Agile CONTROLLER

SDN Controller Datasheet

[Product Overview]

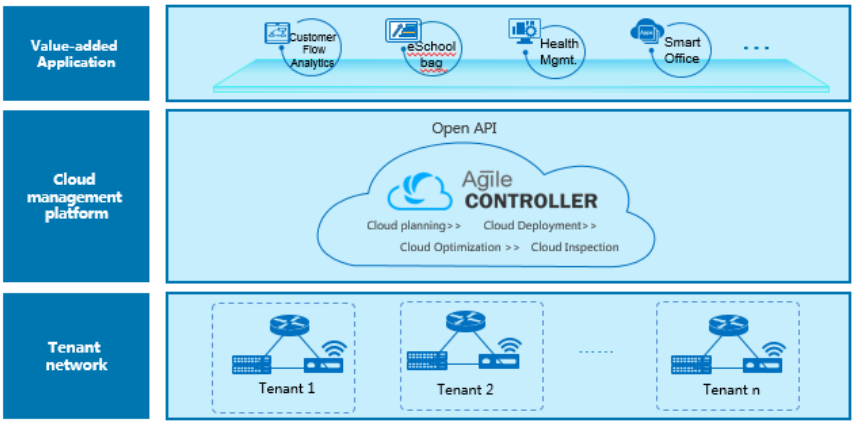
The Agile Controller-Campus is a cloud management platform developed by Huawei for campus networks. It cloudifies traditional network management functions using cloud computing technologies, and provides various features, such as multi-tenant management, plug-and-play, user access, cloud-based network planning, cloud-based PMI, and open APIs, implementing flexible expansion of enterprise campus network services.

[Product Description]

Huawei CloudCampus Solution

With the rapid development of new information and communications technologies (ICTs) such as cloud computing, Big Data, and mobile Internet, traditional deployment and management solutions are faced with problems of low deployment efficiency, complex network management, and high operating expense (OPEX), and therefore cannot meet rapidly changing service requirements.

Huawei CloudCampus Solution implements automatic and centralized management of remote multi-tenant networks using cloud computing technologies, provides data collection and analysis capabilities that cannot be provided by traditional network solutions, and implements network (LAN/WLAN) as a service (NaaS).

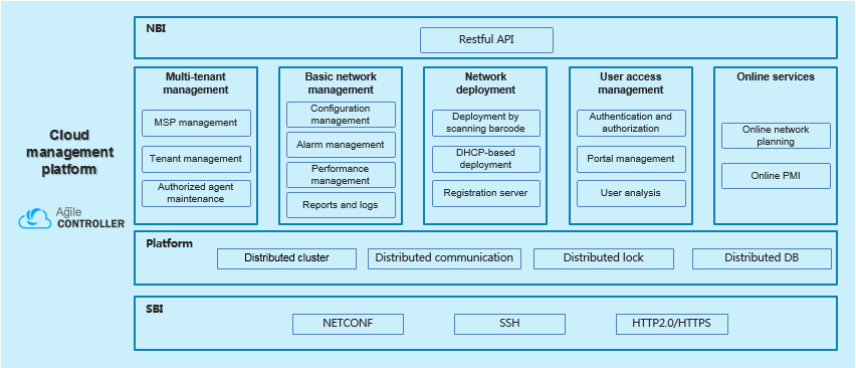


The Agile Controller-Campus is a core component of CloudCampus Solution. It cloudifies traditional network management functions using cloud computing technologies, and provides various features, such as multi-tenant management, plug-and-play, user access, cloud-based network planning, cloud-based PMI, and open APIs, implementing flexible expansion of enterprise campus network services.

[Architecture and Key Components]

The Agile Controller-Campus leverages cloud computing technologies and its distributed architecture to provide various features including multi-tenant management, basic network management, deployment, user access, and online services, implementing end-to-end automatic network management. In the northbound direction, the Agile Controller-Campus provides RESTful APIs to connect to third-party value-added applications. In the southbound direction, the Agile Controller-Campus communicates with devices through NETCONF, SSH, and HTTP 2.0/HTTPS.

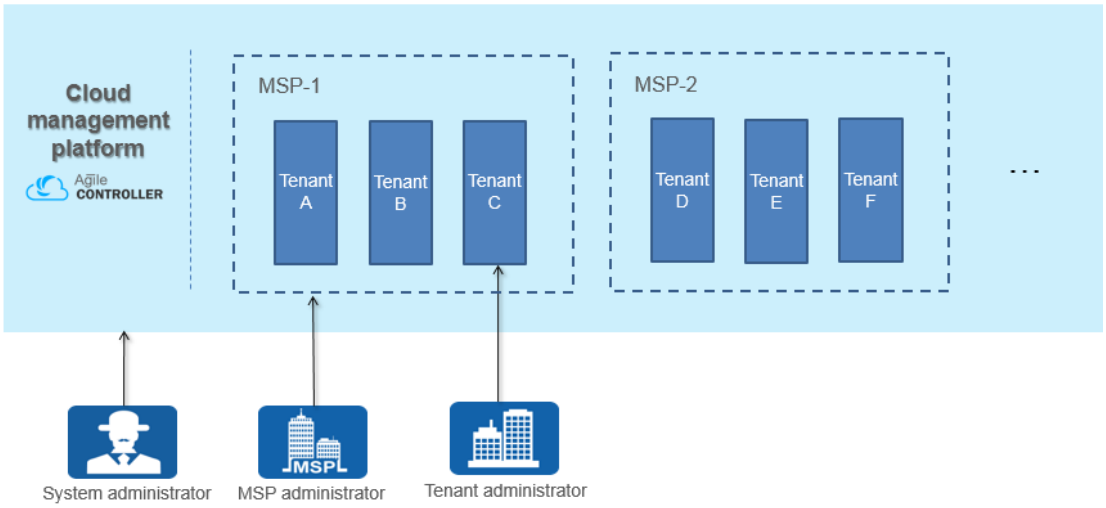
Figure 1-1 System architecture of Huawei Agile Controller-Campus



[Product Highlights]

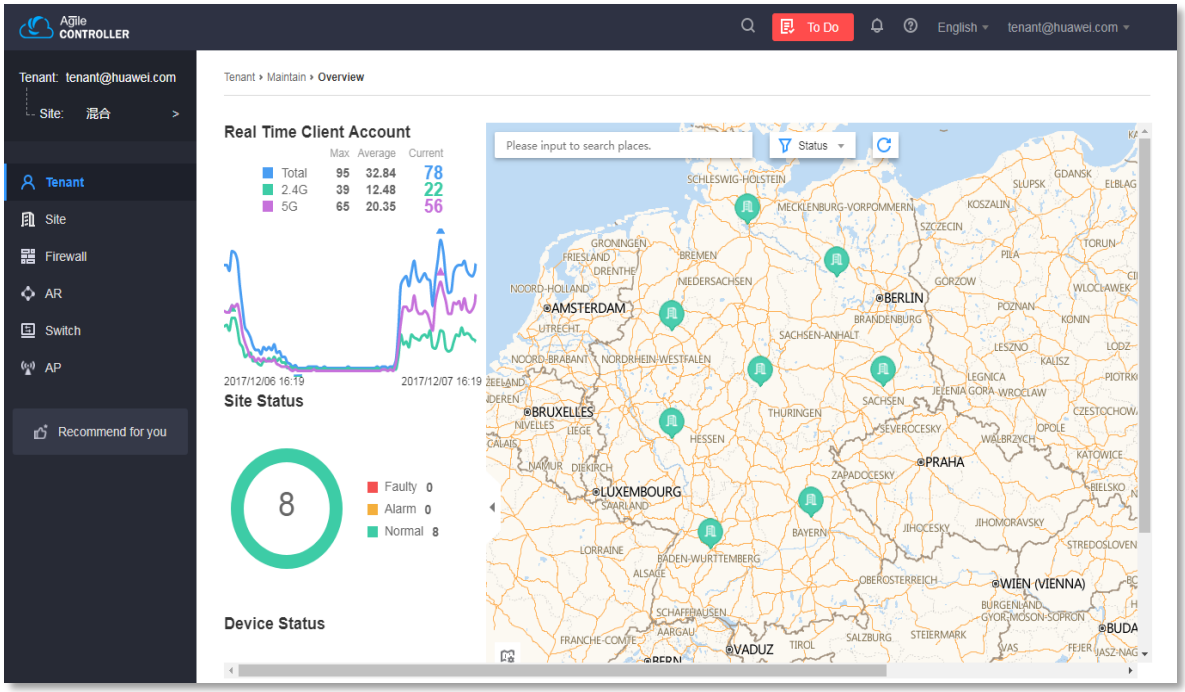
- **Cloud-based multi-tenant management**

  The Agile Controller-Campus supports cloud-based management that can implement physical sharing and logical isolation, and provides three user roles for management: system administrator, Managed Service Provider (MSP), and tenant. MSPs can provide network construction and maintenance services for tenants.



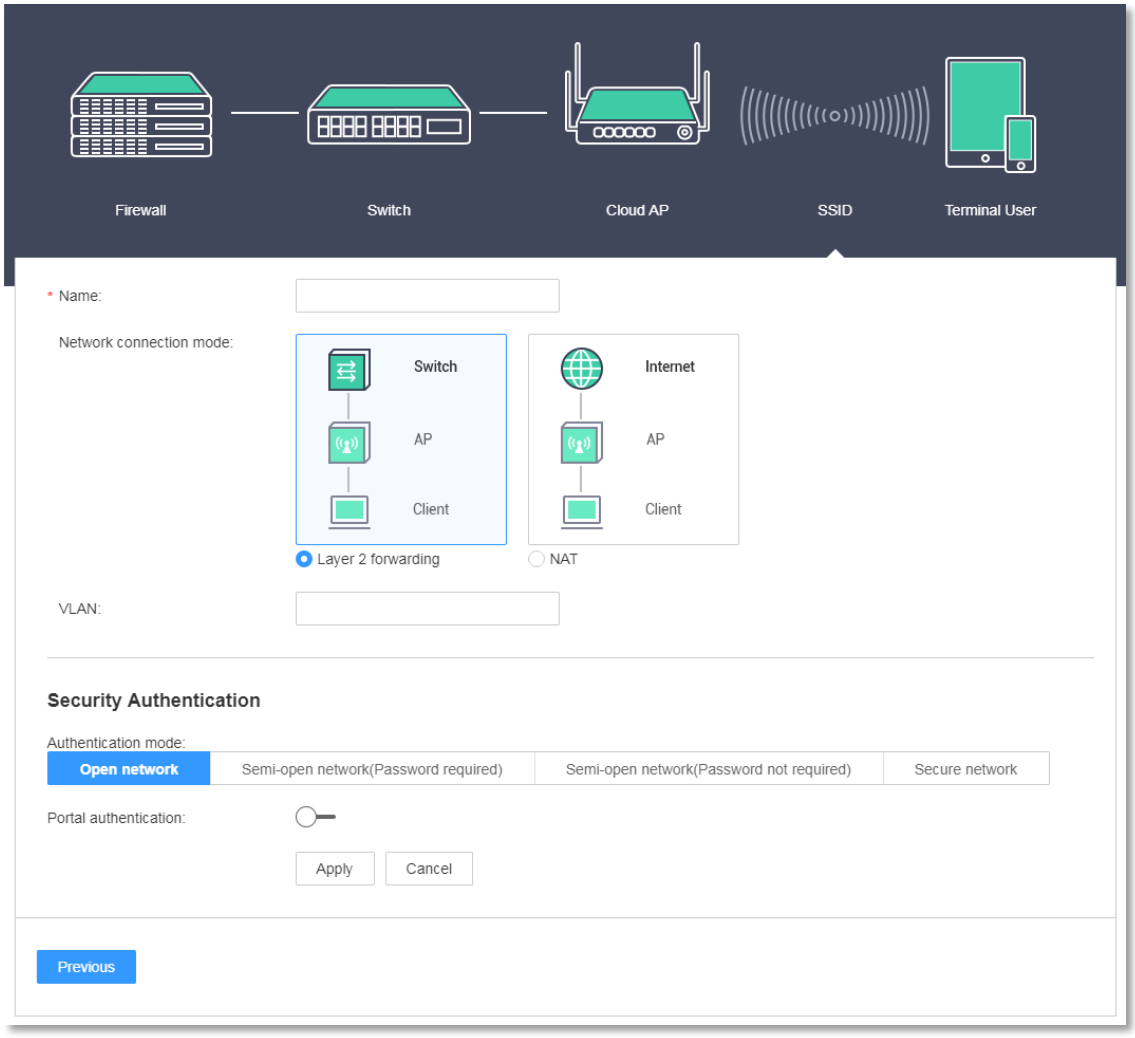
- **GIS map-based network monitoring**

  The Agile Controller-Campus provides GIS map-based network monitoring to monitor device alarms and online terminals in real time. This allows administrators to quickly locate faults.



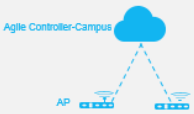
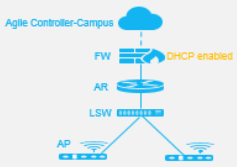
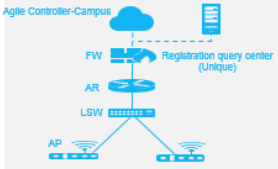
- **Scenario-based service configuration**

  Based on the wizard-based, segmented, and flat UI design concepts, the Agile Controller-Campus extracts and combines common services to provide user-friendly service configuration UIs, greatly improving the network deployment efficiency.



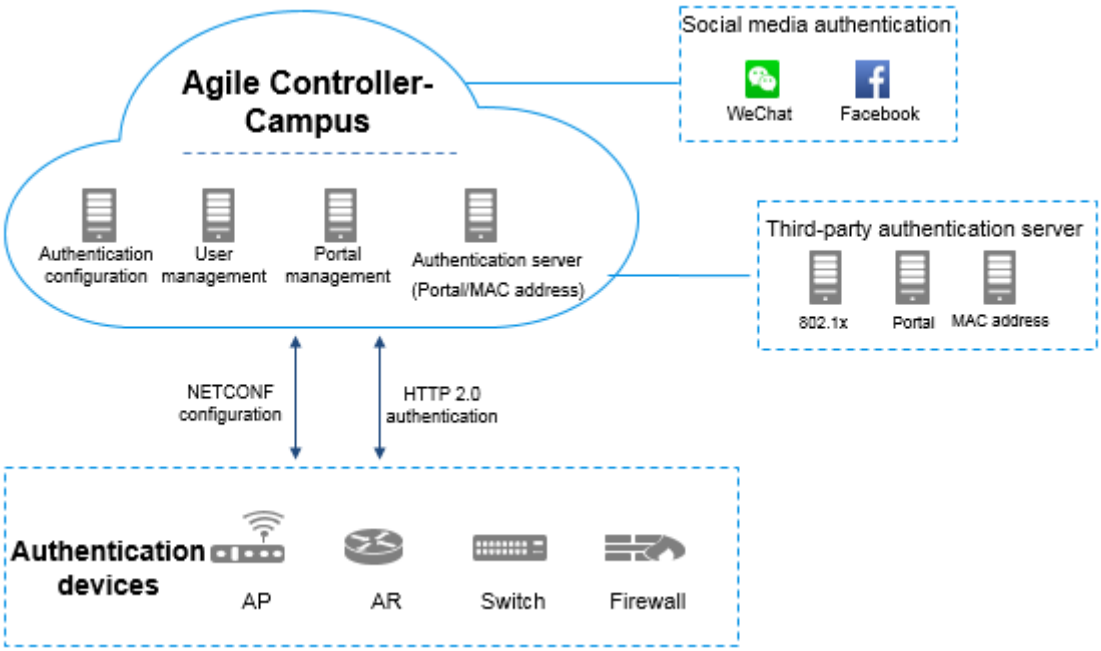
- **Plug-and-play deployment**

  The Agile Controller-Campus provides three plug-and-play deployment modes: deployment through barcode scanning, deployment through DHCP, and deployment through a registration query center. The three deployment modes can meet the requirements in different network scenarios, greatly simplifying local network deployment and facilitating network construction.

Deployment Mode	Deployment by scanning barcode	DHCP-based deployment	Registration query center (new)
Application Scenario	 Applicable to scenarios with APs only	 Applicable to scenarios where DHCP is enabled	 Applicable to regions where a registration query center is available
Configuration Mode	Barcode scanning using an app locally	Automatic remote configuration	Automatic remote configuration

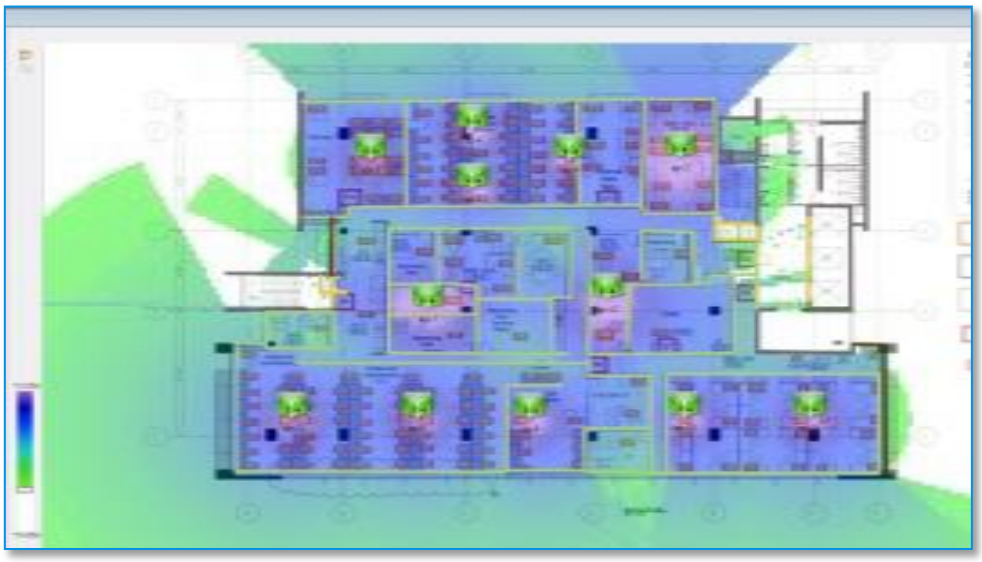
- **Authentication of users in Internet access scenarios**

  The Agile Controller-Campus supports multiple user access modes, including 802.1X authentication (requiring a third-party authentication server), Portal authentication, MAC address authentication, SMS authentication, and social media authentication. Authentication data is transmitted using HTTP 2.0, which is more suitable for Internet access than RADIUS.



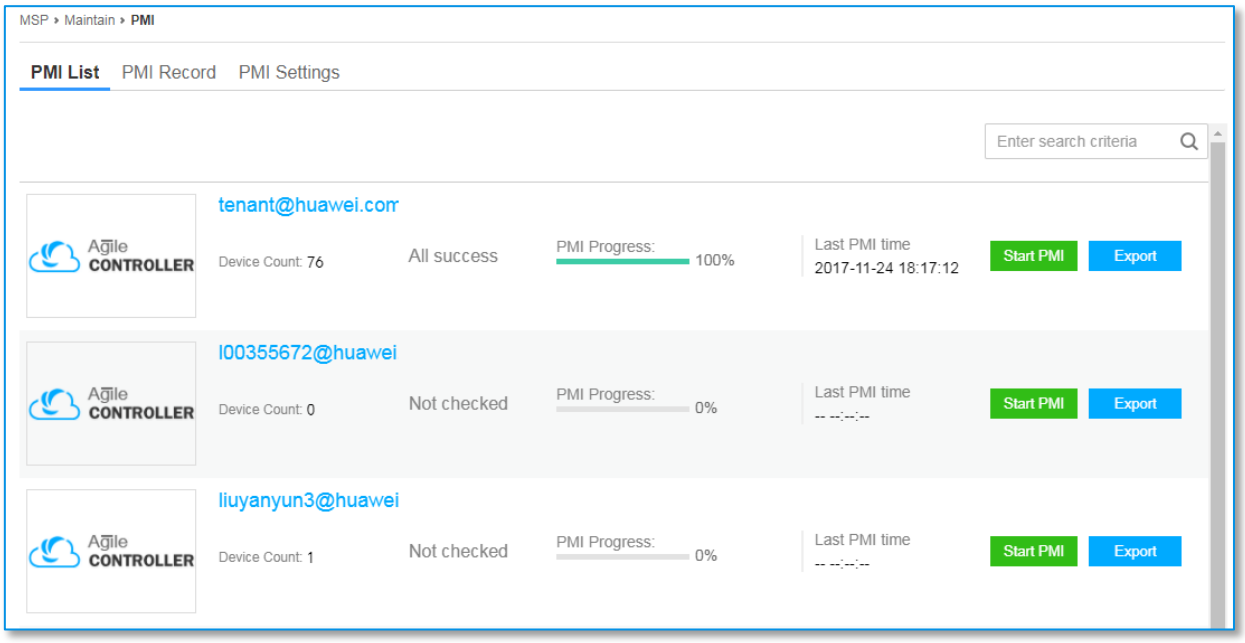
- **Online cloud-based network planning**

  The Agile Controller-Campus provides indoor and outdoor cloud-based network planning tools. Administrators can create obstacles on building drawings or maps, configure signal coverage areas, deploy devices in one step, and simulate signals to ensure adequate Wi-Fi signal coverage strength and effect.



- **Online cloud-based PMI**

  The cloud-based PMI tool of the Agile Controller-Campus, integrated with Huawei's experience library built up over many years by experts in the data communications network PMI field, can detect potential network problems. Administrators can export PMI reports and send them by email.



[Key Features]

Level-1 Feature	Level-2 Feature	Description
Tenant management	Multi-tenant management	• The Agile Controller-Campus supports three user roles for management: system administrator, MSP, and tenant. The system administrator can create MSPs and tenants, and MSPs can create tenants. • Tenants can authorize MSPs to manage the tenant networks. An authorized MSP can monitor and configure the tenant network. • Tenants can modify the tenant information, including the tenant name, logo, address, and description. • Administrators can configure account disabling/locking policies and the password complexity.
Device management	Device management	• Tenants can add, delete, modify, and replace devices.
	Device group management	• Tenants can create, modify, and delete device groups. • Administrators can import device groups and devices in batches. • Administrators can add devices to or remove devices from a

Level-1 Feature	Level-2 Feature	Description
		device group.
	Organization management	• Tenants can add, modify, and delete organizations. • Administrators can add devices to or remove devices from an organization. • Administrators can bind organizations to physical locations and monitor and collect statistics by organization.
	Certificate management	• Administrators can upload device certificates in batches. • Administrators can update specified device certificates.
	File management	• Administrators can upload, modify, delete, and query software packages/patch files. • Administrators can install software packages/patch files by device group. • Administrators can install software packages/patch files by site.
Service configuration	Basic service	• Administrators can configure the time zone and NTP server. • Administrators can enable and disable PoE and control the PoE power supply duration.
	Interface service	Administrators can configure the following interface information: • Interface description • Working status • Auto-negotiation enabling • Working mode negotiation • Rate negotiation • Limit on the number of connected terminals • L2/L3 mode • Port isolation
	Layer 2 service	• Administrators can configure VLANs including management VLANs.
	Layer 3 service	• Administrators can configure DHCP/DNS/NAT. • Administrators can configure VLANIF interfaces. • Administrators can configure IPSec VPNs.
	WLAN service	The Agile Controller-Campus supports SSID management. Administrators can configure the following information: • Effective radio • Hiding setting • Band steering (5G-prior) • Rejection of access from traditional terminals • Maximum number of access users allowed

Level-1 Feature	Level-2 Feature	Description
		• User isolation • Enabling of Bonjour transparent transmission • Enabling of Unscheduled Automatic Power Save Delivery (U-APSD) The Agile Controller-Campus supports radio management. Administrators can configure the following information: • Enabling of radios by site or by working time range • Beacon interval setting • RTS-CTS mode • Airtime fair scheduling • Packet-based power control • Beamforming function enabling • Scanning duration, interval, and channel • Wireless frequency bandwidth • Wireless channel • Wireless transmit power • Wireless antenna gain
	QoS service	• Administrators can configure QoS and ACLs by interface. • Administrators can configure bandwidth policies. Policy conditions include the source address and mask, destination address and mask, specific application, and specific time range. Policy actions include uplink DSCP and uplink traffic rate.
	Security service	• Administrators can configure binding relationships among MAC addresses, VLANs, and interfaces. • Administrators can configure defense against malformed packet attacks, packet fragment attacks, and ICMP/TCP SYN/UDP flood attacks. • Administrators can enable and disable DHCP snooping. • Administrators can bind security policies globally. Policy conditions include the source address and mask, destination address and mask, specific application, and specific time range. Policy actions include permit/deny, URL filtering, URL blacklist/whitelist, and specifying of IPS profiles.
Virtual network management	Virtual network resource management	• Administrators can configure a device as a virtual network gateway or virtual network access device. • Administrators can configure available resource pools for virtual networks and virtual subnets, including VLANs, VNIs, devices, and ports. • Administrators can create virtual network topologies.
	Virtual network management	• Administrators can configure VPN instances. • Administrators can configure default VPN routes.

Level-1 Feature	Level-2 Feature	Description
	configuration	• Administrators can configure Eth-Trunks connecting virtual network gateways and virtual network access devices.
	DC subnet management	• Administrators can configure VBDIF interfaces and bind them to VPN instances. • Administrators can configure VXLAN interconnection between core switches and aggregation switches. • Administrators can configure VLANs and Eth-Trunks for VXLAN access.
	Traditional campus subnet management	• Administrators can configure VLANIF interfaces and DHCP relay on the VLANIF interfaces. • Administrators can configure VLAN interconnection between core switches and aggregation switches. • Administrators can configure VLANs on downlink Eth-Trunks at the aggregation layer.
User authentication	Authentication management	• The Agile Controller-Campus supports Portal authentication, and has a built-in Portal authentication server. • The Agile Controller-Campus supports multiple authentication modes, including SMS authentication, anonymous authentication, user name and password authentication, WeChat authentication, and Facebook authentication. • The Agile Controller-Campus supports SSID-based open system authentication and PSK authentication. • The Agile Controller-Campus supports MAC address-prioritized Portal authentication. • Administrators can set the maximum online duration allowed for wireless users. • Administrators can configure connection to a third-party authentication system for MAC address authentication or 802.1X authentication.
	Authorization management	• The Agile Controller-Campus supports authorization by user group, SSID, or time range. • The Agile Controller-Campus supports authorization ACLs, URL filtering, security policies, and bandwidth policies. • The Agile Controller-Campus can control user access based on escape policies.
	Accounting management	• Administrators can set the maximum traffic volume per day/month. • Administrators can set the maximum online duration per day/month. • Administrators can reset the traffic volume and online duration after re-authentication. • Administrators can configure connection to a third-party accounting system.

Level-1 Feature	Level-2 Feature	Description
	Portal management	• Administrators can customize graphical Portal authentication pages. • The Agile Controller-Campus supports both Chinese and English. • Administrators can configure page push policies based on SSIDs, devices, VLANIF interfaces, time ranges, and terminals' IP address segments.
	End user management	• Administrators can manage user accounts. For example, administrators can set the account validity period and password complexity. • The Agile Controller-Campus supports user group management.
Monitoring and O&M	Dashboard	• Administrators can customize dashboard pages. • The Agile Controller-Campus can display device status statistics, such as the abnormal device list (including faulty devices, offline devices, and devices generating alarms), online users, and network-wide traffic statistics.
	Alarm monitoring	• The Agile Controller-Campus can display the device alarm information, including the alarm type, name, occurrence time, and location. • The Agile Controller-Campus can display device states in different colors, such as gray (offline), red (faulty), yellow (alarm), and green (normal). • Administrators can export alarm data and alarm clearance data. • The Agile Controller-Campus can send remote alarm notifications by email and SMS message.
	Performance monitoring	• The Agile Controller-Campus can monitor the device CPU usage and memory usage. • The Agile Controller-Campus can monitor the device traffic trend, including uplink and downlink traffic. • The Agile Controller-Campus can monitor the number of connected terminals. • The Agile Controller-Campus can monitor radios. • The Agile Controller-Campus can collect statistics on network traffic, and display five SSIDs and end users with the highest traffic.
	GIS map-based monitoring	• Administrators can configure physical location information about devices on Amap (in China) and Google Maps (outside China). • The Agile Controller-Campus can display organizations and device summary information on maps. • Administrators can set the URL of a GIS map, coordinates of the center point, and zoom level of the map.

Level-1 Feature	Level-2 Feature	Description
Device deployment	Device deployment	• Deployment through a registration query center: Devices to be managed on the cloud can actively connect to a registration query server and obtain the IP address of the Agile Controller-Campus. The devices then automatically connect to the Agile Controller-Campus to complete the configuration and registration. • Deployment through DHCP: Administrators can set the Option 148 field on the DHCP server to inform devices of the device management mode and IP address of the Agile Controller-Campus. The devices can then automatically connect to the Agile Controller-Campus to complete registration. • Deployment through barcode scanning: The Agile Controller-Campus supports the function of adding devices through app-based barcode scanning to complete AP registration.
Online PMI	Online PMI	• MSP administrators can perform PMI on managed tenant devices. • The Agile Controller-Campus can generate PMI reports and allow administrators to send the reports to specified personnel by email.
System architecture	System architecture	• The Agile Controller-Campus is based on the B/S architecture. • The Agile Controller-Campus can be deployed in a distributed cluster.

[Running Environment]

The Agile Controller-Campus supports three deployment environments: physical machine, virtual machine (VM), and public cloud. There are two deployment solutions: minimum cluster and distributed cluster. For details about resource requirements, see the product description and quotation guide.

Software Requirements

Operating System	SuSE Linux 12 SP2
Database	GaussDB V100R003C20SPC101B160-Linux-x86-64bit
Virtualization Environment	• FusionSphere 6.1 • FusionCompute 6.1 • VMware vSphere 5.5/6.0
Big Data Analytics Platform	FusionInsight V100R002C60U20 HD (SUSE 12 SP2) + SPC005

Hardware Requirements

Deployment Environment	Deployment Mode	Node	CPU/vCPU	Memory	Hard Disk	IO	Network Interface
Physical machine	Minimum cluster	Service+Support+FI	CPU: 2 x 10 cores 2.4 GHz	Recommended: 128 GB Minimum: 64 GB	OS disk：2*600 GB Data disk：3*600 GB	IOPS：5k/s Read/write rate of 4-kB: up to 20 Mbit/s	Recommended: 8*GE Minimum：4*GE
VM	Minimum cluster	Service+Support+FI	Number of vCPU cores:30	Recommended: 128 GB Minimum: 64 GB	OS disk：600GB Data disk：3*600 GB	IOPS：5k/s Read/write rate of 4-kB: up to 20 Mbit/s	Recommended：8*GE Minimum：4*GE
	Distributed	Service/Support	Number of vCPU cores:10	Recommended: 64 GB Minimum: 48 GB	OS disk：600GB	IOPS：5k/s Read/write rate of 4-kB: up to 20 Mbit/s	Recommended：8*GE Minimum：4*GE
		FI	Number of vCPU cores:20	64GB	OS Disk：300GB Data disk：3*600 GB	IOPS：5k/s Read/write rate of 4-kB: up to 20 Mbit/s	Recommended：8*GE Minimum：4*GE
Public Cloud (Huawei)	Distributed	Service/Support	Number of vCPU cores:16	Recommended: 64 GB Minimum: 48 GB	OS disk：600GB	IOPS：5k/s Read/write rate	2*GE

						of 4-kB: up to 20 Mbit/s	
		FI	vCPU 核数：32	64GB	OS disk：300GB data disk：3*600GB	IOPS：5k/s Read/write rate of 4-kB: up to 20 Mbit/s	2*GE

[Ordering Information]

Item	Description
Platform software	Cloud Management Subscription License,Platform Software,1,3,5 Year
AP	Cloud Management Subscription License,Indoor AP,Per Device,1,3,5 Year
	Cloud Management Subscription License,Outdoor AP,Per Device,1,3,5 Year
	Cloud Management Subscription License,Indoor AP-S,Per Device,1,3,5 Year
	Cloud Management Subscription License,Outdoor AP-S,Per Device,1,3,5 Year
Switch	Cloud Management Subscription License,S5700-LI Series-8 Ports,Per Device,1,3,5 Year
	Cloud Management Subscription License,S5700-LI Series-24 Ports,Per Device,1,3,5 Year
	Cloud Management Subscription License,S5700-LI Series-48 Ports,Per Device,1,3,5 Year
	Cloud Management Subscription License,S5700-SI Series-24 Ports,Per Device,1,3,5 Year
	Cloud Management Subscription License,S5700-SI Series-48 Ports,Per Device,1,3,5 Year
	Cloud Management Subscription License,S5700S-LI Series-8 Ports,Per Device,1,3,5 Year
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	Cloud Management Subscription License,S5700S-SI Series-24 Ports,Per Device,1,3,5 Year
	Cloud Management Subscription License,S5700S-SI Series-48 Ports,Per Device,1,3,5 Year
Router	Cloud Management Subscription License,AR100 Series,Per Device,1,3,5 Year
	Cloud Management Subscription License,AR1200 Series,Per Device,1,3,5 Year

Item	Description
	Cloud Management Subscription License,AR2200 Series,Per Device,1,3,5 Year
Firewall	Cloud Management Subscription License,USG6300 Series,Per Device,1,3,5 Year
	Cloud Management Subscription License,USG6500 Series,Per Device,1,3,5 Year
	Cloud Management Subscription License,USG6600 Series,Per Device,1,3,5 Year

More Information

For more information about Huawei Agile Controller-Campus, visit http://e.huawei.com.