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NETF, specjalizujemysię w sprzedaży zaawansowanej infrastruktury IT. Znajdą tu Państwo szeroki asortyment produktów od czołowych światowych producentów sprzętu i oprogramowania IT, w tym H3C, Huawei, Cisco, Juniper, Fortinet, a także Dell, IBM, CommVault i ESET. Dzięki współpracy z tymi renomowanymi partnerami, NETF zapewnia swoim klientom dostęp do najnowocześniejszych rozwiązań technologicznych.

Bezpieczeństwo,
Efektywność,
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Grupa **NETF**, Netfront, Infopower, Agropower
Sukces poprzez profesjonalizm i doskonałość

H3C MSR3600

Series Router

Branch Router

Release Date: August 2024

New H3C Technologies Co., Limited

Product overview

As SDN, cloud computing, and AI technologies bring revolutionized changes to the networking landscape, a growing number of enterprises are driving digital business transformation, which requires enterprise WANs to provide the following capabilities:

- SDN-WAN capacity—Provides visibility into link quality and business traffic on the WAN, and allows management, control, and scheduling of business traffic, and enables good use experience with enterprise businesses.
- Higher network performance—Increased complexity of traffic models driven by development of enterprise businesses requires more converged and diversified network services. Network devices must provide higher forwarding capacity to align with the growing needs.
- Simple, automated network management—Simplifies network device management and maintenance, improves efficiency, and reduces management costs.

To embrace these opportunities and challenges, H3C has developed new-generation MSR3600 router series based on ten years of experience in enterprise and carrier network construction and profound technology accumulation. The router delivers the following features:

- Uses the industry-leading high-performance multi-core processor, which offers outstanding concurrent service processing capability in combination with H3C's advanced software and hardware architecture.
- Supports a full range of SD-WAN features including OpenFlow, telemetry, segment routing, NETCONF, and zero-touch provisioning (ZTP) and can work in conjunction with H3C AD-WAN controllers to deliver extraordinary SD-WAN management and use experience.
- Integrated with H3C IMC, the router provides centralized management and monitoring of devices, bulk software upgrade, automated configuration deployment, configuration rollback, and fault alarming, improving O & M efficiency and reducing the TCO significantly.
- Employs rich VPN interconnect technologies, including IPSec, L2TP, and ADVPN and robust encryption algorithms to provide secure VPN access in various scenarios.

H3C MSR3600 routers include the following models: MSR3610-X1, MSR3610E-X1/-DP, MSR3620-DP, MSR3620-X1, MSR3640-X1 and MSR3640-X1-HI.

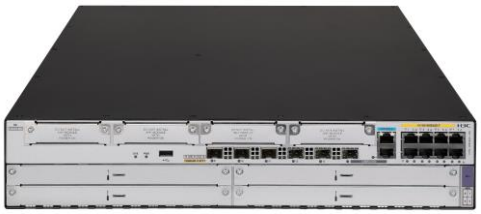
H3C MSR3610-X1 router

MSR3610E-X1

MSR3610E-X1-DP

H3C MSR3620-DP router

MSR3620-X1 router



MSR3640-X1 router

MSR3640-X1-HI router

Features and benefits

Advanced technologies

- H3C's state-of-the-art Comware network operating system—Provides intelligent service scheduling and management mechanism, supports loose coupling of service modules, and enables dynamic loading of processes and patches.
- Industry-leading multicore processor—Improves concurrent service processing capability remarkably with non-blocking switching architecture.
- Routing matrix architecture—Separates the routing plane from the switching plane and enables high-speed data transmission.
- Variety of acceleration engines—Accelerates service processing significantly by engines such as data encryption engine and voice DSP processing engine.

Full support for SDN

The router supports a full range of SDN features, including:

- Flexible management—Supports management and control protocols such as OpenFlow, Telemetry, and NETCONF and allows management from H3C AD-WAN or third-party controllers.
- Powerful forwarding capability—Supports advanced forwarding and routing technologies such as segment routing, VXLAN, and EVPN and allows customization of multiple forwarding models to adapt to different business requirements.
- ZTP—Supports ZTP through URL, USB drive, and DHCP to enable fast, bulk, and low-cost deployment.
- DPI—Provides precise traffic identification and enables traffic visibility, customization, and flexible orchestration.
- SR/SRv6—Supports the EVPN L2VPN over SRv6 policy/BE and EVPN L3VPN over SRv6 policy/BE networking solutions.

High security

The router employs the following advanced features to ensure high security:

- Rich security rules—Supports filtering rules based on 5-tuple, ASPF state, MAC address and URL, domain-based firewall rules, and IPS rules.
- Diversified VPN technologies—Supports IPsec, L2TP, GRE, ADVPN, MPLS VPN, and combination of multiple VPN technologies.
- Endpoint access security—Provides strict access control for endpoints through 802.1X/portal authentication, endpoint admission defense (EAD) solution, and endpoint MAC address authentication.
- DDoS attack protection—Guards against SYN, ACK, RST, and UDP flood attacks.
- Secure device management—Provides flexible and secure control of permissions by managing permissions based on roles, assigning resources based on roles, and mapping users to roles.
- Traffic control on the control plane—Allows customization of protocol messages for traffic control and filtering.

Granular control

- Uses granular identification and control to rate limit and filter application layer services and ensure bandwidth and provides detailed network statistics for network optimization.
- Supports equal cost multiple path (ECMP) and unequal cost multiple path (UCMP) load balancing. UCMP allows the device to perform bandwidth-based load balancing.

Intelligent network management

- The router supports multiple network management methods, including Telnet/SSH, SNMP, TR069, and NETCONF.
- With EAA, the router allows you to define monitor policies with Tcl and Python scripts to monitor the internal events and status of the system's software and hardware components and execute the pre-defined actions in response to specific events automatically.

High availability

The device provides the following high availability features:

- Bidirectional forwarding detection (BFD), which can collaborate with static routing, RIP/OSPF/BGP/ISIS dynamic routing, VRRP, and interface backup through the track module.
- Network quality analyzer (NQA), which can collaborate with static routing, VRRP, and interface backup through the track module.
- Multi-device redundancy and load balancing (VRRP/VRRPE).

Network virtualization

- The router takes the lead in employing Intelligent Resilient Framework 2 (IRF2), an advanced technology for virtualizing two devices into one logical device, which significantly decreases networking complexity, reduces the operation and maintenance cost, enhances bandwidth and equipment utilization, and improves management efficiency.
- With multi-chassis link aggregation, the router enables load balancing and backup among multiple uplinks, enhancing reliability of the overall network architecture and improving link resources efficiency.

Environment friendly

- Compliant with the RoHS standard.
- Improved space efficiency with an advanced air aisle design.
- Minimized fan tray noises and power consumption with the automated multi-level fan speed regulation solution.

Technical specifications

Hardware specifications

Item	MSR3620-X1	MSR3640-X1	MSR3640-X1-HI
IP Forwarding Performance (IMIX)	25 Gbps	25 Gbps	38 Gbps
Forwarding	11 Gbps	12 Gbps	17 Gbps

Item	MSR3620-X1	MSR3640-X1	MSR3640-X1-HI
Performance with ACL+NAT+QOS (IMIX)			
IPSec Forwarding Performance (1400byte)	10 Gbps	10 Gbps	14 Gbps
CPU	1.8GHz	1.8GHz	1.8GHz
Memory (default/maximum)	4 GB/4 GB	4 GB/4 GB	8 GB/8 GB
Flash	1 GB	1 GB	1 GB
USB 2.0 port	1	1	1
Console port	1	1	1
WAN port	6*10GE (SFP+) ports 8*GE copper ports	5*10GE (SFP+) ports 1*GE combo port 8*GE copper ports	4*25GE (SFP28) ports 16*10GE (SFP+) ports 10*GE copper ports
LAN port	8*GE copper ports	N/A	N/A
SIC slot	4	4	4
HMIM slot	2	4	4
Maximum power consumption	150 W	300 W	300 W
Power redundancy	AC/DC	AC/DC	AC/DC
Power input	AC: 100 to 240 VAC @ 50/60 Hz DC: –48 to –60 VDC	AC: 100 to 240 VAC @ 50/60 Hz DC: –48 to –60 VDC	AC: 100 to 240 VAC @ 50/60 Hz DC: –48 to –60 VDC
Rack height	1 RU	2 RU	2 RU
Dimensions (H × W × D)	44.2 × 440 × 470 mm (1.74 × 17.32 × 18.50 in)	88.1 × 440 × 480 mm (3.47 × 17.32 × 18.90 in)	88.1 × 440 × 480 mm (3.47 × 17.32 × 18.90 in)
Ambient temperature	0°C to 45°C (32°F to 113°F)		
Ambient relative temperature	5 % to 95%, non-condensing		
EMC	FCC Part 15 (CFR 47) CLASS A		

Item	MSR3620-X1	MSR3640-X1	MSR3640-X1-HI
Security	ICES-003 CLASS A VCCI-3 CLASS A VCCI-4 CLASS A CISPR 22 CLASS A EN 55022 CLASS A AS/NZS CISPR22 CLASS A CISPR 24 EN 55024 EN 61000-3-2 EN 61000-3-3 EN 61000-6-1 ETSI EN 300 386 EN 301 489-1 EN 301 489-17		
	UL 60950-1 CAN/CSA C22.2 No 60950-1 IEC 60950-1 EN 60950-1/A11 AS/NZS 60950 EN 60825-1 EN 60825-2 FDA 21 CFR Subchapter J GB 4943		

Item	MSR3610-X1	MSR3610E-X1/-DP	MSR3620-DP
IP Forwarding Performance (IMIX)	5.8 Gbps	10 Gbps	6 Gbps
Forwarding Performance with ACL+NAT+QOS (IMIX)	2.5 Gbps	5.5 Gbps	5 Gbps
IPSec Forwarding Performance (1400byte)	1.8 Gbps	5 Gbps	4.4 Gbps
CPU	1.2GHz	2.2GHz	1.2GHz

Item	MSR3610-X1	MSR3610E-X1/-DP	MSR3620-DP
Memory	2 GB	4 GB	2 GB
Flash (default/maximum)	512 MB/32GB	4GB	512 MB/32GB
External Flash	Micro SD card	N/A	Micro SD card
HDD slot	1*2.5'' SATA HDD/SSD	N/A	1*mSATA SSD
USB port	1	1	1
Console port	1	1	1
WAN port	2 x GE copper ports 2 × GE combo ports 2 × SFP ports	3*10GE (SFP+) ports 2*GE combo port	4 × GE combo ports 2 × SFP ports
LAN port	N/A	8*GE copper ports	N/A
SIC slot	4	4	4
HMIM slot	N/A	N/A	2
Max power consumption	54 W	54 W	150 W
Power redundancy	N/A	AC (only MSR3610E-X1-DP support AC redundancy)	AC/DC
Power voltage	AC: 100 VAC to 240 VAC @ 50 Hz/60 Hz	AC: 100 VAC to 240 VAC @ 50 Hz/60 Hz	AC: 100 VAC to 240 VAC @ 50 Hz/60 Hz DC: –48 to –60V
Rack height	1 RU	1 RU	1 RU
Dimensions (H × W × D)	43.6 × 440 × 360 mm (1.72 × 17.32 × 14.17 in)	44.2 × 440 × 320 mm (1.74 × 17.32 × 12.60 in)	44.2 × 440 × 470 mm (1.74 × 17.32 × 18.50 in)
Operating temperature	0ºC to 45ºC (32°F to 113°F)	0ºC to 45ºC (32°F to 113°F)	0ºC to 45ºC (32°F to 113°F)
Operating humidity	5% RH to 95% RH, non-condensing	5% RH to 95% RH, non-condensing	5% RH to 95% RH, non-condensing
EMC	FCC Part 15 (CFR 47) CLASS A ICES-003 CLASS A VCCI-3 CLASS A VCCI-4 CLASS A CISPR 22 CLASS A EN 55022 CLASS A		

Item	MSR3610-X1	MSR3610E-X1/-DP	MSR3620-DP
	AS/NZS CISPR22 CLASS A		
	CISPR 24		
	EN 55024		
	EN 61000-3-2		
	EN 61000-3-3		
	EN 61000-6-1		
	ETSI EN 300 386		
	EN 301 489-1		
	EN 301 489-17		
Security	UL 60950-1		
	CAN/CSA C22.2 No 60950-1		
	IEC 60950-1		
	EN 60950-1/A11		
	AS/NZS 60950		
	EN 60825-1		
	EN 60825-2		
	FDA 21 CFR Subchapter J		
	GB 4943		

Software specifications

Item	Specifications
Layer 2 switching	Ethernet, Ethernet II, VLAN, 802.3x, 802.1p, 802.1q, 802.1X, STP (802.1D), RSTP (802.1w), MSTP (802.1s), PPP, PPPoE client, PPPoE server, HDLC, FR, DDR, modem, ISDN
IP services	TCP, UDP, IP option, IP unnumbered
	Policy-based routing, NetStream, sFlow
	ECMP
	UCMP
IP applications	Ping, Tracert, ICMP, DHCP server, DHCP relay, DHCP client, DHCP snooping, DNS client, DNS proxy, DDNS, UDP Helper, NTP, SNTP
IPv4 routing	Static routing
	Dynamic routing: RIPv1/v2, OSPFv2, BGP, IS-IS

Item	Specifications
IPv6	Route iteration
	Routing policy
	Multicast routing protocols: IGMPv1/v2/v3, PIM-DM, PIM-SM, MBGP, MSDP
	IPv6 ND, IPv6 PMTU, IPv6 FIB, IPv6 ACL, NAT-PT, 6PE, DS-LITE
	IPv6 tunnel: manually configured IPv6 tunnel, automatic IPv6 tunnel, GRE tunnel, 6to4 tunnel, ISATAP tunnel
	Static routing
	Dynamic routing protocols: RIPng, OSPFv3, IS-ISv6, BGP4+
	IPv6 multicast protocols: MLDv1/v2, PIM-DM, PIM-SM
QoS	LR, port-based mirroring, priority trust mode on a port, and port priority
	Committed access rate (CAR)
	FIFO, WFQ, CBQ
	Generic Traffic Shaping (GTS)
	Traffic classification
Access controller (AC)	AP management: AP access, AP pre-provisioning, AP version upgrade, AP reboot, AP display
	WLAN access, WLAN security, WLAN authentication, WLAN roaming
Voice	FXS, FXO, E&M, VE1, VT1 interfaces
	R2, DSS1, Q.sig, digital E&M
	G.711, G.723, G.726, G.729AB, AMR-NB, GSM-FR, iLBC, RT-Audio
	Rich voice services, voice backup, DTMF signaling (RFC2833), intelligent calling router, FXS and FXO 1:1 binding, PSTN backup, SIP server SRST, IVR
3G/4G/5G	3G/4G/5G access
	5G NR NSA/SA
	TDD/FDD LTE, TD-SCDMA, CDMA2000/EVDO, WCDMA/HSPA+
Security	Portal, 802.1X
	Local authentication, RBAC authentication, RADIUS authentication, TACACS+ authentication
	ASPF, ACL, filter, firewall rule based on domain names, connection limit, IPS
	IKE/IPsec VPN, ADVPN, GDVPN, L2TP VPN, GRE VPN
	NAT/NAPT, PKI, RSA, URPF
	DDoS attack prevention, ARP attack prevention, URL filtering
	EAD
	DPI

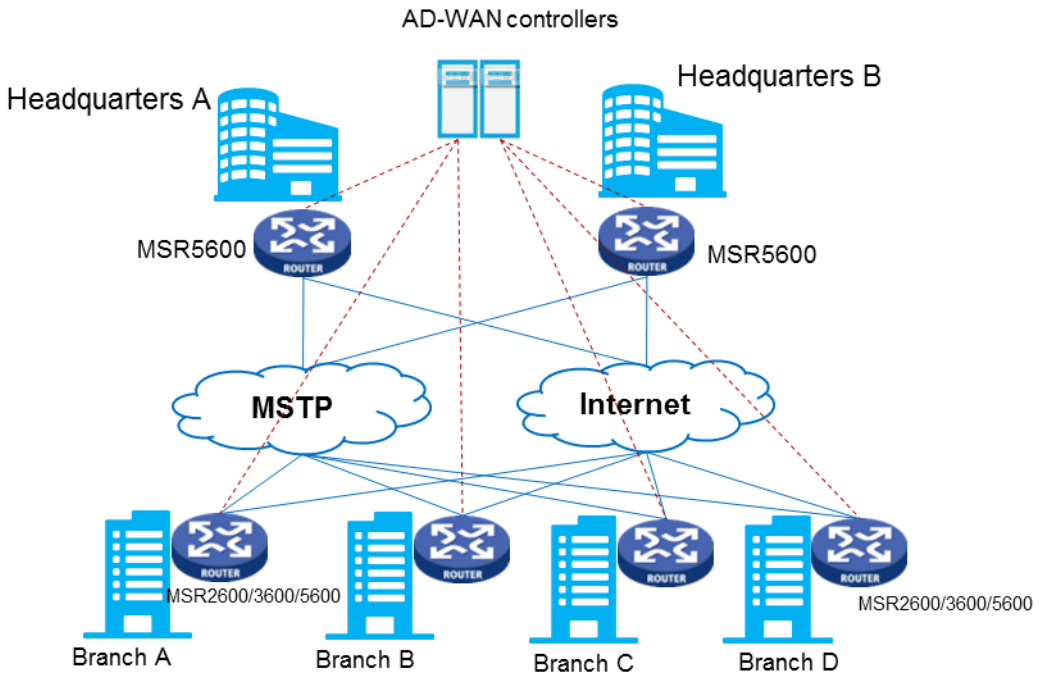
Item	Specifications
SDN	SM1, SM2, SM3, SM4 encryption algorithms
	NETCONF, OpenFlow, telemetry
	VXLAN, EVPN
	Segment routing
	ZTP through USB drive, URL, and DHCP
	SRv6:
	OSPFv3 for SRv6
	IS-IS for SRv6
	SRv6 policy
	SRv6 policy-based traffic steering
	EVPN L3VPN over SRv6
	EVPN L3VPN over SRv6 policy
	SRv6 policy-based traffic statistics
	SRv6 OAM
	BFD for SRv6
	SRv6 TI-LFA
MPLS	LDP, Static LSP
	L3VPN: Inter-domain MPLS VPN (Option1/2/3), nested MPLS VPN, Hierarchy PE (HoPE), CE dual homing, MCE, and multi-role host
	L2VPN: Martini, Kompella, CCC and SVC
	MPLS TE, RSVP TE
High availability	IRF2
	VRRP, VRRPv3
	Multi-link load balancing and backup
	Network quality analyzer (NQA), supporting collaboration with routing, VRRP, and interface backup
	BFD
	GR/NSR
Management and maintenance	SNMP v1/v2c/v3, TR069, syslog, RMON
	Telnet, SSHv1.5/2.0, FTP
	EAA
	CLI management, file system management, dual image

Item	Specifications
	NQA DHCP test, NQA FTP test, NQA HTTP test, NQA ICMP test, NQA UDP public test, NQA UDP private test, NQA TCP public test, NQA TCP private test, and NQA SNMP test

Application scenarios

Deployment in an AD-WAN headquarters-branch network

MSR5600 and MSR3600 routers support management from H3C AD-WAN controllers. In an AD-WAN headquarters-branch network, you can deploy MSR5600 routers as aggregation devices at the headquarters or access devices at medium and large branches and MSR3600 routers as access devices at branches. This deployment enables unified device management, enables link quality and traffic visibility and intelligent traffic scheduling, and delivers good use experience with enterprise businesses.



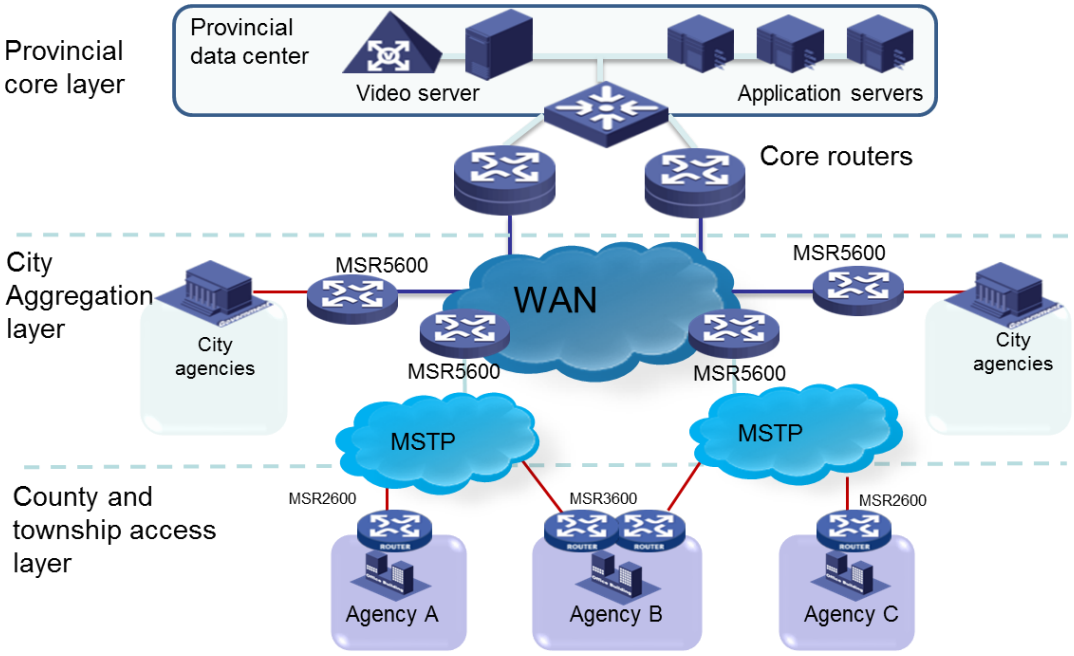
AD-WAN headquarters-branch network

Deployment in E-government extranets

MSR routers can ensure WAN reliability and security with firewall, QoS, IRF, and EAD features, suitable for the E-government extranet scenarios.

- MSR5600 can be deployed as aggregation devices at city-level government bodies to connect downlink devices or used as access devices at city government agencies.

- MSR2600 or MSR 3600 routers can be used as access devices at county and township agencies such as social security, street administration, industry and commerce, and taxation departments.



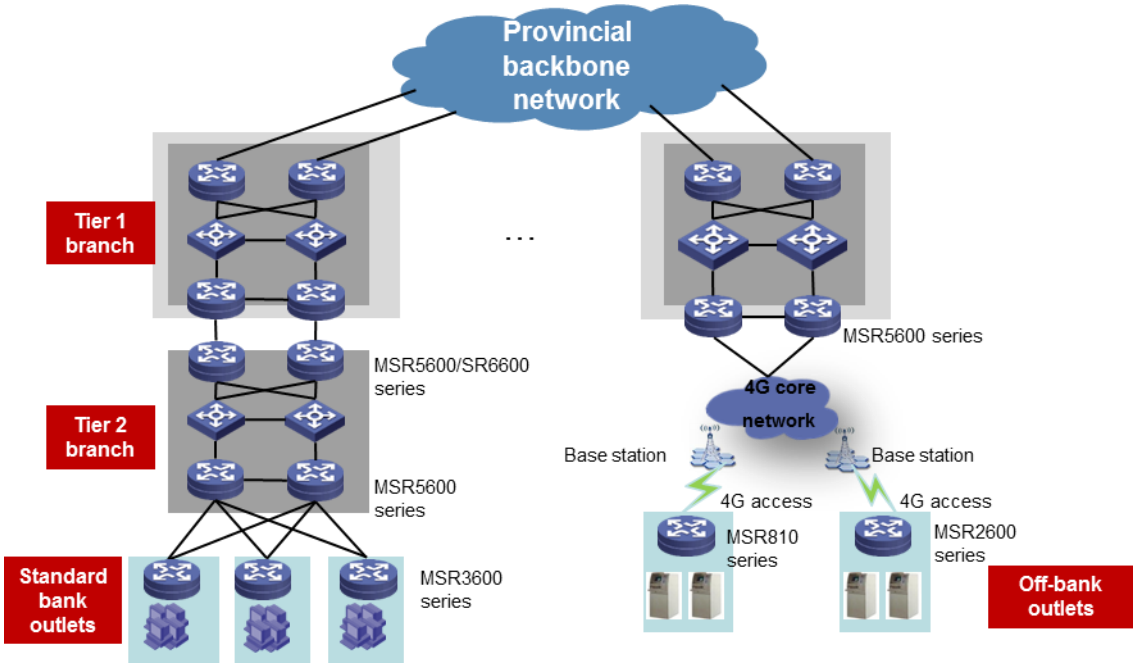
E-government extranet

Deployment in a financial WAN

MSR routers are ideal for the financial industry. With outstanding concurrent service processing capability and high availability solutions such as IRF, BFD, and link aggregation, they ensure stable and smooth services at the financial outlets. Support of remote secure access technologies such as ADVPN, IPSec VPN, and L2TP VPN in combination with robust encryption algorithms ensures security of sensitive financial businesses.

In a financial WAN, you can deploy MSR routers as follows:

- Deploy MSR5600 routers at tier-2 branches as aggregation devices or devices to uplink.
- Deploy MSR2600 or MSR3600 routers as access devices at standard financial outlets.
- Deploy MSR2600 and MSR810 routers as access devices at off-bank outlets.



Financial WAN network

Ordering information

Product ID	Description
RT-MSR3610-X1	H3C MSR3610-X1 Gigabit Ethernet Integrated Services Gateway with 4GE (2Combo) + 2SFP Ports, HD Supported
RT-MSR3610E-X1	H3C MSR3610E-X1 Router (3*10GE(SFP+),2*GE(Combo),8*GE(RJ45))
RT-MSR3610E-X1-DP	H3C MSR3610E-X1-DP Router (3*10GE(SFP+),2*GE(Combo),8*GE(RJ45),Dual AC Power Supplies)
RT-MSR3620-DP	H3C MSR3620 Gigabit Ethernet Integrated Services Gateway(4GE Combo+2SFP,Support Dual Power Supplies,1U)
RT-MSR3620-X1	H3C MSR3620-X1 Router (6*10GE(SFP+),16*GE(RJ45))
RT-MSR3640-X1	H3C MSR3640-X1 Router (5*10GE(SFP+),1*GE(Combo),8*GE(RJ45))
RT-MSR3640-X1-HI	H3C MSR3640-X1-HI Router (4*25GE(SFP28),16*10GE(SFP+),10*GE(RJ45))
Power module	
AC-PSR150-A1	150W AC power module
DC-PSR150-D1	150W DC power module
AC-PSR300-12A2	300W AC Power Supply Module
DC-PSR300-12D2	300W DC Power Supply Module
Disk	

HDD-500G-SATA-3G-5.4K-SFF	500GB 2.5inch SATA HDD HardDisk Module
HDD-2T-SATA-6G-5.4K-SFF	2TB 2.5inch SATA HDD HardDisk Module
SSD-512G-SATA-6G-MSATA	512GB mSATA SSD HardDisk Module
HMIM module	
RT-HMIM-4GEE	4-port Gig-T HMIM module (RJ-45)
RT-HMIM-4GEF	4-port 1000BASE-X HMIM module
RT-HMIM-8GEE	8-port Gig-T HMIM module (RJ-45)
RT-HMIM-8GSWF	8-port 100M/1000M Ethernet (4SFP + 4SFP/RJ-45 combo) L2/L3 HMIM module
RT-HMIM-4XP	4-Port 10GBASE-R HMIM Module
SIC module	
RT-SIC-4GSWF	4-port 100/1000BASE-X L2/L3 SIC module
RT-SIC-4GSW	4-port 10/100/1000BASE-T L2 switch SIC module
RT-SIC-2SAE	2-port Enhanced Sync/Async Serial SIC Module
RT-SIC-4SAE	4-port Enhanced Sync/Async Serial SIC Module
RT-SIC-1EPRI-V3	1-port E1/CE1/PRI SIC module
RT-SIC-1E1-F-V3-H3	1-Port Fractional E1 Interface SIC Module
RT-SIC-2E1-F-H3	2-Port Fractional E1 Interface SIC Module
RT-SIC-4G-CAT6	4G LTE CAT6 SIC module

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