Huawei SD-WAN Solution Datasheet

Huawei SD-WAN Solution provides full-scenario on-demand interconnection between branches, between branches and data centers, and between branches and clouds. Standing out with features such as application-based intelligent traffic steering and intelligent acceleration as well as intelligent O&M, this solution delivers better service experience and reshapes the full-process service experience of enterprise WAN interconnection.

Trends and Challenges Facing Enterprise Networks

With the increasing cloudification of enterprise IT architectures as well as the rise and pervasive use of public clouds, a growing number of enterprises are deploying their infrastructures, including data centers, on public clouds. This trend drives a transition from the traditional closed IT architecture of enterprises to open network architectures. Furthermore, enterprises' mission-critical applications are also gradually moving to the cloud. Relying on Software as a Service (SaaS) services (such as office, production ERP, and marketing system services) provided by application service providers, enterprises are increasingly accessing key office applications from the cloud through the Internet.

Cloudification drives both technological revolution and business model transformation, but poses the following challenges to cloud migration of enterprise branch services:

- **High private line costs: Both service cloudification and office traffic increase, and bandwidth expansion continuously increases costs.**

  With the acceleration of digitalization, branch campuses are increasingly dependent on cloud resources, and the frequency of cross-region data interaction increases sharply. The contradiction between the traffic-based charging mode of traditional private lines and rigid bandwidth requirements becomes increasingly prominent. 60% of services are migrated to the cloud, causing a sharp increase in traffic. In addition, video conferencing and collaborative office scenarios bring a 40% increase in traffic. As a result, the enterprise private line expenditure keeps increasing. In this context, how to effectively control private line costs while ensuring data transmission stability has become a key bottleneck for enterprises to optimize operation efficiency and promote digital transformation.

- **Difficult application experience assurance: Numerous applications contend for the shared bandwidth, causing service conflicts and poor user experience.**

  As the network coverage and quality of the Internet are continuously improving, the Internet becomes a viable alternative for many enterprises in addition to traditional private lines. However, service quality cannot be guaranteed on the Internet. Additionally, traditional networks are unaware of services and cannot learn the application status. When burst traffic causes link congestion or quality deterioration, experience of key services cannot be guaranteed.

- **Difficult multi-service convergence: Various branch access modes, complex devices, and inconsistent policies hinder service collaboration and convergence.**

  With the expansion of enterprise services, branch sites are deployed in different areas, and access scenarios are diversified, covering various access types, such as LTE, 5G, private line, and E1 access. The differences between various devices and between management policies are highlighted. As a result, cross-branch collaborative management becomes more difficult, resource allocation efficiency is low, and a unified operation system cannot be formed. As such, how to integrate various access modes and implement standardized management of devices and policies has become an important challenge for enterprises to improve operation efficiency and support stable service development.

- **Difficult network O&M: Manual CLI-based configuration for various types of devices is inefficient and error-prone, service traffic is invisible, and O&M efficiency is low.**

  In traditional O&M mode, professional maintenance personnel need to maintain devices onsite. Furthermore, enterprises set up more and more branches across geographical areas and deploy an increasing number of devices of more types,

increasing the maintenance difficulty and costs. With an increasing number of services and their cloudification, service traffic flows from branches to other branches, public clouds, and private clouds on WANs become more and more complex. Traditional network O&M methods can no longer meet enterprise service requirements.

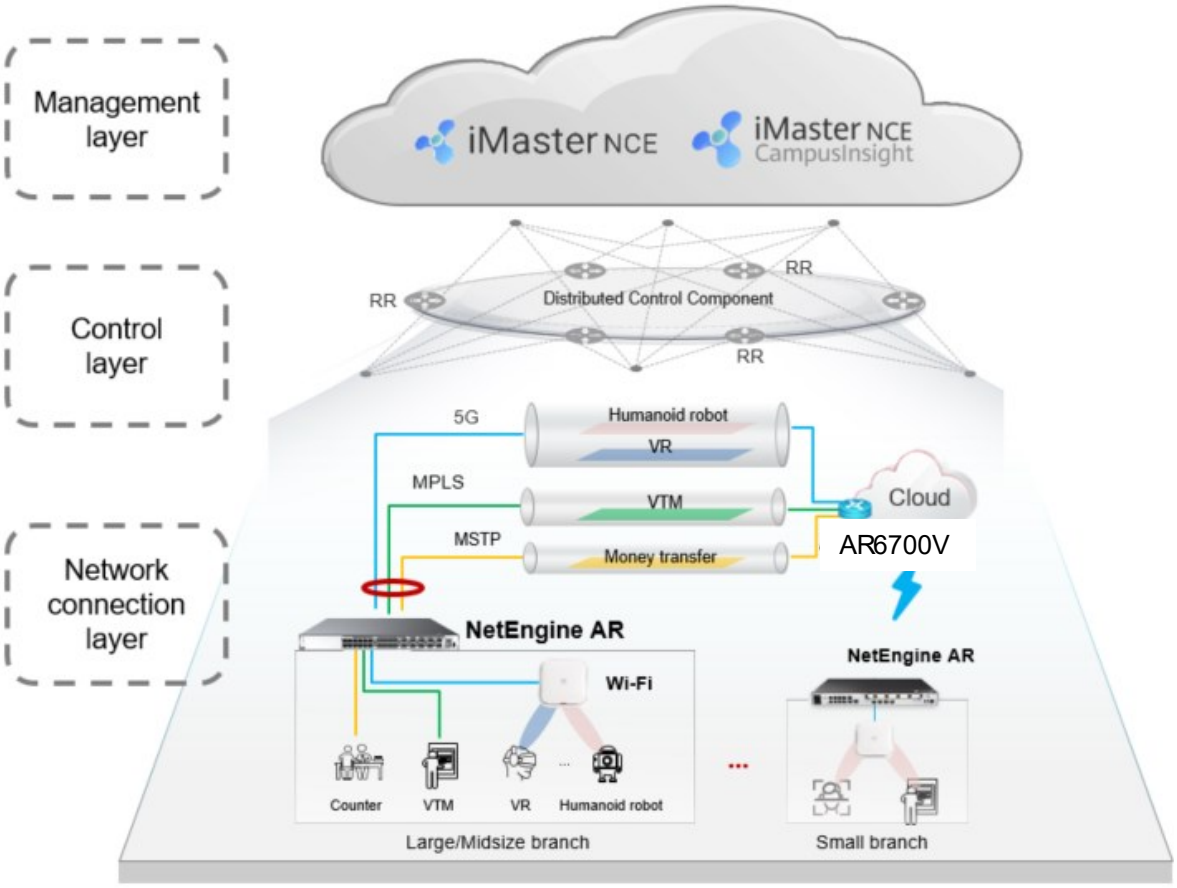
Huawei SD-WAN Solution

Huawei SD-WAN Solution addresses the issues facing enterprise networks, including closed WAN architectures, difficult service experience guarantee, slow service rollout, and difficult O&M. This solution provides full-scenario on-demand interconnection between branches, between branches and data centers, and between branches and clouds. With compelling features such as application-based intelligent traffic steering and intelligent acceleration as well as intelligent O&M, this solution delivers better service experience and reshapes the full-process service experience of enterprise WAN interconnection.

Architecture

The overall architecture comprises the network connection layer, control layer, and management layer.

Overall Architecture



- **Network connection layer**

  Enterprises deploy cost-effective NetEngine AR routers and use overlay technology to build full network interconnections between the headquarters, branches, and public or private clouds on demand through links such as Internet links and traditional private lines.

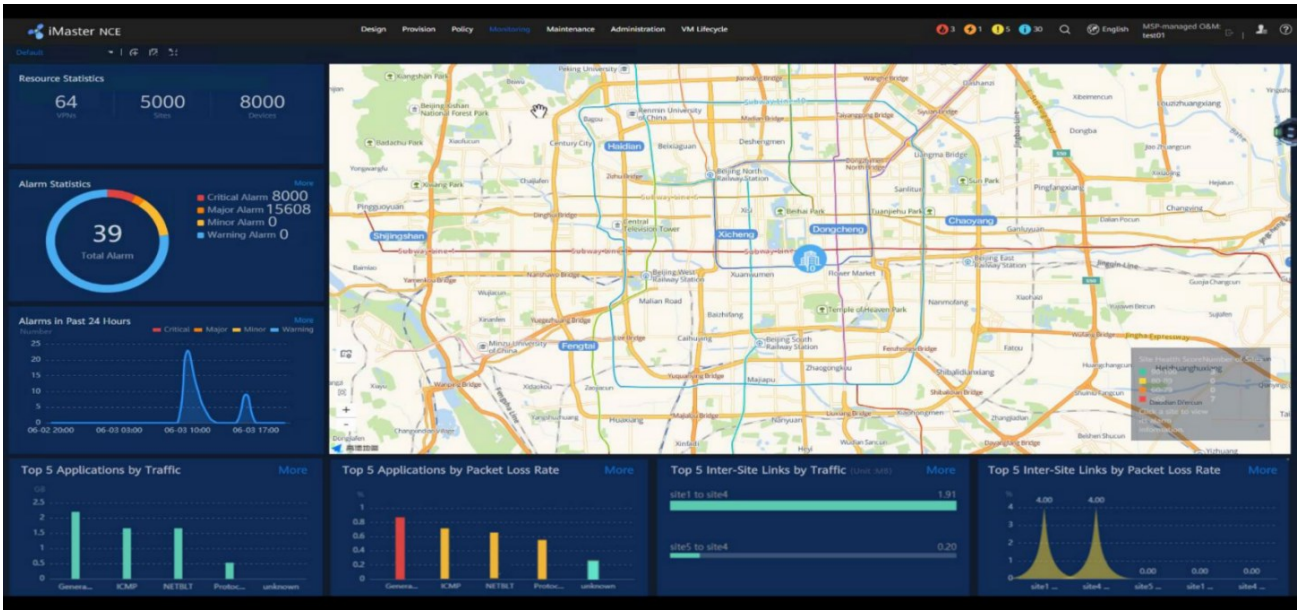
- **Control layer**

  Route reflectors (RRs) work with iMaster NCE to implement automatic deployment and configuration of networks in each area, automatic policy provisioning, route advertisement between sites in each area, and inter-area network interconnection.

- **Management layer**

  iMaster NCE implements full-process management on enterprise interconnection services. In the southbound direction, iMaster NCE uses NETCONF/YANG to implement unified management of devices such as RRs and CPEs, CPE-RR mapping and orchestration, configuration and orchestration of different VPN topologies, as well as management and provisioning of network service policies. In the northbound direction, iMaster NCE provides standard RESTful APIs for easy interconnection with third-party applications and the cloud platforms.

  iMaster NCE provides digital dashboard and an integrated O&M and monitoring GUI, and displays the network-side status based on the topology, GIS, and 50+ reports, improving O&M efficiency and service experience.



  iMaster NCE-CampusInsight is a network analyzer. As an optional component, it uses telemetry to collect network indicators in seconds, enabling experience visualization for each user, in every application, at any moment. Drawing on ML technology, iMaster NCE-CampusInsight precisely identifies potential issues while efficiently locating faults and intelligently optimizing the network in minutes.

Characteristics

- **Extensive connectivity**

  Multi-type interface adaptation and intelligent link evolution: To adapt to the trend of fiber-in and copper-out, various interface types are provided to support flexible link switching and smooth upgrade. This not only adapts to diversified access scenarios, but also effectively protects customers' investment and achieves long-term utilization of network resources.

  5G ultra-broadband rate and cost-effectiveness: The built-in 5G all-in-one device or 5G card provides an industry-leading air interface rate of up to 5 Gbit/s, providing sufficient bandwidth for services such as HD video and high-bandwidth data transmission.

  Intelligent networking and fast service deployment: iMaster NCE implements automatic orchestration and configuration, efficiently supports multi-service bearing and multi-center networking, greatly simplifies the deployment process, accelerates the network's response to service expansion, and meets enterprises' flexible networking requirements.

- **Premium quality**

  Intelligent scheduling of service traffic to ensure smooth running of key services: The adaptive QoS technology is used to intelligently identify key service traffic and preferentially guarantee the experience of core applications in the case of link congestion. The adaptive forward error correction (A-FEC) mechanism can withstand a packet loss rate of 30%, ensuring smooth video conferencing and real-time collaboration without video freezing. The SaaS intelligent traffic steering engine dynamically analyzes the quality of network-wide paths and automatically selects the optimal link to access cloud applications, reducing the end-to-end latency by 40%.

  Real-time link status detection and fault-free switchover: The in-band flow measurement technology for WAN links implements millisecond-level link quality monitoring, identifies potential risks, and predicts faults. When a fault occurs, the switchover mechanism is triggered within seconds. Service traffic is automatically switched to the standby link, ensuring 99.99% service continuity.

- **Hyper-convergence**

  LAN/WAN convergence, simplified architecture, and higher management efficiency: The hyper-converged gateway solution uses an integrated LAN/WAN management architecture to reduce the number of traditional network devices by 70%, greatly simplifying O&M. 5G/Wi-Fi 7 wireless converged access is supported to build a next-generation network without cabling. The deployment period is shortened from weeks to minutes, enabling fast service provisioning in branches.

  Network-security convergence, in-depth defense, and seamless security: Built-in firewall, intrusion detection, and other security capabilities work with branch cloud security services to build an end-to-end integrated security protection system. Security policies automatically take effect when users move. No additional security device needs to be deployed at branch sites, reducing security costs by 30% and improving the protection level.

- **Intelligent O&M**

  Fast deployment within minutes and efficient batch configuration: A single site can be automatically deployed within 10 minutes without manual commissioning, greatly shortening the deployment period. With the preset template and customized workflow, 1000 sites can be pre-configured in batches within a single day, meeting the requirements of fast implementation of large-scale networks and reducing labor costs by 60%.

  Visualized intelligent O&M and fast network fault demarcation: iMaster NCE digital map displays the network-wide status in a visualized manner, and the analyzer performs in-depth big data mining to implement minute-level fault demarcation. Compared with traditional O&M, the time from fault detection to fault locating is shortened by 80%, reducing 90% of invalid troubleshooting operations and ensuring continuous and stable network running.

Key Features

Feature	Description
MSP management	Tenant management Cloud inspection
ZTP	Email-based deployment USB-based deployment DHCP-based deployment Registration query center-based deployment
Networking	Single-/Dual-CPE with a single or multiple links
Tunnel management	VPN tunnel IPsec encryption
Connection management	Site interconnection Local Internet access Centralized Internet access
Link management	One or more types of access among MPLS private line, DSL dialup, GPON, LTE/5G, and satellite communication
Intelligent traffic steering	Link quality detection Application quality detection Traffic steering policy (based on link quality and application)
Value-added services	QoS policy ACL policy URL blacklist and whitelist Firewall policy IPS policy Antivirus
Monitoring and O&M	Intra-site monitoring

Feature	Description
	Inter-site monitoring One-stop topology-based O&M Rights- and domain-based management Real-time monitoring
WAN optimization	A-FEC Multi-path packet duplication Per-packet load balancing Data compression Adaptive QoS
Cloud connectivity	Alibaba Cloud AWS Huawei Cloud Azure Tencent Cloud Oracle Cloud Tianyi Cloud Volcano Engine
MSP configuration	Network management service IWG configuration
Native IPv6	IPv6 on Ethernet interfaces IPv6 interface-based deployment IPv6 GRE IPv6 static route
Dashboard monitoring	MSP/Carrier dashboard monitoring
Southbound access and openness	Multiple southbound IP addresses for device registration NE driver management powered by southbound open programmability
MSP deployment	Multi-tenant sharing, elastic capacity expansion, and high performance

NetEngine AR8000 & NetEngine AR6710 Performance and Interface Specifications

Model	NetEngine AR8700-8	NetEngine AR8140-12G10XG	NetEngine AR6710-H4T4X2Y7	NetEngine AR6710-L14T2X4	NetEngine AR6710-L26T2X4 NetEngine AR6710-L50T2X4	NetEngine AR6710-L8T3TS1X2
SD-WAN performance in typical scenario*	15.5 Gbps	15 Gbps	7 Gbps	1.8 Gbps	1.2 Gbps	1.2 Gbps
SD-WAN forwarding performance**	20 Gbps	20 Gbps	9 Gbps	2.5 Gbps	1.5 Gbps	1.5 Gbps
Fixed LAN/WAN interfaces***	WAN/LAN: 1*40GE QSFP+, 8*10GE SFP+, 8*GE combo	WAN/LAN: 10*10GE SFP+, 8*GE combo, 4*GE electrical	WAN/LAN: 2*25GE SFP28, 4*10GE SFP+, 4*GE electrical	WAN: 2*10GE SFP+, 2*GE electrical	WAN: 2*10GE SFP+, 2*GE electrical	WAN: 2*GE combo, 1*10GE SFP+ LAN: 1*GE combo, 8*GE electrical

				LAN: 8*GE electrical, 4*GE combo	LAN: 24/48*GE electrical	
LTE/5G	Supporting 5G RUs and 5G cards	Supporting 5G RUs and 5G cards	Supporting 5G RUs and 5G cards	Supporting 5G RUs and 5G cards	Supporting 5G RUs and 5G cards	Supporting 5G RUs and 5G cards
VDSL card	Supported	Supported	Supported	Supported	Supported	Supported

NetEngine AR6000 Performance and Interface Specifications

Model	NetEngine AR6140E-9G-2AC	NetEngine AR6121E
SD-WAN performance in typical scenarios*	800 Mbps	800 Mbps
SD-WAN forwarding performance**	1200 Mbps	1200 Mbps
Fixed LAN/WAN interfaces***	WAN: 2*GE optical, 2*GE electrical LAN/WAN: 2*GE optical, 3*GE electrical	WAN: 1*10GE SFP+ (compatible with GE optical interfaces) , 2*GE combo LAN/WAN: 8*GE electrical, 1*GE combo

NetEngine AR5710-S Performance and Interface Specifications

Model	NetEngine AR5710-S8T2S	NetEngine AR5710-S8T2X	NetEngine AR5710-S8P2X	NetEngine AR5710-S8T2X-LTE4EA	NetEngine AR5710-S10T1X2
SD-WAN performance in typical scenarios*	620 Mbps				
SD-WAN forwarding performance**	800 Mbps				
Fixed LAN/WAN interfaces***	WAN interfaces: 2*GE optical LAN interfaces: 8*GE electrical	WAN interfaces: 2*10GE SFP+/2.5GE electrical combo LAN interfaces: 4*GE electrical, 4*GE combo	WAN interfaces: 2*10GE SFP+/2.5GE electrical combo LAN interfaces: 4*GE electrical (PoE++), 4*GE combo	WAN interfaces: 2*10GE SFP+/2.5GE electrical combo LAN interfaces: 4*GE electrical, 4*GE combo	WAN interfaces: 1*10GE SFP+/2.5GE electrical combo, 2*GE electrical LAN interfaces: 4*GE electrical, 4*GE combo
LTE/5G	Supporting 5G RUs	Supporting 5G RUs	Supporting 5G RUs	Built-in LTE, Supporting 5G RUs	Supporting 5G RUs and 5G cards

VDSL card	-	-	-	-	Supported

NetEngine AR5710-SE Performance and Interface Specifications

Model	NetEngine AR5710-S8T2XE	NetEngine AR5710-S8T2XE-LTE4EA-T	NetEngine AR5710-S28T2S2XE4	NetEngine AR5710-S52T2XE4
SD-WAN performance in typical scenarios*	720 Mbps			
SD-WAN forwarding performance**	1 Gbps			
Fixed LAN/WAN interfaces***	WAN interfaces: 2*10GE SFP+/2.5GE electrical combo LAN interfaces: 4*GE electrical, 4*GE combo	WAN interfaces: 2*10GE SFP+/2.5GE electrical combo LAN interfaces: 4*GE electrical, 4*GE combo	WAN interfaces: 2*10GE SFP+, 4*GE electrical +2*GE optical LAN interfaces: 24/48*GE electrical	WAN interfaces: 2*10GE SFP+, 4*GE electrical LAN interfaces: 48*GE electrical
LTE/5G	Supporting 5G RUs	Built-in LTE, Supporting 5G RUs	Supporting 5G RUs and 5G cards	Supporting 5G RUs and 5G cards
VDSL card	-	-	Supported	Supported

NetEngine AR5710-SE Performance and Interface Specifications

Model	NetEngine AR5710-S8T2XE-NRGL	NetEngine AR5710-S8P2XE-NRGL	NetEngine AR5710-S8T1XWE	NetEngine AR5710-S8T1XWE-NRGL	NetEngine AR5710-S8TWDSE-LTE4EA	NetEngine AR5710-S8P1XDSE-2LTE4EA
SD-WAN performance in typical scenarios*	720 Mbps					
SD-WAN forwarding performance**	1 Gbps					
Fixed LAN/WAN interfaces***	WAN interfaces: 2 x 10GE SFP+/2.5GE electrical combo LAN interfaces: 8 x GE electrical	WAN interfaces: 2 x 10GE SFP+/2.5GE electrical combo LAN interfaces: 8 x GE electrical(4 x PoE++)	WAN interfaces: 1 x 10GE SFP+/2.5GE electrical combo LAN interfaces: 8 x GE electrical		WAN interfaces: 2 x GE combo LAN interfaces: 6 x GE electrical	WAN interfaces: 1 x 10GE SFP+, 1 x GE combo LAN interfaces: 7 x GE electrical(4 x PoE+, 2 x PoE++)
LTE/5G	Built-in 5G, Supporting 5G RUs	Built-in 5G, Supporting 5G RUs	Supporting 5G RUs	Built-in 5G, Supporting 5G RUs	Built-in LTE, Supporting 5G RUs	Built-in 2 x LTE RUs and 5G cards

VDSL	-	-	-		Built-in VDSL2	Built-in VDSL2
Wi-Fi	-	-	Built-in Wi-Fi 7	Built-in Wi-Fi 7	Built-in Wi-Fi 7	-

NetEngine AR5710-H Performance and Interface Specifications

Model	NetEngine AR5710-H8T2TS1 NetEngine AR5710-H8T2TS1-T	NetEngine AR5710-H4T4N2X	NetEngine AR5710-H4T4N2X-LTE4EA	NetEngine AR5710-H2T4N2X-NRGL	NetEngine AR5710-H2T4PN2X-NRGL
SD-WAN performance in typical scenarios*	900 Mbps				
SD-WAN forwarding performance**	1.5 Gbps				
Fixed LAN/WAN interfaces***	WAN interfaces: 2 x GE combo LAN interfaces: 8 x GE electrical	WAN interfaces: 2 x 10GE SFP+ LAN interfaces: 4 x 2.5GE electrical, 4 x GE electrical	WAN interfaces: 2 x 10GE SFP+ LAN interfaces: 4 x 2.5GE electrical, 4 x GE electrical	WAN interfaces: 2 x 10GE SFP+ LAN interfaces: 4 x 2.5GE electrical, 2 x GE electrical	WAN interfaces: 2 x 10GE SFP+ LAN interfaces: 4 x 2.5GE electrical(4 x PoE++), 2 x GE electrical
LTE/5G	Supporting MIC LTE card and 5G RUs	Supporting 5G RUs	Built-in LTE, Supporting 5G RUs	Built-in 5G, Supporting 5G RUs	Built-in 5G, Supporting 5G RUs

NetEngine AR600 Performance and Interface Specifications

Model	NetEngine AR611 /AR611W	NetEngine AR617	NetEngine AR611-LTE4EA	NetEngine AR617-LTE4EA	NetEngine AR611W-LTE6EA	NetEngine AR617VW	NetEngine AR617VW-LTE4EA /AR617VW-LTE4
SD-WAN performance in typical scenarios*	50 Mbps						
SD-WAN forwarding performance**	80 Mbps						
Fixed LAN/WAN interfaces***	WAN interfaces: 1 x GE combo LAN interfaces: 4 x GE electrical	WAN interfaces: 1 x GE combo LAN interfaces:	WAN interfaces: 1 x GE combo LAN interfaces:	WAN interfaces: 1 x GE combo LAN interfaces:	WAN interfaces: 1 x GE combo LAN interfaces:	WAN interfaces: 1 x GE combo LAN interfaces:	WAN interfaces: 1 x GE combo LAN interfaces:

		4 x GE electrical	4 x GE electrical	4 x GE electrical	4 x GE electrical	4 x GE electrical	4 x GE electrical
LTE/5G	Supporting 5G RUs	Supporting 5G RUs	Built-in LTE, Supporting 5G RUs			Supporting 5G RUs	Built-in LTE, Supporting 5G RUs
VDSL	-	Built-in VDSL2	-	Built-in VDSL2	-	Built-in VDSL2	Built-in VDSL2
Wi-Fi	AR611W: Dual-band (2.4 GHz and 5 GHz), 802.11a/b/g/n/ac				Dual-band (2.4 GHz and 5 GHz), 802.11a/b/g/n/ac		

NetEngine AR600 Performance and Interface Specifications

Model	NetEngine AR631I-LTE4EA	NetEngine AR651	NetEngine AR651W	NetEngine AR651W-8P	NetEngine AR657W	NetEngine AR651EW
SD-WAN performance in typical scenarios*	80 Mbps	600 Mbps				
SD-WAN forwarding performance**	120 Mbps	800 Mbps				
Fixed LAN/WAN interfaces***	WAN interfaces: 1 x GE combo LAN interfaces: 3 x GE electrical, 1 x GE combo	WAN interfaces: 2 x GE combo LAN interfaces: 8 x GE electrical	WAN interfaces: 2 x GE combo LAN interfaces: 8 x GE electrical	WAN interfaces: 2 x GE combo LAN interfaces: 8 x GE electrical	WAN interfaces: 2 x GE combo LAN interfaces: 8 x GE electrical	WAN interfaces: 2 x 10GE SFP+, 2 x GE electrical LAN interfaces: 8 x GE electrical
LTE/5G	Built-in LTE, Supporting 5G RUs	Supporting MIC LTE card and 5G RUs				
xDSL	-	-	-	-	ADSL Annex A, M, B and J, T1.413 ANSI ADSL DMT issue 2, ITU G.993.2 (VDSL2), VDSL2 Vectoring (G993.5)	-
Wi-Fi	-	-	Dual-band (2.4 GHz and 5 GHz), 802.11a/b/g/n/ac			Dual-band (2.4 GHz and 5 GHz), 802.11a/b/g/n/ac/ax

NetEngine AR6700V-L Performance and Interface Specifications

Model	AR6700V-L (2 vCPUs)	AR6700V-L (4 vCPUs)	AR6700V-L (8 vCPUs)	AR6700V-L (16 vCPUs)
SD-WAN performance in typical scenarios*	-	2 Gbps	4 Gbps	7 Gbps
SD-WAN forwarding performance**	300 Mbps	2.7 Gbps	5 Gbps	10 Gbps

The test environment for the preceding performance data is as follows: server: RH2288X V5; CPU: Intel(R) Xeon(R) Gold 6238R CPU @ 2.20GHz; NIC: Intel X710, SR-IOV.

*: Scenario where the typical SD-WAN performance specification applies: IPsec + QoS + SA + AppFlow. This specification applies to the combined total of traffic in inbound and outbound directions. Manual switching to the routing mode is required.

**: Scenario where the SD-WAN forwarding performance specification applies: IPsec + QoS. This specification applies to the combined total of traffic in inbound and outbound directions. Manual switching to the routing mode is required.

***: WAN/LAN interfaces are WAN interfaces by default and can be configured as LAN interfaces. LAN/WAN interfaces are LAN interfaces by default and can be configured as WAN interfaces.

Application Scenarios

Enterprise-Built SD-WAN Interconnection

Large enterprises with distributed branch sites, diversified service types, and high requirements on private line quality can deploy their own iMaster NCE systems to manage SD-WAN networks. This can help them overcome challenges such as explosive growth of service traffic, poor experience of mission-critical applications, and difficult O&M.

Enterprise SD-WAN Solution:

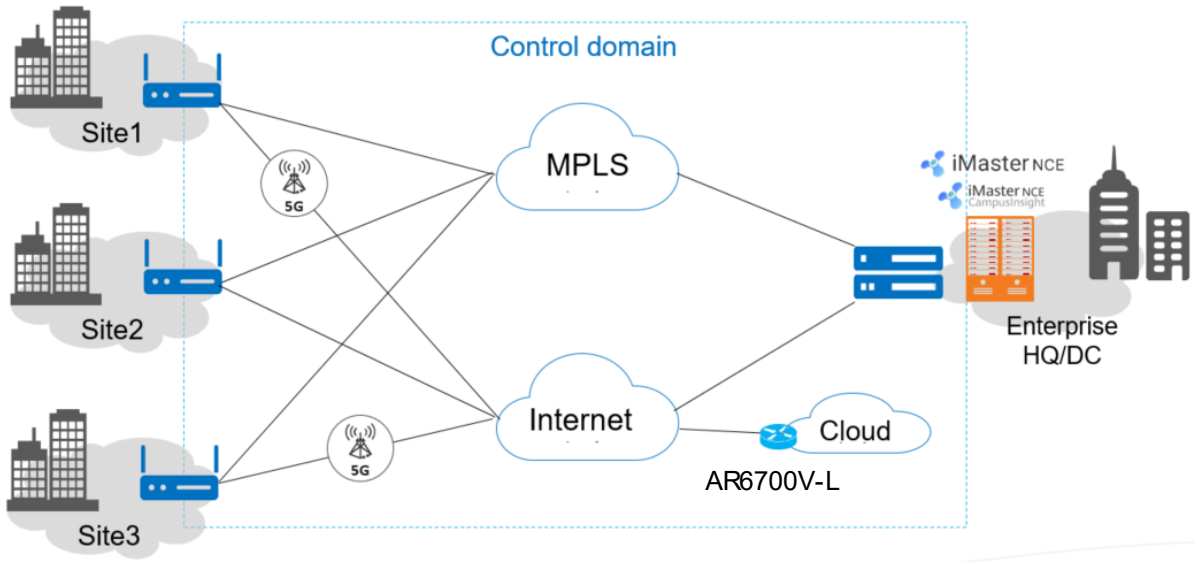
An enterprise deploys one set of iMaster NCE to manage its own SD-WAN services.

The enterprise headquarters and branches can use dual CPEs as gateways and access the network through both MPLS and Internet links, meeting the high-quality requirements for private lines. Sites where wired links are unavailable can also use 5G links to access the network. The AR6700V that supports multi-tenant sharing, elastic capacity expansion, and high performance is deployed on the cloud to optimize the cloud access path and improve the cloud access efficiency. CPEs at the headquarters or large branch sites can function as RRs. Independent devices can also be deployed as RRs.

Hierarchical QoS policies and bandwidth- or application-based intelligent traffic steering are configured to ensure experience of mission-critical services, implement load balancing, and improve bandwidth utilization.

This solution provides ZTP, automatic service orchestration and delivery, multi-dimensional visualized management for links and services, and various fault diagnosis and inspection tools to simplify network deployment and O&M of a large number of branches.

Enterprise-built SD-WAN Interconnection Scenario



Carrier SD-WAN Multi-Tenant Scenario

Carriers need to provide network deployment and O&M services for enterprises of different scales in various industries, helping enterprises quickly complete network deployment and service rollout. In addition, carriers transform from network pipe providers to service providers to provide network and value-added services for enterprises.

Carrier SD-WAN Solution:

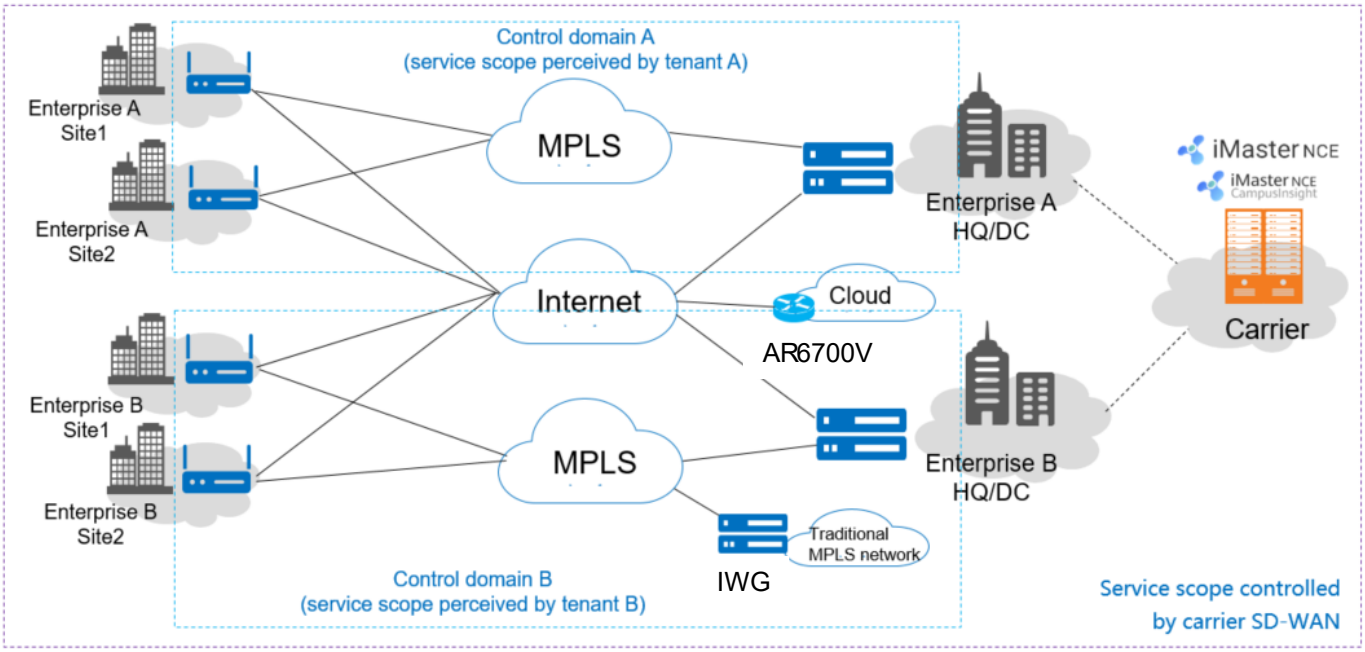
Carriers use the multi-tenant mode of iMaster NCE to deploy multi-tenant-capable RRs so that SD-WAN networks are available to multiple enterprises. Enterprises are tenants, leasing the SD-WAN networks of carriers. For security, tenants are isolated and are invisible to each other, and each tenant independently maintains its own SD-WAN network.

Enterprise branches can flexibly connect to the Internet through multiple links to communicate with other branches and access SaaS applications. Tenants can select hierarchical QoS policies, as well as intelligent traffic steering and security policies based on the link quality, application priority, bandwidth utilization, and load balancing to ensure experience of key services, improve bandwidth utilization, and achieve optimal security.

Carriers use the visualized O&M system of iMaster NCE to maintain SD-WAN networks and provide VASs for enterprises.

An enterprise network needs to support communication between SD-WAN sites and legacy branch sites to meet the operation requirements of inventory customer assets. Carriers can deploy IWGs that support the multi-tenant function to interconnect with Autonomous System Boundary Routers (ASBRs) on legacy networks. In addition, this solution meets the interconnection requirements of multiple SD-WAN sites and legacy branch sites.

Carrier SD-WAN Multi-Tenant Scenario



Components

The solution consists of the following components: iMaster NCE, iMaster NCE-CampusInsight, RRs, CPEs and vCPE. The following table describes the functions of each component.

Component	Product	Function
Controller	iMaster NCE	Provides centralized and automated management of network devices.
Network analyzer	iMaster NCE-CampusInsight	Collects network indicators, draws on ML technology, locates faults and optimizes the network.
Distributed control component	RR	Distributes VPN route and tunnel information between CPEs.
CPE	NetEngine AR8000, AR6000, AR5000, and AR600 series routers, such as NetEngine AR5710 and NetEngine AR6710	All NetEngine AR branch access routers support SD-WAN.
vCPE	NetEngine AR6700V, AR6700V-L	A cloud-native virtual router, which can be deployed on private and public clouds.

Diverse SD-WAN Service Modes: Selecting the Right One for Your SD-WAN

To meet different customer requirements, Huawei provides two SD-WAN network service modes.

SD-WAN Service Mode	Customer Characteristics and Requirements	Remarks
Huawei public cloud scenario	There are a small number of branches with no independent O&M team. Complex user and application access control policies are not required to ensure service experience.	Purchase the cloud management network service of Huawei Cloud to manage network devices of small- and midsize enterprises or multi-branch organizations.
On-premises scenario	A midsize or large enterprise has a large number of branches and independent O&M teams. Relatively complex user and application access control policies are required.	Purchase iMaster NCE and iMaster NCE-CampusInsight and deploy them in on-premises mode to manage network devices.

Software Package Functions

SD-WAN N1 software packages include Foundation, Advanced, and Add-on packages.

Feature	Description	N1 Mode		Add-on Package	
		Foundation Package	Advanced Package	Enhanced IFIT	Security Threat Prevention
Management and O&M	Deployment: email, USB, DHCP, and registration query center-based deployment; template-based batch deployment; device replacement	√	√		
	Basic monitoring and O&M: device/link/topology/application quality/network traffic monitoring, alarm, event, and log monitoring, fault diagnosis, reports, and northbound APIs	√	√		
Networking and routing	Networking: Hub-spoke/Full-mesh/Partial-mesh, dynamic tunnel, cloud reliability	√	√		
	Hierarchical networking, multi-hub networking, and multi-VPN	√	√		
	Interconnection with traditional networks: communication through IWGs; communication through SD-WAN sites	√	√		
	IPv6: native IPv6, underlay IPv6, DHCPv6 client, overlay IPv6	√	√		
	Internet access: local Internet access, centralized Internet access, and hybrid Internet access, and NAT	√	√		
	SD-WAN access through POP gateways	√	√		
	GPON ONU identification	√	√		
	IP multicast over SD-WAN		√		
Application experience	Application identification: 5-tuple, DPI, FPI, and customized application/application group	√	√		
	Intelligent traffic steering: traffic steering based on link quality, load balancing and bandwidth	√	√		

Feature	Description	N1 Mode		Add-on Package	
		Foundation Package	Advanced Package	Enhanced IFIT	Security Threat Prevention
	QoS: traffic classification, QoS, HQoS, and QoS in the outbound direction of hubs	√	√		
	Adaptive QoS		√		
	Per-packet load balancing	√	√		
	Multi-path packet duplication	√	√		
	FEC/A-FEC	√	√		
	Data compression		√		
	Intelligent policy recommendation		√		
	Intelligent Traffic Policing(ITP)		√		
Security	Basic security: IPsec, ACL, and firewall	√	√		
	Service security: local IPS, remote URL filtering, and local antivirus (requiring a security threat protection service license), user- and geolocation database-based security policy				√
	Access security: IPv4 MAC address authentication, 802.1X authentication, Portal authentication	√	√		
CampusInsight	CampusInsight basic analysis capability (including telemetry, network health, and issue analysis)	√	√		
	NetStream traffic analysis		√		
	IFIT: static IFIT (analyzer)		√		
	IFIT: dynamic IFIT (analyzer)			√	
Cloud access	vCPE automatic orchestration		√		

More Information

For more information, visit https://e.huawei.com/en/ 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/
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