



SD-WAN

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# Ensure Your Business Continuity with a Simple, Reliable and Affordable SD-WAN Solution



Ruijie Cloud App

Ruijie Networks Co., Ltd.

For more information, please log in : [www.ruijienetworks.com](http://www.ruijienetworks.com)

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 Ruijie Networks

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Networks

# | Challenge

## ▪ Traditional WAN

Currently, as the process of global enterprise globalization accelerates, cloud deployment of critical applications has become increasingly important. Enterprises with multiple branches urgently need to optimize their internal and external network performance to provide application acceleration. From a global perspective, enterprises with different branches often establish their own data centers at their headquarters due to security requirements. However, with the continuous increase in the complexity of external networks, the flexible connection requirements between multiple branches and multi-computing platforms are constantly increasing. Traditional technologies such as VPN and MPLS, which are used to solve enterprise private line network connections, are facing sustained pressure in terms of Service Level Agreement (SLAs), network flexibility and line costs, leading to many unresolved issues:

### ▪ Challenge 01

**Traditional WAN struggle to achieve diversification and interconnection among multicloud and networks.**

- The distribution of enterprise branches is becoming increasingly widespread, and the demand for diversified interconnection between headquarters and branches is becoming higher;
- The situation of enterprise business cloud deployment is intensifying, and the interconnection demand under private/public/hybrid multicloud is increasing.

### ▪ Challenge 02

**Internet lines cannot guarantee service application experience.**

- Internet has become a new important alternative to private lines, but it does not guarantee the quality of business service, resulting in poor experience;
- How to use the Internet to replace or partially replace private lines to reduce costs and ensure the business application experience of Internet lines.

### ▪ Challenge 03

**The slow deployment of branch networks results in lengthy business launch cycles.**

- The enterprise branch expands rapidly, the original branch is upgraded digitally, and the traditional network deployment mode is slow and high cost;
- In addition, under the cloud trend, it is more difficult to meet the requirements of rapid launch and rapid change of services.

### ▪ Challenge 04

**Network operations and maintenance pose significant challenges, resulting in slow problem pinpoint and resolution for network issues**

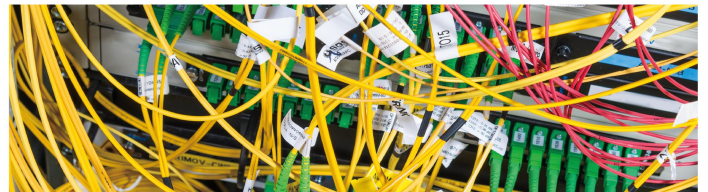
- With a large number of enterprise branches, the complexity of flexible networking and multicloud and multi-network interconnection makes business flows more intricate and less visible;
- IT operations personnel require high-level skills to swiftly identify, pinpoint, and then resolve business disruptions.

## ▪ Impact of Cloud Services on WAN

With the rapid development and large-scale deployment of technologies such as cloud computing and the Internet of Things (IoT), enterprises are transitioning towards the cloud for their IT needs. Enterprise customers expect to quickly move to the cloud and activate services, while the user experience requirements for applications remain unchanged when activating

cloud-based services. Users want to access applications in the cloud as quickly and securely as they access local applications. This poses challenges for WAN, primarily in the following points:

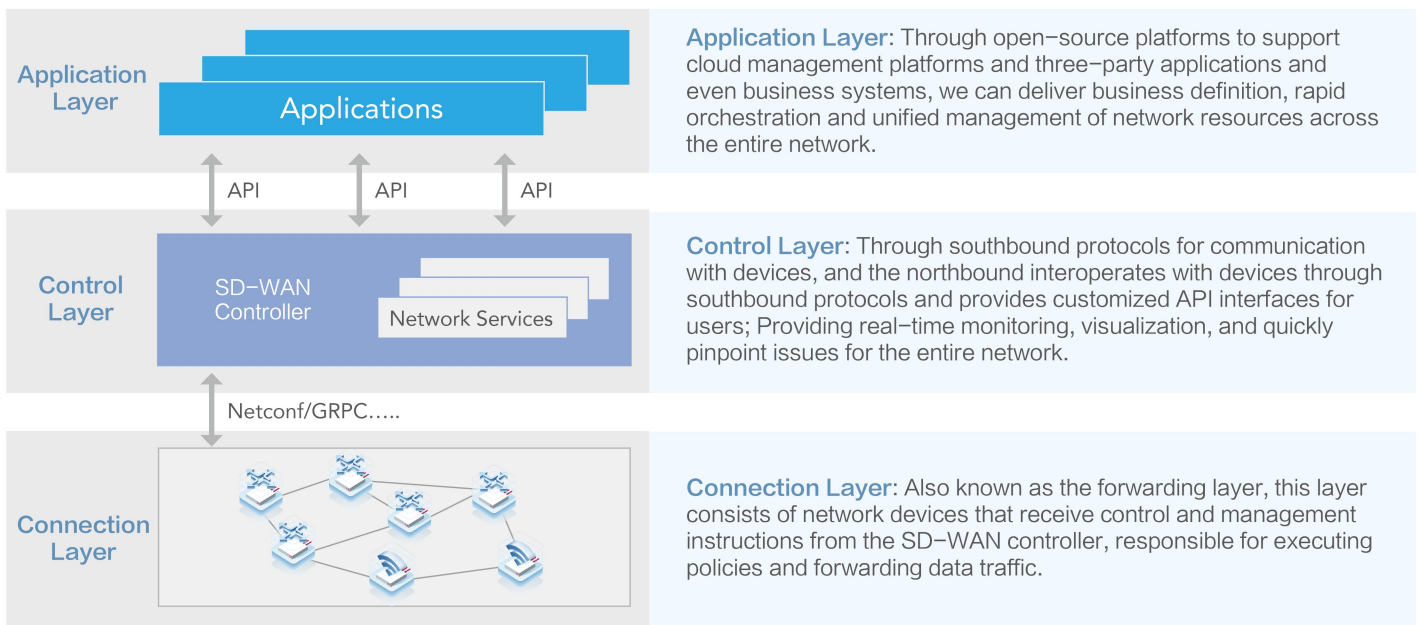
- ▲ As IT services of various enterprises communicate through WAN and the cloud, the types of WAN services provided by cloud service vendors become numerous and traffic becomes more complex. To ensure that application experience is not impacted, differentiated and further scheduling is needed to guarantee service quality for different types of users;
- ▲ The development of cloud services and the increase in tenant scale lead to a rapid increase in data traffic carried over the WAN, demanding higher bandwidth, carrying capacity, and scalability of the WAN.



## SD-WAN Solution

In response to the problems in WAN and requirements for WAN from the development cloud computing so far, based on its accumulated technical expertise in the field of WAN and in-depth research into practical application scenarios for manufacturing and retail industries, Ruijie has developed a new generation of SD-WAN (Software-Defined Wide Area Network) solutions.




### ■ Solution Architecture



### ■ Controller Solution Architecture

This solution is based on end-to-end lifecycle management, providing users with a "god's eye view" as shown in the diagram below:

## ■ Solutions Value

<p>Flexible Networking Jumping into the Cloud</p> <p><b>Connected on Demand</b></p>  <ul style="list-style-type: none"> <li>☑ Hybrid Link Access</li> <li>☑ Flexible On-Demand Networking</li> <li>☑ One-Hop Jump into the Cloud</li> </ul>	<p>Intelligent Optimization Secure Interconnection</p> <p><b>High Cost-Effectiveness</b></p>  <ul style="list-style-type: none"> <li>☑ Application Experience Optimisation</li> <li>☑ Application Intelligent Routing</li> <li>☑ Total Score Security Interconnection</li> </ul>	<p>Minimalist Deployment Smart Operation &amp; Maintenance</p> <p><b>Reliable Operation</b></p>  <ul style="list-style-type: none"> <li>☑ Zero-Touch Start-Up</li> <li>☑ Visualized Operations &amp; Maintenance</li> <li>☑ Fast Fault Resolution</li> </ul>
<p><b>Making network connection and adjustment more flexible and efficient</b></p> <p>The SD-WAN solution automatically deploys VPN tunnels, business services, and policies, providing users with on-demand and flexible networking capabilities to meet the demands of on-demand interconnection, improving network deployment and business provisioning efficiency, reducing the risk of errors, and shortening the business launch cycle.</p>	<p><b>Providing you with an ultimate network experience at all times</b></p> <p>This solution monitors the status of devices in real-time, senses bandwidth, latency, jitter, packet loss, and other metrics of network links, and provides intelligent statistics for full control of network transmission. At the same time, it ensures the stability of the physical network by monitoring the quality of network links. Based on time-based network status retrospection, it quickly pinpoints and locates WAN link issues. Data transmission is secured with national encryption standards.</p>	<p><b>Making network operations and maintenance no longer a challenge for IT staff</b></p> <p>The SD-WAN solution provides real-time monitoring of business paths, traffic, and connectivity, presenting the health status of businesses for easy network operations and maintenance. It also predicts business traffic based on detected traffic, assisting in network optimization.</p>

Category		UNC
Smart Deployment	U-Drive Deployment	✓
	Email Deployment	✓
Automated Orchestration of Networking	HUB-SPOKE Orchestration	✓
	POINT-TO-POINT Orchestration	✓
	Full-Mesh Orchestration	✓
	Partial-Mesh Orchestration	✓
	Layered networking Orchestration	✓
	Disaster Recovery Evacuation Orchestration	✓
Applications Intelligent Recognition	Three Tuple, Five Tuple/DSCP Customizable Applications	✓
	Domain Name Recognition	✓
	First Package Recognition	✓
	DPI Applications Recognition	✓
Intelligent Traffic Scheduling	Intelligent Routing (based on bandwidth utilization, delay, jitter, loss, time, application priority)	✓
	Load Balance (based on application group, flow, package, global load, etc.)	✓
	Active-Standby Failover for Undefined Applications	✓

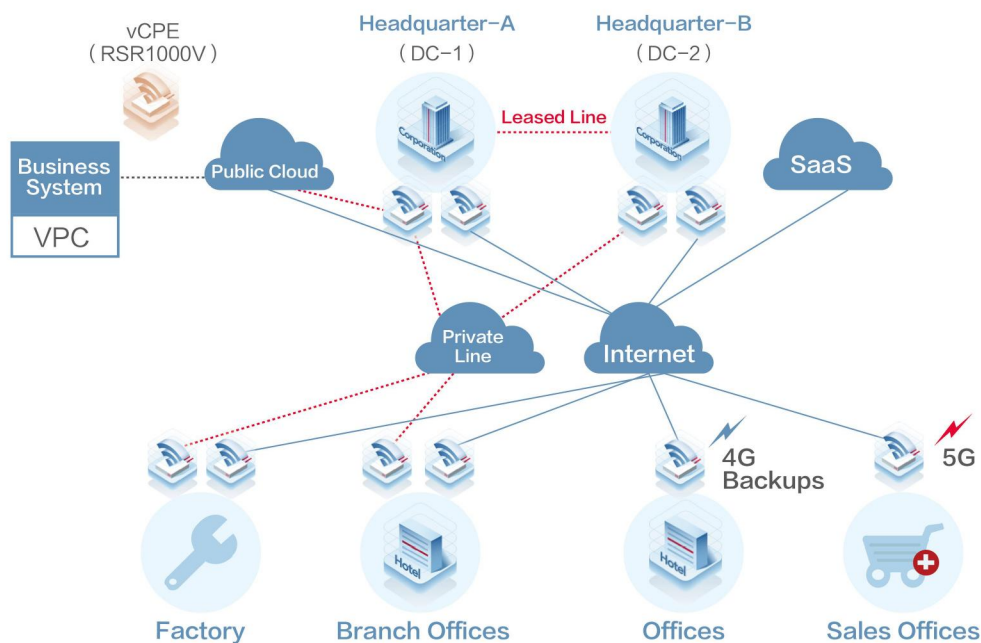
Category		UNC
QoS Policy	QoS on Overlay Tunnel	✓
	QoS Orchestration on Underlay Interface	✓
	Business-Based Overlay QoS Policies	✓
WAN Optimization	TCP Transmission Optimization	✓
	A-FEC	✓
	ARQ	✓
	Multiple sending and receiving	✓
Security	ACL Control on the Overlay Tunnel	✓
	Underlay ACL Control	✓
	URL Filtering	✓
Monitoring and Alerting	Topology visualization, including Application Path Visualization	✓
	Site Visualization	✓
	Link visualization	✓
	Application visualization	✓
	Custom Traffic Monitoring	✓
	Monitoring Line Bandwidth Utilization, Delay, Jitter, Loss Rate	✓
	Terminal Visualization	✓
	Email Alert Notification	✓
	Site-Link SLA Quality Analysis Reports	✓
	Support for MSP and Multi-Tenant, with Hierarchical Organization	✓
Business Deployed on the Cloud	CPE Virtualization, supporting Public Cloud and Bare Metal	✓
	vCPE Controller Lifecycle Management	✓
	vCPE Onboarding Orchestration, Network Orchestration	✓
	Authorization of vCPE Controllers based on vCPE	✓
	Automatic Horizontal Expansion	✓
Controller Easy Installation	Multiple IP Channels from Devices to Register Controllers	✓
	Bare Metal Deployment, KVM Deployment, VM Deployment	✓
	Controller supports Cloud Deployment	✓
	Support for Customer-provided Hardware Server Deployment of Controller	✓
	Support for Cluster Deployment	✓
	Support for Deploying Controllers on Operating Systems such as SUSE, Ubuntu.	✓

# Typical application scenarios

## ■ Manufacturing

### Scene Description:

- 1) Multi-center (Private Cloud + Public Cloud architecture) , with branches having various types of connections such as private lines and Internet;
- 2) Traffic is predominantly North-South direction, with some business traffic requiring differentiation and isolation through VPN.



### Critical Requirements:

- 1) Reduce existing network link costs and achieve the goal of cost-effectiveness through SD-WAN deployment;
- 2) Improve network reliability and ensure service quality for critical business by leveraging flexible policy-based traffic routing control;
- 3) Optimize bandwidth utilization by utilizing existing network link resources through intelligent load balancing and intelligent routing;
- 4) Simplify operations and maintenance through visualization of network, traffic, and paths.

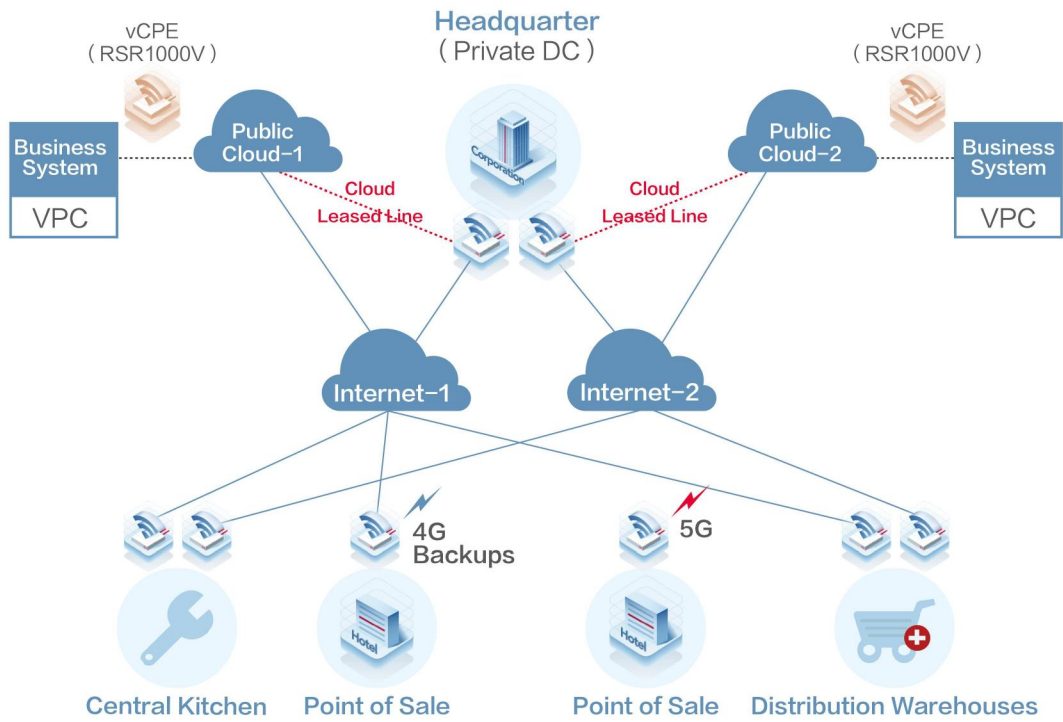
## ■ Retail Industry

### Scene Description:

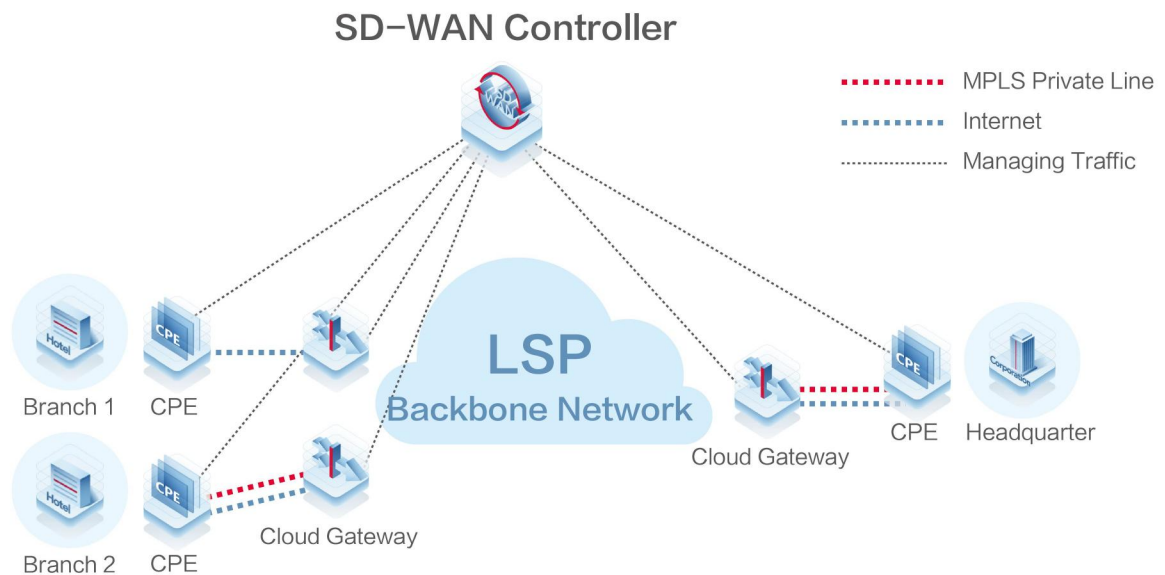
- 1) Mainly in multicloud scenarios, different SAAS (Software as a Service) applications are deployed in different clouds, and branches need to connect to different clouds simultaneously;
- 2) With low-quality Internet links as the primary connectivity, branches may also add 4G/5G links to ensure business continuity.

### Critical Requirements:

- 1) Intelligent remote operations and maintenance for branches to ensure fast network provisioning, rapid problems pinpoint, and quick business recovery;
- 2) Ensure application experience for some business transmitted over the Internet;
- 3) Simplify branch networks, reduce points of failure, and improve operational efficiency.



### Multi-tenant Access Scenario



## Scenario Description:

ISP vendors leverage their existing backbone network infrastructure to provide network services to enterprise customers, establishing a fully interconnected network covering enterprise branches, public clouds, and enterprise IDC, enabling rapid connectivity, moving to the cloud quickly, and business provisioning.

## Critical Requirements:

- 1) Fast Connectivity: The controller allocates the optimal POP point and automatically deploys orchestration to the intelligent access gateway;
- 2) Route Optimization: When multiple links exist at branches, the system automatically selects the optimal route for business traffic, connecting to the enterprise cloud through encrypted tunnels;
- 3) Centralized Operations and Maintenance: The controller monitors and maintains all intelligent access gateways centrally;
- 4) Tenant Isolation: Logical isolation of networks and control data between multiple tenants is necessary.







# Main Products Introduction

## Product Matrix

### SD-WAN Controller



Support for Hardware and Software Deployment

Micro Branch SOHU	Small Branch	Medium-Sized Branch	Large Branch or Headquarter	Large Headquarter	vCPE on Cloud
 RSR820	 RSR830	 RSR20-XA	 RSR30-XA	 RSR77-XA-08 RSR77-XA-03	 RSR1000V
1-50 users	15-100 users	50-500 users	300- 1000 users	1000- 20000+ users	Mainstream cloud

## Product Specifications

### Core Routers

	RSR77-NA-08	RSR77-NA-03
Rack Size	10U	5U
Forwarding Capacity	6.4Tbps	2.4Tbps
Supervisor Engine Slots	2	2
Switch Fabric Module Slots	4 independent	2 Built-in
Line Card Slots	8	3
Maximum available 10GE Port count	320	120
Maximum available 100GE Port count	64	24
Flash/Memory	16GB /8GB	16GB /8GB
VPN Throughput (encryption)	320Gbps	120Gbps
Number of IPsec VPN Tunnels	4000	4000

### Aggregating & Access Routers

	RSR30-XA	RSR20-XA-54	RSR20-XA-36	RSR20-XA-24	RSR830	RSR820
Rack Size	1U	1U			Desk	Desk
Forwarding Capacity	10Gbps	10Gbps			1Gbps	400Mbps
Module Slots	4 HSIC slots	4 HSIC slots			1SIC slot	/
Fixed Wan Ports	10GE optical	8	2	4	4	/
	GE optical	/	/	4	4	1
Fixed LAN Ports (LAN/WAN Switchable)	GE electrical	16	4	4	4	1
	GE electrical	/	48	24	12	8
Wi-Fi	No	No			Yes	Yes
Cellular	Up to 2	Up to 2			Up to 2	Up to 1
Flash/Memory	16GB /8GB	8GB /4GB			2GB /2GB	2GB 1GB
VPN Throughput (encryption)	1Gbps	1Gbps			400Mbps	200Mbps
Number of IPsec VPN Tunnels	1000	500			256	32



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