

SIG9800 Series

Service Inspection Gateway

With the development of ALL IP network and arrival of the 3G/LTE epoch, network services experience a significant change, and traditional telecom carriers are confronted with increasing challenges.

- **Weak service awareness:** weak awareness of applications and subscribers, causing the difficulties in business operation decision-making.
- **Poor network management:** insufficient capabilities over network management and control, causing continuous high expansion costs and poor subscriber experience.
- **Monotonous fee package:** fee package lack of personalization and differentiation, causing low attractiveness for high-value customers.
- **Shortage of value-added services:** lack of open cooperation and innovation on value-added services, causing the dilemma of operator's network channelization.

Based on the deep understanding of network development and carriers' service requirements, Huawei launches its SIG9800 series, which:

- Provides massive service processing capabilities and highly reliable service platforms by virtue of Huawei mature router platform.
- Provides powerful application and subscriber awareness capabilities, multi-dimensional service analysis, and assists in business operation decision-making.
- Provides multiple intelligent traffic management technologies to effectively optimize network traffic, simplify operations, and promote service quality.

- Provides differentiated services to realize "golden channel" for operation by means of diverse value-added services.
- Complies with 3GPP standards, and supplies an open service platform to construct an innovative commercial environment.



SIG9810



SIG9820

Product Features

Multi-dimensional service analysis, assisting in business operation decision-making

■ Leading protocol/application identification

Advanced identification technologies:

Supports multiple DPI intelligent identification technologies, exactly identify over 20 categories (such as P2P, VoIP, IM, Video, Game, and Stock), over 850 protocols & over one thousand applications, such as BT, Thunder, facebook, Skype, QQ, and MSN.

Flexible protocol customization: Supports flexible customization

capabilities to define new protocols and protocol groups.

Automatic upgrade of the knowledge base: Supports the knowledge base upgrade either automatically or manually, which does not interrupt services.

■ Perfect URL categorization

Rich URL category library: Contains 65,000,000+ URLs, 43+ categories, and 130+ sub-categories, 11 languages, such as Chinese, English, French, Russian, Spanish, Portuguese, and Arabic.

Flexible URL customization: Supports flexible customization capabilities to define new URLs and URL categories.

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Quick localization: Supports quick localization of the URL category library in a short period, and provides the automatic global synchronization and update capability of the URL category library.

■ Comprehensive subscriber identification capability

Identifies subscribers in various network, such as the fixed network, GSM/UMTS network, CDMA, Wimax, and WLAN, as well as in combination scenarios; exactly extracts subscriber information and other attributes such as the account/MSISDN/IMSI, IP address, access type, APN, location, and roaming status.

■ Powerful support for operation decision-making

The SIG has a professional report system, which supplies various traffic and service analysis reports to support decision-making for carrier's network planning, operation and maintenance, and business operation.

Third-party cooperation: Identifies hot websites and resources, extends cooperation with third-party vendors, and improves subscriber experience.

Market promotion: Traces mainstream mobile phone terminals, operating systems, and web browsers to provide decision-making reference for carrier market promotion.

Service package analysis: Analyzes subscriber traffic, distinguishes different subscriber groups and consuming habits, and launches differentiated service packages.

Network control and optimization: Analyzes traffic distribution and trend, and distinguishes low-valued traffic to provide decision-making reference for network optimization and control.

Intelligent traffic management, simplifying operations and improving service quality

■ Multi-dimensional traffic management

The multi-dimensional intelligent traffic management technology effectively optimizes network traffic, simplifies network maintenance, improves service quality, enhances subscriber experience, and reduces management costs.

Rich management objects: Supports rich management objects including common customers, VICs, areas, links, virtual tunnels (attribute group objects), AS domains, and IP subnets; customizes different bandwidth management policies.

Combined management methods: Supports granular combined traffic management by protocol/application, time, managed object, upstream/downstream, and traffic direction.

Diverse traffic control measures: Supports QoS remark, CAR, traffic shaping, connection control, page redirection/alarm, quota management, and traffic mirroring/redirecting.

■ Network element (NE) traffic analysis and control

The SIG analyzes and collects statistics on the traffic of such typical NEs as the GGSN, PDSN, SGSN, PCF, BST, and community. This helps carriers effectively identify hot network areas and implement BST capacity expansion or WLAN construction in these hot areas specifically. Moreover, the SIG identifies those congested NEs and controls their traffic accordingly. NE traffic analysis and control simplifies maintenance, improves service quality, and enhances subscriber experience.

■ Flexible URL filtering

Based on the powerful URL category library of Huawei, the SIG supplies rich URL-based analysis and statistic reports. It also can effectively filter out the websites containing pornography, violence, or malicious information to meet regulatory compliance requirements, purify the network environment, and improve network security. In doing so, carriers' social images are exalted, and carriers can also carry out related value-added services easily.

Diverse value-added services, realizing "golden channel" for operation

■ Green Net

Multiple value-added service capabilities: Provides carriers with the Green Net solution on the network side based on flexible control over subscribers and applications.

- **URL filtering:** Based on the URL category library, the URL access control capability (time + parental control) helps carrier filter out pornographic and violent information on the Internet, to construct a healthy Internet environment and exalt carriers' social images.
- **Application control:** Based on the DPI technology, the network application access control capability (time + parental control) helps carrier control applications such as online games and online chatting, to prevent Internet addiction and safeguard juvenile's growth.
- **Dynamic malicious URL filtering:** Based on the unique industry-leading dynamic malicious code detection technology, the dynamic malicious URL filtering capability helps carrier prevent malware such as viruses, Trojan horses, and spyware,

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to construct a secure environment for public.

Self-service Portal: The professional self-service portal enables subscribers to subscribe services by themselves and configure personalized service policies efficiently and easily.

Low TCO (Total Cost of Ownership) operation: Centralized deployment on the network side effectively avoids problems such as client installation, operating system adaption, and PC stability on the terminal side solution, therefore reducing deployment and operation costs.

■ FUP (Fair Usage Policy) service

Bandwidth abuse solution: The FUP service prevents a numbers of subscribers from consuming large numbers of bandwidths to ensure that the subscribers with the same service have the same experience, guides subscribers' using habits, and maximizes the usage of network resources.

Personalized and differentiated value-added services: The SIG supports subscriber- and application-based multi-level quota management. With the service, carrier can provide more personalized and differentiated services to enhance subscriber experience and attract more high-value subscribers.

3GPP standards compliance: The SIG, serving as the PCEF, interworks with the PCRF through the standard Gx interface to implement the FUP service.

■ Charging service

Application-based flexible charging: The SIG supports subscriber- and application-based online and offline charging by duration, traffic volume, or a combination of both. With the service, carrier can provide more personalized and differentiated services to enhance subscriber experience and attract more high-value subscribers.

3GPP standards compliance: The SIG, serving as the PCEF, interworks with the PCRF and OCS/CG/Billing system respectively through the standard Gx and Gy/Gz interfaces to implement online charging/offline charging.

■ Targeted advertisement operation service

Through the intelligent traffic mirroring capability, the SIG interworks with a third-party system to launch the targeted advertisement operation service. This business innovation brings a new profit source for carriers to share the big cake of Internet advertisement markets.

Open service platform, constructing a new innovative commercial environment

■ Compliance with 3GPP PCC standards

The SIG completely complies with 3GPP PCC international standards. It serves as the PCEF, and interworks with the PCRF, online charging system, offline charging system, and carrier's business system through Gx, Gy, and Gz interfaces to provide subscriber- and application-based FUP and charging service in wireless, fixed network, and combined scenarios.

■ Intelligent traffic mirroring

With the powerful mirroring capability, the SIG can mirror specific traffic to a third-party system (such as Huawei iCache system), which can reduce the processing pressure and investment of the third-party system, provide technical support for new value-added services, and make content-based commercial innovation possible.

High performance, high scalability, and low TCO

■ Industry-leading carrier-class hardware platform

Carrier-class router platform: Inherits excellent architecture features from Huawei high-end router platform.

High performance: Applies ASIC, NP, and multi-core technologies. The DPI service processing capability (throughput) of a single SIG reaches 100 Gbps on the fixed network and 80 Gbps on the wireless network.

High reliability: Applies rich redundancy design to boards and key components on the Front End and Back End; employs the professional bypass device to protect links against anomalies.

Low latency: Ensures less than 200 us latency, meeting the requirements of telecommunication services for low latency and prominent transmission. This performance is more outstanding than counterparts.

■ Scalable modular design

Smooth upgrade and ROI maximization: Provides various types of hardware boards. To expand the capacity, you do not need to replace the device, but only replace or add interface board and service board, which achieves the smooth upgrade. In so doing, the life cycle of the device is prolonged, carriers' ROI is maximized, and CAPEX&OPEX is reduced.

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Application Scenarios

Fixed network scenarios

On a fixed network, the SIG9800 can be deployed at the access layer, egress of the MAN/ provincial backbone, and interconnection interface/international gateway in in-line transparent mode. The bypass device is deployed to ensure the high reliability of links.

■ Deployment at the interconnection interface/international gateway

Customer challenges: limited egress bandwidth, network congestion, continuous bandwidth expansion pressure, high settlement fee between networks, and compliance with laws and regulations.

Solution highlight: The function of network egress traffic & direction analysis and control, or the application caching and accelerating solution (SIG + iCache), helps carriers reduce low-valued egress traffic, eliminate capacity extension pressure, reduce settlement fee between networks, and enhance subscriber experience. The function of URL filtering assists carriers in meeting the requirements of laws and regulations for filtering out pornographic, violent, and malicious information.

■ Deployment at the egress of the MAN/provincial backbone

Customer challenges: limited egress bandwidth, network congestion, continuous bandwidth expansion pressure, high

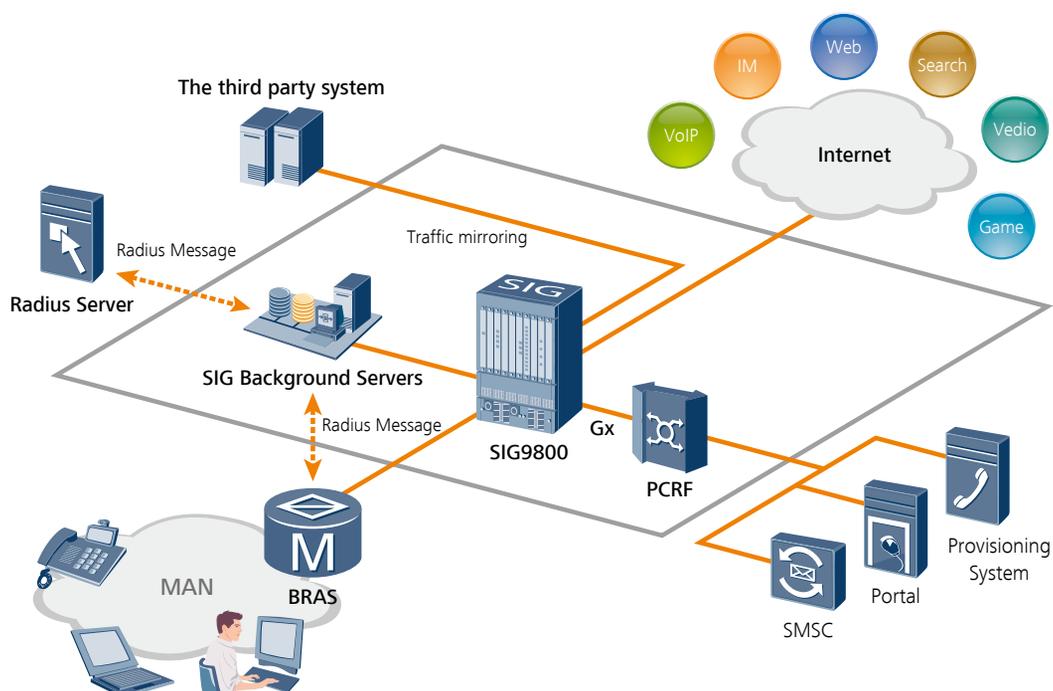
settlement fee between networks.

Solution highlight: The function of network egress traffic & direction analysis and control, or the application caching and accelerating solution (SIG + iCache), helps carriers reduce low-valued egress traffic, eliminate capacity extension pressure, reduce settlement fee between networks, and enhance subscriber experience.

■ Deployment at the access layer

Customer challenges: Weak awareness of subscribers and applications, network congestion, poor subscriber experience, monotonous service and fee, severe network channelization, and lack of value-added services.

Solution highlight: The function of multi-dimensional traffic & direction analysis helps carrier master the overall distribution and composition of subscribers, traffic, and services, and provides data support carrier's business operation decision-making. Multi-dimensional traffic optimization and management measures (such as QoS control and traffic shaping) resolve network congestion, improve network service quality, and enhance subscriber experience. Value-added services including FUP (by interworking with the PCRF), Green Net, and targeted advertisement operation service make it possible for carriers to launch more personalized service packages, carry out commercial innovation, and create new profit sources.



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Wireless network scenarios

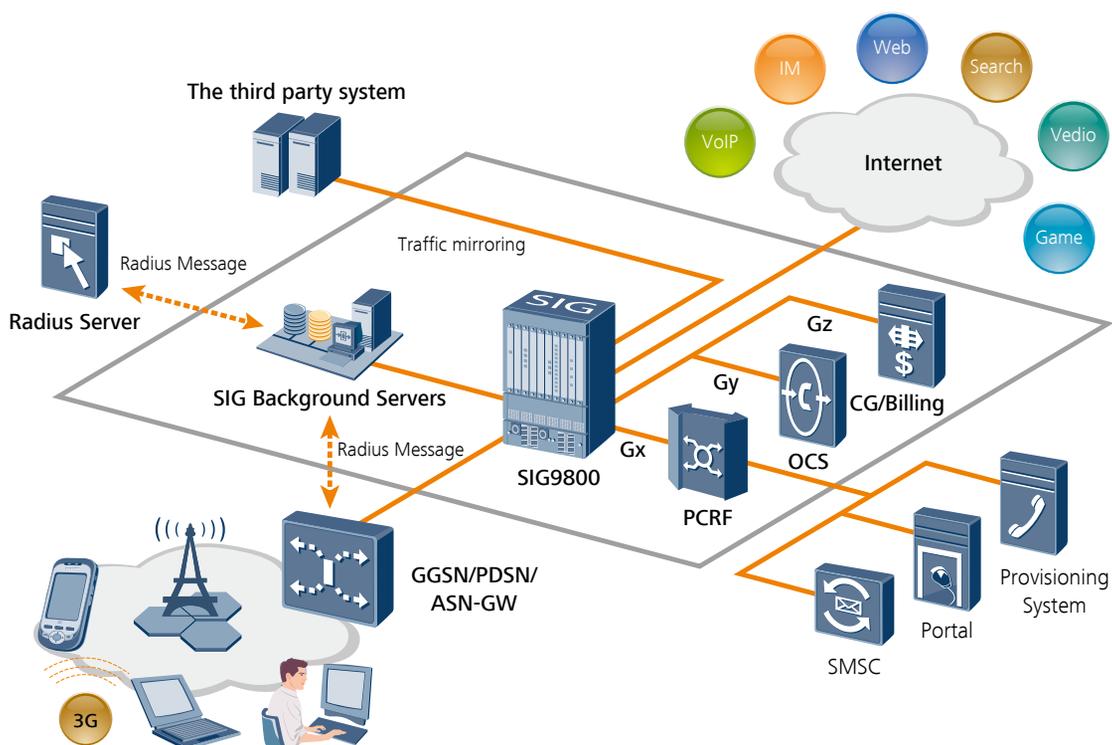
On a wireless network, the SIG9800 can be deployed at the Pi interface, Gi interface, or ASN-GW egress in in-line transparent mode. The bypass device is deployed to ensure the high reliability of links (optional in the charging scenario).

■ Deployment at the Pi interface/Gi interface/ASN-GW egress

Customer challenges: Weak awareness of subscribers and applications, network congestion, poor subscriber experience, and requirements for personalized and differentiated flexible charging.

Solution highlight: The function of multi-dimensional traffic &

direction analysis helps carrier master the overall distribution and composition of subscribers, traffic, and services, and provides data support carrier's business operation decision-making. Multi-dimensional traffic optimization and management measures (such as QoS control and traffic shaping) resolve network congestion, improve network service quality, and enhance subscriber experience. Value-added services including FUP (by interworking with the PCRF), and online/offline charging (by interworking with the PCRF and OCS/Billing system) make it possible for carriers to launch more personalized service packages, provide application-based flexible charging, and carry out refined network operation.



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Product Specifications

Item	Specifications		
Model	SIG9810	SIG9820	
Power consumption	< 2600 W		< 5000 W
Power	AC input (rated)	200 V AC to 240 V AC; 50/60 Hz	200 V AC to 240 V AC; 50/60 Hz
	AC input (maximum)	90 V to 275 V; 50/60 Hz	190 V AC to 264 V AC; 50/60 Hz
	DC input (rated)	-48 V DC	-48 V DC
	DC input (maximum)	-75 V to -38 V	-38 V to -72 V
Dimensions (WxDxH)	442mm×669mm×886mm (20 U)		442mm×669mm×1600mm (36 U)
SPU/LPU slot	8 slots per device		16 slots per device
LPUK interface	10 GE LAN/10 GE WAN/10G POS subcard		
	12×GE (optical) subcard		
	12×10/100/1000 Mbit/s (RJ-45 electrical) subcard		
Maximum processing capability	Fixed network: 50Gbps Wireless network: 40Gbps	Fixed network: 100Gbps Wireless network: 80Gbps	
Maximum number of concurrent connections	Fixed network: 40M Wireless network: 32M	Fixed network: 80M Wireless network: 64M	
Number of new connections per second	Fixed network: 2M Wireless network: 1.6M	Fixed network: 4M Wireless network: 3.2M	
Latency	< 200 us		
Operating temperature	Long period: 0°C to 45°C Short period: -5°C to +55°C	Long period: 0°C to 45°C Short period: -5°C to +55°C	
Ambient humidity	Long period: 5% to 85% Short period: 0% to 95%	Long period: 5% RH to 95% RH, non-condensing Short period: 0% RH to 95% RH, non-condensing	

Note: The device performance specifications above are obtained depending on the typical configuration. The actual specifications are subject to the service types.

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