CASE STUDY

Huawei Agile Campus Network Solution Assists Mexico with Constructing Largest Public Wi-Fi Network in Latin America

Background

With a plan to allow more people in remote areas to access the Internet and benefit from new technologies by increasing the national bandwidth coverage rate, the Mexican government launched a five-year national digital strategy called "Mexico Conectado" (Mexico Connected) in 2013. The strategy also improves work efficiency for government organizations, bridging the digital divide. To achieve the goal, Mexico plans to build up to 250,000 Wi-Fi hot spots by 2013, providing coverage for schools, hospitals, clinics, healthcare service centers, community centers, government organizations, and public areas nationwide. Once the Mexico Conectado project has completed, the Secretariat of Communications and Transportation (SCT) will be responsible for the implementation and operation of these Wi-Fi hot spots.

Figure 1 Mexico Conectado project

Challenges

The SCT's plan includes deploying 65,000 sites by 2014. Out of these sites, more than 30,000 are located in remote rural areas. Moreover,

Executive Summary

Industry
Government

Challenges
- Complex remote area work environments
- Difficult Operations and Maintenance (O&M) due to massive numbers of devices and cross-carrier Wide Area Networks
- Simple wireless network access authentication facilitates expanding mobile marketing methods

Solution
- Huawei eSight Network Management System (NMS) performs 360-degree monitoring and manages multiple backbone networks of carriers and third-party devices. It allows customers to view multiple layers of user experience from both general and detailed demonstrations.
- Huawei USG6300 series Next-Generation Firewalls (NGFWs) support local buffering and implements storage and push via a portal, saving the number of portal servers and further lowering customer Capital Expenditure (CAPEX).
- USB-based deployment increases delivery efficiency by 90 percent, allows for simplified and rapid service provisioning, and is also easy to learn.

Benefits
- Families and small-sized enterprises can connect to networks, boosting the development of e-commerce platforms.
- Governments can release disaster warnings and relief information through public networks to reduce losses.
- Local government personnel in remote areas can utilize public networks to implement online services, improving their overall work efficiency.

plateaus and mountains, as well as changing weather conditions create the following challenges for project delivery:

- **Complex remote area work environments** — Some sites require outdoor Wi-Fi coverage; however, natural factors, such as high altitudes and temperatures, and lightening, cause devices to be faulty. In addition, the sites are scattered.
- **Difficult Operations and Maintenance (O&M) due to massive numbers of devices and cross-carrier Wide Area Networks (WANs)** — Large network scale includes thousands of wireless Access Points (APs), switches, and next-generation firewalls. Furthermore, the management center must connect to devices through WANs provided by carriers. The hybrid network, composed of devices from multiple vendors, complicates network maintenance and makes fault location difficult.
- **Simple wireless network access authentication facilitates expanding mobile marketing methods** — Wireless public networks must ensure access compliance of their guests and support simplified authentication processes. In addition, public wireless networks must facilitate expansions of mobile marketing methods, such as advertisement pushes and questionnaires, enabling enterprise cooperation, reducing Operating Expense (OPEX), and allowing governments insight into the opinions of the public.

Solution

As the leading global network solution provider with over 20 years of IP technologies experience, Huawei developed the user-centric Agile Government Campus Solution, which leverages next-generation products that implement automatic network deployment and fault location, as well as refined network management — meeting the SCT's requirements for high reliability, rapid delivery, easy O&M, and operability. The solution includes the following features:

- **Adaptive and Reliable Outdoor APs** — Use the industry's highest-level protection design to provide dustproof and waterproof capabilities. IP67-compliant and can work in environments where humidity ranges from zero to 100 percent (non-condensing) and the temperature ranges from -40°C to +60°C. Outdoor APs use all-metal shells and are equipped with built-in surge protectors for feeders, network ports, and AC power jacks. Outdoor dual-band AP shown in Figure 2 is equivalent to a common outdoor AP with four feeder surge protectors, a network port surge protector, and an AC surge protector to save the cost of purchasing surge protectors, lower the Capital Expenditure (CAPEX) for network construction, and avoid faults caused by multiple passive components.
- **USB-Based Batch Deployment** — The Huawei USG6300 supports

Built-in surge protectors, 5 kA feeder surge protection

Common outdoor AP + 4xfeeder surge protector (5 kA) + Network port surge protector (6 kV) + AC surge protector (20 kA)
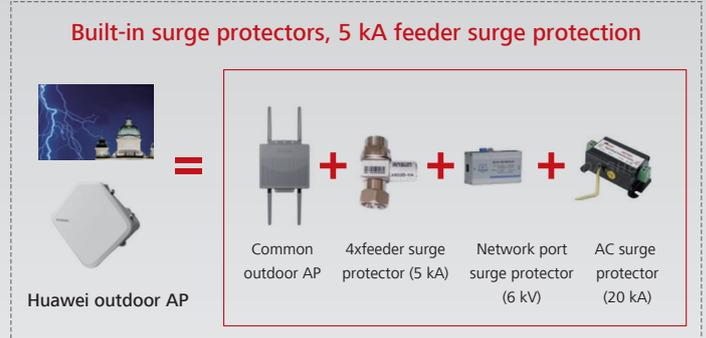
Huawei outdoor AP

**Figure 2** Huawei outdoor dual-band AP equipped with built-in surge protectors
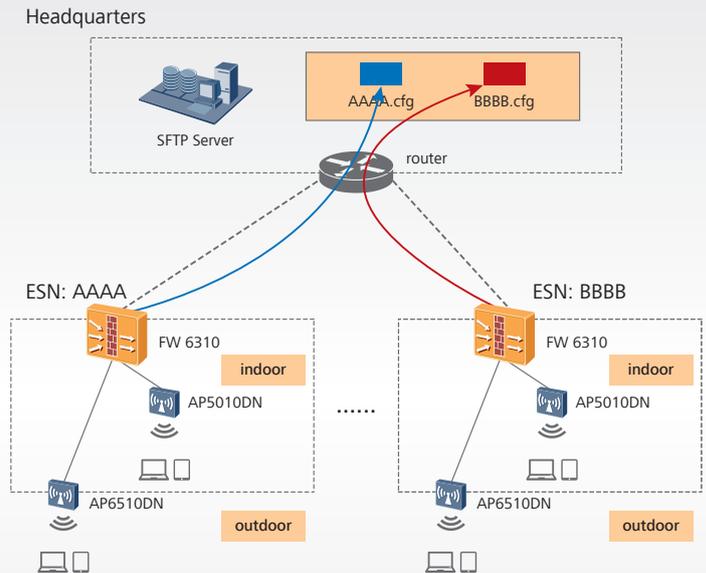
Figure 3 USB-based deployment for automatic configuration of a branch site
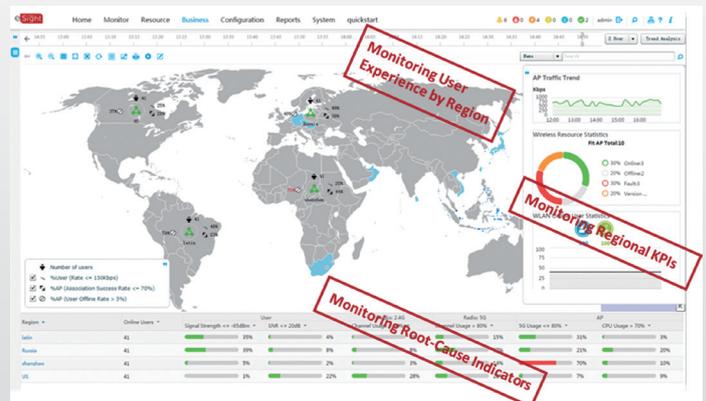
Figure 4 360-degree monitoring by Huawei eSight

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USB-based batch deployment, which implements simplified and rapid service provisioning. After a USG6300 is deployed on a branch site, next-generation firewalls, switches, and APs are configured automatically, leading to low skill requirements for delivery personnel and elevating the delivery efficiency by 90 percent.

- **Proactive O&M to Enable All-Around Awareness of User Experience** — Huawei eSight manages the multiple backbone networks of carriers and third-party devices. eSight allows customers to view user experiences at multiple layers through general-to-detailed demonstrations. O&M is simplified through intelligent data analysis, as well as via a display showing causes of experience deterioration and optimization suggestions.

- **Interoperability with Third-Party Social Platforms** — Huawei's Agile Controller interoperates with mainstream social networking platforms, such as WeChat, Facebook, Twitter, and Google+, supporting the customization of pushed pages and enabling enterprises to conduct secondary marketing. When users access Wi-Fi networks, they can use existing accounts to directly access their networks, bypassing complex registration operations, and guaranteeing access compliance through social networking platforms. The Huawei USG6300 supports local buffering and implements storage and push via a portal, saving the number of portal servers and further lowering the CAPEX of customers.

Benefits

The Mexico Conectado project provides the following benefits:

- **Digital economy** — Allows more families and small-sized enterprises to access networks and boosts the development of e-commerce platforms
- **Teaching quality** — Provides children in remote areas the ability to learn online, as well as in classrooms
- **Healthcare** — Promotes the development of electronic birth certificates and health certificates; people in remote areas can receive healthcare attention through the process of telemedicine

Figure 6 Rural primary school in Mexico — students learning online

- **Government efficiency** — Provides municipal government personnel the ability to utilize public networks to implement online services, improving their overall work efficiency
- **Citizen security** — Governments can release disaster warnings and relief information through public networks to reduce losses

About Huawei Enterprise Business Group

Huawei Enterprise Business Group ("Huawei Enterprise") is one of the three business groups of Huawei, a leading global information and communications technology (ICT) solutions provider. Leveraging Huawei's strong R&D capabilities and comprehensive technical expertise, Huawei Enterprise provides a wide range of highly efficient customer-centric ICT solutions and services to global vertical industry and enterprise customers across government and public sector, finance, transportation, electric power, energy, commercial businesses, and ISPs.Huawei Enterprise's innovative and leading solutions cover network infrastructure, unified communications and collaboration (UC&C), cloud computing & data center, enterprise information security, and industry application solutions.

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