Huawei CloudEngine S6730-H-V2 Series Optical Switches Brochure

Huawei CloudEngine S6730-H-V2 series Optical switches are next-generation Passive Enternet Optical PEN(Passive Ethernet Network) central switches that provide 96 x 2.5/10GE downlink optical ports, 4 x 25GE and 2 x 100GE uplink optical ports, and provide one extended slot.

Product Overview

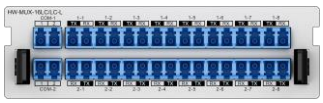
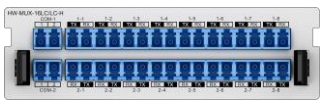
Huawei CloudEngine S6730-H-V2 series optical switches are next-generation Passive Enternet Optical PEN(Passive Ethernet Network) central switches that offer high performance, high reliability, cloud management, and intelligent operations and maintenance (O&M). They are purpose-built with security, IoT, and cloud in mind. With these traits, CloudEngine S6730-H-V2 can be widely used in enterprise campuses, colleges/universities, and other scenarios.

CloudEngine S6730-H-V2 switches offer 2.5GE, 10GE, 25GE, and 100GE port types, flexibly adapting to diversified network bandwidth requirements. They also support cloud management and implement cloud-managed network services throughout the full lifecycle from planning, deployment, monitoring, experience visibility, and fault rectification, all the way to network optimization, greatly simplifying network management.

CloudEngine S6730-H-V2 support free mobility, enables consistent user experience no matter the user location or IP address, fully meeting enterprises' demands for mobile offices.

CloudEngine S6730-H-V2 switches support VXLAN to implement network virtualization, achieving multi-purpose networks and multi-network convergence for greatly improved network capacity and utilization. As such, CloudEngine S6730-H-V2 switches are an ideal choice for building next-generation IoT converged networks in terms of cost, flexibility, and scalability.

Models and Appearance

Appearance	Description
 CloudEngine S6730-H6FX4Y2CZ-V2	• 6 x CFP8 super-aggregation ports, 4 x 25GE SFP28, 2 x 100GE QSFP28 ports • One extended slot • Dual pluggable power modules, 1+1 power backup • Switching capacity: 2.52Tbps/4.8Tbps* *Note: A single CFP8 port supports 16 x 2.5/10GE SFP+ channels, supporting 96 access devices in total*
 HW-PEN-16LC/LC-L(2KM)	• PEN passive aggregation module, two channels of 2:8 passive optical splitting, uplink backup, mixed use of optical modules in a group, 2 km transmission distance (for campus products)
	• PEN passive aggregation module, two channels of 2:8 passive optical splitting, uplink backup, no mixed use of optical modules in a group, 10 km transmission distance (for campus products)(for campus porducts)

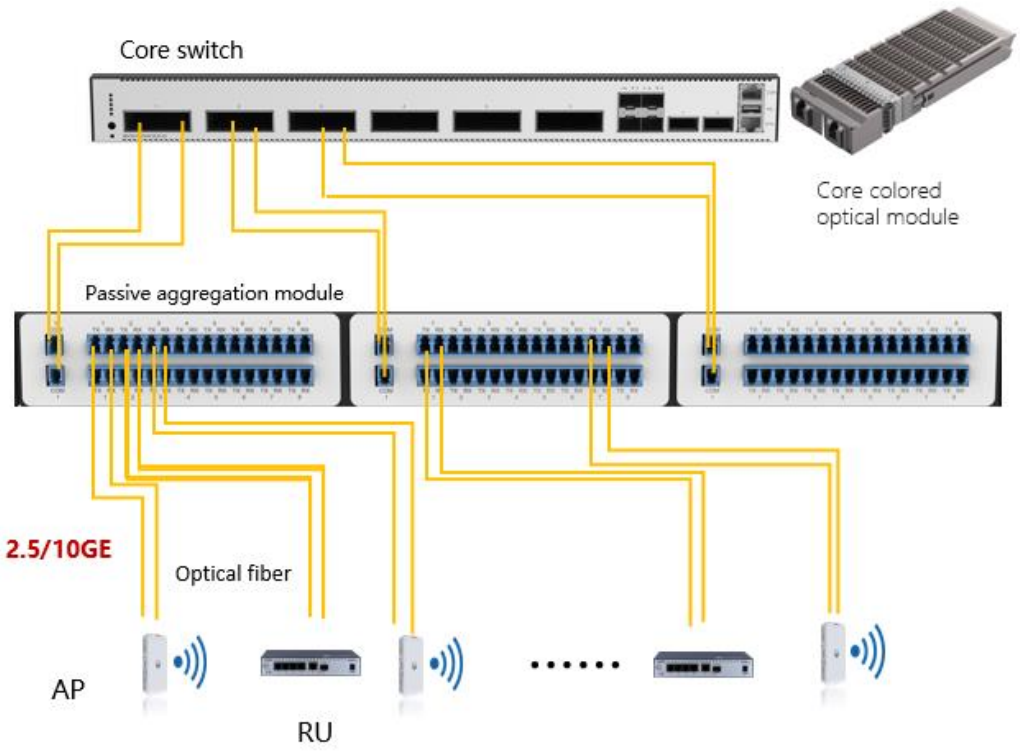
Appearance	Description
HW-PEN-16LC/LC-H(10KM)	
 ES5MPJB00001	• PEN passive aggregation module subrack, three slots, rack-mounted (for campus porducts)
 CFP8-160G-LR-CORE	• CFP8-16*10G/2.5G-PEN Central Optical Module (10km, LC)
 SFP+-10G-LR	• SFP+-10G-LR-A1 • SFP+-10G-LR-A2 • SFP+-10G-LR-A3 • SFP+-10G-LR-A4 • SFP+-10G-LR-A5 • SFP+-10G-LR-A6 • SFP+-10G-LR-A7 • SFP+-10G-LR-A8 • 8 optical modules support any mixed insertion in 1 group

*Note：The value before the slash (/) refers to the device's switching capability, while the value after the slash (/) means the system's switching capability.

Features and Highlights

High-quality Ethernet Solution

- High-quality Ethernet solution: ultra-high-density central switch + passive aggregation module, implementing exclusive bandwidth and passive weak-current communication.



- 2.5/10GE all-optical indoor access, meeting high-density access requirements:

Ultra-high density: 1U core switch supports access of 96 AP/RUs. One core switch and two passive aggregation modules are required. Only 12 optical fibers (between corridors) are required. 96 APs can be connected.

High rate: 2.5/10GE all-optical indoor access. Works with remote modules and Wi-Fi 6/7 APs to meet high-density wired and wireless access requirements and provide ultra-fast upstream rates.

Enabling Networks to Be More Agile for Services

- Built-in high-speed and flexible processor chips, with their flexible packet processing and traffic control capabilities, CloudEngine S6730-H-V2 series switches are close to services, meeting current and future challenges, and helping customers build scalable networks.
- CloudEngine S6730-H-V2 series switches support fully customizing the forwarding mode, forwarding behavior, and search algorithm of traffic. New services are implemented through microcode programming. Customers do not need to replace new hardware and new services can be rolled out within six months.
- CloudEngine S6730-H-V2 series switches provide open interfaces and user-defined forwarding processes to meet customized service requirements of enterprises. Enterprises can use multi-layer open interfaces to develop new protocols and functions independently. They can also hand over their requirements to vendors and jointly develop them to build an enterprise-dedicated campus network.

Delivering Abundant Services More Agilely

- With the unified user management function, the CloudEngine S6730-H-V2 authenticates both wired and wireless users, ensuring a consistent user experience no matter whether they are connected to the network through wired or wireless access devices. The unified user management function supports various authentication methods, including 802.1x, MAC address, and Portal authentication, and is capable of managing users based on user groups, domains, and time ranges. These functions visualize user and service management and boost the transformation from device-centric management to user experience-centric management.
- The CloudEngine S6730-H-V2 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.

Fine-Grained Network Management and Visualized Fault Diagnosis

- In-situ Flow Information Telemetry (IFIT) is an in-band Operations, Administration, and Maintenance (OAM) measurement technology that uses service packets to measure real performance indicators of an IP network, such as the packet loss rate and delay. IFIT can significantly improve the timeliness and effectiveness of network O&M, thereby promoting the development of intelligent O&M.
- Three IFIT modes are available: application-level quality measurement, tunnel-level quality measurement, and native-IP IFIT measurement. Currently, CloudEngine S6730-H-V2 series switches support native-IP IFIT measurement only. By providing in-band measurement capabilities, CloudEngine S6730-H-V2 series switches can monitor indicators such as the delay and packet loss rate of service flows in real time. CloudEngine S6730-H-V2 series switches also offer visualized O&M capabilities to centrally manage and control networks and graphically display performance data. Designed with IFIT capabilities featuring high measurement precision and easy deployment, CloudEngine S6730-H-V2 series switches are ideal for constructing an intelligent O&M system and stand out with future-proof scalability.

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-H-V2 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-H-V2 supports Smart Link and Virtual Router Redundancy Protocol (VRRP), which implement backup of uplinks. One CloudEngine S6730-H-V2 switch can connect to multiple aggregation switches through multiple links, significantly improving reliability of access devices.

Mature IPv6 Features

- The CloudEngine S6730-H-V2 series swithes are developed based on the mature, stable VRP and supports IPv4/IPv6 dual stacks, IPv6 routing protocols (RIPng, OSPFv3, BGP4+, and IS-IS for IPv6). With these IPv6 features, the CloudEngine

S6730-H-V2 can be deployed on a pure IPv4 network, a pure IPv6 network, or a shared IPv4/IPv6 network, helping achieve IPv4-to-IPv6 transition.

Intelligent Stack (iStack)

- The CloudEngine S6730-H-V2 series switches support 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 capability 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.

VXLAN Features

- 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.
- This 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.

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.

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.

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

Licensing

This series switches 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, and others Note: For details, see the Functions and Features	√	√	√
Basic network automation based on the Agile Controller: • Basic automation: Plug-and-play, SSID, and AP group management • NE management: Device management, topology management and discovery • User access authentication	×	√	√
Advanced network automation and intelligent O&M: VXLAN, Free Mobility, IPCA, CampusInsight basic functions	×	×	√

Product Specifications

Item	CloudEngine S6730-H6FX4Y2CZ-V2
Fixed ports	6 x CFP8 super-aggregation ports, 4 x 25GE SFP28, 2 x 100GE QSFP28 ports *Note: A single CFP8 port supports 16 x 2.5/10GE SFP+ channels, supporting 96 access devices in total*
Extended slot	One extended slot
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 weight (including packaging)	7.48 Kg
Chassis height(U)	1U
Power supply type	• 600 W AC (pluggable) • 1200 W DC (pluggable)
Rated voltage range	• AC input (600 W AC): 100 V AC to 240 V AC, 50/60 Hz • DC input (600 W AC): 240 V DC • DC input (1200 W DC): -48 VDC to -60 V DC
Maximum voltage range	• AC input (600 W AC): 90 V AC to 290 V AC, 45 Hz to 65 Hz • High-voltage DC input (600 W AC): 190 V DC to 290 V DC (meeting 240 V high-voltage DC certification) • DC input (1200 W DC): -38.4 V DC to -72V DC
Typical power consumption (30% of traffic load, tested according to ATIS standard)	234 W
Noise	• Under normal temperature (sound power): 53.4dB (A) • Under high temperature (sound power): 69dB (A) • Under normal temperature (sound pressure): 39.72dB (A)

Item	CloudEngine S6730-H6FX4Y2CZ-V2
Operating temperature	-5°C to +45°C
Storage temperature	-40°C～+70°C
Relative humidity	5% to 95%, noncondensing
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
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-H-V2 with N1 basic software.

Category	Service Features
User management	Unified user management
	802.1X authentication
	MAC authentication
	Traffic- and duration-based accounting
	User authorization based on user groups, domains, and time ranges
MAC	Automatic MAC address learning and aging
	128K MAC entries (MAX)
	Static, dynamic, and blackhole MAC address entries
	Source MAC address filtering
	MAC address learning limiting based on ports and VLANs
VLAN	4K VLANs
	Access mode, Trunk mode and Hybrid mode
	Default VLAN
	Private VLAN
	QinQ and enhanced selective QinQ
	VLAN Stacking
	Dynamic VLAN assignment based on MAC addresses
ARP	ARP Snooping
	140K ARP
DHCP	DHCPv4 Client, DHCPv4 Relay, DHCPv4 Server, DHCPv4 Snooping
	DHCPv6 Client, DHCPv6 Relay, DHCPv6 Server, DHCPv6 Snooping

Category	Service Features
IP routing	IPv4 dynamic routing protocols such as RIP v1/v2, OSPF v1/v2, IS-IS, and BGP
	IPv6 dynamic routing protocols such as RIPng, OSPFv3, ISISv6, and BGP4+
	Routing Policy, Policy-Based Routing
	VRF
Segment Routing	SRv6 BE (L3 EVPN)
	BGP EVPN
	SRv6 configuration through NETCONF
Multicast	IGMPv1/v2/v3 and IGMP v1/v2/v3 Snooping
	PIM-DM, PIM-SM, and PIM-SSM
	Fast-leave mechanism
	Multicast traffic control
	Multicast querier
	Multicast protocol packet suppression
VXLAN	Centralized gateway
	Distributed gateway
	BGP-EVPN
	Configures VXLANs through NETCONF
QoS	Traffic classification based on Layer 2 headers, Layer 3 protocols, Layer 4 protocols, and 802.1p priority
	Actions such as ACL, Committed Access Rate (CAR), re-marking, and scheduling
	Queuing algorithms, such as PQ, DRR, WDRR, and PQ+DRR, PQ+WDRR
	Congestion avoidance mechanisms such as WRED and tail drop
	Traffic shaping
	8 queues on each interface
	Network Slicing
Native-IP IFIT	Marks the real service packets to obtain real-time count of dropped packets and packet loss ratio
	The statistical period can be modified
	Two-way frame delay measurement
Ethernet loop protection	STP (IEEE 802.1d), RSTP (IEEE 802.1w), and MSTP (IEEE 802.1s).
	VLAN-based Spanning Tree (VBST)
	BPDU protection, root protection, and loop protection
	G.8032 Ethernet Ring Protection Switching (ERPS)
Reliability	M-LAG
	Service interface-based stacking

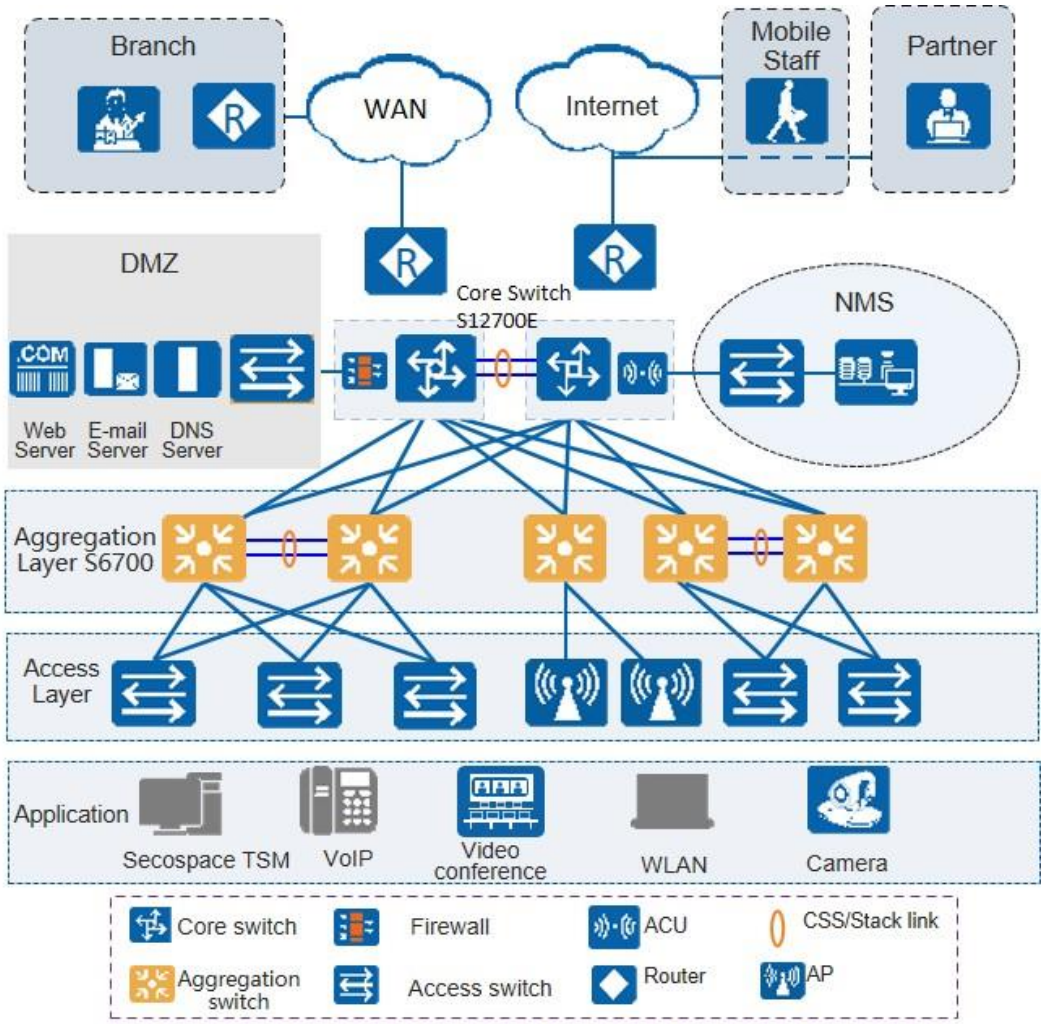
Category	Service Features
	Maximum number of stacked devices
	Stack bandwidth (Bidirectional)
	Link Aggregation Control Protocol (LACP) and E-Trunk
	Virtual Router Redundancy Protocol (VRRP) and Bidirectional Forwarding Detection (BFD) for VRRP
	BFD for BGP/IS-IS/OSPF/static routes
	Eth-OAM 802.1ag(CFM)
	Smartlink
	LLDP, LLDP-MED
System management	Console terminal service
	Telnet/IPv6 Telnet terminal service
	SSH v1.5
	SSH v2.0
	SNMP v1/v2c/v3
	FTP、TFTP、SFTP
	BootROM upgrade and remote in-service upgrade
	Hot patch
	User operation logs
	Open Programmability System (OPS)
	Streaming Telemetry
Security and management	NAC
	802.1x, MAC address, and Portal authentication
	RADIUS and HWTACACS authentication for login users
	Management by Command Line Interface(CLI)
	Command line authority control based on user levels, preventing unauthorized users from using command configurations
	Defense against DoS attacks, Transmission Control Protocol (TCP) SYN Flood attacks, User Datagram Protocol (UDP) Flood attacks, broadcast storms, and heavy traffic attacks
	IPv6 RA Guard
	CPU hardware queues to implement hierarchical scheduling and protection for protocol packets on the control plane
	Remote Network Monitoring (RMON)
	Secure boot
	Netstream
	Port mirroring
	Dynamic ARP Inspection

Category	Service Features
	IP Source Guard

Networking and Applications

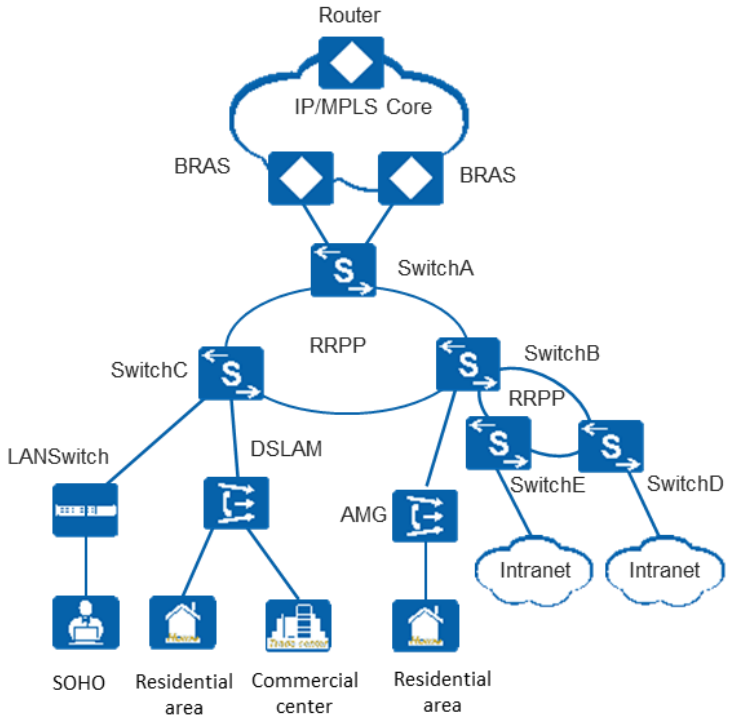
Large-scale Enterprise Campus Network

CloudEngine S6730-H-V2 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.



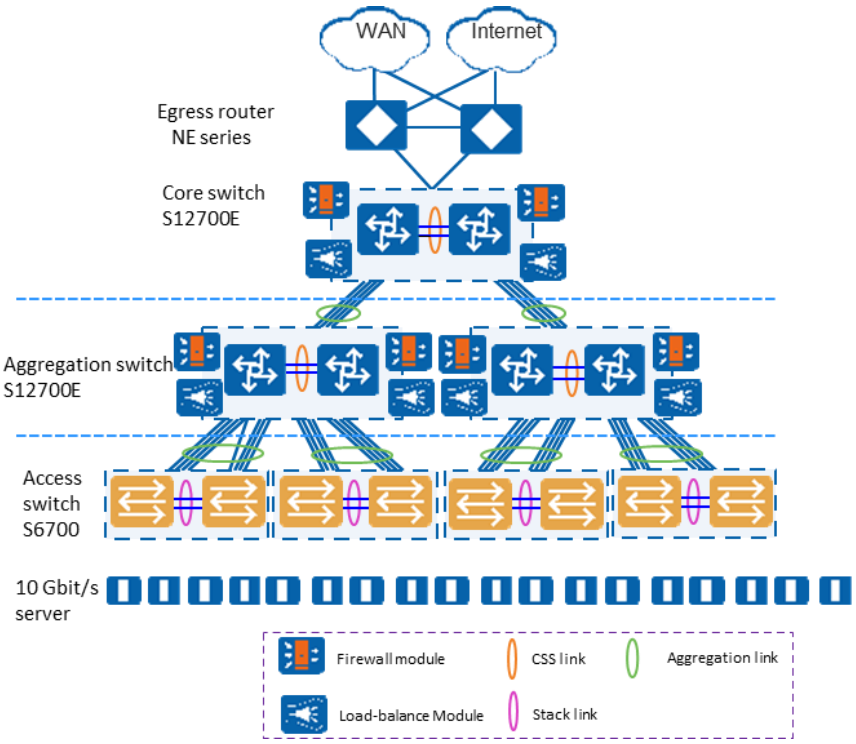
Application on a MAN

CloudEngine S6730-H-V2 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-H-V2 switches can be deployed at the access layer build a virtualized, highly reliable, non-blocking, and energy conservative data center network.



Ordering Information

The following table lists ordering information of the CloudEngine S6730-H-V2 series switches.

Model	Product Description
CloudEngine S6730-	CloudEngine S6730-H6FX4Y2CZ-V2 (6*CFP8 super-aggregation ports, 4*25GE SFP28,

Model	Product Description
H6FX4Y2CZ-V2	2*100GE QSFP28 ports, with license, 1*expansion slot, without power module)
HW-PEN-16LC/LC-L(2KM)	PEN passive aggregation module, two channels of 2:8 passive optical splitting, uplink backup, mixed use of optical modules in a group, 2 km transmission distance (for campus products)
HW-PEN-16LC/LC-H(10KM)	PEN passive aggregation module, two channels of 2:8 passive optical splitting, uplink backup, no mixed use of optical modules in a group, 10 km transmission distance (for campus products)(for campus porducts)
ES5MPJB00001	PEN passive aggregation module subrack, three slots, rack-mounted (for campus porducts)
PAC600S12-PB	600W AC power module
PDC1K2S12-CE	1200W DC power module
FAN-031A-B	Fan Module

License	Product Description
L-100GEUPG-S67H	S67XX-H Series,40GE to 100GE Electronic RTU License,Per Device
L-MLIC-S67H	S67XX-H Series Basic SW,Per Device
N1-S67H-M-Lic	S67XX-H Series Basic SW,Per Device
N1-S67H-M-SnS1Y	S67XX-H Series Basic SW,SnS,Per Device,1Year
N1-S67H-F-Lic	N1-CloudCampus,Foundation,S67XX-H Series,Per Device
N1-S67H-F-SnS	N1-CloudCampus,Foundation,S67XX-H Series,SnS,Per Device
N1-S67H-A-Lic	N1-CloudCampus,Advanced,S67XX-H Series,Per Device
N1-S67H-A-SnS	N1-CloudCampus,Advanced,S67XX-H Series,SnS,Per Device
N1-S67H-FToA-Lic	N1-Upgrade-Foundation to Advanced,S67XX-H,Per Device
N1-S67H-FToA-SnS	N1-Upgrade-Foundation to Advanced,S67XX-H,SnS,Per Device

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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