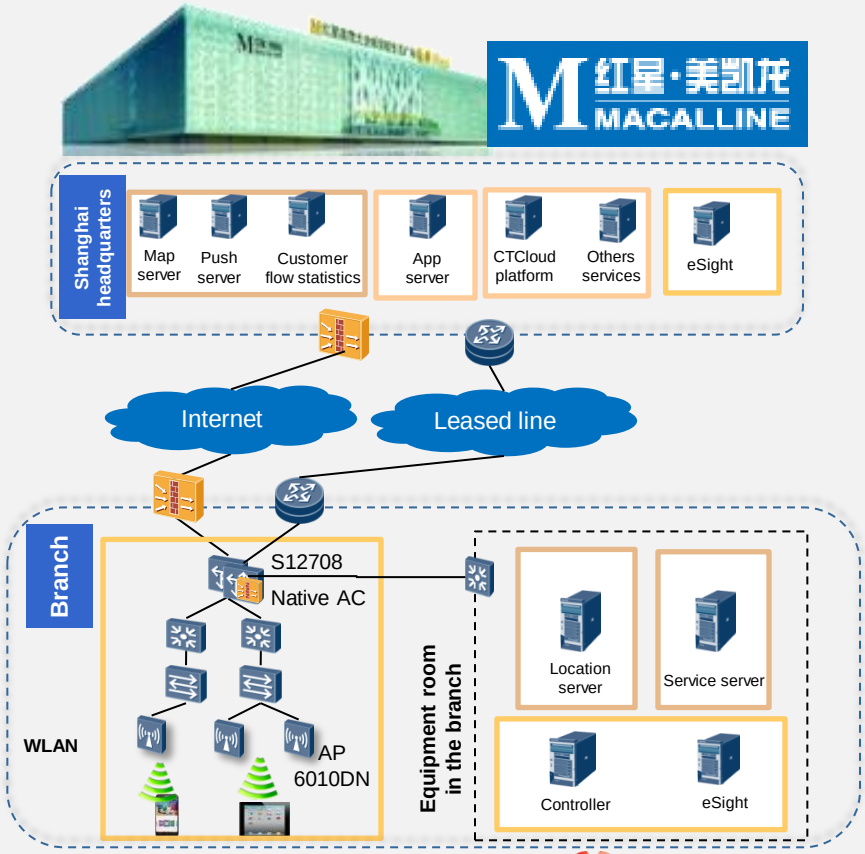
- Provide free WLAN access for customers, implement one-time authentication for multiple access, and interwork with Exands authentication system.
- Use a multi-layer NMS to enable the headquarters to monitor devices in its branches, and achieve centralized management.

Solution

- Deployed the native AC to implement unified authentication and management based on wired and wireless convergence, and achieved successful interconnection between the AC and Exands authentication system.
- Provided over 800 APs to achieve all-round, pervasive coverage to meet WLAN access and location requirements of commercial stores and customers.
- Used 2-layer eSight to manage wired and wireless devices in branches.

Benefits

- Leverages Huawei's professional network planning capabilities to reduce device investment by 20%, ensuring brilliant service coverage and location effects.
- Implements high-precision location (3–5 m), which ensures accurate navigation, information push, and data analysis.
- Interworks standard WebService interfaces with other service systems, ensuring smooth evolution of the systems.



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Jiangsu Provincial People's Hospital Project

Background and Requirements

Founded in 1936, Jiangsu Provincial People's Hospital is the largest comprehensive tertiary hospital in Jiangsu Province and is responsible for the province's healthcare, teaching, and research tasks. In this network reconstruction project, the customer has the following requirements:

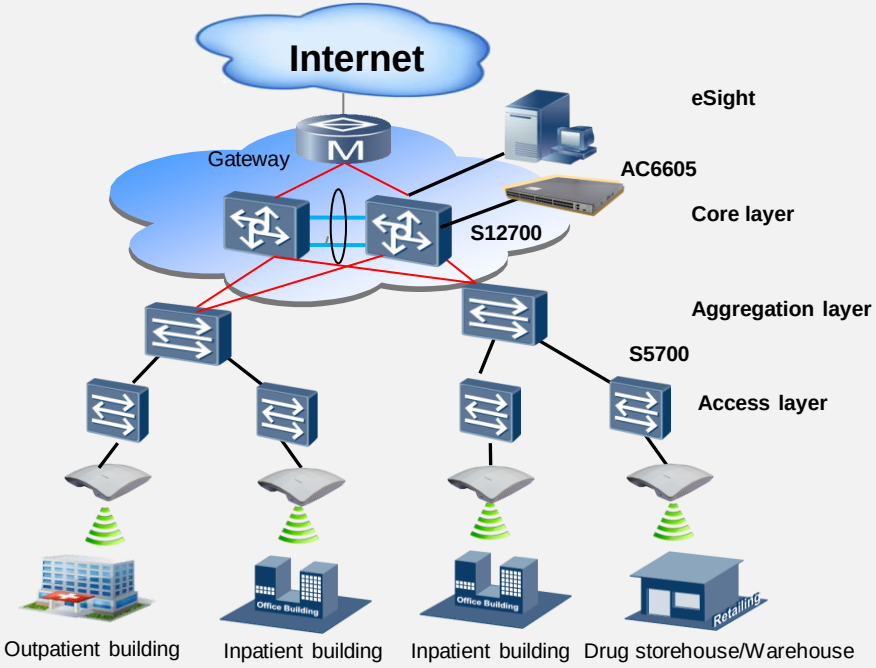
- Create a digital wireless hospital to support various WLAN service applications.
- Achieve wired and wireless coverage without coverage holes.
- Adopt device and link redundancy of core devices to ensure high reliability.
- Implement unified O&M and easy management of wired and wireless networks.

Solution

- Used CSS2 to achieve 1+N MPU backup in a cluster and enhance network reliability at the core layer.
- Deployed agile switches to provide a large-capacity, low-latency core network.
- Enabled L2/L3 roaming to ensure that STAs can roam between different APs quickly and accurately.
- Implemented unified O&M and easy management of wired and wireless networks in the hospital.

Benefits

- Ensures network reliability and stability based on CSS2.
- Constructs a large-capacity, low-latency network, creating an excellent user experience.
- The network is easy to deploy and maintain, and users are managed in a centralized manner.



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WLAN Project for Peking University First Hospital

Background and Requirements

Peking University First Hospital is a large comprehensive tertiary hospital integrating healthcare, teaching, research, and disease prevention. The hospital is granted a "Baby-friendly Hospital" by China's Ministry of Health and the WHO.

- Construct a secure WLAN based on the original hospital network, and forbid all wireless terminals from directly accessing the HIS system to ensure network security.
- Enable the WLAN to carry wireless traffic for mobile ward inspection, and allow terminals to access original medical records and upload ward inspection information.
- Reserve the wireless voice service and maximize traffic transmission on the WLAN.

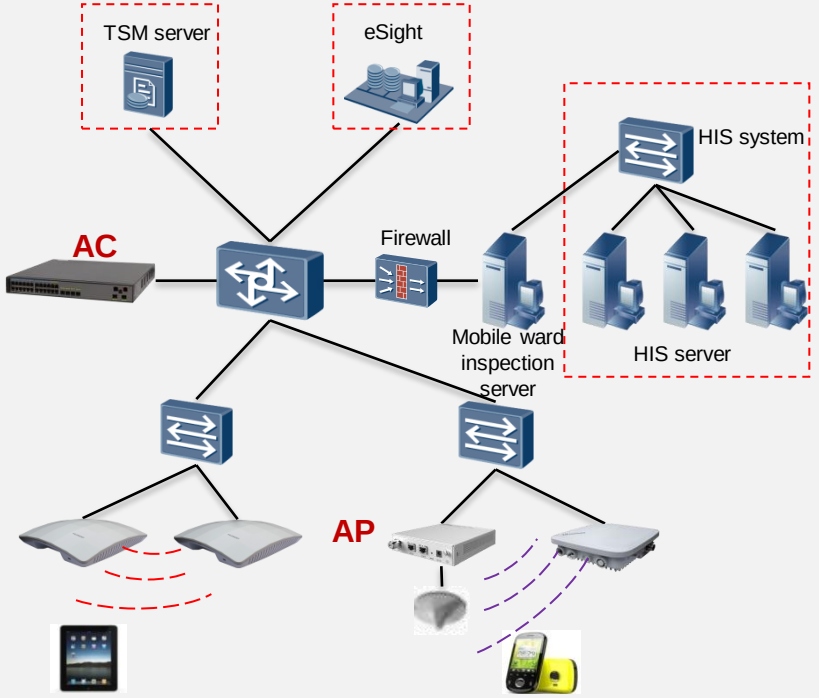
Solution

- Used WPA2-CCMP for encryption and AC+Fit AP networking to simplify network management.
- Used the WLAN to transmit traffic on wireless terminals for implementing wireless ward inspection.
- Used a Terminal Security Management (TSM) system to manage behavior of access users.

Benefits

- Achieves good WLAN coverage in the hospital.
- Meets the service requirements of mobile ward inspection, which effectively enhances the healthcare service quality and efficiency, and improves the relationship between doctors and patients.
- Centrally manages wired and wireless networks and topologies to facilitate fault location.

北京大学第一医院
PEKING UNIVERSITY FIRST HOSPITAL



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WLAN Project for Midea Annto Logistics Warehouses

Background and Requirements

Midea-controlled brand Annto Logistics is one of China's first third-party logistics enterprises that develop modern integrated logistics management. Currently, the company manages warehouses of a total area of more than 4 million square meters and has more than 200 logistics service platforms, with an annual transport volume of 6 billion ton-km and 2 million distribution times. The pursuit of information accuracy, comprehensiveness, and timeliness makes it possible for Annto to implement refined logistics management and provide customers with high-value information services.

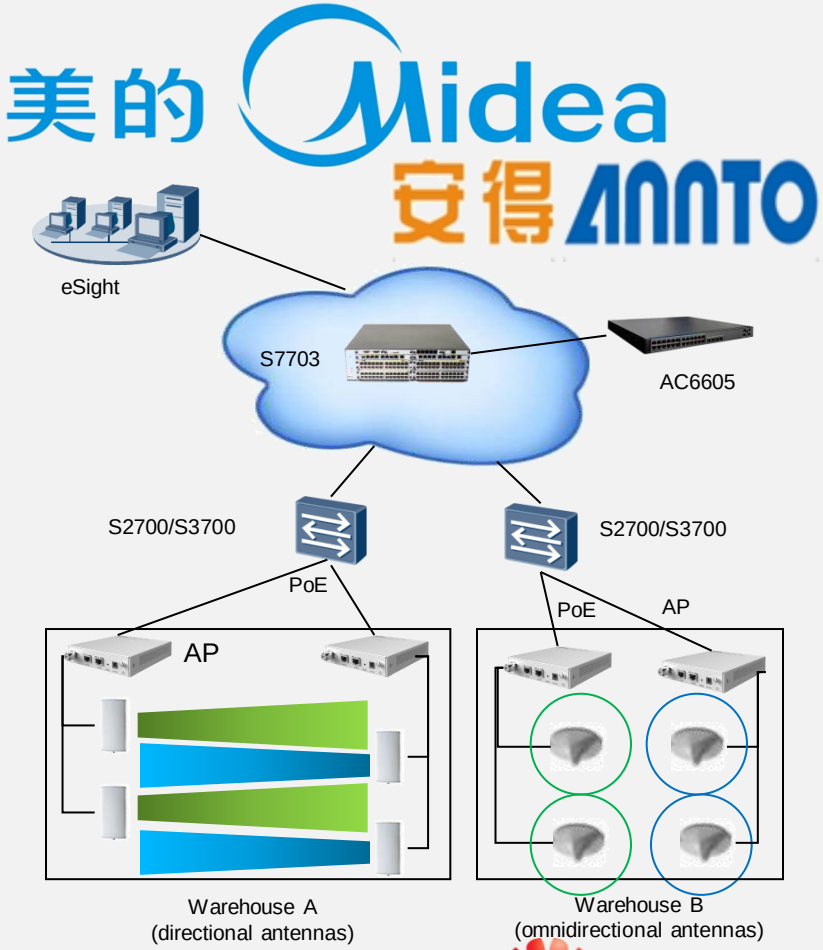
- Deploy WLAN APs with metal shells that can withstand high temperatures.
- Use professional network planning to achieve pervasive coverage for that goods and shelves in warehouses cause severe signal attenuation.
- Provide wireless coverage for use by only wireless barcode readers and PDAs in warehouses and loading and unloading areas.

Solution

- Adopted the indoor distribution coverage solution using AP6310SNs (metal shell; operating temperature: –10°C to +50°C)
- Used the AC6605 to centrally control all AP6310SNs.
- Implemented unified device management using eSight.
- Selected omnidirectional or directional antennas to achieve pervasive WLAN coverage based on actual situations in warehouses.

Benefits

- RSSI is higher than –40 dBm at both ends of a warehouse, and higher than –50 dBm in the middle of the warehouse. Full signal strength is displayed on RF scanners, and no yellow alarm (generated when the signal is weak) is generated on the scanners.
- Signals at any locations and corners in the warehouse can meet the requirements of wireless barcode readers and PDAs. Loading and unloading information can be managed using wireless terminals, improving work efficiency.



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