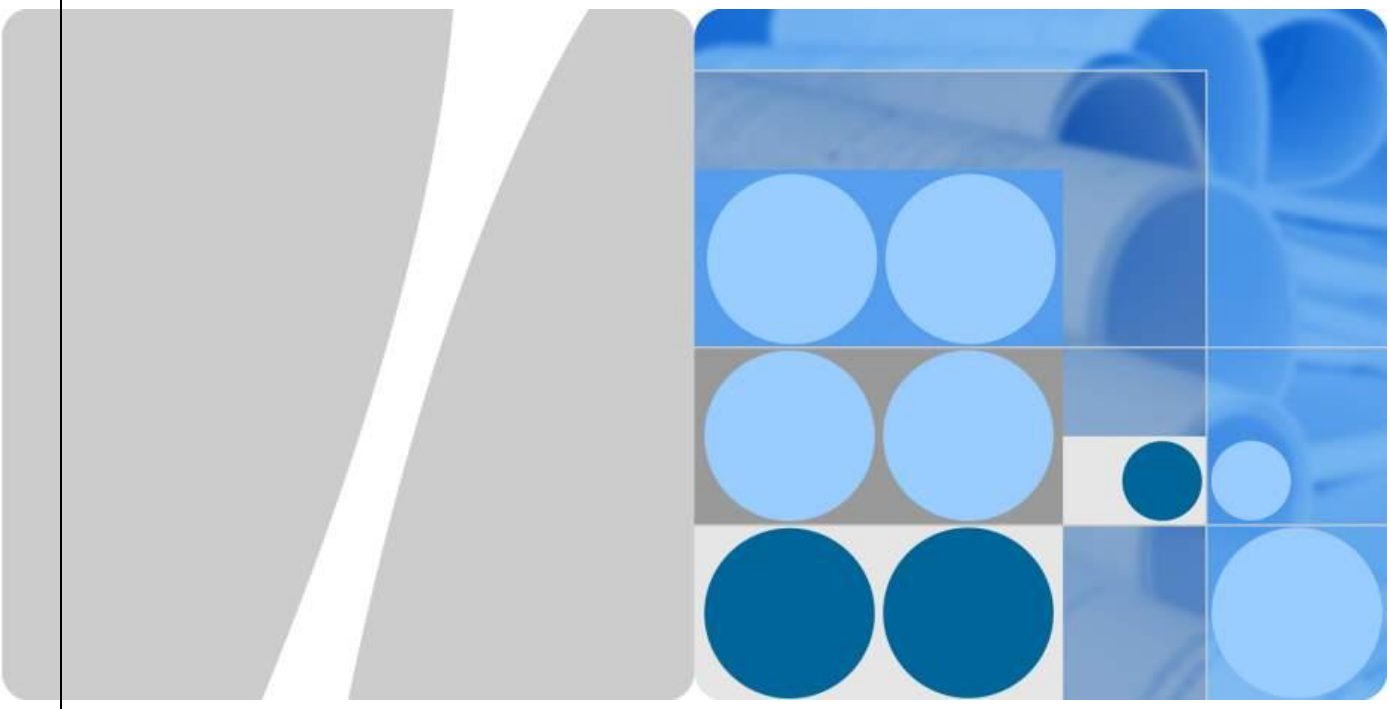

Huawei S5320-SI V200R008C00 Switch Product Brochures

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HUAWEI

S5320-SI Series Gigabit Enterprise Switches

Product Overview

The S5320-SI series are gigabit Layer 3 Ethernet switches based on new generation of high-performance hardware and Huawei Versatile Routing Platform (VRP). It provides a large capacity, high-density GE interfaces, and 10GE uplink interfaces. With extensive service features and IPv6 forwarding capabilities, the S5320-SI is applicable to various scenarios. For example, it can be used as an access or aggregation switch on campus networks or an access switch in data centers. The S5320-SI integrates many advanced technologies in terms of reliability, security, and energy saving. It employs simple and convenient means of installation and maintenance to reduce customers' OAM cost and help enterprise customers build a next-generation IT network.

Product Appearance

Appearance	Description
 **S5320-28P-SI-AC**	● 24 Ethernet 10/100/1000 ports,4 of which are dual-purpose 10/100/1000 or SFP ● 4 Gig SFP ● Double hot swappable AC/DC power supplies, one AC power module is configured by default ● Packet forwarding rate: 42 Mpps
 **S5320-28X-SI-AC**	● 24 Ethernet 10/100/1000 ports,4 of which are dual-purpose 10/100/1000 or SFP ● 4 10 Gig SFP+ ● Double hot swappable AC/DC power supplies, one AC power module is configured by default ● Packet forwarding rate: 96 Mpps
 **S5320-52P-SI-AC**	● 48 Ethernet 10/100/1000 ports ● 4 Gig SFP ● Double hot swappable AC/DC power supplies, one AC power module is configured

Appearance	Description
	by default ● Packet forwarding rate: 78 Mpps
 **S5320-52X-SI-AC**	● 48 Ethernet 10/100/1000 ports ● 4 10 Gig SFP+ ● Double hot swappable AC/DC power supplies, one AC power module is configured by default ● Packet forwarding rate: 132 Mpps
 **S5320-28X-PWR-SI-AC**	● 24 Ethernet 10/100/1000 PoE+ ports,4 of which are dual-purpose 10/100/1000 or SFP ● 4 10 Gig SFP+ ● PoE+ ● Double hot swappable AC/DC power supplies, one 500W AC power module is configured by default ● Packet forwarding rate: 96 Mpps
 **S5320-52X-PWR-SI-AC**	● 48 Ethernet 10/100/1000 PoE+ ports ● 4 10 Gig SFP+ ● PoE+ ● Double hot swappable AC/DC power supplies, one 500W AC power module is configured by default ● Packet forwarding rate: 132 Mpps
 **S5321-28P-SI-AC**	● 24 Ethernet 10/100/1000 ports ● 4 Gig SFP ● AC power supply, supporting RPS ● Packet forwarding rate: 42 Mpps
 **S5321-28X-SI-AC**	● 24 Ethernet 10/100/1000 ports ● 4 10 Gig SFP+ ● Two models: AC model and DC model, supporting RPS

Appearance	Description
 **S5321-28X-SI-DC**	● Packet forwarding rate: 96 Mpps
 **S5321-52P-SI-AC**	● 48 Ethernet 10/100/1000 ports ● 4 Gig SFP ● AC power supply, supporting RPS ● Packet forwarding rate: 78 Mpps
 **S5321-52X-SI-AC**  **S5321-52X-SI-DC**	● 48 Ethernet 10/100/1000 ports ● 4 10 Gig SFP+ ● Two models: AC model and DC model, supporting RPS ● Packet forwarding rate: 132 Mpps

Product Features and highlights

- **Powerful support for services**

The S5320-SI supports IGMP v1/v2/v3 snooping, IGMP filter, IGMP fast leave, and IGMP proxy and supports many Layer 2/Layer 3 multicast protocols such as PIM SM, PIM DM, PIM SSM, MLD, and IGMP snooping, to support multi-terminal high-definition video surveillance and video conferencing services.The S5320-SI supports wire-speed replication of multicast packets between VLANs, multicast load balancing among member interfaces of a trunk, and controllable multicast, meeting requirements for IPTV and other multicast services.

The S5320-SI provides more powerful Layer 3 routing capability such as OSFP/OSPFv3, BGP/BGP4+, ISIS/ISISv6, and provides voice, video and data services, helping enterprises build an integrated full service network with high availability and low latency.

- **Comprehensive reliability mechanisms**

Besides STP, RSTP, and MSTP, the S5320-SI supports enhanced Ethernet reliability technologies such as Smart Link and RRPP (Rapid Ring Protection Protocol), which implement

millisecond-level protection switchover and ensure network reliability. It also provides Smart Link multi-instance and RRPP multi-instance to implement load balancing among links, optimizing bandwidth usage.

The S5320-SI supports enhanced trunk (E-Trunk) that enables a CE to be dual-homed to two PEs (S5300s). E-Trunk greatly enhances link reliability between devices and implements link aggregation between devices. This improves reliability of access devices.

The S5320-SI supports the Smart Ethernet Protection (SEP) protocol, a ring network protocol applied to the link layer on an Ethernet network. SEP can be used on open ring networks and can be deployed on upper-layer aggregation devices to provide fast switchover (within 50 ms), ensuring non-stop transmission of services. SEP features simplicity, high reliability, fast switchover, easy maintenance, and flexible topology, facilitating network planning and management.

The S5320-SI supports Ethernet Ring Protection Switching (ERPS), also referred to as G.8032. As the latest ring network protocol, ERPS was developed based on traditional Ethernet MAC and bridging functions and uses mature Ethernet OAM function and a ring automatic protection switching (R-APS) mechanism to implement millisecond-level protection switching. ERPS supports various services and allows flexible networking, helping customers build a network with lower OPEX and CAPEX.

The S5320-SI complies with IEEE 802.3ah and 802.1ag. IEEE 802.3ah defines the mechanism for detecting faults on direct links over the Ethernet in the first mile, and 802.1ag defines the mechanism for end-to-end service fault detection. The S5320-SI supports Y.1731. Besides fast end-to-end service fault detection, the S5320-SI can use the performance measurement tools defined in Y.1731 to monitor network performance, providing accurate data about network quality.

- **Well-designed QoS policies and security mechanisms**

The S5320-SI implements complex traffic classification based on packet information such as the 5-tuple, IP preference, ToS, DSCP, IP protocol type, ICMP type, TCP source port, VLAN ID, Ethernet protocol type, and CoS. ACLs can be applied to inbound or outbound direction on an interface. The S5320-SI supports a flow-based two-rate three-color CAR. Each port supports eight priority queues and multiple queue scheduling algorithms such as WRR, DRR, PQ, WRR+PQ, and DRR+PQ. All of these ensure the quality of voice, video, and data services.

The S5320-SI provides multiple security measures to defend against Denial of Service (DoS) attacks, and attacks against networks or users. DoS attack types 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. DoS attacks that change the CHADDR field in DHCP packets are also attacks against users.

The S5320-SI supports DHCP snooping, which generates user binding entries based on MAC addresses, IP addresses, IP address leases, VLAN IDs, and access interfaces of users. DHCP snooping discards invalid packets that do not match any binding entries, such as ARP spoofing packets and IP spoofing packets. This prevents man-in-the-middle attacks to campus networks that hackers initiate by using ARP packets. The interface connected to a DHCP server can be configured as a trusted interface to protect the system against bogus DHCP server attacks.

The S5320-SI supports strict ARP learning, which prevents ARP spoofing attacks that will exhaust ARP entries. It also provides IP source check to prevent DoS attacks caused by MAC address spoofing, IP address spoofing, and MAC/IP spoofing.

The S5320-SI supports centralized MAC address authentication, 802.1x authentication, and NAC. It authenticates users based on statically or dynamically bound user information such as the user name, IP address, MAC address, VLAN ID, access interface, and flag indicating whether antivirus software is installed. VLANs, QoS policies, and ACLs can be applied to users dynamically.

The S5320-SI can limit the number of MAC addresses learned on an interface to prevent attackers from exhausting MAC address entries by using bogus source MAC addresses. This function minimizes packet flooding that occurs when MAC addresses of users cannot be found in the MAC address table.

- **Easy deployment and maintenance free**

The S5320-SI supports automatic configuration, plug-and-play, deployment using a USB flash drive, and batch remote upgrade. These capabilities simplify device management and maintenance and reduce maintenance costs. The S5300 supports SNMP v1/v2c/v3 and provides flexible methods for managing devices. Users can manage the S5300 using the CLI, Web NMS and Telnet. The NQA function helps users with network planning and upgrades. In addition, the S5300 supports NTP, SSH v2, HWTACACS+, RMON, log hosts, and port-based traffic statistics.

The S5320-SI supports GVRP（GARP VLAN Registration Protocol）, which dynamically distributes, registers, and propagates VLAN attributes to reduce manual configuration workloads of network administrators and to ensure correct VLAN configuration. In a complex network topology,

GVRP simplifies VLAN configuration and reduces network communication faults caused by incorrect VLAN configuration.

The S5320-SI supports MUX VLAN. MUX VLAN isolates Layer 2 traffic between interfaces in a VLAN. Interfaces in a subordinate separate VLAN can communicate with ports in the principal VLAN but cannot communicate with each other. MUX VLAN is usually used on an enterprise intranet to isolate user interfaces from each other but allow them to communicate with server interfaces. This function prevents communication between network devices connected to certain interfaces or interface groups but allows the devices to communicate with the default gateway.

- **PoE function**

The S5320-SI PWR can use PoE power supplies with different power levels to provide -48V DC power for powered devices (PDs) such as IP Phones, WLAN APs, and Bluetooth APs. In its role as power sourcing equipment (PSE), the S5320-SI PWR complies with IEEE 802.3af and 802.3at (PoE+) and can work with PDs that are incompatible with 802.3af or 802.3at. Each port provides a maximum of 30 W power, complying with IEEE 802.3at. The PoE+ function increases the maximum power of each port and implements intelligent power management for high-power consumption applications. This facilitates the use of PDs. PoE ports can work in power-saving mode. The S5320-SI PWR provides improved PoE solutions. Users can configure whether and when a PoE port supplies power.

- **High scalability**

The S5320-SI supports intelligent stacking (iStack). Multiple S5320-SI can be connected with stack cables to set up a stack, which functions as a virtual switch. A stack consists of a master switch, a backup switch, and several slave switches. The backup switch takes over services when the master switch fails, reducing service interruption time. Stacks support intelligent upgrade so that users do not need to change the software version of a switch when adding it to a stack. The iStack function allows users to connect multiple switches with stack cables to expand system capacity. These switches can be managed using a single IP address, which greatly reduces the costs of system expansion, operation, and maintenance. Compared with traditional networking technologies, iStack has advantages in scalability, reliability, and system architecture.

- **Various IPv6 features**

The S5320-SI supports IPv4/IPv6 dual stack and can migrate from an IPv4 network to an IPv6 network. S5320-SI hardware supports IPv4/IPv6 dual stack, IPv6 over IPv4 tunnels (including

manual tunnels, 6to4 tunnels, and ISATAP tunnels), and Layer 3 line-speed forwarding. The S5300 can be deployed on IPv4 networks, IPv6 networks, or networks that run both IPv4 and IPv6. This makes networking flexible and enables a network to migrate from IPv4 to IPv6.

Product Specifications

Item	S5320-SI			
	S5320-28P-SI-AC S5320-28X-SI-AC S5320-28X-PWR-SI-AC	**S5320-52P-SI-AC S5320-52X-SI-AC S5320-52X-PWR-SI-AC**	**S5321-28P-SI-AC S5321-28X-SI-AC S5321-28X-SI-DC**	**S5321-52P-SI-AC S5321-52X-SI-AC S5321-52X-SI-DC**
Fixed port	24 Ethernet 10/100/1000 ports,4 of which are dual-purpose 10/100/1000 or SFP P series: 4 10 Gig SFP+ X series: 4 Gig SFP	48 Ethernet 10/100/1000 ports P series: 4 10 Gig SFP+ X series: 4 Gig SFP	24 Ethernet 10/100/1000 ports P series: 4 10 Gig SFP+ X series: 4 Gig SFP	48 Ethernet 10/100/1000 ports P series: 4 10 Gig SFP+ X series: 4 Gig SFP
Extended slot	NA			
MAC address table	IEEE 802.1d compliance 16 K MAC address entries MAC address learning and aging Static, dynamic, and blackhole MAC address entries Packet filtering based on source MAC addresses			
VLAN	4 K VLANs Guest VLAN and voice VLAN VLAN assignment based on MAC addresses, protocols, IP subnets, policies, and ports 1:1 and N:1 VLAN Mapping			
Reliability	RRPP ring topology and RRPP multi-instance Smart Link tree topology and Smart Link multi-instance, providing the millisecond-level protection switchover SEP ERPS(G.8032 v2) STP(IEEE 802.1d), RSTP(IEEE 802.1w), and MSTP(IEEE 802.1s) BPDU protection, root protection, and loop protection E-Trunk			

Item	S5320-SI			
	S5320-28P-SI-AC S5320-28X-SI-AC S5320-28X-PWR-SI-AC	S5320-52P-SI-AC S5320-52X-SI-AC S5320-52X-PWR-SI-AC	S5321-28P-SI-AC S5321-28X-SI-AC S5321-28X-SI-DC	S5321-52P-SI-AC S5321-52X-SI-AC S5321-52X-SI-DC
IP routing	Static route, RIPv1, RIPv2, RIPng, ECMP, OSFP, OSPFv3,BGP, BGP4+, ISIS, ISISv6			
IPv6 features	Neighbor Discovery (ND) Path MTU (PMTU) IPv6 ping, IPv6 tracert, and IPv6 Telnet ACLs based on the source IPv6 address, destination IPv6 address, Layer 4 ports, or protocol type MLD v1/v2 snooping 6to4 tunnel, ISATAP tunnel, and manually configured tunnel			
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			
QoS/ACL	Rate limiting on packets sent and received by an interface Packet redirection Port-based traffic policing and two-rate three-color CAR Eight queues on each port WRR, DRR, PQ, WRR+PQ, and DRR+PQ queue scheduling algorithms Re-marking of the 802.1p priority and DSCP priority 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, port number, protocol type, and VLAN ID Rate limiting in each queue and traffic shaping on ports			
Security	User privilege management and password protection DoS attack defense, ARP attack defense, and ICMP attack defense Binding of the IP address, MAC address, interface, and VLAN Port isolation, port security, and sticky MAC Blackhole MAC address entries Limit on the number of learned MAC addresses 802.1x authentication and limit on the number of users on an interface AAA authentication, RADIUS authentication, HWTACACS+ authentication, and NAC			

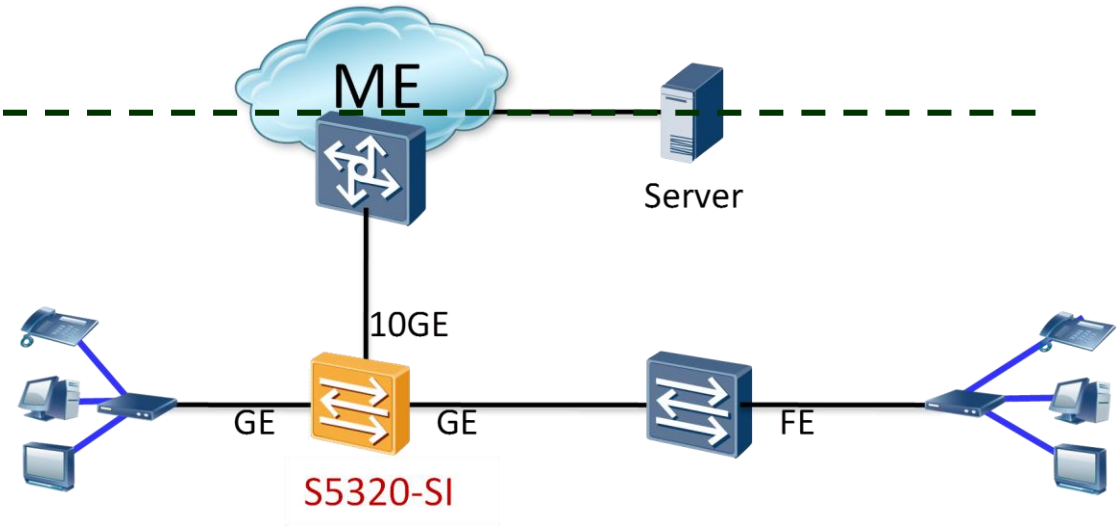
Item	S5320-SI			
	S5320-28P-SI-AC S5320-28X-SI-AC S5320-28X-PWR-SI-AC	S5320-52P-SI-AC S5320-52X-SI-AC S5320-52X-PWR-SI-AC	S5321-28P-SI-AC S5321-28X-SI-AC S5321-28X-SI-DC	S5321-52P-SI-AC S5321-52X-SI-AC S5321-52X-SI-DC
	SSH v2.0 Hypertext Transfer Protocol Secure (HTTPS) CPU defense Blacklist and whitelist			
Management and maintenance	iStack MAC Forced Forwarding (MFF) Virtual cable test Port mirroring and RSPAN (remote port mirroring) Remote configuration and maintenance by using Telnet SNMP v1/v2c/v3 RMON Web NMS Easy Operation System logs and alarms of different levels GVRP MUX VLAN			
Operating environment	Operating temperature: 0°C–50°C (long term); -5°C–55°C (short term) Relative humidity: 10%–90% (non-condensing)			
Input voltage	AC: Rated voltage range: 100 V to 240 V AC, 50/60 Hz Maximum voltage range: 90 V to 264 V AC, 47/63 Hz DC: Rated voltage range: –48 V to –60 V, DC Maximum voltage range: –36 V to –72 V, DC			
Dimensions (W x D x H)	442×420×43.6	442×420×43.6	442×220×43.6	442×220×43.6
Typical power consumption	S5320-28P-SI-AC：21.2 W S5320-28X-SI-AC：22.3 W S5320-28X-PWR-SI-AC	S5320-52P-SI-AC：32.2W S5320-52X-SI-AC：33.8W S5320-52X-PWR-SI-AC：without PD：51W；with PD：<943.2W(PoE:740W)	S5321-28P-SI-AC：20.2W S5321-28X-SI-AC：22W S5321-28X-SI-DC	S5321-52P-SI-AC：33 W S5321-52X-SI-AC：34.4W S5321-52X-SI-DC：35.

Item	S5320-SI			
	S5320-28P-SI-AC S5320-28X-SI-AC S5320-28X-PWR-SI-AC	S5320-52P-SI-AC S5320-52X-SI-AC S5320-52X-PWR-SI-AC	S5321-28P-SI-AC S5321-28X-SI-AC S5321-28X-SI-DC	S5321-52P-SI-AC S5321-52X-SI-AC S5321-52X-SI-DC
	: without PD：31.8W；with PD：<913W(PoE:740W)		： 21.9W	5W

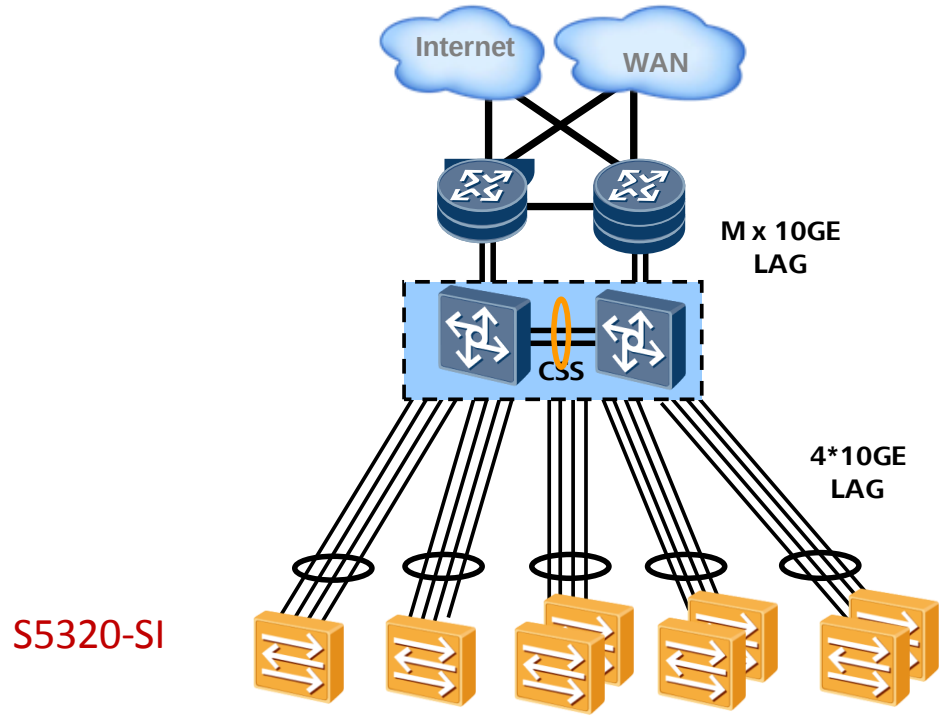
Applications

- **Application on Metro Networks**

The S5320-SI functions as the access device and aggregation device on Metro networks and improves network reliability by link binding, dual-homing, and ringing.



- **Application in Data Centers**



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