

Why Huawei-3Com

- Customer-oriented philosophy
- Full range of IP products for total solutions
- Proven Research & Development capability
- Fast response service and support
- Competitive pricing, superior performance

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Building the
high-speed
intelligent network
for the future

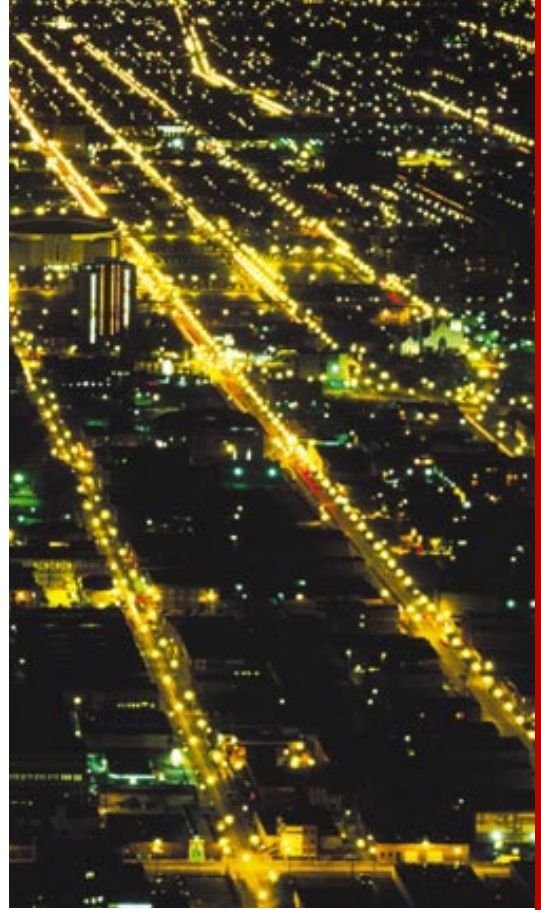


Huawei-3Com
10GE Switches



Broader network bandwidth is fast becoming an imperative for companies who want to deliver high-speed access to meet the rapid development of data, real-time audio and video applications.

The capability to deliver multiple services on the same network and the ability to adapt to the ever changing nature of a network environment is essential to any company's success.



Service requirements give impetus to 10G Ethernet Application

Through nearly 30 years of development, Ethernet technology has exceeded its original design proposal for LAN applications and has now also excelled in the areas of enterprise network, campus network and Metropolitan Area Network (MAN). Bearing a majority of data traffic, Metro Ethernet has become a mainstream technology for constructing MANs. The Ethernet technology has been proposed to carry Wide Area Network (WAN) traffic. The 1000M Ethernet became mainstream a few years ago, and technologies such as layer 3 switching enjoyed wide popularity. The 10GE layer 3 switch has become the major device at the network core and aggregation layer, at the same time, international standard bodies are drafting 40GE technology standards - and today some pioneer organizations are working on 100GE technology.

Bandwidth figures are no more than a fancy exterior, the real impetus in technology advancement is meeting service requirements. With the development of storage technology, traditional data transmission imposes a higher requirement on bandwidth. For instance, various data centres now require 10GE wire-speed switching equipment. Development of VoIP, video and IPTV services are also necessary considerations when constructing a network, these services require new levels of bandwidth, to further fuel the development of technology.

From the network perspective, the wider deployment of applications have brought significant implications to network equipment designs. Centralized forwarding designs have given way to distributed forwarding architecture in the high-end segment. In the low-end, new

stacking technology has replaced the old traditional STP technology with its slow convergent time, yielding a more advanced MSTP. PoE, a technology that supplies power over Ethernet to endpoint devices based on the industry 802.1x standard, with widespread industry acceptance will dictate how Ethernet equipment is designed in the years to come.

The Quidway S8500/ S6500 / S5600 switches are designed on Ethernet technology with the networks of the future in mind. They represent best-of-breed performance and service features that will meet network requirements in the coming 3-5 years.

10G Ethernet Platform



Building an intelligent 10G Ethernet network

The 10 gigabit Ethernet network and gigabit Ethernet to desktop have become a new paradigm. 10 gigabit Ethernet is at the basis of this and provides a platform that is high quality, intelligent and self-adapting.

The 10G Quidway switch is positioned as network core equipment. All its key components such as Switching and Routing Processor (SRP) module and power supply module have 1+1 redundancy to prevent any single-point of failure and ensure uninterrupted operation. Reliability is taken into consideration when designing the S8500's software, VRRP, MSTP, ECMP and other technologies, each laying the foundation for a reliable system. The S8500's MPLS label forwarding makes more VPN services possible.

The Quidway S6500 series is positioned at the aggregation/access layer of the network, it provides an uplink

speed of 10G. The S5600 is positioned at the aggregation/access layer, it provides a 10G uplink and 10/100/1000M auto-sensing Ethernet access to the desktop. While the 10G network does offer a much needed bandwidth upgrade, the real benefit is the intelligence it brings to the network. In the core, distributed forwarding architecture, IP/MPLS forwarding, abundant QoS and security features all translate to high performance and high quality services. As for the access layer that services customers, the network possesses pervasive service awareness, enabling it to differentiate between service type and accordingly provide the appropriate resources. The network formulates strategic routing decisions based on the service resource requirement, creating a truly service-oriented high quality network platform.

The 10G network model consists of: a high-quality IP core, a flexible intelligent access and management and control

mechanism. The three components interact and orchestrate an end-to-end intelligent and integrated platform.

High-quality IP Core network: the high-quality core network provides all services of a high-speed super highway. High service quality, security, scalability, reliability and manageability, forming the five essential qualities of an IP core network. Of these, high service quality is the most vital aspect.

A high-quality IP core network is capable of high-speed data forwarding and in-depth service perception, and is based on implementing resource adjustments at the core network. The key technologies of a high-quality core network are high-speed forwarding technology, QoS queue technology, security and defence technology with an exceptional traffic engineering strategy.

■ Flexible intelligent access network

The flexible intelligent access network

is mainly characterized by service importing, service perception, drive resource allocation and strategy deployment. After the service enters the network, an authentication and terminal security status check is performed and only legal and secure users and terminals are given access to network resources. This process is known as "terminal admission defense". The network will then allocate network resources for the user according to the rights of the user, including IP address, VLAN, security and QoS strategies, which are all dynamically generated. For the network that requires higher security, PSPT technology can be used to allocate different tunnels for different services. This technology can be coupled with VPN technology to implement end-to-end service isolation. With an increase in key applications, the reliability of the access network becomes more and more essential. In addition to stacking, STP convergence,

link aggregation and fast routing convergence, intelligent, flexible technologies based on full distributed forwarding (e.g., IRF) support greater reliability and expansibility.

■ Management & control module

The flexible intelligent access network works together with the high-quality IP core network to implement elementary network intelligence through signaling and cooperation between the components. The objectives of the management and control module are to build a network hub system, integrate the functional components of the network such as basic management, user management, security management, resource dispatching, media control and service management while also implementing in-depth service perception, network state distribution, strategy adjustment and deployment. All of which deliver breadth of network

The high-quality
core network
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Quidway® S5600 Series



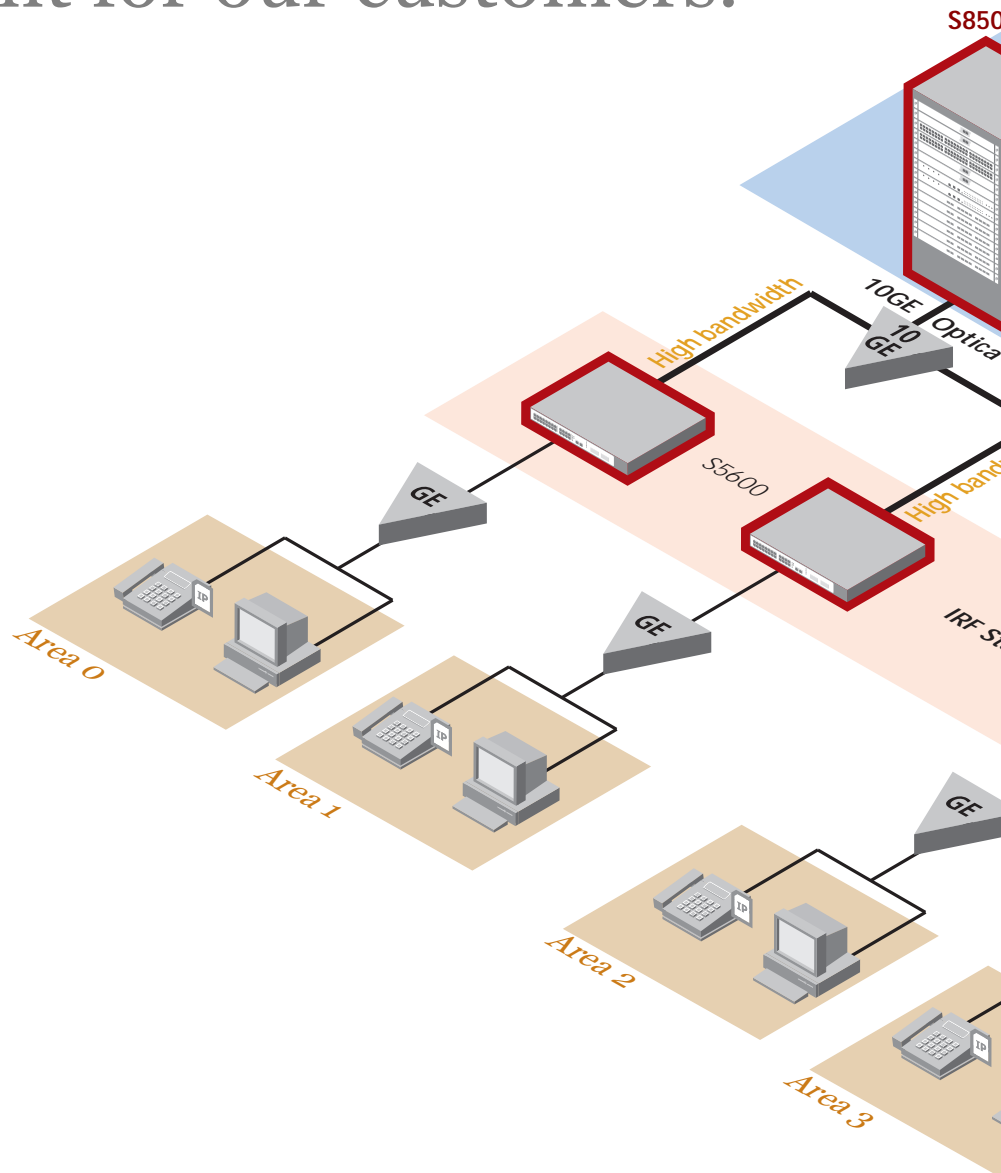
- Server farm, aggregation, edge network
- Improved LAN efficiency with innovative IRF stackable technology
- 2x10GE uplink, stack dedicated bandwidth up to 96GE
- PoE with Voice VLAN provides perfect VoIP solutions

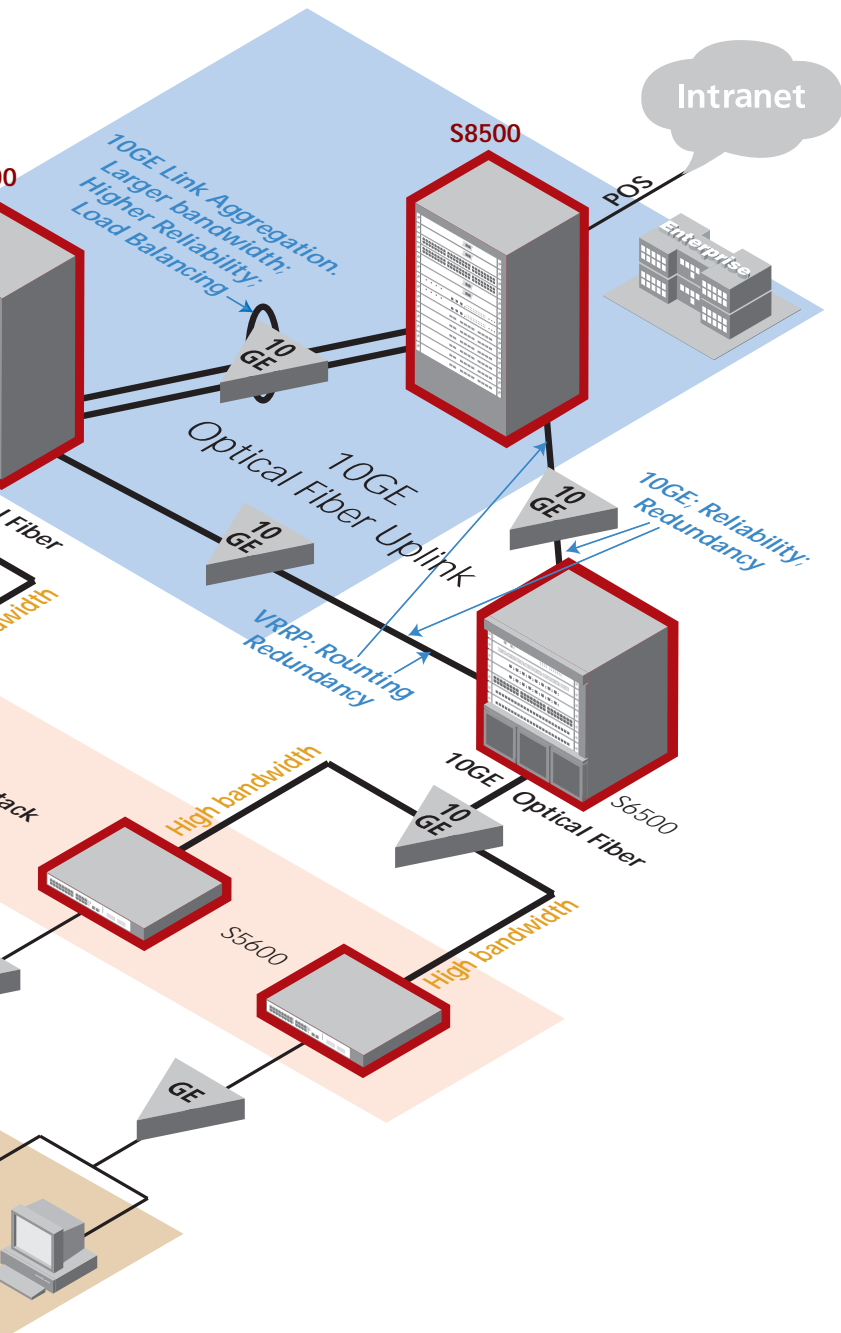
As an end-to-end data communication solutions supplier, we strive to provide a high return on investment for our customers.

flexibility intelligence. The management control module is the nerve center of the end-to-end 10G network.

The low-investment, high-return solution

As an end-to-end data communication solutions supplier, we strive to provide a high return on investment for our customers. We provide a full line of network products ranging from the access layer to the core layer, including fixed port switches and high-performance high-end modular switches. Customers have the flexibility to select the products to meet their specific service needs. The full line of switches and routers are based on the VRP platform. The software platform can be highly customized. VRP can respond to customer requirements quickly and upgrade smoothly. Our solutions are competitively priced, but offer superior performance.





10GE Network Solution

Quidway® S6500 Series



- Mid-scale core or large scale convergent network
- Delivers higher capacity through XGBUS technology
- PoE with Voice VLAN provides perfect VoIP solutions
- Rich super engines

Characteristics of the solution



High Availability

The S8500/S6500 core switch series adopt the 10GE platform and modularized design concept. All key components work in 1+1 redundancy to ensure carrier-class reliability. The S8500 supports VRRP router hot backup protocol, implements mutual backup between devices to enable timely switchover from the failed S8500 equipment to the standby S8500 equipment to ensure uninterrupted operation.

The IRF system architecture of the S5600 is an innovative stacking technology. The distributed resilient routing, distributed link aggregation and distributed device management are some of the highlights of the IRF platform. IRF improves the reliability of the network and avoids single-point of failure.

High speed, High switching capacity

The switching capacity of the S8500 can reach up to 720Gbps. The S8500 provides 2*10GE interface boards and will soon provide 4x10GE high-density 10GE interface boards.

The S6500 sports multiple engine options to meet different network needs. A specific engine corresponds to the specific switching capacity. The highest switching capacity is up to 768Gbps. By simply replacing the engines, the users can improve the performance of the switch and protect the previous investment.

The S5600 is a case-shaped device with the highest switching capacity and the highest stackable bandwidth among the peer products. Its switching capacity is up to 240Gbps and its stackable

bandwidth is 96Gbps. The S5600 adopts the IRF architecture to implement expansion of both switching capacity and port capacity.

Flexible Expandability

The architecture of the S8500/S6500 switch series allows a network to evolve. Higher performance, more diversified interface modules and more services are up-gradeable on the existing platform. Currently, the switching capacity of the S8500 is up to 720G, upgradeable to 1.44T and 2.88T. In terms of service, the FireWall module, IDS module and Netflow module will be launched in the near future. The modular architecture of the equipment enables the addition of interface boards and network expansion. The S5600 has an intelligent resilient architecture, which can be expanded as required and permits

phase-in investments. It adopts new generation switches and flexibility in expanding the network.

Superior security strategies

Our switches adopt the “longest prefix matching” algorithm, and the “packet-by-packet forwarding” mechanism, and are inherently resistant to “red code viruses” and “shock wave”.

The switches support 802.1X authentication and centralized MAC address authentication, and perform necessary authentication before the user accesses the network. They support port and MAC binding, number of MAC addresses of the port, and port isolation.

Easy Management

As an end-to-end solutions supplier, we provide total network solutions through the proprietary HGMP protocol, adopting one managed IP address for the whole network. A maximum of 256

devices can be managed, simplifying network management and lowering maintenance cost.

In the final analysis, we help the users cut back the Total Cost of Ownership (TCO) from both hardware and software perspectives. From the cost of the device to technical support contracts, upgrade expenses, replacement boards and spare parts, all savings are easily measurable. Further costs savings can be seen in personnel training, maintenance and other implicit areas.

We can implement smooth expansion according to the actual network growth needs of the user. Easy-to-use and easily manageable equipment is our linchpin that helps reduce costs for users. In addition, we focus on service capability of a network, provide diversified services to help users develop various services on the network platform, respond to market demands, improve the network utilization, and improve Return On Investment (ROI).

We can implement smooth expansion according to the actual network growth needs of the user

Quidway® S8500 Series



- Large enterprise core network
- Up to 720G switching capacity
- Abundant applications and rich MPLS services
- Carrier-class reliability

Seize the present and look into the future



For customers who upgrade their existing network, the S8500, S6500 and S5600 addresses their needs at all levels. For large enterprises upgrading their core networks, the S8500 series offers a wide array of choices, such as the S8505, S8508 and S8512. For the medium-sized enterprise upgrading their Intranets, the S6500 is the best choice because of its powerful layer-3 routing functionality and the switch's QoS features. The S5600 meets the requirements of the large network access layer as well as medium and small-sized enterprise core network equipment. Its IRF superior stacking technology provides a guarantee for flexible expansion of a network.

To construct a new network, 10G network equipment has become standard. The same goes for 10/100/1000M adaptive desktop access. The S8500, S6500 and

S5600 provide all levels of service for Next Generation Network (NGN).

In addition to the high-speed forwarding capability of the equipment, the operators must take into consideration the prevalent MPLS technologies that provide diversified VPN services. Operators will consider not only the operation efficiency of the internal network but also how to provide more services for users and user networks. The S6500 and S5600 are often deployed with great success by enterprise users and the S8500 has the larger number of features required for operators, e.g., MPLS VPN capability, PoS interface, and powerful BGP capability.

New services are emerging daily, and technologies are developing, so the right balance needs to be found between services and technologies.

A true perspective into developments we can expect in the coming years should serve as a principle for users upgrading or building new networks. At present and in the near future, the 10G network platform will dominate the network landscape. Selected equipment however, must be scalable. The newly launched S8500, S6500 and S5600 not only embrace the current 10G network construction, but also by design, allow for future development, providing users with solutions that take care of both the present needs and requirements for building the networks of the future.

The S8500, S6500 and S5600 not only facilitate the current 10G network construction, but also allow for new developments to provide users with solutions for today – and for the future.