Huawei NetEngine AR600 Series Enterprise Routers

Huawei AR600 series enterprise routers are 1U fixed routers designed for use in small- and medium-sized business (SMBs) and small-sized enterprise branches. The AR600 integrates various service features such as SD-WAN, routing, switching, security, and WLAN, providing diversified services and high performance.

Product Overview

Huawei's next-generation NetEngine AR600 series enterprise routers use multi-core processors and a non-blocking switching structure, helping to deliver three times the industry average performance. The NetEngine AR600 also integrates functions such as SD-WAN, cloud management, routing, switching, VPN, WLAN, and security, ensuring diversified and cloud-based services are fully supported.

Huawei NetEngine AR600 series enterprise routers can be deployed at branches of SMBs and small-sized enterprises as required to provide enterprise network egress capabilities. The NetEngine AR600 series include two sub series, NetEngine AR650 series and NetEngine AR610 series.

NetEngine AR650 series consists of models such as the NetEngine AR651C, NetEngine AR651, NetEngine AR651W, NetEngine AR657W. The NetEngine AR610 series consists of models such as the NetEngine AR611W, NetEngine AR617VW, NetEngine AR617VW-LTE4EA, NetEngine AR617VW-LTE4. Huawei provides various models which can meet networking requirements of enterprises of different scales.

 NetEngine AR651C	• Forwarding Performance: 1 Gbps • Fixed WAN ports: 2*GE SFP, 2*GE RJ45 • Fixed LAN ports: 8*GE RJ45(can be configured as WAN) • Dimensions (H x W x D): 43.6 mm x 250.0 mm x 210.0 mm
 NetEngine AR651	• Forwarding Performance: 1 Gbps • Fixed WAN ports: 2*GE Combo • Fixed LAN ports: 8*GE RJ45(can be configured as WAN) • Dimensions (H x W x D): 44.0 mm x 300.0 mm x 216.4 mm
 NetEngine AR651W	• Forwarding Performance: 1 Gbps • Fixed WAN ports: 2*GE Combo • Fixed LAN ports: 8*GE RJ45(can be configured as WAN) • Wi-Fi: 802.11ac/b/g/n • Dimensions (H x W x D): 44.0 mm x 300.0 mm x 216.4 mm

 NetEngine AR657W	• Forwarding Performance: 1 Gbps • Fixed WAN ports: 2*GE Combo, 1VDSL 35B • Fixed LAN ports: 8*GE RJ45(can be configured as WAN) • Wi-Fi: 802.11ac/b/g/n • Dimensions (H x W x D): 44.0 mm x 300.0 mm x 216.4 mm
 NetEngine AR611W	• Forwarding Performance: 300Mbps • Fixed WAN ports: 1*GE Combo • Fixed LAN ports: 4*GE RJ45(can be configured as WAN) • Wi-Fi: 802.11ac/b/g/n • Dimensions (H x W x D): 38.0 mm x 240.0 mm x 161.5 mm
 NetEngine AR617VW	• Forwarding Performance: 300Mbps • Fixed WAN ports: 1*GE Combo, 1 * VDSL 35B • Fixed LAN ports: 4*GE RJ45(can be configured as WAN) • 2 * FXS • Wi-Fi: 802.11ac/b/g/n • Dimensions (H x W x D): 38.0 mm x 240.0 mm x 161.5 mm
 NetEngine AR617VW-LTE4EA NetEngine AR617VW-LTE4 **	• Forwarding Performance: 300Mbps • Fixed WAN ports: 1*GE Combo, 1 * VDSL 35B, 1 * LTE • Fixed LAN ports: 4*GE RJ45(can be configured as WAN) • 2 * FXS • Wi-Fi: 802.11ac/b/g/n • Dimensions (H x W x D): 38.0 mm x 240.0 mm x 161.5 mm

** Note: NetEngine AR617VW-LTE4 is sold only in Latin America.

Features and Benefits

Features and Benefits

Service Requirement	Features and Benefits
High performance	• Multi-core processors and a non-blocking switching structure • Three times the industry average performance, providing the lowest latency for key services
High reliability	• Link backup for enterprise services, improving reliability • Fault detection and determination in milliseconds, minimizing service interruption time
Easy O&M	Multiple management modes, including SD-WAN management, SNMP-based network management, web-based network management, and cloud-based management, simplifying network deployment and reducing OPEX
Service convergence	Integration of functions such as routing, switching, VPN, security, and WLAN, meeting diversified enterprise service requirements, saving space, and reducing TCO
Security	Built-in firewall, IPS(AR651/AR651W/AR657W), URL filtering, and multiple VPN technologies, providing comprehensive security protection capabilities
SD-WAN Ready	• Built-in SD-WAN solution, building cost-effective and business-friendly connections over the Internet • ZTP (email-, USB-, and DHCP-based deployment), minimizing skill requirements and provisioning devices in minutes • First packet identification (FPI) for SaaS applications and service awareness for complex applications, identifying over 90% of applications • Traffic steering based on bandwidth and link quality, ensuring experience of key applications and improving bandwidth utilization to up to 90%

Architecture Highlights

Architecture Feature	Benefits
Multi-core processor	• High-performance multi-core processors, supporting high-speed WAN connections, powerful route calculation capabilities, and enhanced L4-L7 service processing
Extensive network interfaces	Extensive flexible interface cards such as LAN, WAN, 3G/LTE, and WLAN

Product Specifications

NetEngine AR650 Series Technical Specifications

Item	NetEngine AR651C	NetEngine AR651	NetEngine AR651W	NetEngine AR657W
System Parameters				
Forwarding Performance (LAN - > WAN + WAN - > LAN, NAT + ACL + QoS, IMIX, Default)	1 Gbps	1 Gbps	1 Gbps	1 Gbps
Forwarding Performance (LAN - > WAN + WAN - > LAN, NAT + ACL + QoS, IMIX, Boost License)	1.5 Gbps	2 Gbps	2 Gbps	2 Gbps

Item	NetEngine AR651C	NetEngine AR651	NetEngine AR651W	NetEngine AR657W
IPsec performance (IMIX)	800 Mbps	1 Gbps	1 Gbps	1 Gbps
Fixed WAN ports	2 x GE SFP, 2 x GE RJ45	2 x GE combo	2 x GE combo	2*GE Combo, 1VDSL 35B
Fixed LAN ports	8 x GE RJ45(can be configured as WAN)			
Service extension slot	-	1 x MIC	1 x MIC	1 x MIC
Wi-Fi	-	-	Dual-band (2.4 GHz and 5 GHz), 802.11b/g/n/ac	
USB port	1 x USB 3.0 (compatible with USB 2.0)			
Auxiliary or console port	1 x RJ45 console port			
Memory	1 GB	2 GB	2 GB	2 GB
Flash memory	1 GB	1 GB	1 GB	1 GB
Dimensions and Weight				
Router dimensions, With no mounting bracket installed (H x W x D)	43.6 mm x 250.0 mm x 210.0 mm	44.0 mm x 300.0 mm x 216.4 mm	44.0 mm x 300.0 mm x 216.4 mm	44.0 mm x 300.0 mm x 216.4 mm
Packaging dimensions (H x W x D)	155 mm x 455 mm x 280 mm	155 mm x 455 mm x 280 mm	155 mm x 455 mm x 280 mm	155 mm x 455 mm x 280 mm
Weight	1.75 kg	1.9 kg	1.9 kg	2.9 kg
Rack	IEC	IEC	IEC	IEC
Occupied rack space	1U	1U	1U	1U
Power Specifications, Power Consumption, and Heat Dissipation				
Rated input voltage range (AC)	100 V to 240 V	100 V to 240 V	100 V to 240 V	100 V to 240 V
Rated input frequency (AC)	50 Hz/60 Hz	50 Hz/60 Hz	50 Hz/60 Hz	50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V	90 V to 264 V	90 V to 264 V	90 V to 264 V
Maximum input current (AC)	3 A	3 A	5 A	5 A
Maximum output power (AC)	36 W	36 W	60 W	60 W
Typical power consumption	22.1 W	24 W	36 W	36 W
Maximum power consumption	25.2 W	28 W	40 W	40 W
Fan module	Natural heat dissipation, without fans	Built-in unpluggable fan modules		
Airflow	N/A	Left to right	Left to right	Left to right
Noise level	N/A	47.4dB	47.4dB	47.4dB
Environment Parameters				

Item	NetEngine AR651C	NetEngine AR651	NetEngine AR651W	NetEngine AR657W
Operating temperature	0ºC to 45ºC			
Operating humidity	5% to 95% (non-condensing)			
Operating altitude	< 5000 m (16404.2 ft.)			
Storage temperature	–40ºC to +70ºC			
Storage altitude	< 5000 m (16404.2 ft.)			
Safety and Regulatory Standards				
EMC standards compliance	CISPR32 Class A EN 55032 Class A CISPR24 EN 55024 ETSI EN 300 386 ETSI EN 301 489-1 ETSI EN 301 489-17 ETSI EN 301 489-52			
Environmental standards compliance	RoHS REACH WEEE			
Safety standards compliance	IEC 60950-1 EN 60950-1			
Features and Protocols				
Basic function	DHCP server/client/relay, PPPoE server/client, PPPoA server/client, PPPoEoA server/client, NAT, and sub-interface management			
LAN	IEEE 802.1P, IEEE 802.1Q, IEEE 802.3, VLAN management, VLAN aggregation, MAC management, STP/RSTP			
Voice	RTP, SIP, SIP AG, IP PBX/TDM PBX, VoIP, SBC (AR617VW/AR617VW-LTE4EA/AR617VW-LTE4 support)			
3G/LTE	-	FDD LTE, TDD, DC-HSPA+, HSPA+, HSPA, and WCDMA		
WLAN (AC)	AP management (AC discovery, AP access, and AP management), CAPWAP, WLAN user management, WLAN radio management (802.11a/b/g/n/ac), WLAN QoS (WMM), and WLAN security (WEP, WPA, WPA2, key management)			
WLAN (AP)	-		AP management, WLAN QoS (WMM), WLAN security (WEP/WPA/WPA2/key management), WLAN radio management (802.11b/g/n/ac), and WLAN user management	
IPv4 unicast routing	Routing policies, static routes, RIP, OSPF, IS-IS, BGP			
IPv6 unicast routing	Static routes, routing policies, RIPng, OSPFv3, IS-ISv6, BGP4+			
Basic IPv6 function	IPv6 ND, IPv6 PMTU, IPv6 FIB, IPv6 ACL, ICMPv6, DNSv6, DHCPv6			
IPv6 tunneling	Manual tunnel, automatic tunnel, GRE tunnel, IPv6 over IPv4 tunnel, 6 to 4 tunnel, ISATAP			
Multicast	IGMP v1/v2/v3, PIM-SM, PIM-DM, MSDP, MBGP, IPv6 PIM, MLD			
MPLS ***	-	LDP, MPLS L3 VPN, VLL, PWE3, static LSP, dynamic LSP, MPLS TE, IP FRR, LDP FRR, TE FRR		

Item	NetEngine AR651C	NetEngine AR651	NetEngine AR651W	NetEngine AR657W
VPN	IPsec VPN, GRE VPN, DSVPN, A2A VPN, L2TP VPN, L2TPv3 VPN, VxLAN			
QoS	DiffServ mode, priority mapping, traffic policing (CAR), traffic shaping, congestion avoidance, congestion management, MQC (traffic classifier, traffic behavior, and traffic policy), hierarchical QoS, WLAN QoS, FR QoS, Smart Application Control (SAC)			
Security	ACL (v4/v6), domain-based stateful firewall, 802.1X authentication, MAC address authentication, portal authentication, AAA authentication, RADIUS authentication, HWTACACS authentication, PKI, broadcast storm suppression, ARP security, ICMP attack defense, URPF, CPCAR, blacklist, attack source tracing, online behavior management, IPS(AR651/AR651W/AR657W), URL filtering			
Management and maintenance	Upgrade management, device management, web-based network management, GTL, SNMP (v1/v2c/v3), RMON, NTP, CWMP, Auto-Config, URL-based/USB-based/DHCP deployment, NETCONF/YANG, CLI, Netstream, IP FPM, TCP FPM, TWAMP Light, IP accounting, NQA			

*** Note: V300R019C11 and later versions, NetEngine AR651/AR651W/AR657W supports MPLS features.

NetEngine AR610 Series Technical Specifications

Item	NetEngine AR611W	NetEngine AR617VW	NetEngine AR617VW-LTE4EA / AR617VW-LTE4
System Parameters			
Forwarding Performance (LAN - > WAN + WAN - > LAN, NAT + ACL + QoS, IMIX)	300Mbps	300Mbps	300Mbps
IPsec performance (IMIX)	200Mbps	200Mbps	200Mbps
Fixed WAN ports	1 * GE combo	1 * GE combo, 1 * VDSL 35B	1 * GE combo, 1 * VDSL 35B, 1 * LTE
Standards compliance and frequency bands supported	-	-	AR617VW-LTE4EA: LTE FDD: Band 1/2/3/5/7/8/20 WCDMA: Band 1/2/5/8 GSM: 850/900/1800/1900 (MHz) AR617VW-LTE4: LTE FDD: Band 1/2/3/4/5/7/8/20 WCDMA: Band 1/2/5/8 GSM: 850/900/1800/1900 (MHz)
Fixed LAN ports	4 * GE RJ45 (can be configured as WAN)		
Voice	-	2 * FXS	2 * FXS
Wi-Fi	Dual-band (2.4 GHz and 5 GHz), 2x2 MIMO, 802.11b/g/n/ac		
Auxiliary or console port	1 x RJ45 console port		
Memory	1GB	1GB	1GB
Flash memory	1GB	1GB	1GB
Dimensions and Weight			

Item	NetEngine AR611W	NetEngine AR617VW	NetEngine AR617VW-LTE4EA / AR617VW-LTE4
Router dimensions, With no mounting bracket installed (H x W x D)	38.0 mm x 240.0 mm x 161.5 mm		
Packaging dimensions (H x W x D)	90 mm x 370 mm x 257mm		
Weight	0.60kg		
Form Factor/Height	desktop		
Power Specifications, Power Consumption, and Heat Dissipation			
Rated input voltage range (AC)	100 V to 240 V	100 V to 240 V	100 V to 240 V
Rated input frequency (AC)	50 Hz/60 Hz	50 Hz/60 Hz	50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V	90 V to 264 V	90 V to 264 V
Maximum output current (AC)	2A	2A	2A
Maximum output power (AC)	24W	24W	24W
Minimum power consumption	7	8	8
Maximum power consumption	12	15	17
Fan module	Natural heat dissipation, without fans		
Airflow	N/A		
Noise level	N/A		
Environment Parameters			
Operating temperature	0ºC to 45ºC		
Operating humidity	5% to 95% (non-condensing)		
Operating altitude	< 5000 m (16404.2 ft.)		
Storage temperature	−40ºC to +70ºC		
Storage altitude	< 5000 m (16404.2 ft.)		
Safety and Regulatory Standards			
EMC standards compliance	CISPR32 Class A EN 55032 Class A CISPR24 EN 55024 ETSI EN 300 386 ETSI EN 301 489-1 ETSI EN 301 489-17 ETSI EN 301 489-52		

| Item	NetEngine AR611W	NetEngine AR617VW	NetEngine AR617VW-LTE4EA / AR617VW-LTE4
Environmental standards compliance	RoHS REACH WEEE		
Safety standards compliance	IEC 60950-1 EN 60950-1		
Features and Protocols			
Basic function	DHCP server/client/relay, PPPoE server/client, PPPoA server/client, PPPoEoA server/client, NAT, and sub-interface management		
LAN	IEEE 802.1P, IEEE 802.1Q, IEEE 802.3, VLAN management, VLAN aggregation, MAC management, STP/RSTP		
Voice	RTP, SIP, SIP AG, IP PBX/TDM PBX, VoIP, SBC (AR617VW/AR617VW-LTE4EA/AR617VW-LTE4 support)		
3G/LTE	-		FDD LTE, TDD, DC-HSPA+, HSPA+, HSPA, and WCDMA
WLAN (AC)	AP management (AC discovery, AP access, and AP management), CAPWAP, WLAN user management, WLAN radio management (802.11a/b/g/n/ac), WLAN QoS (WMM), and WLAN security (WEP, WPA, WPA2, key management)		
WLAN (AP)	AP management, WLAN QoS (WMM), WLAN security (WEP/WPA/WPA2/key management), WLAN radio management (802.11b/g/n/ac), and WLAN user management		
IPv4 unicast routing	Routing policies, static routes, RIP, OSPF, IS-IS, BGP		
IPv6 unicast routing	Static routes, routing policies, RIPng, OSPFv3, IS-ISv6, BGP4+		
Basic IPv6 function	IPv6 ND, IPv6 PMTU, IPv6 FIB, IPv6 ACL, ICMPv6, DNSv6, DHCPv6		
IPv6 tunneling	Manual tunnel, automatic tunnel, GRE tunnel, IPv6 over IPv4 tunnel, 6 to 4 tunnel, ISATAP		
Multicast	IGMP v1/v2/v3, PIM-SM, PIM-DM, MSDP, MBGP, IPv6 PIM, MLD		
VPN	IPsec VPN, GRE VPN, DSVPN, A2A VPN, L2TP VPN, L2TPv3 VPN, VxLAN		
QoS	DiffServ mode, priority mapping, traffic policing (CAR), traffic shaping, congestion avoidance, congestion management, MQC (traffic classifier, traffic behavior, and traffic policy), hierarchical QoS, WLAN QoS, FR QoS, Smart Application Control (SAC)		
Security	ACL (v4/v6), domain-based stateful firewall, 802.1X authentication, MAC address authentication, portal authentication, AAA authentication, RADIUS authentication, HWTACACS authentication, PKI, broadcast storm suppression, ARP security, ICMP attack defense, URPF, CPCAR, blacklist, attack source tracing, online behavior management, IPS(AR651/AR651W/AR657W), URL filtering		
Management and maintenance	Upgrade management, device management, web-based network management, GTL, SNMP (v1/v2c/v3), RMON, NTP, CWMP, Auto-Config, URL-based/USB-based/DHCP deployment, NETCONF/YANG, CLI, Netstream, IP FPM, TCP FPM, TWAMP Light, IP accounting, NQA		

Networking and Application

- **SD-WAN Using Hybrid Links**

  In the SD-WAN Solution, the NetEngine AR600 functions as the gateway of SMBs and small-sized enterprise branches and supports hybrid access using multiple physical links, such as Internet links, and LTE links. The solution also leverages Huawei's next-generation controller, the Agile Controller, which implements centralized and visualized management. The NetEngine AR600 provides extensive SD-WAN features and delivers optimal service experience for enterprises through intelligent application identification, intelligent traffic steering, and intelligent acceleration. For details about Huawei SD-WAN Solution, visit https://e.huawei.com/en/solutions/business-needs/enterprise-network/sd-wan.

SD-WAN networking
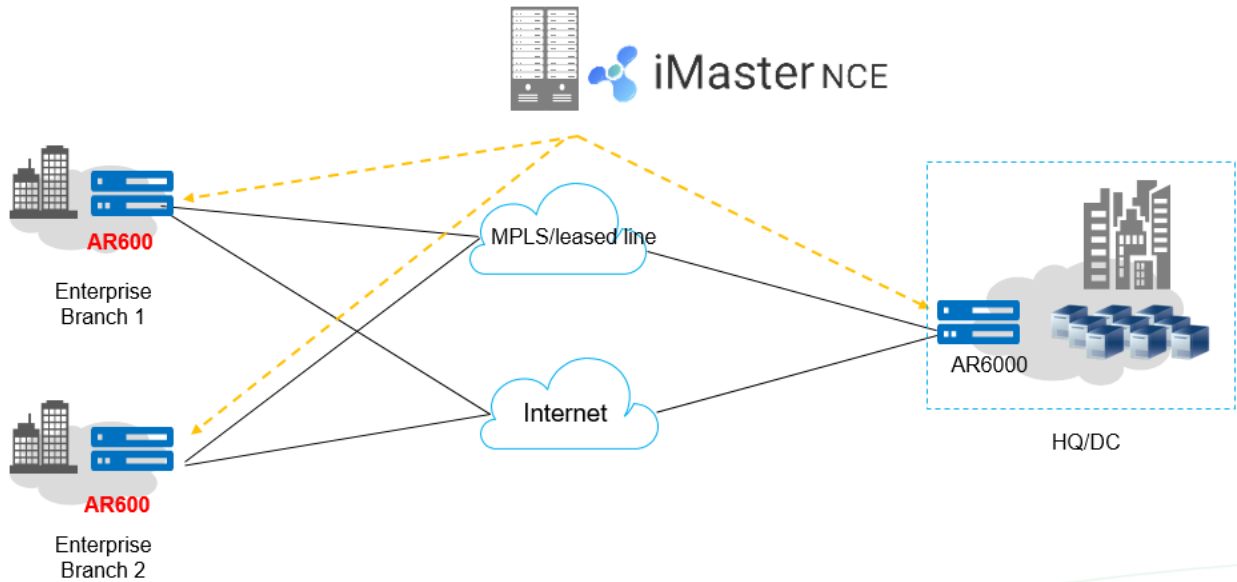
- **WAN Interconnection Scenario**

  In this scenario, the NetEngine AR600 series routers are used as enterprise branch egresses and provide flexible WAN access methods to support remote network connections. A single NetEngine AR600 router can satisfy different access requirements, for example, for the private line, Ethernet, 3G, LTE, and WLAN access, helping the customer reduce deployment and maintenance costs while helping them extract much value.

WAN interconnection networking
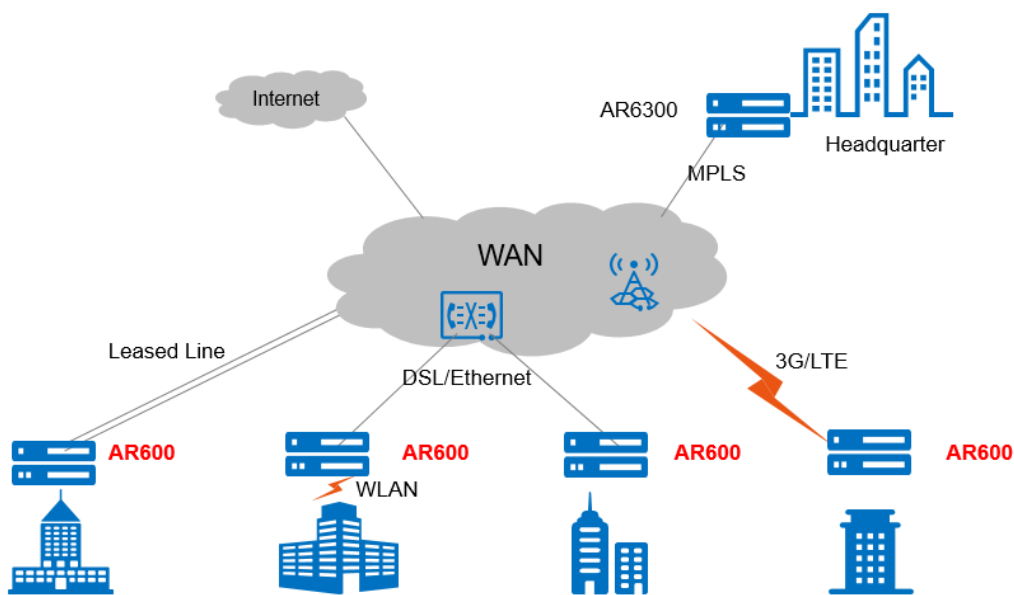
- **Building Different Types of VPNs by Leveraging Internet Resources**

The NetEngine AR600 provides various secure access functions for communication between enterprise branches and between branches and headquarters. These functions also allow an enterprise's partners to access its resources. Secure tunnels such as GRE VPN, IPSec VPN, DSVPN, L2TP VPN, and EVPN tunnels can be set up between the headquarters and branches for secure data access and transmission. The NetEngine AR600 supports quick tunnel deployment and authentication for branches. Furthermore, partners authenticated and authorized by the AR600 can remotely access the enterprise resources over these tunnels.

VPN networking
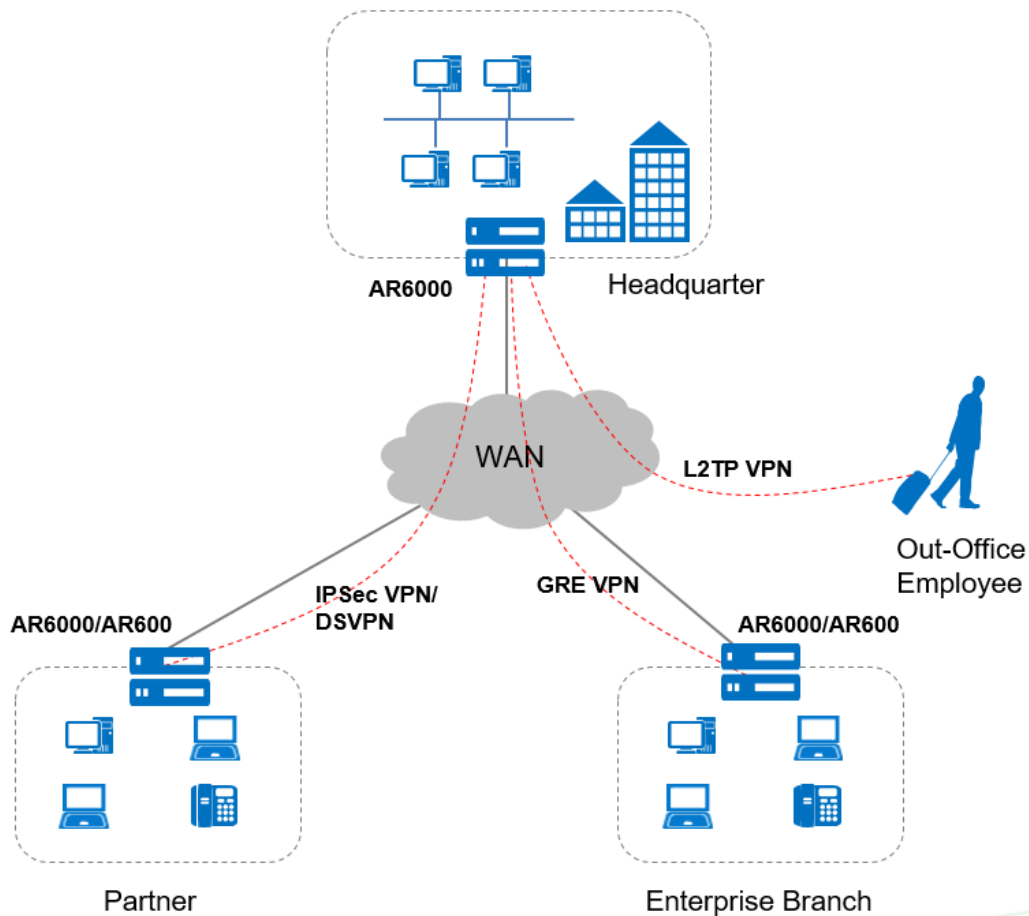
Ordering Information

The NetEngine AR600 series routers are configured by selecting and installing the appropriate configuration module. The configuration module ordering information and descriptions are shown in the following tables.

The NetEngine AR650 sub series routers require 3 types of configuration modules:

- Basic software configuration
- Software license configuration
- Performance license configuration

The basic software configuration modules provide functions such as routing, switching, voice, and security.

The software license configuration modules provide additional functions such as SRP, DSVPN.

The NetEngine AR610 sub series routers don't need to configure the license.

License function and description

License Name	Description
Value-Added Data Package	Smart Policy Routing (SPR) is included

License Name	Description
Value-Added Security Package	1. Efficient VPN (EVPN), DSVPN, Smart Application Control (SAC), Any to Any VPN, IPS and URL filtering are included. 2.IPS supports online update service, and update service needs extra license
IPS Service Subscribe 1 Year	IPS Service Subscribe 1 Year

Ordering components

Chassis Configuration	Description
NetEngine AR651C	AR651C AC host, 10*GE RJ45,2*GE SFP, 1*USB 3.0, with the AC/DC adapter
NetEngine AR651	AR651,2*GE combo WAN,8*GE LAN,1*USB3.0,1*MIC slot
NetEngine AR651W	AR651W,2*GE combo WAN,8*GE LAN,1*USB,802.11b/g/n/ac,2*2MIMO,1*MIC slot
NetEngine AR657W	AR657W,2*GE combo WAN,1*VDSL 35B WAN,8*GE LAN,1*USB,802.11b/g/n/ac,2*2 MIMO,1*MIC slot
NetEngine AR611W	AR611W, 1*GE COMBO WAN, 4*GE LAN, 1*USB 2.0, Wi-Fi 2.4G+5G
NetEngine AR617VW	AR617VW, 1*GE COMBO WAN, 1*VDSL, 4*GE LAN, 1*USB 2.0, Wi-Fi 2.4G+5G
NetEngine AR617VW-LTE4EA	AR617VW-LTE4EA, 1*GE COMBO WAN, 1*VDSL, 1*LTE，4*GE LAN, 1*USB 2.0, Wi-Fi 2.4G+5G
NetEngine AR617VW-LTE4	AR617VW-LTE4, 1*GE COMBO WAN, 1*VDSL, 1*LTE，4*GE LAN, 1*USB 2.0, Wi-Fi 2.4G+5G
MIC Card	**Description**
MIC-1ELTE6-EA	Function module, AR, MIC-1ELTE6-EA, WCDMA/LTE FDD/LTE TDD CAT6 interface card
MIC-1LTE6-EA	Function module, AR, MIC-1LTE6-EA, FDD/TDD/HSPA+/WCDMA CAT6 interface card
MIC-1LTE4-EA	Function Module, AR, MIC-1LTE4-EA, FDD/WCDMA/HSPA+ Interface Card
Accessories of Chassis (LTE antenna)	**Description**
ASMAM0006	Omni-directional Antenna, 698MHz-960MHz/1710MHz-2690MHz,1.0dBi(698MHz-960MHz)&3dBi(1710MHz-2690MHz),10W,SMA-J
ASMAM0008	Isotropic Antenna, 698MHz~960MHz/1420MHz~2690MHz,2.1dBi(max)(698-960/2110-2170MHz)/4.6dBi(max)(1710-1990/2500-2690MHz),vertical,Omni,5W,SMA-J,No Bracket
License	**Description**
LAR0DATAE08	AR600 Value-Added Data Package
LAR0SECE08	AR600 Value-Added Security Package
LAR0IPS08	AR600 IPS Service Subscribe 1 Year
LAR0PERFE08	AR650 Performance license

More Information

For more information about Huawei next-generation AR enterprise routers, visit http://e.huawei.com or contact us in the following ways:

- Global service hotline: http://e.huawei.com/en/service-hotline
- Logging in to the Huawei Enterprise technical support website: http://support.huawei.com/enterprise/
  Sending an email to the customer service mailbox: support_e@huawei.com

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