Huawei One Net Campus Network Solution

HUAWEI TECHNOLOGIES CO., LTD.

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Introduction

A campus network is an internal network of an enterprise or organization, which covers indoor and outdoor space and provides access for various terminals and users. Campus networks are classified into large-sized campus networks (with more than 1000 users), medium-sized campus networks (with 200 to 1000 users), and small-sized campus networks (with less than 200 users). Most enterprises consider campus networks as the most important infrastructure for their information system, and attach great importance on campus network construction.

Huawei, the world's leading network solution provider, is dedicated to research and development of campus network solutions. Based on our deep experience in IP network construction, Huawei provides end-to-end campus network solutions and services covering converged switching, routing, WLAN, security, PON, and NMS products. Huawei's products, solutions and services are designed to help customers meet the challenges of designing and deploying modern campus networks.

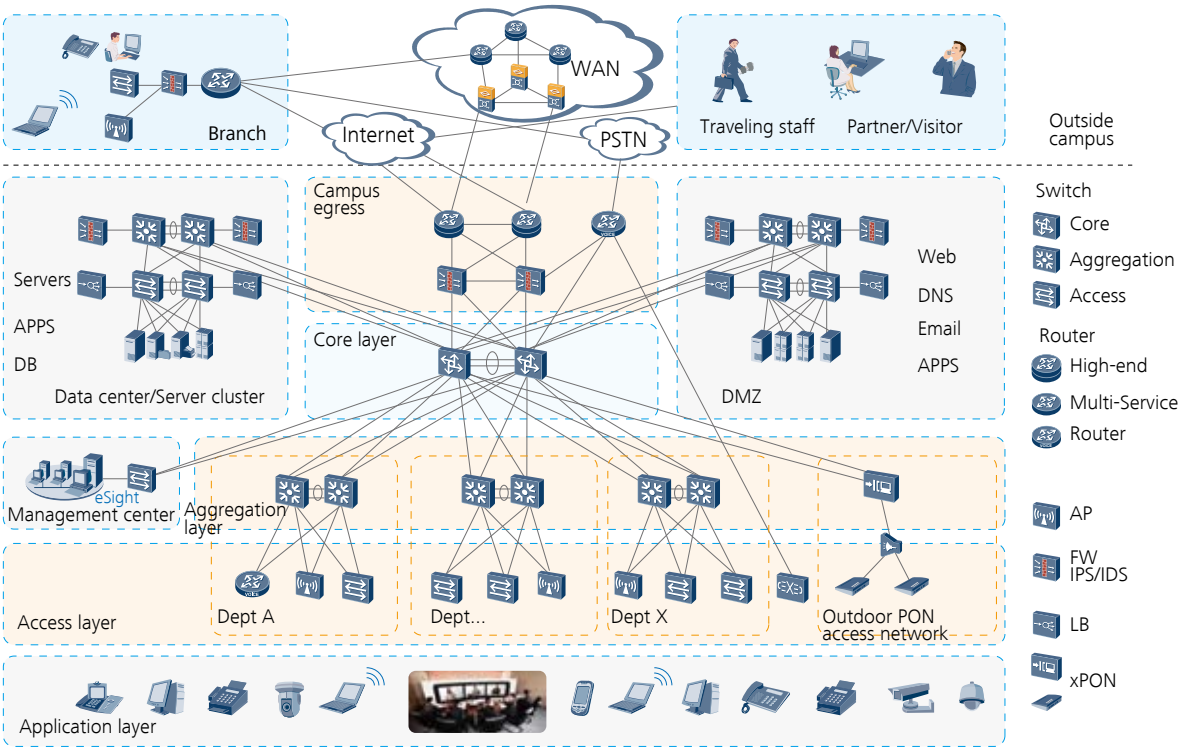
Challenges Faced by Campus Networks

Every enterprise must strike a balance between efficiency, cost, and user experience. As enterprises expand geographically and as new ways of doing business emerge, more and more enterprise services originate in the cloud and are carried across the Internet. As a result, campus networks have to adapt to support different user models and service models. Campus networks must also adapt to the increase in number and diversity of devices that are connected to the network. A modern campus networks needs to move beyond connection PC's to PC's to connecting people to people, people to machines and machines to machines. Enterprises require higher mobility, security, and quality of service across their campus networks. However they cannot meet these needs without considering both equipment costs as well as ongoing costs associated with operations and maintenance.

Enterprises need to provide users access to network services from anywhere, anytime, and using any device without compromising security. The campus network should provide an excellent user experience for a wide number and variety of services.

Huawei Campus Network Solution

Network Architecture



A campus network is logically divided into five zones: the core network zone, the data center zone, the DMZ, the egress interconnection zone, and the operations and maintenance zone. Huawei campus network solution focuses on the core network zone. The core network zone uses a 3-layer architecture consisting of the core layer, aggregation layer, and access layer. This 3-layer architecture has the following advantages:

- Multi-layer design: Each layer has clear functions and a stable topology, making the network easy to expand and maintain.
- Modular design: Each module corresponds to a department, facilitating fault location. Network topology changes in one department do not affect other departments.
- A two-node redundant design enhances network reliability. Too many redundant nodes are difficult to maintain.

Benefits to Customers

Huawei campus network solution can be used in a variety of scenarios, such as dense user access, mobile office, VoIP, videoconference and video surveillance, access from outside the campus network, and all-round network security. This solution meets customers' requirements on network performance, scalability, reliability, security, and manageability, while also simplifying network construction. Huawei campus network solution brings the following benefits:

A Ubiquitous Network for All Services

Provides access for any device, anywhere at any time.

(1). Huawei has rich experience in data communication, wireless, and terminal fields and is capable of building a campus network that integrates multiple access modes, such as Ethernet, WLAN, and PON.

(2). Huawei uses wired-wireless integration and VPN technologies to allow users in an enterprise campus, traveling staff, partners, and SOHO users to connect to the campus network anywhere, any time.

A Secure Network to Guarantee Data and Service Security

Robust terminal security management, service security control, and network attack defense.

1. Integrated admission control, and right and domain-based user management

Wired and wireless access users are authenticated using the same authentication method, ensuring consistent user experience. This integrated admission control also improves resource efficiency, facilitates user management, and reduces costs on network construction and management.

Right and domain-based user management ensures that users of different levels and in different departments have different permissions to network resources so that information can be distributed properly. Common information is shared by employees and key information is restricted only to specified personnel. For example, the general manager can access information in all zones, while an accountant can access only accounting information and the zone to which the accounting department belongs.

2. All-round service control and monitoring, guaranteeing service security

In addition to terminal security, campus networks require all-round service control and monitoring.

Huawei provides advanced service control and monitoring technologies that helps identify and filter more than 50 P2P applications and ensures over 90% URL filtering accuracy. Tunneling technologies such as IPSec and SSL are also used to provide secure remote access for enterprise users. Huawei document security management (DSM) provides the highest document security management performance to ensure enterprise document security.

3.10G firewall with 1 million pps attack defense capability, guaranteeing network security

Two major security threats to a campus network are unauthorized access from internal users and attacks from external hackers. Huawei 10G firewall has 1 million pps of DDoS attack defense capability and can detect 99% of viruses. The 10G firewalls are deployed at the egress of a campus network to safeguard the campus network without affecting service operating.

An Intelligent Network to Facilitate O&M

Intelligent control of power consumption, and overall network deployment and maintenance.

1. Intelligent power consumption management

Huawei devices use patented energy conservation technologies to reduce power consumption, including:

- Independent fan areas for different components and intelligent fan speed adjustment based on component temperature.
- Traffic-based chip power adjustment. The system increases the chip power when the traffic is heavy, and decrease the chip power when the traffic light.
- Power-saving chip that can adjust the device output power based on the power supply and environmental conditions.

These technologies reduce the device power consumption by 30%.

Huawei PoE devices can adjust the PoE output power based on power consumption of powered devices (PDs). Customers can specify power supply time segments for PDs. For example, PoE devices can cut off the power of lights and APs during off hours to save power.

2. Easy network deployment

Huawei campus network solution implements automatic device configuration. Devices automatically obtain configuration files specified servers after they connect to the network. Network administrators can use the NMS to remotely configure devices in batches. Configuration files can be saved in USB flash drives so that installation engineers can configure the devices after completing device installation. The NMS also supports remote batch upgrade so that engineers do not need to frequently go on site.

3. Easy network maintenance

Network administrators can simulate network traffic and services to discover problems and risks in advance. Huawei S3700 switches provide environment monitoring ports so that administrators can monitor the telecommunications room environment. When exceptions occur, Huawei S3700 switches send traps to the NMS and generate audio or optical alarms as required.

Products for Huawei Campus Network Solution

Switches

Core switch: S9300/S7700

Aggregation switch: S9300/S7700/S6700/S5700

Access switch: S3700/S2700

Routers

Egress router: NE40E-X, AR3200/2200/1200

Voice router: AR3200/2200/1220VW/1220V

WLAN products

WLAN AC: WS6603, S9300/7700 + AC card

WLAN AP: WA603 (Indoor), WA633 (Indoor Distribution), WA653 (Outdoor)

Security products

Firewall: Eudemon 8000E/1000E/200E, S9300/7700 + firewall card

IDS: NIP200/1000

SSL VPN: SVN 3000

Terminal security management: TSM, DSM

PON products

OLT: MA5600T/5603T, S9300/7700 + EPON OLT card

ONU: MA561x/2x/3x, HG7022/704x/824x

Network management system

eSight, U2000

Why Huawei?

Huawei campus network solution uses open protocols and supports a wide variety of industry standards to help enterprises leverage their current network investments. Huawei offers a very broad set of products, solutions and services both direct to enterprises as well as with partners to support both large and mid-sized enterprises.

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