CloudEngine S6730-S Series Switches

CloudEngine S6730-S series full-featured 10GE switches are Huawei's new generation fixed switches that provide 10GE downlink ports 40GE uplink ports.

Product Overview

CloudEngine S6730-S series full-featured 10 GE switches are Huawei's new generation fixed switches ,to provide 10 GE downlink ports as well as 40 GE uplink ports.

CloudEngine S6730-S can be used to provide high-speed access for 10 Gbit/s access to high-density servers or function as a core/aggregation switch on a campus network to provide 40 Gbit/s rate. In addition, CloudEngine S6730-S provides a wide variety of services, comprehensive security policies, and various QoS features to help customers build scalable, manageable, reliable, and secure campus and Metropolitan Area Network.

Models and Appearance

Appearance	Description
 CloudEngine S6730-S24X6Q	• 24 x 10 Gig SFP+, 6 x 40 Gig QSFP+ • Dual pluggable power modules, equipped power modules by default not available • Forwarding performance: 490Mpps • Switching capacity: 960Gbps/2.4Tbps **NOTE** The value before the slash (/) refers to the device's switching capability, while the value after the slash (/) means the chip's switching capability.

Features and Highlights

Abundant Convergence

- The CloudEngine S6730-S series supports SVF and functions as a parent switch. With this virtualization technology, a physical network with the "Small-sized core and aggregation switches + Access switches " structure can be virtualized into a "super switch", greatly simplifying network management.
- The CloudEngine S6730-S series provides excellent QoS capabilities and supports queue scheduling and congestion control algorithms. Additionally, it adopts innovative priority queuing and multi-level scheduling mechanisms to implement fine-grained scheduling of data flows, meeting service quality requirements of different user terminals and services.

Providing Granular Network Management

- The CloudEngine S6730-S series uses the Packet Conservation Algorithm for Internet (iPCA) technology that alters the traditional method of using simulated traffic for fault location. iPCA technology can monitor network quality for any service flow anywhere, anytime, without extra costs. It can detect temporary service interruptions in a very short time and can identify faulty ports accurately. This cutting-edge fault detection technology turns "extensive management" to "granular management."
- The CloudEngine S6730-S series supports Two-Way Active Measurement Protocol (TWAMP) to accurately check any IP link and obtain the entire network's IP performance. This protocol eliminates the need of using a dedicated probe or a proprietary protocol.

Flexible Ethernet Networking

- In addition to traditional Spanning Tree Protocol (STP), Rapid Spanning Tree Protocol (RSTP), and Multiple Spanning Tree Protocol (MSTP), the CloudEngine S6730-S series supports Huawei-developed Smart Ethernet Protection (SEP) technology and the latest Ethernet Ring Protection Switching (ERPS) standard. SEP is a ring protection protocol specific to the Ethernet link layer, and applies to various ring network topologies, such as open ring topology, closed ring topology, and cascading ring topology. This protocol is reliable, easy to maintain, and implements fast service switching within 50 milliseconds. ERPS is defined in ITU-T G.8032. It implements millisecond-level protection switching based on traditional Ethernet MAC and bridging functions.
- The CloudEngine S6730-S series supports Smart Link and Virtual Router Redundancy Protocol (VRRP), which implement backup of uplinks. One CloudEngine S6730-S switch can connect to multiple aggregation switches through multiple links, significantly improving reliability of access devices.

Intelligent Stack (iStack)

- The CloudEngine S6730-S series supports the iStack function that combines multiple switches into a logical switch. Member switches in a stack implement redundancy backup to improve device reliability and use inter-device link aggregation to improve link reliability. iStack provides high network scalability. You can increase a stack's ports, bandwidth, and processing capacity by simply adding member switches. iStack also simplifies device configuration and management. After a stack is set up, multiple physical switches can be virtualized into one logical device. You can log in to any member switch in the stack to manage all the member switches in it.

Cloud-based Management

- The Huawei cloud management platform allows users to configure, monitor, and inspect switches on the cloud, reducing on-site deployment and O&M manpower costs and decreasing network OPEX. Huawei switches support both cloud management and on-premise management modes. These two management modes can be flexibly switched as required to achieve smooth evolution while maximizing return on investment (ROI).

VXLAN

- VXLAN is used to construct a Unified Virtual Fabric (UVF). As such, multiple service networks or tenant networks can be deployed on the same physical network, and service and tenant networks are isolated from each other. This capability truly achieves 'one network for multiple purposes'. The resulting benefits include enabling data transmission of different services or customers, reducing the network construction costs, and improving network resource utilization.
- The CloudEngine S6730-S series switches are VXLAN-capable and allow centralized and distributed VXLAN gateway deployment modes. These switches also support the BGP EVPN protocol for dynamically establishing VXLAN tunnels and can be configured using NETCONF/YANG.

Intelligent O&M

- This series switches provides telemetry technology to collect device data in real time and send the data to Huawei campus network analyzer(iMaster NCE-CampusInsight). The CampusInsight analyzes network data based on the intelligent fault identification algorithm, accurately displays the real-time network status, effectively demarcates and locates faults in a timely manner, and identifies network problems that affect user experience, accurately guaranteeing user experience.
- This series switches supports a variety of intelligent O&M features for audio and video services, including the enhanced Media Delivery Index (eMDI). With this eDMI function, the switch can function as a monitored node to periodically conduct statistics and report audio and video service indicators to the CampusInsight platform. In this way, the CampusInsight platform can quickly demarcate audio and video service quality faults based on the results of multiple monitored nodes.

Intelligent Upgrade

- Switches support the intelligent upgrade feature. Specifically, switches obtain the version upgrade path and download the newest version for upgrade from the Huawei Online Upgrade Platform (HOUP). The entire upgrade process is highly automated and achieves one-click upgrade. In addition, preloading the version is supported, which greatly shortens the upgrade time and service interruption time.
- The intelligent upgrade feature greatly simplifies device upgrade operations and makes it possible for the customer to upgrade the version independently. This greatly reduces the customer's maintenance costs. In addition, the upgrade policies on the HOUP platform standardize the upgrade operations, which greatly reduces the risk of upgrade failures.

Big Data-Powered Collaborative Security

- This series of switches supports encrypted communication analytics (ECA), a traffic identification and detection technology. ECA can precisely detect malicious traffic by efficiently identifying encrypted and non-encrypted traffic, extracting the characteristics of encrypted traffic, and sending these characteristics to HiSec Insight (a big data-powered security analysis system). Furthering to this, ECA-capable switches can work with the controller iMaster NCE-Campus to automatically isolate threats, thereby ensuring campus network security.
- This series of switches also supports network deception technology. Specifically, switches functioning as sensors can detect threats (such as IP address scanning and port scanning on the network) and lure threat traffic to the honeypot for simulated interaction with attackers. In this way, it is easy to obtain attack behaviors, extract attack tools, and analyze suspicious traffic in depth to create defense policies. Switches then work with iMaster NCE-Campus to automatically isolate threats and block the spread of attack behaviors, ensuring campus network security.

Open Programmability System(OPS)

- Open Programmability System (OPS) is an open programmable system based on the Python language. IT administrators can program the O&M functions of a switch through Python scripts to quickly innovate functions and implement intelligent O&M.

Licensing

CloudEngine S6730-S supports both the traditional feature-based licensing mode and the latest Huawei IDN One Software (N1 mode for short) licensing mode. The N1 mode is ideal for deploying Huawei CloudCampus Solution in the on-premises scenario, as it greatly enhances the customer experiences in purchasing and upgrading software services with simplicity.

Software Package Features in N1 Mode

Switch Functions	N1 Basic Software	N1 Foundation Software Package	N1 Advanced Software Package
Basic network functions: Layer 2 functions, IPv4, IPv6, MPLS, SVF, and others Note: For details, see the Service Features	√	√	√
Basic network automation based on the Agile Controller: • Basic automation: Plug-and-play • Basic monitoring: Application visualization • NE management: Image and topology management and discovery	×	√	√
Advanced network automation and intelligent O&M: VXLAN, user access authentication, free mobility, and CampusInsight basic functions	×	×	√

Note: Only V200R019C00 and later versions can support N1 mode

Product Specifications

Item	CloudEngine S6730-S24X6Q
Fixed ports	24 x 10 Gig SFP+, 6 x 40 Gig QSFP+
Dimensions (H x W x D)	43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.4 in. x 16.5 in.)
Chassis height(U)	1U
Rated voltage range	• AC input: 100 V AC to 240 V AC, 50/60 Hz • High-Voltage DC input: 240 V DC • DC input: -48 V DC to -60 V DC
Maximum input current	• AC 600W：Max 8A • DC 1000W：Max 30A
Operating temperature	-5°C to +45°C (23°F to 113°F) at an altitude of 0-1800 m (0-5906 ft.) **NOTE** When the altitude is 1800-5000 m (5906-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). The switch cannot be started when the ambient temperature is lower than 0°C (32°F).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating altitude	0-5000 m (0-16404 ft.)
Noise under normal temperature (27°C, sound power)	< 65 dB(A)
Power supply surge protection	• Using AC power modules: ±6 kV in differential mode, ±6 kV in common mode • Using DC power modules: ±2 kV in differential mode, ±4 kV in common mode
Power supply type	• 600W AC Power • 1000W DC Power
Relative humidity	5% to 95% (non-condensing)
Fans	4 , Fan modules are pluggable
Heat dissipation	Heat dissipation with fan, intelligent fan speed adjustment

Service Features

Except for special instructions, the following features are supported by CloudEngine S6730-S with N1 basic software

Feature	Description
MAC	Up to 64K MAC address entries IEEE 802.1d standards compliance MAC address learning and aging Static, dynamic, and blackhole MAC address entries Packet filtering based on source MAC addresses
VLAN	4K VLANs Guest VLANs and voice VLANs GVRP

Feature	Description
	MUX VLAN VLAN assignment based on MAC addresses, protocols, IP subnets, policies, and ports VLAN mapping
ARP	Static ARP Dynamic ARP
IP routing	Static routes, RIP v1/2, RIPng, OSPF, OSPFv3, IS-IS, IS-ISv6, BGP, BGP4+, ECMP, routing policy Up to 64K FIBv4 entries Up to 32K FIBv6 entries
Interoperability	VLAN-Based Spanning Tree (VBST), working with PVST, PVST+, and RPVST Link-type Negotiation Protocol (LNP), similar to DTP VLAN Central Management Protocol (VCMP), similar to VTP
Ethernet loop protection	RRPP ring topology and RRPP multi-instance Smart Link tree topology and Smart Link multi-instance, providing millisecond-level protection switchover SEP ERPS (G.8032) BFD for OSPF, BFD for IS-IS, BFD for VRRP, and BFD for PIM STP (IEEE 802.1d), RSTP (IEEE 802.1w), and MSTP (IEEE 802.1s) BPDU protection, root protection, and loop protection
IPv6 features	Neighbor Discover (ND) PMTU IPv6 Ping, IPv6 Tracert, IPv6 Telnet ACLs based on source IPv6 addresses, destination IPv6 addresses, Layer 4 ports, or protocol types Multicast Listener Discovery snooping (MLDv1/v2) IPv6 addresses configured for sub-interfaces, VRRP6, DHCPv6, and L3VPN
Multicast	IGMP v1/v2/v3 snooping and IGMP fast leave Multicast forwarding in a VLAN and multicast replication between VLANs Multicast load balancing among member ports of a trunk Controllable multicast Port-based multicast traffic statistics IGMP v1/v2/v3, PIM-SM, PIM-DM, and PIM-SSM MSDP Multicast VPN
QoS/ACL	Rate limiting in the inbound and outbound directions of a port Packet redirection Port-based traffic policing and two-rate three-color CAR Eight queues on each port DRR, SP, and DRR+SP queue scheduling algorithms WRED Re-marking of the 802.1p and DSCP fields of packets Packet filtering at Layer 2 to Layer 4, filtering out invalid frames based on the source MAC address, destination MAC address, source IP address, destination IP address, TCP/UDP

Feature	Description
	source/destination port number, protocol type, and VLAN ID Queue-based rate limiting and shaping on ports
Security	Hierarchical user management and password protection DoS attack defense, ARP attack defense, and ICMP attack defense Binding of the IP address, MAC address, port number, and VLAN ID Port isolation, port security, and sticky MAC MAC Forced Forwarding (MFF) Blackhole MAC address entries Limit on the number of learned MAC addresses IEEE 802.1X authentication and limit on the number of users on a port AAA authentication, RADIUS authentication, and HWTACACS authentication NAC SSH V2.0 HTTPS CPU protection Blacklist and whitelist Attack source tracing and punishment for IPv6 packets such as ND, DHCPv6, and MLD packets IPSec for management packet encryption ECA Deception
Reliability	LACP E-Trunk Ethernet OAM (IEEE 802.3ah and IEEE 802.1ag) ITU-Y.1731 DLDP LLDP BFD for BGP, BFD for IS-IS, BFD for OSPF, BFD for static routes
VXLAN*	VXLAN L2 and L3 gateways Centralized and distributed gateway BGP-EVPN Configured through the NETCONF protocol
SVF	Acting as the parent node to vertically virtualize downlink switches and APs as one device for management Two-layer client architecture ASs can be independently configured. Services not supported by templates can be configured on the parent node. Third-party devices allowed between SVF parent and clients
iPCA	Marking service packets to obtain the packet loss ratio and number of lost packets in real time Measurement of the number of lost packets and packet loss ratio on networks and devices
Management and maintenance	Cloud-based management Virtual cable test SNMP v1/v2/v3 RMON

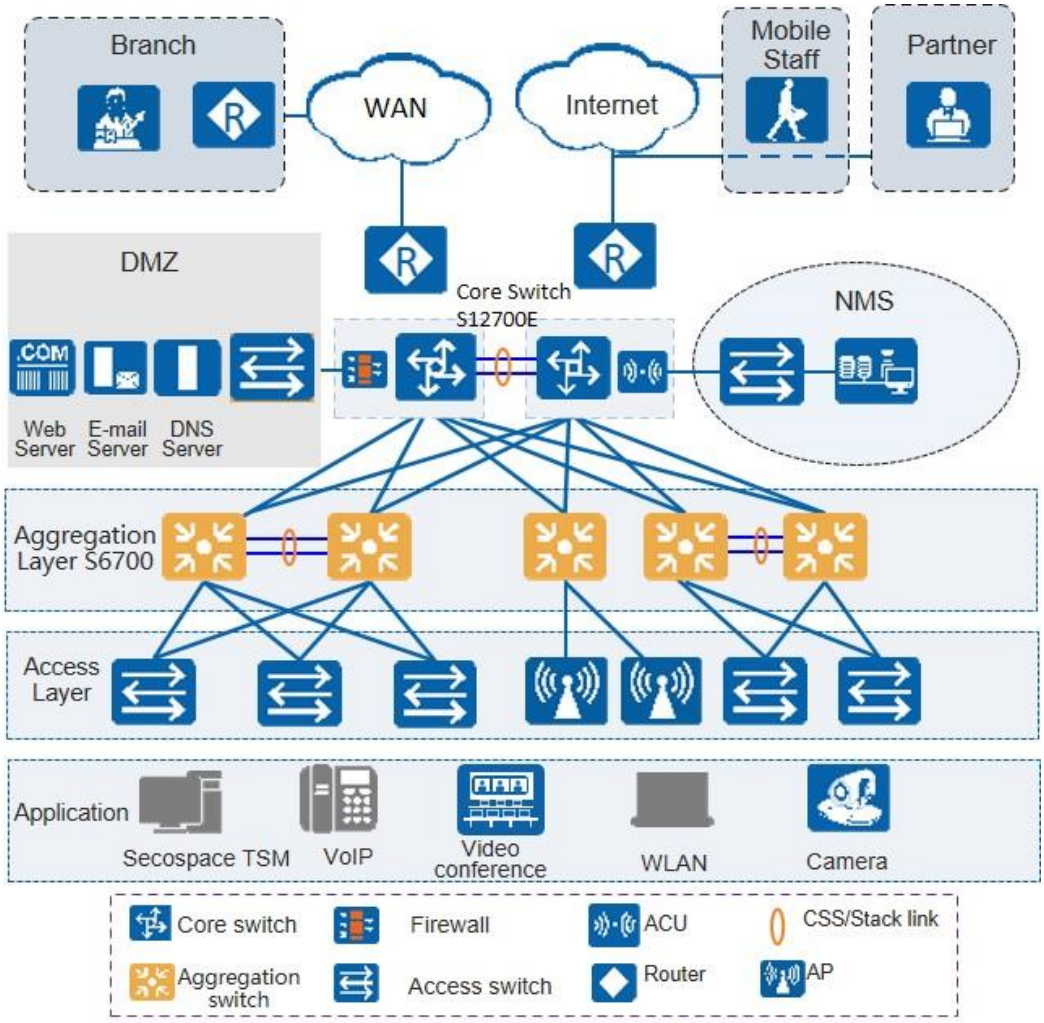
Feature	Description
	Web-based NMS System logs and alarms of different severities GVRP MUX VLAN NetStream Telemetry

*CloudEngine S6730-S series switches require the VXLAN license or N1 advanced software package to support the VXLAN feature.

Networking and Applications

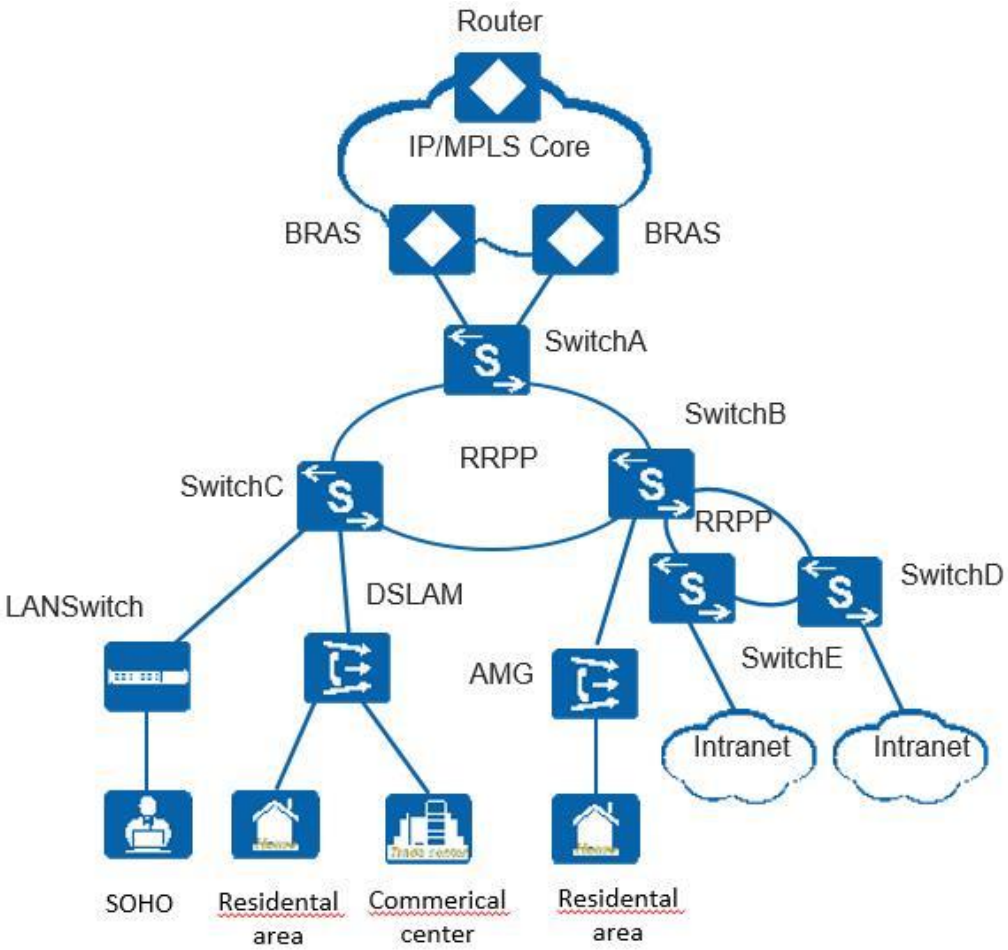
Large-scale Enterprise Campus Network

CloudEngine S6730-S series switches can be deployed at the aggregation layer of a large-scale enterprise campus network, creating a highly reliable, scalable, and manageable enterprise campus network.



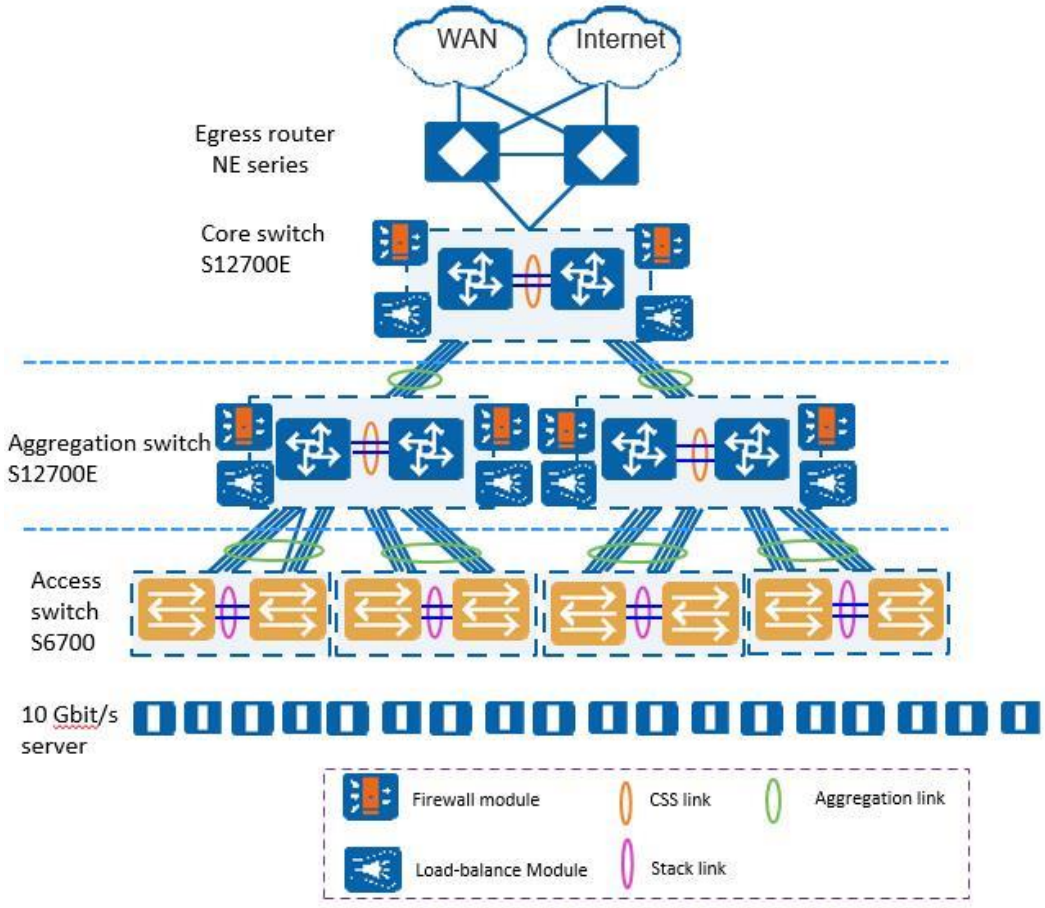
Application on a MAN

CloudEngine S6730-S series switches can be deployed at the access layer of a MAN(Metropolitan Area Network) to build a high-performance, multi-service, and highly reliable ISP MAN network.



Data Center

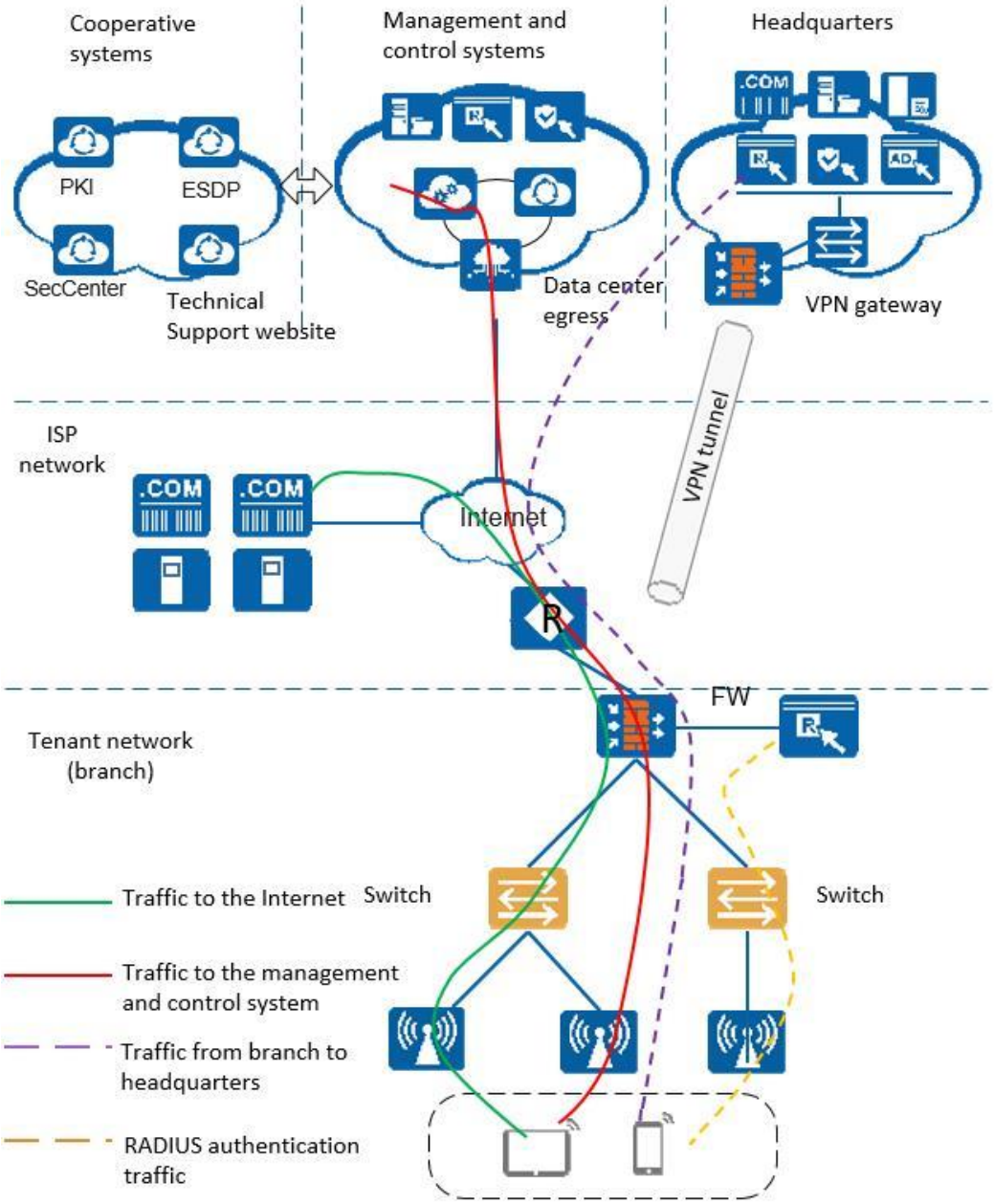
CloudEngine S6730-S switches can be deployed at the access layer build a virtualized, highly reliable, non-blocking, and energy conservative data center network.



Application in Public Cloud

CloudCampus Solution is a network solution suite based on Huawei public cloud. CloudEngine S6730-S series switches can be located at the access layer.

The switches are plug-and-play. They go online automatically after being powered on and connected with network cables, without the need for complex configurations. The switches can connect to the management and control system (CloudCampus@AC-Campus for switches running V200R019C00 and earlier versions; iMaster NCE-Campus for switches running V200R019C10 and later versions), and use bidirectional certificate authentication to ensure management channel security. The switches provide the NETCONF and YANG interfaces, through which the management and control system delivers configurations to them. In addition, remote maintenance and fault diagnosis can be performed on the management and control system.



Ordering Information

The following table lists ordering information of the CloudEngine S6730-S series switches.

Model	Product Description
CloudEngine S6730-S24X6Q	CloudEngine S6730-S24X6Q(24 x 10 Gig SFP+, 6 x 40 Gig QSFP+. equipped power modules by default not available)
L-VxLAN-S67	S67 Series, VxLAN License, Per Device
PAC600S12-CB	600W AC Power Module(Back to Front, Power panel side exhaust)
PDC1000S12-DB	1000W DC Power Module (Back to Front,Power panel side exhaust)
L-VxLAN-S67	S67 Series, VxLAN License, Per Device
N1-S67S-M-Lic	S67XX-S Series Basic SW,Per Device
N1-S67S-M-SnS1Y	S67XX-S Series Basic SW,SnS,Per Device,1Year

Model	Product Description
N1-S67S-F-Lic	N1-CloudCampus,Foundation,S67XX-S Series,Per Device
N1-S67S-F-SnS	N1-CloudCampus,Foundation,S67XX-S Series,SnS,Per Device(Annual fee validity period:3 years from " 90 days after PO signed ")
N1-S67S-A-SnS	N1-CloudCampus,Advanced,S67XX-S Series,SnS,Per Device(Annual fee validity period:3 years from " 90 days after PO signed ")
N1-S67S-FToA-Lic	N1-Upgrade-Foundation to Advanced,S67XX-S,Per Device
N1-S67S-FToA-SnS	N1-Upgrade-Foundation to Advanced,S67XX-S,SnS,Per Device(Annual fee validity period:3 years from " 90 days after PO signed ")
N1-S67S-A-Lic	N1-CloudCampus,Advanced,S67XX-S Series,Per Device
N1-AM-30-Lic	N1-CloudCampus, Add-On Package, Access Management, Per 30 Endpoints
N1-AM-30-SnS	N1-CloudCampus, Add-On Package, Access Management, Software Subscription and Support, Per 30 Endpoints(Annual fee validity period:3 years from " 90 days after PO signed ")
N1-EPNP-30-Lic	N1-CloudCampus, Add-On Package, Endpoints Plug and Play, Per 30 Endpoints
N1-EPNP-30-SnS	N1-CloudCampus, Add-On Package, Endpoints Plug and Play, Software Subscription and Support, Per 30 Endpoints(Annual fee validity period:3 years from " 90 days after PO signed ")
N1-APP-X7FSwitch	N1-CloudCampus, Add-On Package, Intelligent Application Analysis, X7 Series Fixed Switch, Per Device
N1-APP-X7FSwitch-SnS	N1-CloudCampus, Add-On Package, Intelligent Application Analysis, X7 Series Fixed Switch, Software Subscription and Support, Per Device(Annual fee validity period:3 years from " 90 days after PO signed ")

More Information

For more information about Huawei Campus Switches, visit http://e.huawei.com or contact us in the following ways:

- Global service hotline: http://e.huawei.com/en/service-hotline
- Logging in to the Huawei Enterprise technical support website: http://support.huawei.com/enterprise/
- Sending an email to the customer service mailbox: support_e@huawei. com

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