

HUAWEI ENTERPRISE ICT SOLUTIONS **A BETTER WAY**

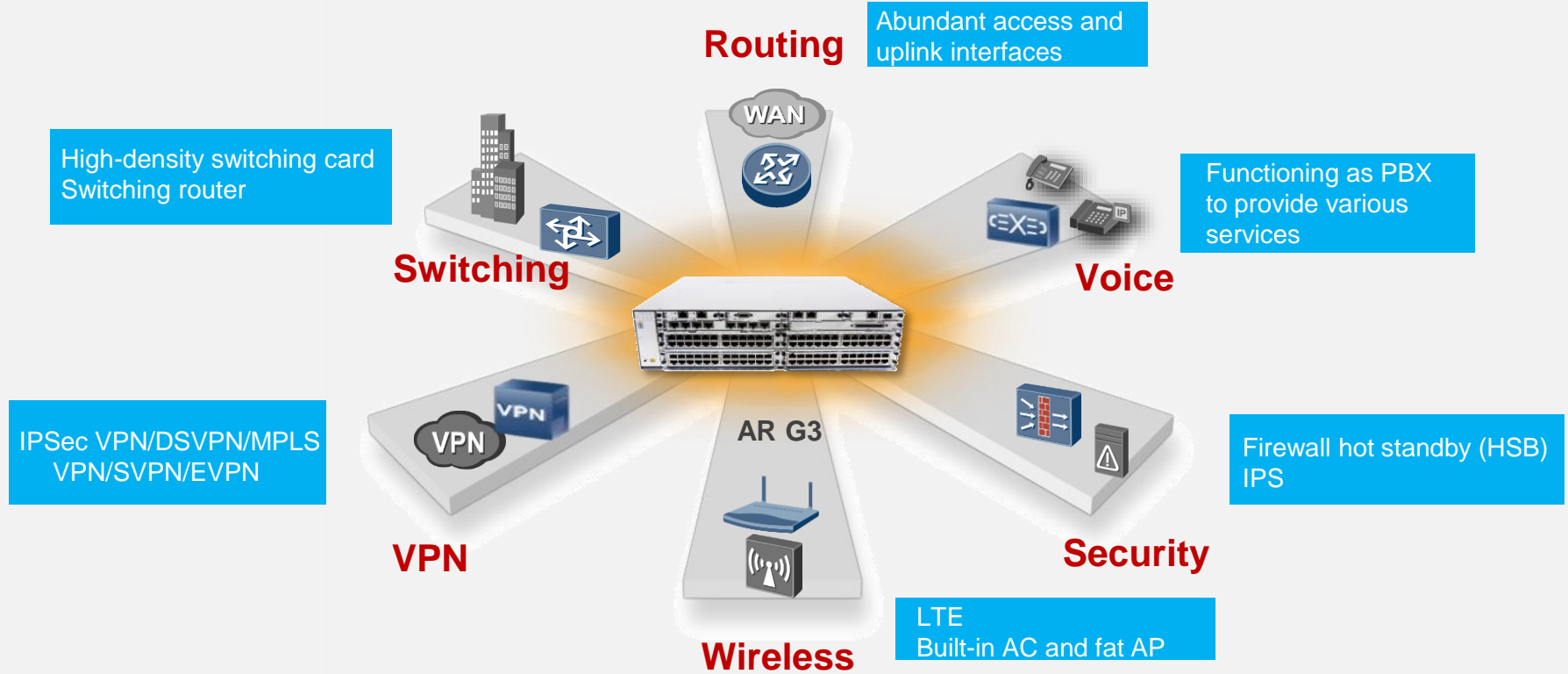
Линейка мультисервисных маршрутизаторов AR G3

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HUAWEI TECHNOLOGIES CO., LTD.



All-in-One, Reducing at Least 30% TCO



Integrated six key techniques, the AR G3 has powerful functions.

Abundant Interfaces, Allowing Flexible Access

Enterprise branch

Egress gateway

WAN interconnection

Abundant access interfaces Adapting to various terminals



Data interface

- FE/GE
- SA/AS
- Wi-Fi



Voice interface

- FXS/FXO
- ISDN
- VE1



AR120&150&160&200



AR1200



AR2200



AR3200

Plenty of uplink interfaces Flexible WAN interconnection



Wired interfaces

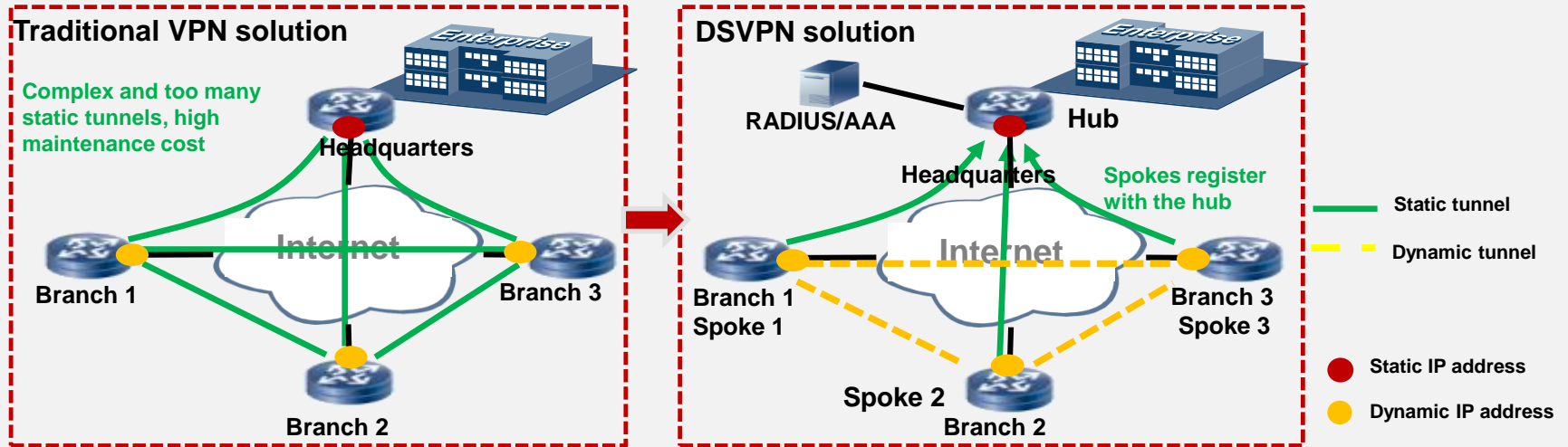
- EPON/GPON
- ADSL2+/VDSL2/G.SHDSL
- E1/E3
- PRI/BRI/FXO
- POS/CPOS
- FE/GE/10GE
- SA/AS



Wireless interfaces

- 2G/3G
- LTE

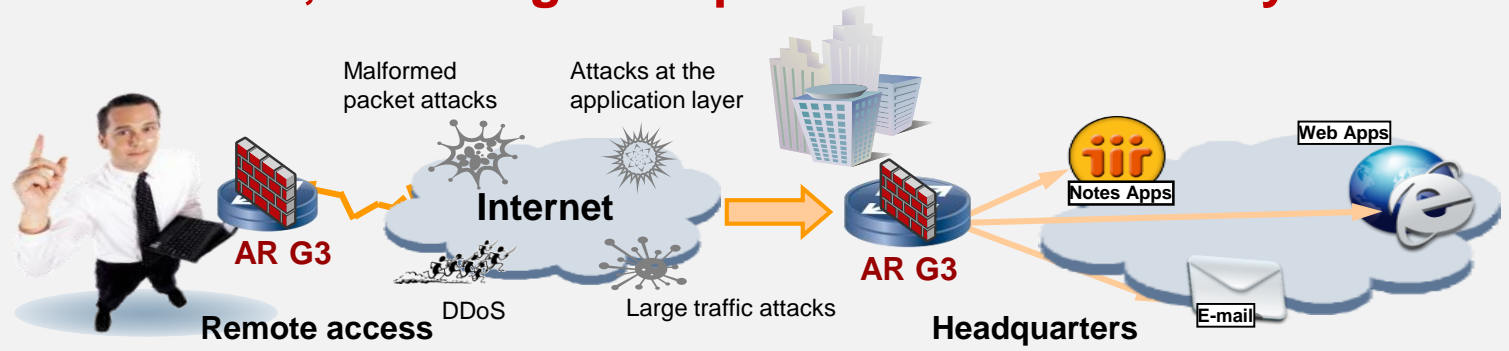
DSVPN Deployment



Dynamic deployment, easy access from multiple branches

- Establishes and maintains tunnels between devices that dynamically acquire IP addresses and provides identity authentication, encryption for control packets and IPSec for data packets to ensure data security. Supports IP multicast, dynamic routing, NAT traversal, voice, video and non-IP traffic.
- Reduces the load of hubs and is applicable to large enterprise VPN networks with multiple branches.
- Facilitates deployment and maintenance with simple configuration on hubs and spokes.

Integrated Firewall, Ensuring Enterprise Network Security



■ Firewall throughput (Mbit/s)

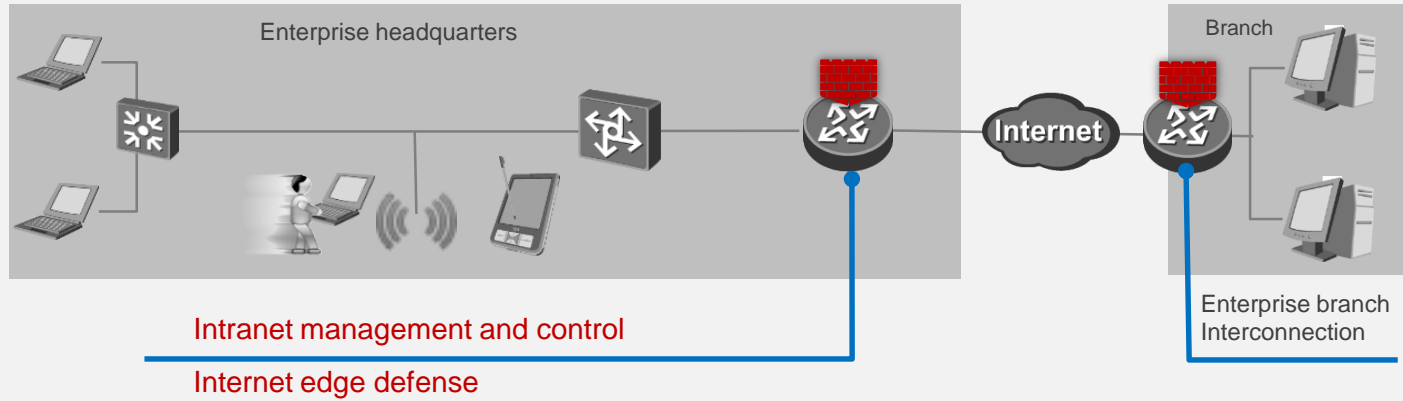


Security guarantee

- Security domain
- Packet filtering firewall
- Application specific packet filter (ASPF)
- Blacklist and white-list
- Firewall logs
- Traffic statistics collection and monitoring
- Attack defense

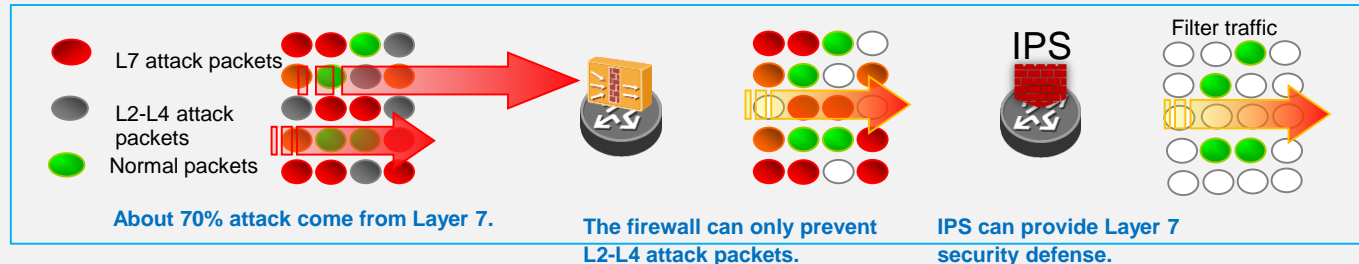
Secure Enterprise Gateway – IPS Enhances Security

Satisfy the security demands of government, finance, and education industries

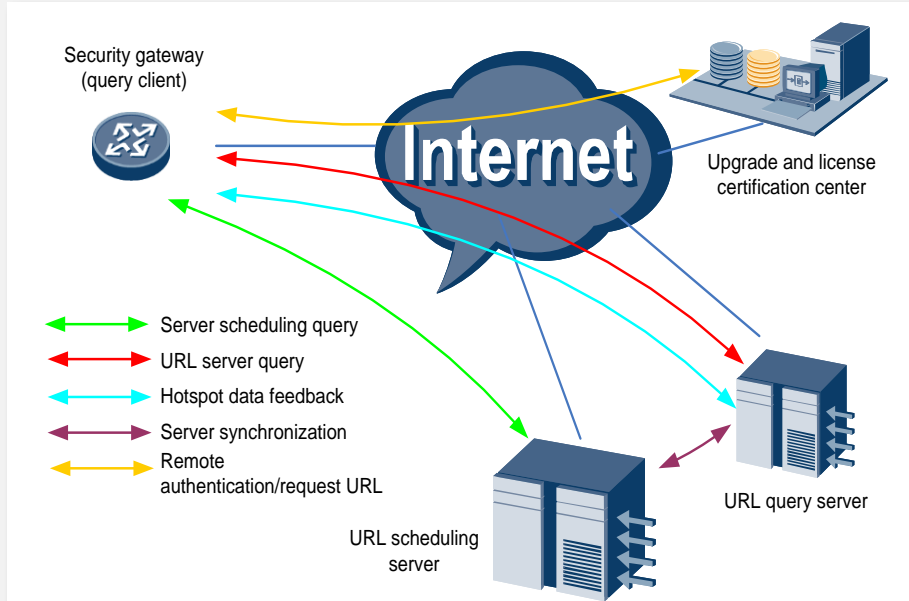


IPS

- ◆ Attack detection of **1200+ signature databases**, up to **90+%** detection rate of false positives
- ◆ Online database upgrade
- ◆ IPS signature database includes **Trojan horses, worms, Botnets, spyware, vulnerabilities, web attack, and so on.**
- ◆ The AR integrates IPS, so there is no need to deploy fault detection points. The operation costs are saved.



Fine-granular Management and Control of Internet Access – URL Filtering



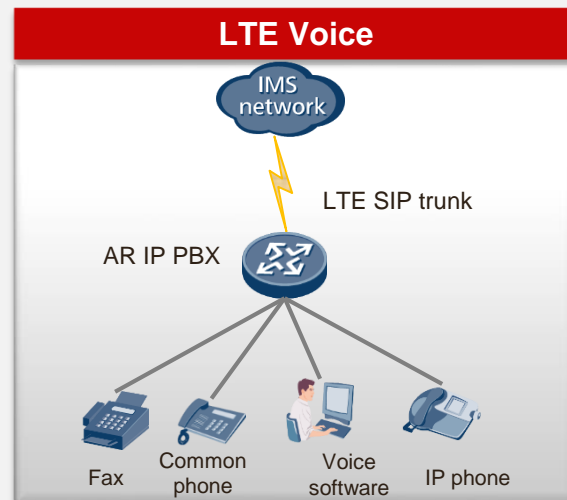
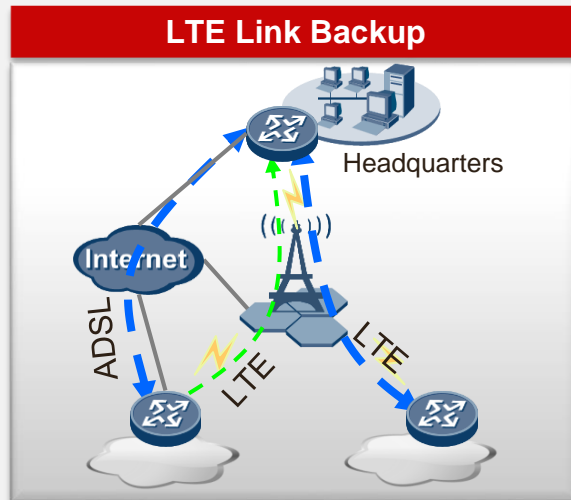
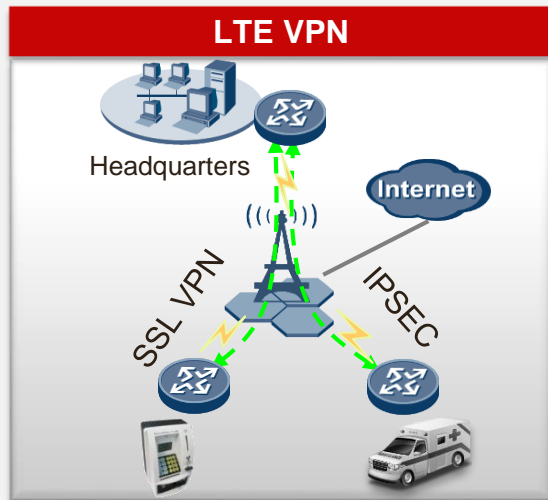
Define Different web access control policies for users

Department A					
Department B					
		Block malicious and phishing URLs			

Industries such as education and government demanding fine-granular management and control: To accurately manage online behaviors of users, a URL filtering profile defines the **whitelist, blacklist, and predefined and user-defined URL categories** to control URLs.

- Accurate** Accuracy: **96%**
- Fast** Remote URL server: URL category database update in a timely manner
- Fine-granular** Fine-granular pre-defined categories: **130+**

Wireless 3G/4G Uplink, Wireless Branch Setup



Two Main Scenarios

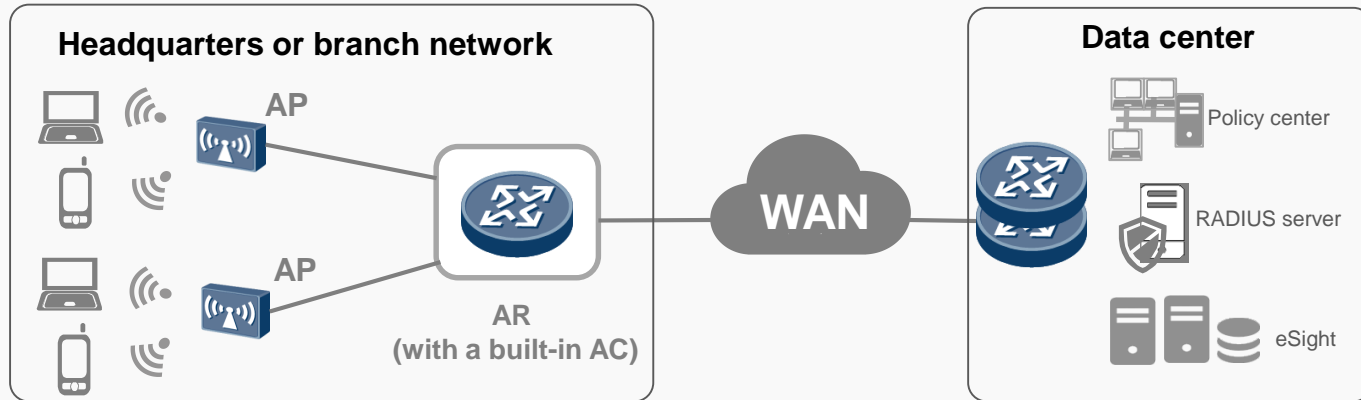
- ◆ **LTE VPN interconnection:** wireless access scenarios such as bank ATM interconnections, mobile office, and mobile vehicle-mounted scenario
- ◆ **LTE link backup:** During enterprise branch interconnections, the wireless link is used as the backup link to transmit voice and data services, ensuring service reliability.



Two LTE Modes

- ◆ **FDD LTE** and **TDD LTE**
 FDD LTE: uplink bandwidth 50 Mbit/s, downlink bandwidth 100 Mbit/s
 TDD LTE: uplink bandwidth 18 Mbit/s, downlink bandwidth 61 Mbit/s
- ◆ LTE cards and next-generation AR160 series LTE routers (AR161FG-L and AR161FGW-L)

Built-in AC, Reducing Wi-Fi Deployment Costs



Application scenarios

- Applies to integrated wired and wireless networking of small- and medium-scale enterprises.
- Supports AP local forwarding and centralized user authentication on the AR.
- The APs can connect to the AC across a Layer 2 or Layer 3 network.

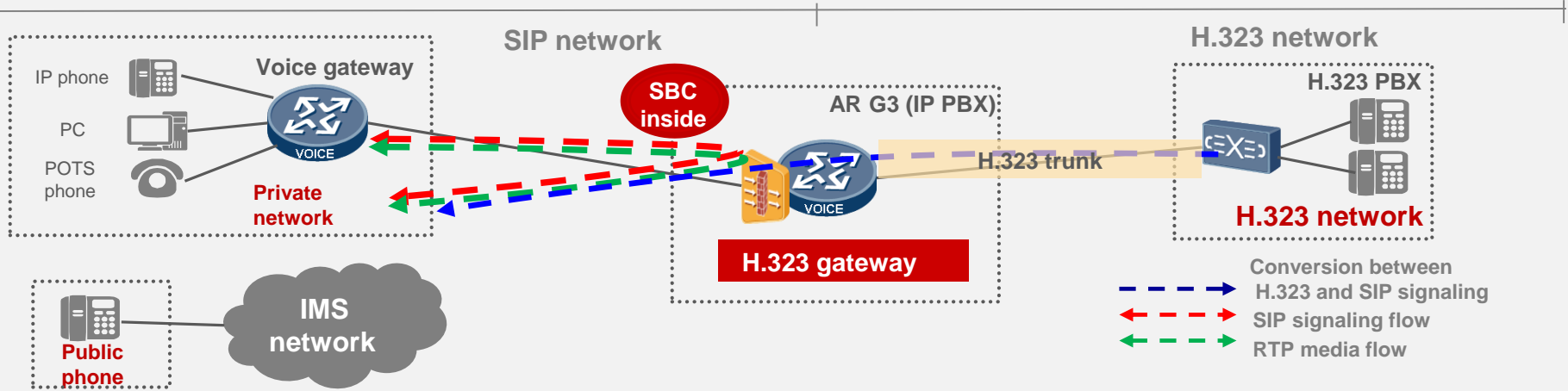
Secure and flexible access

- Portal authentication
- 802.1x authentication
- MAC address authentication
- Intra-VLAN/Inter-VLAN roaming on the same AC

Industry's first built-in AC

- All series AR routers support the built-in AC function.

H.323 Gateway&Built-in SBC, Flexible Networking



Built-in SBC

- Functions as the media and signaling proxy, allowing transmission of IP voice data across different subnets.
- Connects enterprise users to the VoIP network of the carrier, ensuring private service transmission.

H.323 gateway/gatekeeper

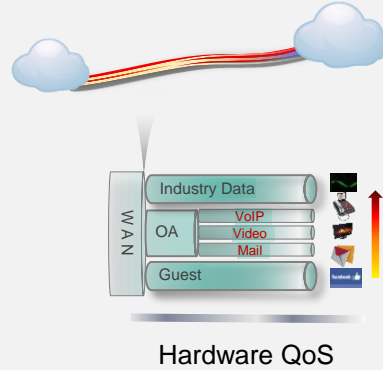
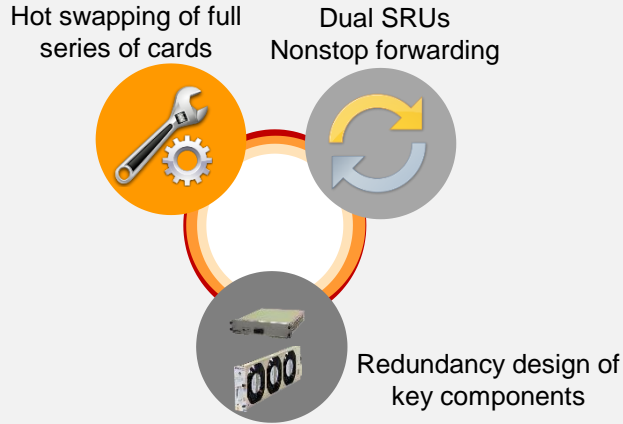
- Converts H.323 signaling to SIP signaling and connects to gateways or gatekeepers on the original H.323 network.
- Be compatible with the original H.323 voice system, increasing return on investment.

H.323 trunk

- Supports the H.323 trunk.
- Implements communication across networks.

2 Most Reliable Router

Comprehensive Security Guarantee



Device-level Reliability

- Hot swapping
- Redundancy of fan and power modules
- Dual SRUs
- Nonstop forwarding technologies: NSF/GR

Network-level Reliability

- QoS, guaranteeing reliable transmission
- Link backup and load balancing
- Link fault detection and link recovery

Service-level Reliability

- Security defense, preventing unauthorized access
- Visualized management, fine-granular management and control
- Certification by authoritative certification companies

Carrier-level Device Reliability

Key reliability technologies



Hot swap cards



Power module redundancy



Fan redundancy



SRU redundancy

1

- Online maintenance and upgrade
- More services
- More access users
- More functions

2

- Stable power input
- Sufficient power supply
- Ensuring normal running of devices

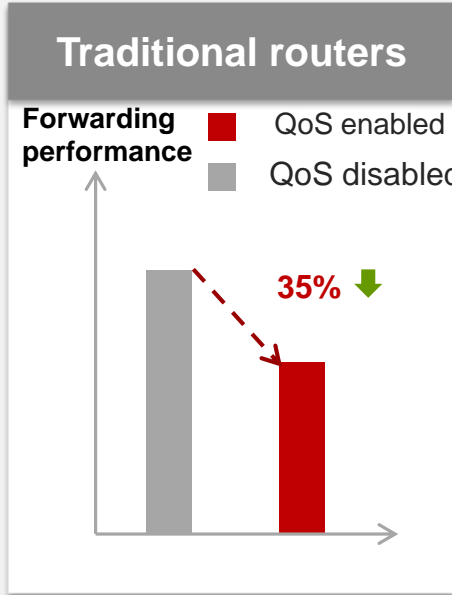
3

- Timely heat dissipation
- Protecting devices against high temperature
- Preventing chips and cards from being burnt

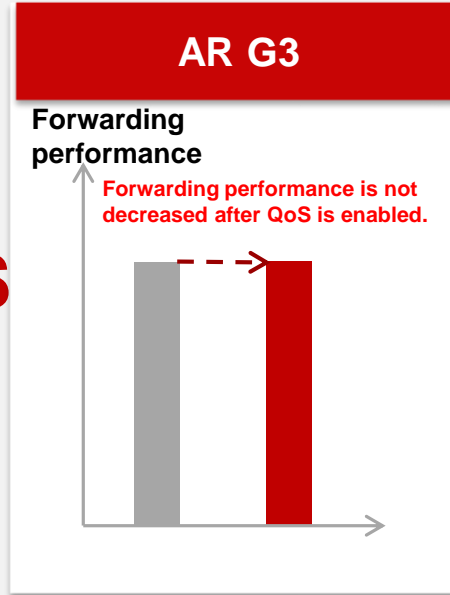
4

- Two SRUs working in 1+1 backup mode
- Restoration in a short period
- Avoiding service interruption

Hardware-level QoS, High Forwarding Performance



VS



High performance SRUs



- AR G3 uses **hardware-level QoS** of high-end routers.
- HQoS ensures service quality **without compromising forwarding performance**.



Effective cooperation



Smooth voice communication

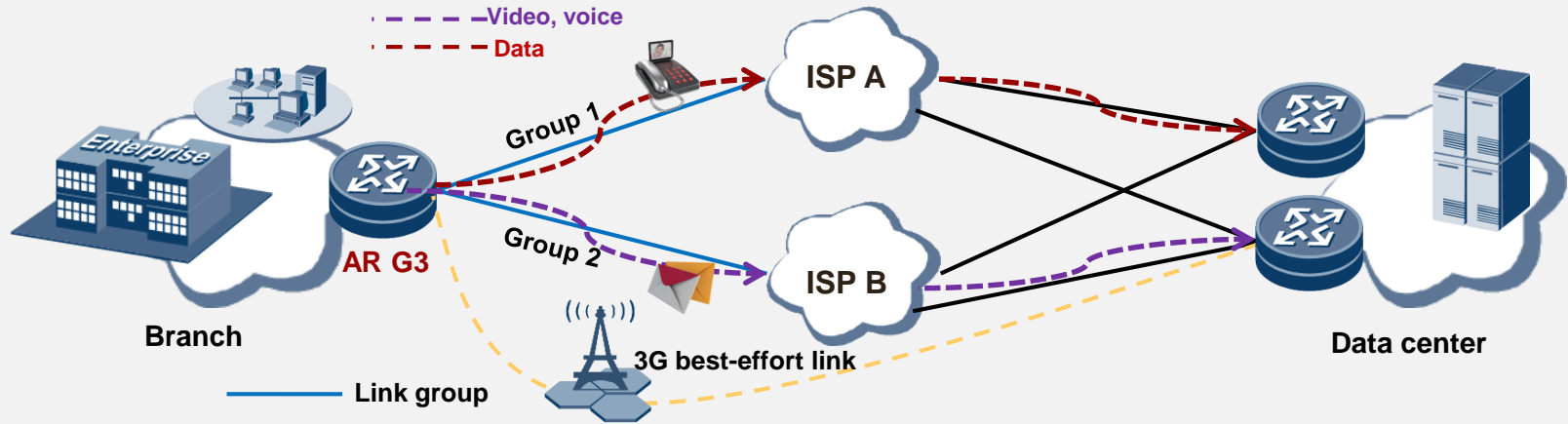


Seamless video conference



High-quality UC

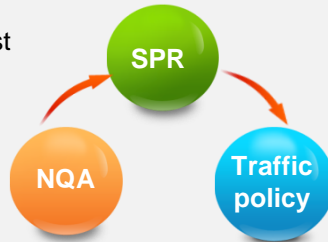
Smart Policy Routing for Multi-link Load Balancing



The traditional routing policies select the shortest path as the route, regardless of the path quality.



Different types of key services such as voice, video, and data require routes of different quality demands.



NQA is the basis of SPR and is used for path quality detection.

Traffic policy identifies key services and selects proper paths for these services.



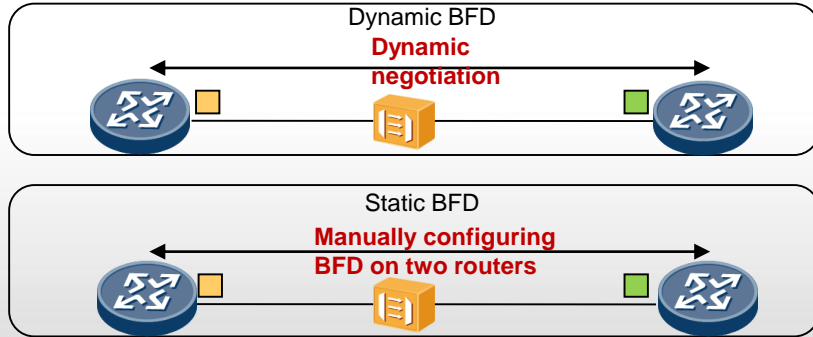
SPR selects the optimal path to forward service data, preventing network blackholes and flapping.



SPR provides high-quality links for key services.

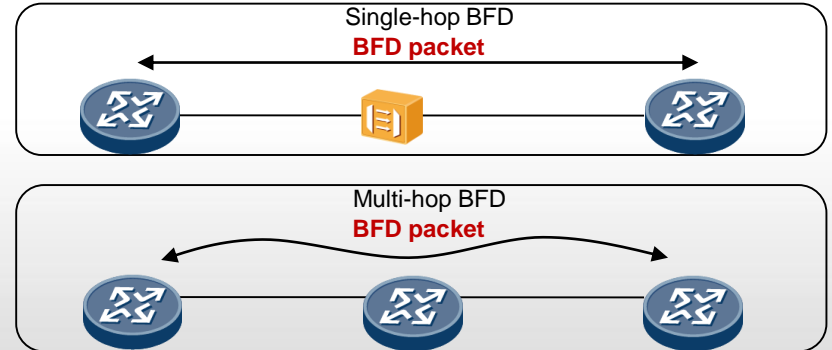
BFD Improves Network Reliability

Static/Dynamic BFD



Huawei supports dynamic BFD and **static BFD**, which extends the IEIF standard. To use static BFD, you need to manually specify local and remote discriminators.

Single-hop/Multi-hop BFD



Single-hop BFD: Detects faults of direct links between routers on the same network segment.

Multi-hop BFD: Detects faults of indirect links between routers on different network segments.

- BFD provides fast fault detection independent of media and routing protocols. It detects link faults between neighboring network devices.
- BFD detects faults at an interval of **10 ms** and can detect a fault within **30 ms**.
- BFD implements millisecond-level fault detection, reducing service interruption duration and improving network reliability.

Open Service Platform



SAE550

Hard disk: 1TB; memory: 16 GB
 Fixed ports: 2*GE + 1*VGA + 2*USB
 Processor: dual-core, 2.7 GHz



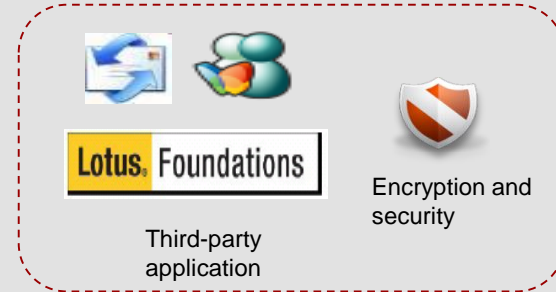
SAE220

Hard disk: 1TB; memory: 4 GB
 Fixed ports: 2*GE + 1*VGA + 2*USB
 Processor: dual-core, 1.1 GHz

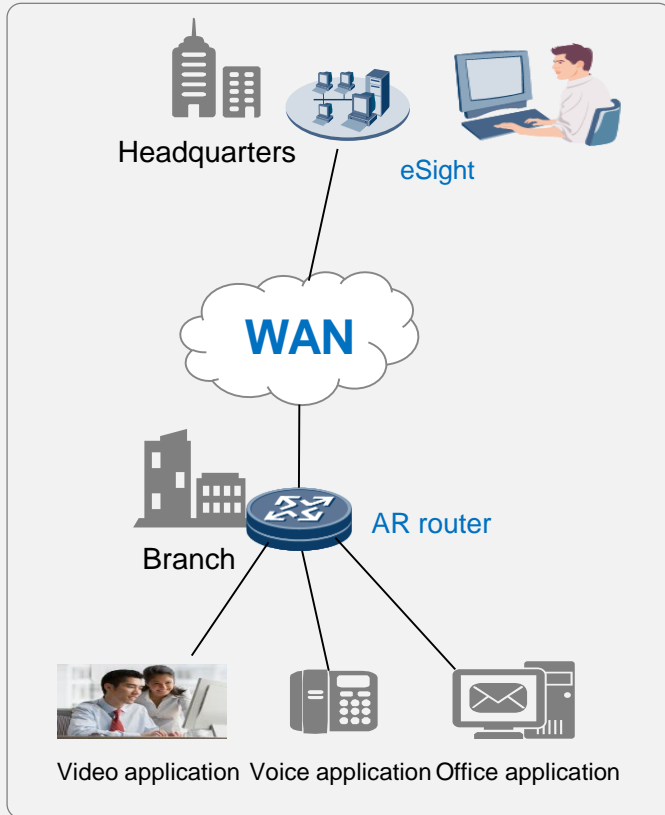
SAE: Service Accelerated Engine

OSP Card

- ◆ X86 architecture, high-performance server platform
- ◆ Supporting mainstream operating systems: Linux, Windows server, and VMware virtualized OS
- ◆ Flexible cooperation mode
 - Development by a third party and Huawei
 - Agent development
 - Customer development



eSight - Unified Network Management System (NMS)

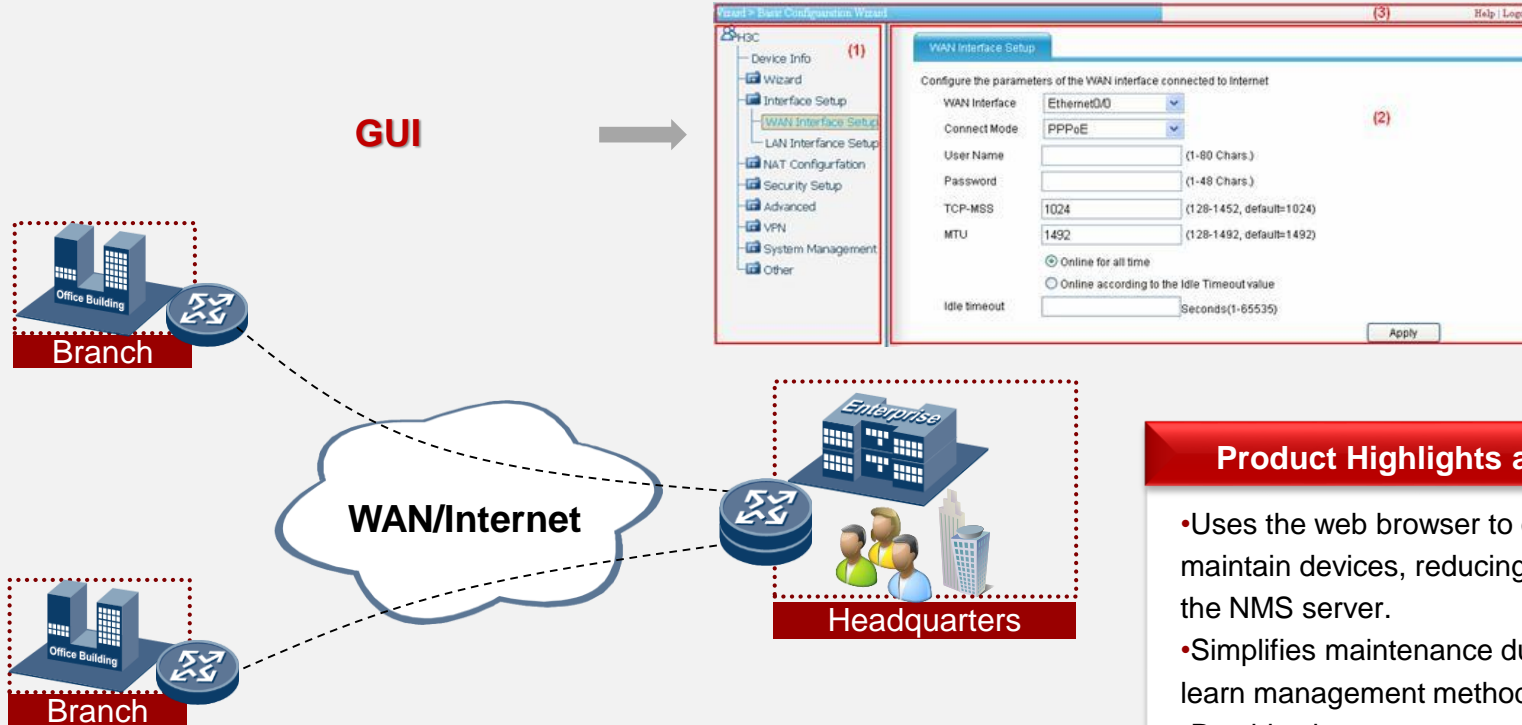


eSight Lightweight enterprise NMS

- **Visualized devices:** visualized management of devices including switches, routers, and printers
- **Visualized traffic:** refined traffic management of Top N application traffic and ToP N host information
- **Visualized quality:** E2E visualized SLA evaluation of the latency, packet loss, and jitter of data packets to promptly detect network problems
- **Visualized service:** E2E MPLS VPN visualized management

eSight can manage full series of AR routers.

Web-based NMS, GUI-based O&M



Product Highlights and Benefits

- Uses the web browser to configure and maintain devices, reducing investments on the NMS server.
- Simplifies maintenance due to the easy-to-learn management method.
- Provides better user experience with GUI-based operation and maintenance.

AR Series Models

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AR3200 series

Headquarters/Large-scale branch (>350 users, Up to 5.5 Gbit/s)



AR2200 series

Medium-scale branch (50-350 users, 400,800,1000Mbit/s)

AR2201-48FE/
AR2202-48FE



AR2204-27GE/
AR2204-27GE-P/
AR2204-51GE-P



AR2220



AR2220E



AR2240/AR2240C



NEW

NEW

AR1200 series

Small-scale branch (<50 users, 200,400Mbit/s)

AR1220



AR1220C



NEW

AR1220F



AR1220V



AR1220E/AR1220E
V/AR1220EVW



AR1220W/
AR1220VW



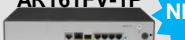
AR150&160&200 series

SOHO&SMB (<30 users, 100,150Mbit/s)

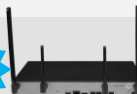
AR201



AR161/AR161F
AR161FW/AR161W/
AR161FV-1P



NEW



AR161FG-L/
AR161FGW-L/
AR161G-L/
AR161FGW-La



AR121/AR121W/AR151/AR151W-P
/AR 151G-HSPA+7
FE/GE



AR207/207G-
HSPA+7/207V/207V-P



NEW



AR156/AR156W/AR157
G-HSPA+7/AR 157W
/AR157VW

ADSL2+

AR208E

AR168F



AR158E/
AR158EVW

G.SHDSL

AR169/AR169F/AR169W



AR169FGW-L
AR169FVW
AR169G-L



AR169FGW-L

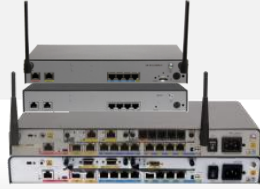
AR129/AR129W



VDSL2

Multi-core Architecture, High Performance and Service Processing Capability

All series support multi-core



AR150&200&1200
(2-core)



AR2200
(4-core)



High performance SRUs
(6-core to 32-core)



OSP
Multi-core architecture



N engines working together, performance increased N times



Optimized packet forwarding commands, speeding up forwarding and processing of data packets

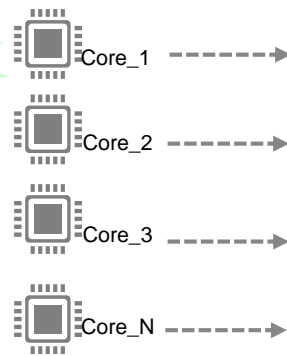
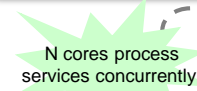


Built-in hardware acceleration engine, ensuring high performance



OSP with X86 architecture

Improving service processing capability



Concurrently processing different services



Preventing interference between services



Industrial Switching: AR550/2504 Series

Item	AR550-8FE-D-H	AR550-24FE-D-H	AR2504-H
Fixed Ethernet interface	4GE Combo + 8 FE RJ45	4GE Combo + 24FE RJ45	4GE combo + 4GE RJ45 + 2*10GE SFP
Slot	-	-	2 WSIC
Interface card	-	-	8GE RJ45 8GE SFP
Switch performance	Line rate for all ports		
DO	1	1	1
USB 2.0	1	1	1
IP protection	IP40	IP40	IP30
Power input	Dual DC Input: 9.6 V to 60 V		Dual power: 100 V to 240 V AC/DC
Operating temperature	-40°C to +70°C		-40°C to +60°C
Operating humidity	5% to 95%	5% to 95%	5% to 95%
Dimensions (W x D x H)	150 mm x 97 mm x 133 mm	150 mm x 133 mm x 133 mm	442 mm x 420 mm x 44 mm
Installation	DIN rail	DIN rail	Rack installation



AR550-8FE-D-H



AR550-24FE-D-H



AR2504-H

IP40 – защита от предметов $\geq 1\text{mm}$

IP30 – защита от предметов $\geq 2,5\text{mm}$

Industrial Switching: AR530 Series

Item	AR531-2C-H	AR531-F2C-H	AR531GR-U-H	AR531GPe-U-H	AR531G-U-D-H	AR531GZ-U-D
WAN	2GE (SFP)	2GE (SFP)	2GE (SFP)	2GE (SFP)	2GE (SFP)	2GE (SFP)
LAN	6*FE 10/100 Mbps (RJ45) + 2*FE 100 Mbps Combo	6*SFP 100 Mbps + 2*FE 100Mbps Combo	6*FE 10/100 Mbps (RJ45)	6*FE 10/100 Mbps (RJ45)	6*FE 10/100 Mbps (RJ45)	6*FE 10/100 Mbps (RJ45)
3G	-	-	WCDMA (dual SIM, main/backup)	WCDMA (dual SIM, main/backup)	WCDMA (dual SIM, main/backup)	WCDMA (dual SIM, main/backup)
NAN	-	-	ZigBee (2.4 GHz)/ RF (170, 433, 915 MHz)	Hi-PLC/ S-FSK PLC	-	BPL
Other interface	2*RS485, 2*DI, 1*console, 1*USB2.0					
Memory	512 MB					
FLASH	512 MB					
Power input	AC: 100 V to 240 V (single-phase) @ 50/60 Hz 173 V to 415 V (three-phase) @ 50/60 Hz				DC: 9.6 V to 60 V (dual inputs)	
Working temperature	-40°C to +70°C		-40°C to +60°C			
Dimensions	W x D x H: 88 mm x 250 mm x 220 mm					



AR531-2C-H

AR531GPe-U-H



AR531GZ-U-D



AR531GR-U-H



AR531F2C-H

- Wide temperature -40°C to +70°C
- Ingress protection: IP51
- IEC61850-3/IEEE1613

IP51 – защита от предметов $\geq 1\text{мм}$ и вертикальных капель

Product Position



**AR200/AR160
/150/120**



AR1200



AR2200



AR3200



ISR8xx



ISR1900



ISR2900/ ISR3925/3925E



ISR3945/3945E/ISR4450



ISR4321/4221



ISR4331/4351/4431



ISR4451-X



MSR 9x0



MSR 1003-8

MSR2003



MSR 3012/3024/3044/3064



MSR 4060/4080





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