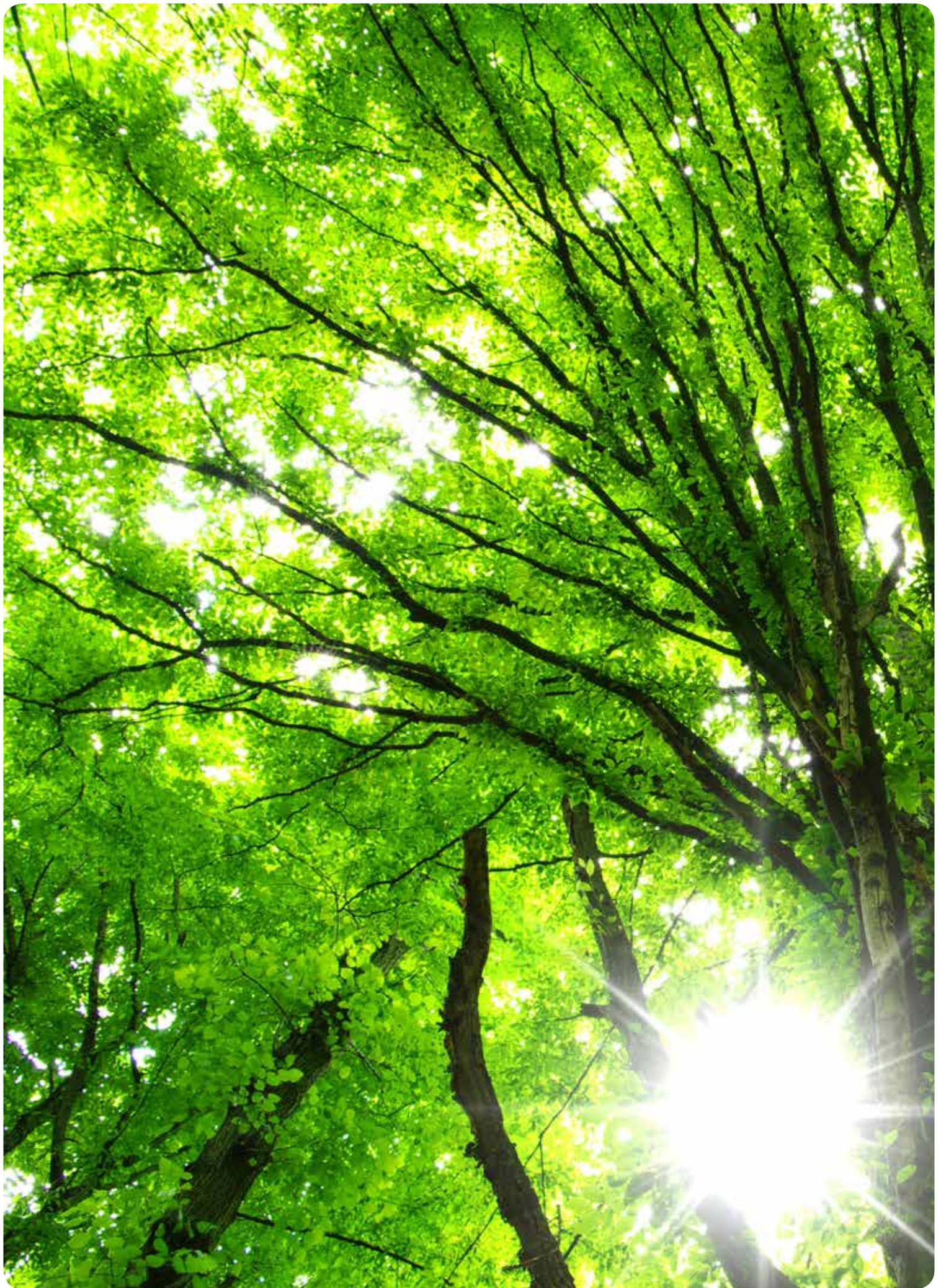


Huawei S3300 Series Switches Product Brochure





S3300 Series Enterprise Switches

Product Overview

S3300 switches (S3300 for short) are next-generation Layer-3 100-megabit Ethernet switches developed by Huawei to carry various services on Ethernets, which provide powerful Ethernet functions for carriers and enterprise customers. Utilizing next-generation high-performance hardware and Huawei Versatile Routing Platform (VRP) software, the S3300 supports enhanced selective QinQ, line-speed cross-VLAN multicast duplication, and Ethernet OAM. It also supports carrier-class reliability networking technologies including Smart Link (applicable to tree networks) and RRPP (applicable to ring networks). The S3300 can be used as an access device in a building or a convergence and access device on a Metro network. The S3300 supports easy installation, automatic configuration, and plug-and-play, which dramatically reduces the network deployment cost of customers.

The S3300 is a case-shaped device with a 1 U high chassis, provided in a standard version (SI), an enhanced version (EI), and an advanced version (HI). SI supports Layer-2 functions and basic Layer-3 functions. EI supports complex routing protocols and abundant features. HI supports higher-specification MAC addresses, routes, and multicast table entries, and more powerful hardware capabilities.

Product Appearance

S3328TP-SI/EI



- Provides twenty-four 10/100Base-TX ports, two 1000Base-X SFP ports, and two gigabit Combo ports (10/100/1000Base-T or 100/1000Base-X).
- Two models: one supports AC power supplies and the other supports DC power supplies.

S3328TP-PWR-EI



- Provides twenty-four 10/100Base-TX ports, two 1000Base-X SFP ports, and two gigabit Combo ports (10/100/1000Base-T or 100/1000Base-X).
- Supports dual pluggable power supplies, AC power supplies, and PoE supplies.

S3352P-SI/EI



- Provides forty-eight 10/100Base-TX ports, two 100/1000Base-X SFP ports, and two 1000Base-X SFP ports.
- Two models: one supports AC power supplies and the other supports DC power supplies.

S3352P-PWR-EI



- Provides forty-eight 10/100Base-TX ports, two 100/1000Base-X SFP ports, and two 1000Base-X SFP ports.
- Supports dual pluggable power supplies, AC power supplies, and PoE supplies.

S3352P-EI-24S



- Provides twenty-four 10/100Base-TX ports, twenty-four 100Base-FX SFP ports, two 100/1000Base-X SFP ports, and two 1000Base-X SFP ports.
- Two models: one supports AC power supplies and the other supports DC power supplies.

S3352P-EI-48S



- Provides forty-eight 100Base-FX SFP ports, two 100/1000Base-X SFP ports, and two 1000Base-X SFP ports.
- Two models: one supports AC power supplies and the other supports DC power supplies.

Product Features

Powerful Surge Protection

- The S3300 adopts the Huawei patented built-in surge protection technology that can effectively defend against lightning induced over-voltage. Each port has a surge protection capability of 7 KV. Compared with the conventional surge protection design, the Huawei patented surge protection technology greatly reduces the possibility of lightning damage on the device in severe environments or even in scenarios where grounding cannot be implemented.

Unique Fan-Free Design

- In the S3300 series, three non-PoE models that have 24 electrical ports adopt a fan-free design, which dramatically reduces the power consumption and noise of the device. In addition, this design reduces mechanical faults and protects the device against damages caused by condensed water and dust.
- The S3300 adopts next-generation highly-integrated chips and power-saving circuit design to ensure even heat dissipation. It also supports idle port sleep to further reduce power consumption.
- The S3300 emits low radiation and complies with the radiation standards of electric appliances, so it has no harm to human body and is more environmentally friendly.

Powerful Service Support

- The S3300 supports enhanced selective QinQ by using chips. This function adds outer VLAN tags to packets without occupying ACL resources to support multi-service provisioning.
- The S3300 supports 1,024 multicast groups (the S3300 supports 2,048 multicast groups) and protocols including IGMP snooping, IGMP filter, IGMP fast leave, and IGMP proxy. The S3300 supports line-speed cross-VLAN multicast replication, multicast load balancing among bundled ports, and controllable multicast, meeting requirements for IPTV and other multicast services.
- The S3300 supports Multi-VPN-Instance CE (MCE) to isolate users of different VPNs on a device, ensuring user data security and reducing customer expenditures.
- Multiple models of the S3300 support PoE and comply with IEEE 802.3af and 802.3at (PoE+). By using this function, the S3300 can supply power over the Ethernet to the connected standard PDs such as IP Phones, WLAN APs, and Bluetooth APs. Each port can provide up to 30 W of power. This reduces the power cable layout and management cost for terminal devices. The S3300 can also be configured to provide power for PDs at specified time as required.

Security and QoS

- The S3300 provides various security protection measures. It can defend against Denial of Service (DoS) attacks, attacks to networks, and attacks to users. DoS attacks include SYN Flood attacks, Land attacks, Smurf attacks, and ICMP Flood attacks. Attacks to networks refer to STP BPDU/Root attacks. Attacks to users include bogus DHCP server attacks, man-in-the-middle attacks, IP/MAC spoofing attacks, DHCP request flood attacks, and DoS attacks by changing the CHADDR field of packets.
- The S3300 listens to the MAC/IP address, address lease, VLAN ID, and port number about a DHCP user by establishing and maintaining a DHCP snooping binding table. In this way, IP addresses and access ports of DHCP users can be tracked. The S3300 directly discards invalid packets that do not match binding entries, such as ARP spoofing packets and packets with bogus IP addresses, to prevent hackers or attackers from initiating man-in-the-middle attacks to Metro networks by using ARP packets. The trusted port feature of DHCP snooping is used to ensure the validity of the DHCP server.
- The S3300 supports strict ARP learning to prevent ARP spoofing attackers from exhausting ARP entries so that authorized users can connect to the Internet. It also supports IP source check to prevent DoS attacks caused by MAC address spoofing, IP address spoofing, and MAC/IP address spoofing. The URPF function provided by the S3300 can check packet transmission paths to authenticate the packets received, which can protect the network against the spread of source address spoofing attacks.
- The S3300 supports centralized MAC address authentication and 802.1x authentication. User information such as the user account, IP address, MAC address, VLAN ID, access port number, and flag indicating whether antivirus software is installed on the client can be bound statically or dynamically, and user policies (VLAN, QoS, and ACL) can be delivered dynamically.

- The S3300 can limit the number of source MAC addresses learned on a port to prevent attackers from exhausting MAC address entries by using bogus source MAC addresses. In this way, MAC addresses of authorized users can be learned and flooding is prevented.
- The S3300 can implement complex traffic classification based on information such as the five-tuple, IP priority, ToS, DSCP, IP protocol type, ICMP type, TCP source port number, VLAN ID, Ethernet frame protocol type, and CoS. The S3300 supports inbound and outbound ACLs. The S3300 supports flow-based two-rate three-color CAR. Each port supports eight priority queues, WRED congestion prevention mechanism, and multiple queue scheduling algorithms such as WRR, DRR, SP, WRR+SP, and DRR+SP. This ensures the quality of voice, video and data services.

Good Expandability and High Reliability

- The S3300 switches support Intelligent Stacking (iStack) and plug-and-play. Multiple S3300s start to construct a virtual switch automatically after being connected by stacking cables. Stacked switches are classified into active, standby, and slave switches. After a standby switch is configured, the duration of service interruption caused by faults on the active switch is reduced. The S3300 supports intelligent upgrade, freeing customers from upgrading the software version of a switch after adding the switch to a stack. Utilizing the iStack technology, multiple switches can be interconnected to expand the system capacity and can be managed by using a single IP address, which greatly reduces the cost of system expansion, operation, and maintenance. Compared with traditional networking technologies, iStack has advantages in expansibility, reliability, and system architecture.
- Besides the traditional STP, RSTP, and MSTP, the S3300 supports enhanced Ethernet reliability technologies such as Smart Link (applicable to tree networks) and RRPP (applicable to ring networks), which implements millisecond-level protective link switchover and ensures network reliability. In addition, the S3300 supports multi-instance for Smart Link and RRPP to implement load balancing among links, further improving bandwidth usage.
- The S3300 supports the Smart Ethernet Protection (SEP) protocol, a ring network protocol applied to the link layer of an Ethernet network. SEP is applicable to open ring networks and can be deployed independently from the upper-layer aggregation devices to provide millisecond-level switchover without interrupting services. SEP features simplicity, high reliability, high switchover performance, convenient maintenance, and flexible topology, enabling customers to manage and deploy networks conveniently.

Considerate Maintenance-Free and Manageability

- The S3300 adopts a unique maintenance-free design and supports automatic configuration (auto-config), freeing network administrators from heavy configuration workload when deploying a batch of sites.
- The S3300 supports BFD and provides millisecond-level detection for protocols such as OSPF, IS-IS, VRRP, and PIM to improve network reliability. Complying with IEEE 802.3ah and 802.1ag, the S3300 supports point-to-point Ethernet fault management to detect faults on user links. Ethernet OAM improves the network management and maintenance capabilities on the Ethernet and ensures a stable network. The S33HI provides hardware-based OAM and BFD functions and supports 3.3-millisecond high-precision detection.
- The S3300 supports port-based and VLAN-based traffic statistics and NQA, which enables network administrators to better manage networks.
- The S3300 supports the GARP Registration Protocol (GVRP). The GVRP technology implements dynamic configuration of VLANs. In a complex networking environment, GVRP can simplify VLAN configuration and reduce network communication faults caused by incorrect configuration of VLANs. This reduces the manual configurations of network administrators and ensures correct VLAN configurations.

Various IPv6 Features

- The S3300 hardware supports both IPv4 and IPv6, IPv6 over IPv4 tunnels (including manual tunnels, 6-to-4 tunnels, and ISATAP tunnels), and Layer-3 line-speed forwarding. Therefore, the S3300 can be deployed on IPv4 networks, IPv6 networks, and networks that run IPv4 and IPv6 simultaneously. This makes the networking flexible and meets the requirements for the network transition from IPv4 to IPv6.
- The S3300 supports various IPv6 routing protocols including RIPng and OSPFv3. It uses the IPv6 Neighbor Discovery Protocol (NDP) to manage packets exchanged between neighboring nodes. The S3300 supports the Path MTU Discovery (PMTU) mechanism. That is, it selects a proper MTU on the path from the source to the destination to optimize network resource usage and obtain the maximum throughput.

Product Specifications

Item		S3300SI	S3300EI
Port	100-Mbit/s port	S3328TP-EI/S3328TP-SI/S3328TP-PWR-EI: twenty-four 10/100Base-T ports S3352P-EI/S3352P-SI/S3352P-PWR-EI: forty-eight 10/100Base-T ports S3352P-EI-24S: twenty-four 10/100Base-T ports and twenty-four 100Base-FX ports S3352P-EI-48S: forty-eight 100Base-FX ports S3326C-HI: twenty-two 10/100Base-T ports	
	1000-Mbit/s port	28-port device (SI/EI): two 1000Base-X ports and two 10/100/1000Base-T or 100/1000Base-X ports 52-port device (SI/EI): two 100/1000Base-X ports and two 1000Base-X ports S3326C-HI: two gigabit Combo ports (10/100/1000 BASE-T or 100/1000 BASE-X)	
Forwarding performance		28-port device (SI/EI): 9.6 Mpps 52-port device (SI/EI): 13.2 Mpps	
Port switching capacity		28-port device (SI/EI): 12.8 Gbit/s 52-port device (SI/EI): 17.6 Gbit/s	
Backplane switching capacity		64 Gbit/s	
MAC address table		Supports 16 K MAC address entries.	
		Supports automatic learning and aging of MAC addresses. Supports static, dynamic, and blackhole MAC address entries. Supports packet filtering based on source MAC addresses.	
VLAN features		Supports up to 4,096 VLANs. Supports guest VLANs, voice VLANs, and super VLANs. Supports VLAN assignment based on MAC addresses, protocols, and IP subnets. Supports basic QinQ and selective QinQ. Supports 1:1 and N:1 VLAN switching.	

Item	S3300SI	S3300EI
Reliability	Supports RRPP ring topology, intersecting rings, and multi-instance. Supports the Smart Link tree topology and Smart Link multi-instance to implement millisecond-level switchover between active and standby links. Supports STP, RSTP, and MSTP. Supports BPDU protection, root protection, and loopback protection. Supports SEP.	
	Supports BFD for OSPF, BFD for IS-IS, BFD for VRRP, and BFD for PIM.	
IPv4 routing	Supports static routing, RIP v1, RIP v2, and ECMP.	
	Supports OSPF, IS-IS, and BGP.	
IPv6 routing	Supports static routing and RIPng.	Supports static routing, RIPng, and OSPF v3.
IPv6 features	Supports Neighbor Discovery (ND). Supports PMTU. Supports IPv6 Ping, IPv6 Tracert, and IPv6 Telnet. Supports manually configured tunnels. Supports 6-to-4 tunnels. Supports ISATAP tunnels. Supports ACLs based on the source IPv6 address, destination IPv6 address, Layer-4 port, or protocol type. Supports MLD v1/v2 snooping.	
Multicast	Supports 1024 multicast groups.	
	Supports IGMP v1/v2/v3 snooping and fast leave. Supports multicast VLAN and cross-VLAN multicast replication. Supports multicast load sharing among bundled ports. Supports controllable multicast. Supports port-based multicast traffic statistics.	
	N/A	Supports IGMP v1/v2/v3, PIM-SM, and PIM-DM.
QoS/ACL	Supports rate limit on packets sent and received by a port. Supports packet redirection. Supports port-based traffic policing and two-rate three-color CAR. Supports eight queues on each port. Supports multiple queue scheduling algorithms including WRR, DRR, SP, WRR+SP, and DRR+SP. Supports re-marking of the 802.1p priority and DSCP priority. Supports packet filtering based on Layer 2 to Layer 4 information, filtering out invalid frames based on the source MAC address, destination MAC address, source IP address, destination IP address, port number, protocol, and VLAN ID. Supports queue-based rate limit and traffic shaping on ports.	

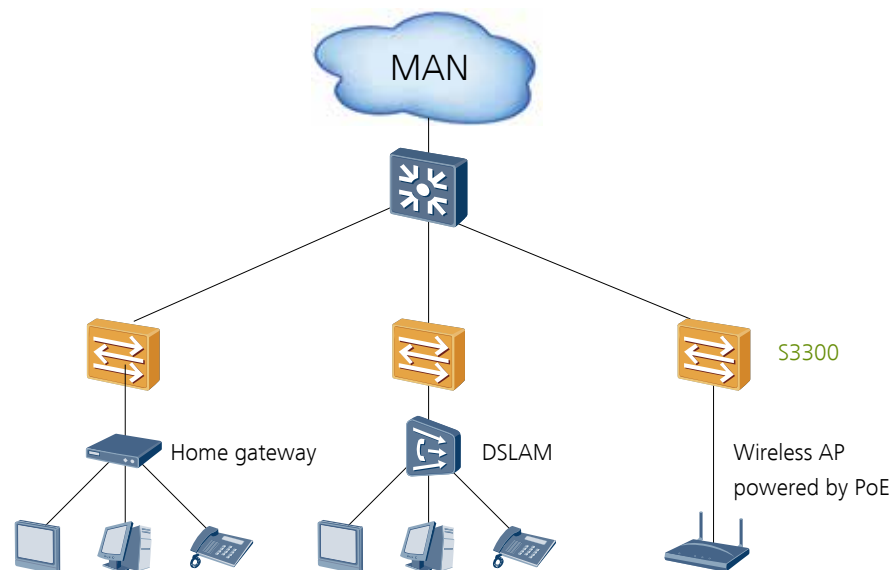
Item	S3300SI	S3300EI
Security	<p>Supports hierarchical user management and password protection.</p> <p>Supports DoS attack defense, ARP attack defense, and ICMP attack defense.</p> <p>Supports binding of the IP address, MAC address, port number, and VLAN ID.</p> <p>Supports port isolation, port security, and sticky MAC.</p> <p>Supports blackhole MAC addresses.</p> <p>Supports limit on the number of MAC addresses to be learned.</p> <p>Supports IEEE 802.1X authentication and the limit on the maximum number of users on a port.</p> <p>Supports multiple authentication methods including AAA, RADIUS, HWTACACS, and NAC.</p> <p>Supports SSH v2.</p> <p>Supports CPU protection.</p> <p>Supports blacklisting and whitelisting.</p>	
Surge protection	<p>Each port has a surge protection capability of 7 KV. Each port has a surge protection capability of 15 KV after an extra surge protection device is added.</p>	
Management and maintenance	<p>Supports iStack (except the S33HI).</p> <p>Supports MAC Forced Forwarding (MFF).</p> <p>Supports auto-config and HGMP.</p> <p>Supports remote configuration and maintenance by using Telnet.</p> <p>Supports Virtual Cable Test (VCT).</p> <p>Supports Ethernet OAM (IEEE 802.3ah and 802.1ag).</p> <p>Supports Dying gasp power-off alarm (the S3326C-HI only).</p> <p>Supports local port mirroring, Remote Switched Port Analyzer (RSPAN), and packet forwarding on an observing port.</p> <p>Supports SNMP v1/v2/v3 and RMON.</p> <p>Supports MUX VLAN and GVRP.</p> <p>Supports the Network Management System (NMS) and Web management. Supports SSH v2.</p> <p>Supports system logs and multi-level alarms.</p>	
Operating environment	<p>Operating temperature: 0°C to 50°C (long term); -5°C to 55°C (short term); relative humidity: 10% to 90% (non-condensing)</p>	
Power supply	<p>AC:</p> <p>Rated voltage: 100 V to 240 V, 50/60 Hz</p> <p>Maximum voltage: 90 V to 264 V, 50/60 Hz</p> <p>DC:</p> <p>Rated voltage: -48 V to -60 V</p> <p>Maximum voltage: -36 V to -72 V</p> <p>Note: Models supporting PoE do not use DC power supplies.</p>	
Dimensions: width x depth x height	<p>S3328TP-EI/SI, S3352P-EI/SI, S3326C-HI: 442 mm x 220 mm x 43.6 mm</p> <p>S3328TP-PWR-EI, S3352P-EI-48S, S3352P-EI-24S, S3352P-PWR-EI: 442 mm x 420 mm x 43.6 mm</p>	

Item	S3300SI	S3300EI
Weight	S3352P-EI/SI < 3 kg S3352P-EI-24S/48S < 4.8 kg S3328TP-PWR-EI < 4.03 kg (excluding power modules) S3352P-PWR-EI < 4.31 kg (excluding power modules)	
Power consumption	S3352P-EI/SI < 38 W S3352P-EI-24S < 66 W S3352P-EI-48S < 92 W S3328TP-PWR-EI < 875 W, PoE power = 740 W S3352P-PWR-EI < 880 W, PoE power = 740 W	

Applications

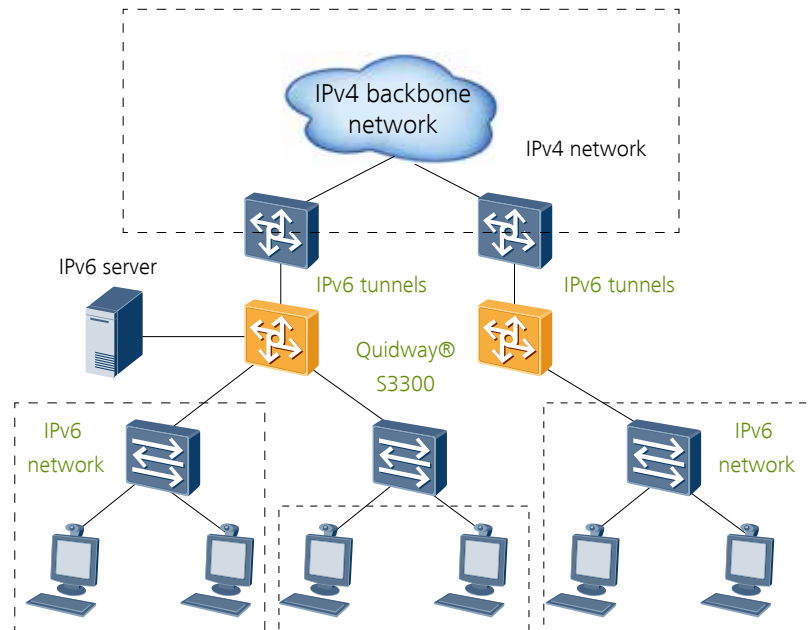
Serving as Access Devices in Buildings

The S3300 can connect to 100-Mbit/s DSLAMs as an aggregation switch in buildings. In this case, the selective QinQ function is configured on the S3300; outer VLAN tags identify the locations of the DSLAMs, and the inner VLAN tags identify users. The S3300 can also connect to home gateways directly or supply power to PSEs such as wireless APs or IP phones through PoE. This enables the S3300 to better support multi-service deployment, unified planning, fine management, and convenient maintenance of customers.



Application of IPv4/IPv6

The S3300 supports both IPv4 and IPv6 and various tunnel protocols. In the initial phase of IPv6, IPv4 and IPv6 coexist on most networks. With the dual-protocol stack and rich tunnel protocols, the S3300 can be used to build networks flexibly and save costs on network migration.



For more information, visit www.huawei.com or contact the local sales office of Huawei.



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