Ruijie WS6000 Series Wireless Access Controllers

Ruijie WS6000 series wireless AC is the next-generation enterprise class wireless network controller that delivers a secure, robust, highly scalable wireless solution at unbeatable total cost of ownership (TCO).

Seamless integrated with Ruijie WIS in the cloud that provides one stop wireless solution for entire wireless deployment lifecycle. With WIS, you can now enjoy:

- Built-in pre-planning wireless site survey tool
- WiFi deployment validation by smartphone APP, MOHO
- Machine learning based WiFi optimization (One-click Optimization)

Ruijie VAC cutting edge technology helps to increase the services availability and ensure the business continuity. The Ruijie WS6000 series is also providing a cost-effective way of enabling highly secured Guest WiFi by using Virtual AP deployment approach.

Typical high-density WiFi environment tends to have degraded wireless network performance due to several reasons like RF interference, mixture of client, sharing of limited wireless spectrum and etc. With Ruijie industry leading feature, Pre-AX, CorrectLink and AirReorder technology, it helps you to solve most of the common problem in high density WiFi deployment automatically.

PPSK is also one of the new built-in security feature offered by Ruijie WS6000 series wireless AC for small and medium enterprise to provide a secure but simple staff authentication experience.

Highlights

- **Scalable up to 2,560 APs and 80K Clients**
- **High-availability Virtual AC Technology**
- **Secured Guest WiFi by Virtual AP**
- **PPSK Enterprise Authentication**
- **Pre-AX, CorrectLink & AirReorder Feature for High-density WiFi Optimization**
- **Free Wireless Intelligence Service (WIS) Monitoring & Optimization Cloud Services**

RG-WS6008

RG-WS6816

RG-WS6024

RG-WS6108

RG-M8600E-WS-ED / RG-M18000-WS-ED

Product Features

High-Density WiFi Experience

Pre-AX, Minimizes Co-channel & Other Interferences

Pre-AX is adopted from 802.11ax technology to dynamically fine tune RSSI threshold to maximize the utilizable spectrum and allow more data to be transmitted. Each AP optimize the RF channel and power according to each client.

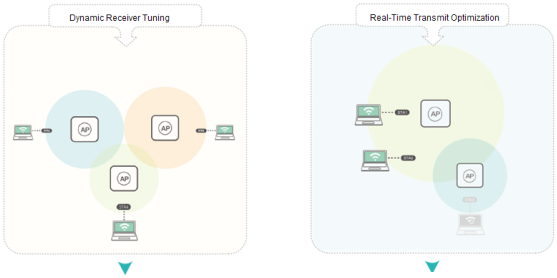


Figure 1: Pre-AX Technology Optimizing WiFi Experience

CorrectLink, Improves Traffic Load Balancing & Client Roaming

CorrectLink technology is designed to analyses the latency, jitter and the signal strength of each client. It also correlates with additional information like wireless channel utilization and throughput to optimize the best user experience for wireless client.

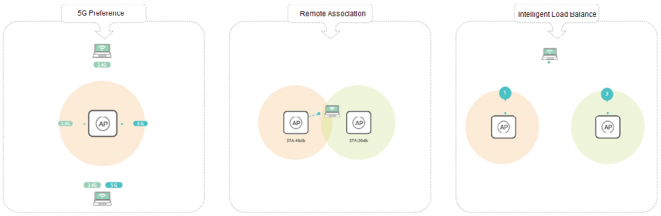


Figure 2: CorrectLink Technology Optimizing WiFi Experience

AirReorder, Smart Airtime Scheduling Technology

The fundamental of AirReorder is to allocate the equal time slot to ensure that each terminal can get the fairness of RF resources as possible. This can prevent lower data rate client to degrade entire network performance by occupying the limited shared medium.

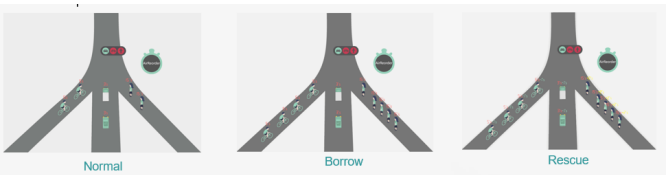


Figure 3: AirReorder Allocating Time Slots to Terminals

AI-based Cloud Service (WIS) Integration

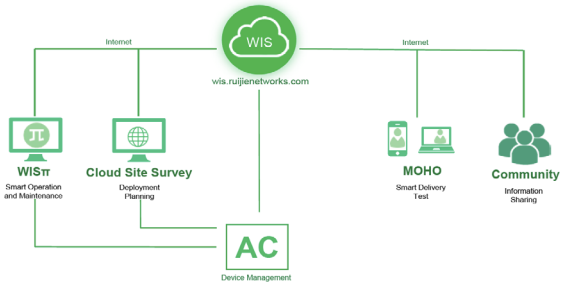


Figure 4: WIS Cloud Smart Services Platform

Ruijie WIS is an AI-based intelligent services designed for WiFi optimization on the cloud. Seamlessly integrated with Ruijie on-premise hardware AC helps to streamline WiFi deployment planning, delivery testing as well as operation diagnosis. With WIS you can:

- Cloud site survey for deployment planning
- Smart mobile Apps for provisioning
- Visualize the user experience
- One-click WiFi optimization
- and it is FREE!

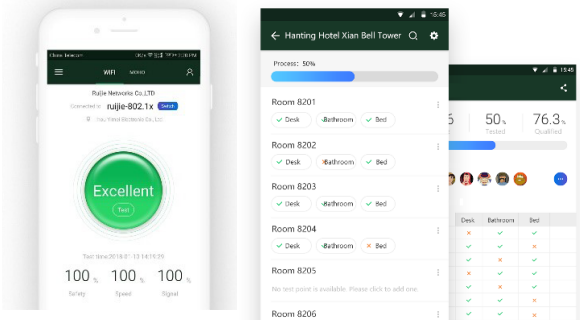


Figure 5: Ruijie MOHO APP for WiFi Testing

As part of the Ruijie WIS solution, Ruijie MOHO is a mobile app designed to carry out WiFi testing from your fingertips. Comprehensive testing tools like collaborative test, speed test, multi-point test and etc. are available in Ruijie MOHO app that can be freely downloaded from Google Play.

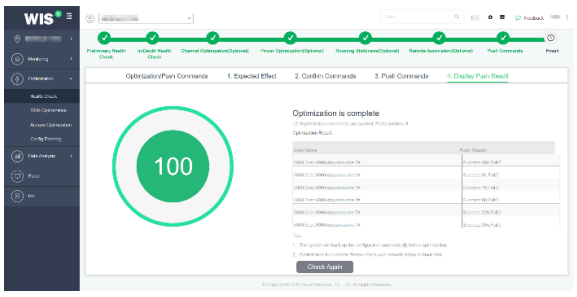


Figure 6: WISπ One-click Optimization

Another key feature from Ruijie WIS, WISπ provides one-click optimization by using the AI based machine learning automated correlation based on the real-time information gather from your WiFi network. It truly optimizes the entire WiFi network performance by providing the best suitable configuration fine-tuning by just a click.

Virtual AP Technology

In most of the enterprise today, providing a Guest WiFi to visitor is an essential. However, Guest WiFi might become another entry point for network intrusion either it is intended or not.

Ruijie AP Virtualization technology allows to virtualize a physical AP into multiple virtual APs to handle different services. Different VAP can connect to the isolated AC to ensure the only authorized user access to right resource.

With VAP, you can now enjoy its benefits of:

- Resource isolation
- Flexible authentication
- Minimize RF interference
- Cost effective & secured

With the dual GE uplink design of AP740-I, two different CAPWAP tunnel separating employee WiFi and guest WiFi traffic into two different physical uplinks further enhanced the security.

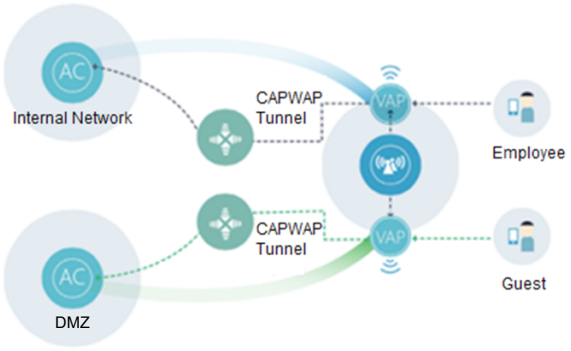


Figure 7: Virtual AP Enhancing Network Security

Virtual AC Technology

Ruijie Network AC Virtualization technology help to virtualize multiple AC into single logical AC regardless of module or appliance-based AC. It supports up to 8 members of hardware AC in single high availability cluster. AP license is shared from the license pool regardless of the number of AC in the cluster.

Its high availability feature ensures no business downtime in the event of one of AC fails. The failover mechanism is fully automated and completed within milliseconds, WiFi services resumed immediately in backup AC.

With the centralized management and distributed processing capability, it increases the scalability and resilience of entire Wireless Network. Simplified management streamlines the IT operation as well.

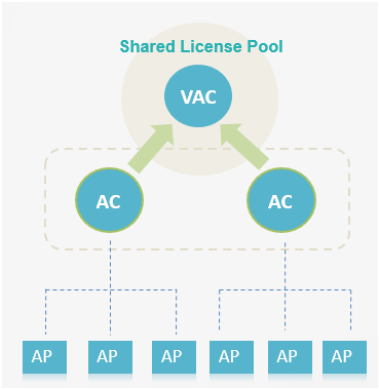


Figure 8: Virtual AC Enabling Centralized Management

Exclusive PPSK Authentication

Traditional Pre-shared keys (PSK) are shared by all users on a WLAN, giving it potential risk of PSK leak-out.

Ruijie Per-user PSK (PPSK) is an easy setup wireless authentication method with enterprise-class security level. Credentials can be created and revoked individually. Each PPSK can also be tied to a unique user/machine.

With PPSK, you can enjoy its benefit of:

- High security by using different passwords for each user and device at individual SSID
- Simple deployment, allows for batch account creation
- Ease of use and offers the same experience as WPA/WPA2-PSK
- Out-of-box feature in AC controller
- No additional AAA required

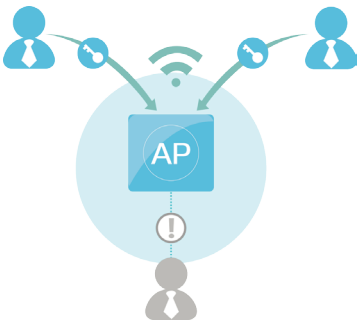


Figure 9: Per-user PSK Authentication

Remote Intelligent Perception Technology (RIPT)

In the traditional network architecture where FIT APs are centrally managed by a wireless controller, packets received by the AP must be transmitted to the controller before being forwarded. When the wireless controller becomes faulty, the APs will fail to work properly causing whole network breakdown.

Ruijie's latest RIPT provides you a complete disaster recovery solution and enables the Wireless Controller Series to implement intelligent link perception. Once the faulty controller is detected, the APs will quickly switch to the intelligent mode to continue data forwarding, ensuring the high availability of the wireless network and keeping wireless users always online.

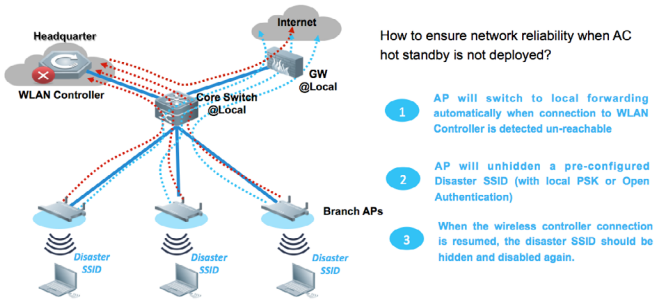


Figure 10: RIPT Disaster Recovery

Centralized or Distributed Intelligent Switching

The Wireless Controller Series can be deployed at Layer 2 or Layer 3 level without modifying the original network architecture. Forming an integrated switching framework with the APs, the controllers handle all the AP data exchange management with ease.

With the industry-leading local forwarding technology, the Wireless Controller Series eliminates traffic bottlenecks that alternatives in the market have been struggling with. The local forwarding technology allows flexible deployment of AP data forwarding. In other words, the AP can determine whether to forward all data via the controller based on Service Set ID (SSID) and user VLAN, or to send the data directly to a wired network for local data exchange.

The local forwarding technology enables large-scale, delay-sensitive, and real-time data transmission via the wired network. With the high throughput of 802.11ac, it greatly alleviates the traffic pressure on the controller. The feature also makes the wireless controllers more adaptive to heavy traffic demand applications such as high definition Video on Demand (VoD) and Voice over Wireless LAN (VoWLAN) in the future.

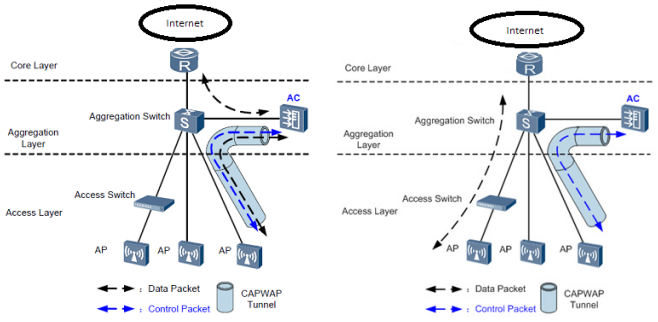


Figure 11: Centralized Swtiching and Distributed Switching

Intuitive Web Management

The Wireless Controller Series supports a web management interface, which provides simplified wireless configuration and high visibility for the whole network operation. With the AC web interface, the controllers manage not only the APs, but also the associated AP users. The feature achieves control on user bandwidth control and network access. Network administrator can hence plan, operate and maintain the wireless network with ease.

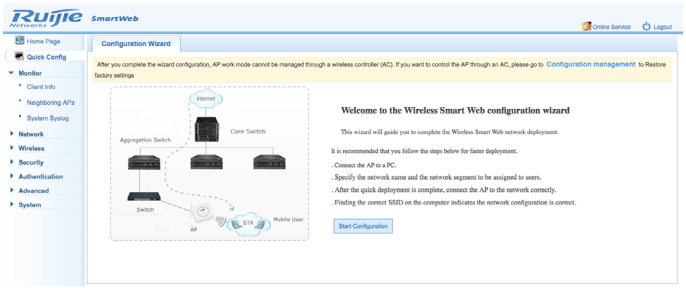


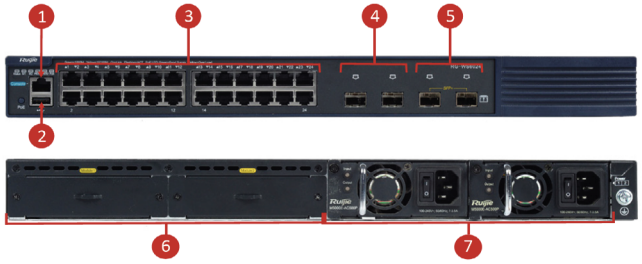
Figure 12: Web Management Interface for Simplified Management

Exclusive 24-port PoE Support

In the Wireless Controller Series, the RG-WS6024 model tops the class by offering PoE power support and all-in-one wired and wireless management. The versatile controller supports wired Gigabit Ethernet access, 10G fiber uplink, and PoE/PoE+ power supply.

The RG-WS6024 offers management of up to 24 APs and is scalable to up to 128 APs with license upgrade. The controller is ideal for general education, small and medium business networks, and enterprise branches.

Hardware Highlights



RG-WS6024

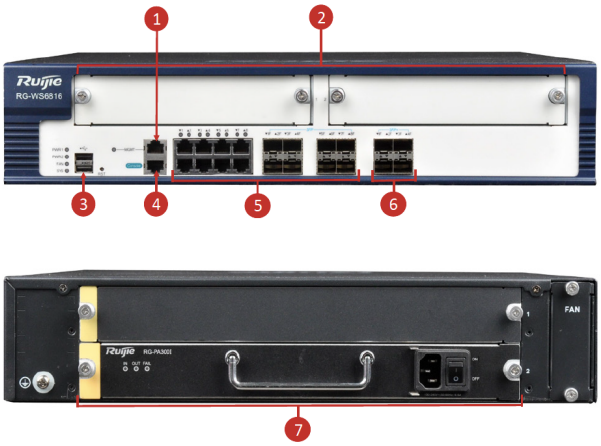
Interfaces

1. Console Port
2. USB Port
3. 24 10/100/1000BASE-T Ports
4. 2 100/1000M SFP Ports (Combo)
5. 2 1G/10GBASE-X SFP+ Ports
6. 2 Expansion Slots
7. 2 Modular Power Slots

Outstanding Scalability and Power Redundancy

The RG-WS6816 model is another featured model. The controller supports up to 2 expansion modules, offering 4 1000BASE-T/1000BASE-X combo ports (WNM-4GE-S) and 2 10GBASE-X ports (WNM-2XS-S). The RG-WS6816 also supports up to 2 power modules for extra resiliency.

Hardware Highlights



RG-WS6816

Interfaces

1. 10/100M MGMT Port
2. 2 Expansion Slots
3. 2 USB Ports
4. Console Port
5. 8 1000BASE-T/1000BASE-X Ports (Combo)
6. 4 1G/10GBASE-X SFP+ Ports
7. 2 Modular Power Slots

Ruijie Wireless LAN Controller Module

In the Wireless Controller Series, RG-M8600E-WS-ED and RG-M18000-WS-ED (for Ruijie RG-S8600E and RG-N18000 switch series respectively) take up a core role for centralized user management in Ruijie's ingenious Digital Campus 21 Solution.

Teaming up with the respective switch series and built-in/ external 802.1X/Portal authentication systems, both wireless controller modules support unified wired and wireless authentication on the core device. The modules support an ultra-large ARP capacity, concurrent ≥90K IPv4/IPv6 dual stack devices for centralized authentication at up to 1,000 devices per second.

RG-N18000 Series

RG-S8600E Series

Techincal Specifications

Model	RG-WS6816	RG-WS6108	RG-WS6024	RG-WS6008	RG-M18000-WS-ED[1]	RG-M8600E-WS-ED[2]
Service Ports	8 1000BASE-T /1000BASE -X ports (combo) 4 1G/10G BASE-X SFP+ ports 2 expansion slots	6 1000BASE-T ports 2 1000BASE -T /1000BASE-X ports (combo)	24 10/100/1000 BASE-T ports 2 100/1000M SFP ports (combo) 2 1G/10G BASE-X SFP+ ports 2 expansion slots	6 1000BASE-T ports 2 1000BASE -T/ 1000BASE-X ports (combo)	2 1G/10G BASE-X SFP+ ports	2 1G/10G BASE-X SFP+ ports

[1] Exclusively designed for RG-N18000 Switch Series
[2] Exclusively designed for RG-S8600E Switch Series

Model		RG-WS6816	RG-WS6108	RG-WS6024	RG-WS6008	RG-M18000-WS-ED	RG-M8600E-WS-ED
Management Ports		1 console port 2 USB ports 1 10/100M MGMT port	1 console port 2 USB ports	1 console port 1 USB port	1 console port 2 USB ports	1 console port 1 10/100/1000M MGMT port	1 console port 1 10/100/1000M MGMT port
LED Indicators		Status, Link/ACT					
Performance	Switching Capacity	N/A	N/A	128Gbps	N/A	N/A	N/A
	Packet Forwarding Rate	N/A	N/A	96Mpps	N/A	N/A	N/A
	Default Number of Manageable APs	128	32	24	32	128	128
	Maximum Number of Manageable APs	2,560 APs or 4,000 wall APs (with license upgrade)	320 APs or 640 wall APs (with license upgrade)	128 (with license upgrade)	200 APs or 400 wall APs (with license upgrade)	2,560 (with license upgrade)	2,560 (with license upgrade)
	Maximum Number of Configurable APs	16K	2,048	96 (up to 512 with license upgrade)	2,048	16K	16K
	Maximum Number of Clients	80K	10K	768 (up to 4,096 with license upgrade)	6,400	80K	80K
	802.11 Performance	48Gbps	8Gbps	N/A	8Gbps	48Gbps	48Gbps
	VLAN	4,094					
	Maximum Number of Clients Supported by the Built-in Portal	7,500	7,500	768 (up to 4,096 with license upgrade)	1,500	10K	10K
	ACL	512K	64K	1,500	64K	512K	512K
	Number of Wireless Users	80K	10K	1K	6,400	80K	80K
	MAC Address Table	128K	16K	16K	16K	128K	128K
	Local Authentication	300 wireless clients	300 wireless clients	768 (up to 4,096 with license upgrade)	300 wireless clients	10K wireless clients	10K wireless clients
	ARP Table	96K	12K	1K	12K	96K	96K
	IPv6 Neighbor Table	10K	10K	500	10K	10K	10K
	Inter-AC Roaming Switch Time	≤50ms					
LAN	802.1Q VLAN	Support					
	PoE	N/A	N/A	Support PoE/PoE+ (802.3af/at)	N/A	N/A	N/A
	QinQ	N/A	N/A	Basic QinQ, Flexible QinQ, N:1 VLAN switching, 1:1 VLAN switching	N/A	N/A	N/A

Model		RG-WS6816	RG-WS6108	RG-WS6024	RG-WS6008	RG-M18000-WS-ED	RG-M8600E-WS-ED
LAN	ACL	Standard IP ACL, Extended IP ACL, MAC-extended ACL, Expert ACL	Standard IP ACL, Extended IP ACL, MAC-extended ACL, Expert ACL	Standard IP ACL, Extended IP ACL, MAC-extended ACL, Expert ACL, Global ACL	Standard IP ACL, Extended IP ACL, MAC-extended ACL, Expert ACL	Standard IP ACL, Extended IP ACL, MAC-extended ACL, Expert ACL	Standard IP ACL, Extended IP ACL, MAC-extended ACL, Expert ACL
	QoS	N/A	N/A	Port traffic identification, Port traffic control, 802.1p/DSCP/TOS traffic classification, 8 priority queues on each port, SP, WRR, DRR, SP+WFQ, SP+WRR, SP+DRR, RED/WRED queue scheduling	N/A	N/A	N/A
WLAN	LAN Protocols	ARP, VLAN, 802.1p, 802.1q, 802.1d, 802.1w, 802.1s					
	802.11 LAN Protocols	802.11, 802.11b, 802.11a, 802.11g, 802.11d, 802.11h, 802.11w, 802.11k, 802.11r, 802.11i, 802.11e, 802.11n, 802.11ac					
	Pre-AX	Support	Support	N/A	Support	Support	Support
	CorrectLink	Support	Support	N/A	Support	Support	Support
	AirReorder	Support	Support	N/A	Support	Support	Support
	CAPWAP	Layer 2/Layer 3 network topology between an AP and AC Enable an AP to automatically discover an accessible AC Enable an AP to automatically upgrade software version from an AC Enable an AP to automatically download configurations from an AC Network Address Translation (NAT) traversal					
	Roaming	Intra-AC roaming, Inter-AC roaming					
	Forwarding	Local forwarding, Centralized forwarding					
	Wireless QoS	AP-based bandwidth control, WLAN-based bandwidth control, User-based static and smart speed control, Fair balancing					
	User Isolation	AC-based user isolation AP-based user isolation WLAN-based user isolation					
	Reliability	Fast switching between 2 ACs, Multiple ACs redundancy (1:1 A/A and A/S, N:1), Multiple ACs clustering (N:N), Remote Intelligent Perception Technology (RIPT), Service upgrade					
	STA Management	AP-based STA access control, SSID-based STA access control, AP-based load balancing, AP traffic-based load balancing, 5G priority access, RSSI threshold	AP-based STA access control, SSID-based STA access control, AP-based load balancing, AP traffic-based load balancing, 5G priority access, RSSI threshold	AP-based STA access control, SSID-based STA access control, AP-based load balancing, AP traffic-based load balancing, 5G priority access, RSSI threshold	AP-based STA access control, SSID-based STA access control, AP-based load balancing, AP traffic-based load balancing, 5G priority access, RSSI threshold	User-based bandwidth limit, User-based access control, Port mirroring	User-based bandwidth limit, User-based access control, Port mirroring
	STA RSSI Threshold	0 to 100					

Model		RG-WS6816	RG-WS6108	RG-WS6024	RG-WS6008	RG-M18000-WS-ED	RG-M8600E-WS-ED
WLAN	STA Idle Timeout	60 to 86,400 seconds	60 to 86,400 seconds	90 to 86,400 seconds	60 to 86,400 seconds	90 to 86,400 seconds	90 to 86,400 seconds
	STA Average Data Rate Threshold	8 to 819,200 with the accuracy of 8Kbps					
	Adjusting Transmit Power of Beacon and Probe Response	Support					
	Offline Syslog	Support					
Security	IPv4/v6 Security	Web authentication, 802.1x authentication (EAP-PEAP, EAP-SIM, EAP-MD5, EAP-TLS, EAP-TTLS, PEAP-MSCHAPv2, EAP-FAST, EAP-AKA), MAC address authentication					
	PPSK	N/A	Support	N/A	Support	N/A	N/A
	Virtual AP	Support	Support	N/A	Support	Support	Support
	Virtual AC	Support	Support	N/A	Support	Support	Support
	802.11 Security and Encryption	Multiple SSIDs, SSID hiding, 802.11i-compliant PSK authentication, WPA and WPA2, WEP (WEP/WEP128), WAPI, TKIP, CCMP, Protection against ARP spoofing					
	AAA	IEEE 802.1X					
	CPP	Support					
	NFPP	Support					
	WIDS/WIPS	Support					
Internet Protocols	IPv4 Protocols	Ping, Traceroute, DHCP Server, DHCP Client, DHCP Relay, DHCP Snooping, DNS Client, NTP, Telnet, TFTP Client					
	IPv6 Protocols	DNSv6 Client, DHCPv6 Relay, DHCPv6 Server, TFTPv6 Client, FTPv6 Server, FTPv6 Client, IPv6 CAPWAP, ICMPv6, IPv6 Ping, IPv6 Traceroute, Manual tunnel, automatic tunnel Manual configuration address, automatic local address	DNSv6 Client, DHCPv6 Relay, DHCPv6 Server, TFTPv6 Client, FTPv6 Server, FTPv6 Client, IPv6 CAPWAP, ICMPv6, IPv6 Ping, IPv6 Traceroute, Manual tunnel, automatic tunnel Manual configuration address, automatic local address	DNSv6 Client, DHCPv6 Relay, DHCPv6 Server, TFTPv6 Client, FTPv6 Server, FTPv6 Client, IPv6 CAPWAP, ICMPv6, IPv6 Ping, IPv6 Traceroute, Manual tunnel, automatic tunnel Manual configuration address, automatic local address	DNSv6 Client, DHCPv6 Relay, DHCPv6 Server, TFTPv6 Client, FTPv6 Server, FTPv6 Client, IPv6 CAPWAP, ICMPv6, IPv6 Ping, IPv6 Traceroute, Manual tunnel, automatic tunnel Manual configuration address, automatic local address	Dual stack IPv4/v6, Manual tunnel, ISATAP, 6to4 tunnel, IPv4 over IPv6 tunnel, DHCPv6, DNSv6, ICMPv6, ACLv6, TCP/UDP for IPv6, SOCKET for IPv6, SNMP v6, Ping/Traceroute v6, RADIUS, Telnet/SSH v6, FTP/TFTP v6, NTP v6, IPv6 MIB support for SNMP, VRRP for IPv6, IPv6 QoS, Static routing, OSPFV3	Dual stack IPv4/v6, Manual tunnel, ISATAP, 6to4 tunnel, IPv4 over IPv6 tunnel, DHCPv6, DNSv6, ICMPv6, ACLv6, TCP/UDP for IPv6, SOCKET for IPv6, SNMP v6, Ping/Traceroute v6, RADIUS, Telnet/SSH v6, FTP/TFTP v6, NTP v6, IPv6 MIB support for SNMP, VRRP for IPv6, IPv6 QoS, Static routing, OSPFV3
	IPv4 Routing	Static routing, OSPF	Static routing, OSPF	Static routing, RIP	Static routing, OSPF	Static routing, OSPF	Static routing, OSPF
	IPv4 Routing Table Capacity	8K	8K	500	8K	8K	8K
	IPv4 Static Routing Table Capacity	1K	1K	500	1K	1K	1K
	IPv6 Routing	Static routing					

Model		RG-WS6816	RG-WS6108	RG-WS6024	RG-WS6008	RG-M18000-WS-ED	RG-M8600E-WS-ED
Internet Protocols	IPv6 Routing Table Capacity	1K	1K	500	1K	1K	1K
	IPv6 Static Routing Table Capacity	1K	1K	500	1K	1K	1K
Management	Network Management	SNMP v1/v2c/v3, Web management, Syslog					
	Network Management Platform	Web management (Smart-web), RG-SNC management, Heat Map diagram					
	WIS Integration	Support					
	User Access Management	Login via console port Login via Telnet Login via SSH Upload to FTP					
Dimensions (W × D × H) (mm)		440 × 560 × 88.1	440 × 200 × 43.6	440 × 260 × 44	440 × 200 × 43.6	440 × 399 × 40.18	440 × 399 × 40.18
Rack Height		2RU	1RU	1RU	1RU	1RU	1RU
Weight		19kg	2kg	5.8kg (including packing)	2kg	4.58kg	4.58kg
MTBF		248K hours					
Installation Mode		19-inch rack	19-inch rack	19-inch rack	19-inch rack	Insert to RG-N18000 module slot	Insert to RG-8600E module slot
Power Supply		Support up to 2 power supply modules (sold separately) 100VAC to 240VAC, 50Hz to 60Hz	Fixed power supply 100VAC to 240VAC, 50Hz to 60Hz	Support up to 2 power supply modules (sold separately and at least 1 power module required) AC input: Rated voltage range: 100V to 240V Maximum voltage range: 90V to 264V Frequency: 50Hz to 60Hz DC input: Voltage range: -36VDC to -72VDC	Fixed power supply 100VAC to 240VAC, 50Hz to 60Hz	Power supply from RG-N18000 chassis	Power supply from RG-8600E chassis
Power Consumption		<100W	<40W	≤850W (24-port PoE+)	<40W	<190W	<190W
EMC Standard		GB9254-2008, CLASS A	GB9254, EN301 489	GB9254-2008	GB9254, EN301 489	GB9254-2008, CLASS A	GB9254-2008
Security Standard		GB4943-2011	GB4943, EN/IEC 60950-1	GB4943-2011	GB4943, EN/IEC 60950-1	GB4943-2011	GB4943-2011
Temperature		Operating Temperature: 0ºC to 45ºC					
		Storage Temperature: -40ºC to 70ºC					
Humidity		Operating Humidity: 10% to 90%RH (non-condensing)					
		Storage Humidity: 5% to 95%RH (non-condensing)					
Operating Altitude		0 to 3,000m	0 to 3,000m	0 to 3,000m	0 to 3,000m	-500 to 5,000m	-500 to 5,000m

Application Scenario

With the comprehensive model offering, Ruijie hardware AC caters for the wireless requirement from SMB (WS6008) up to large enterprise & telco wireless deployment (WS6816, RG-M18000-WS-ED & RG-M8600E-WS-ED).

On premise Ruijie hardware AC provides the unified management platform to manage wireless AP in the campus network, it also integrated with the Ruijie WIS platform on the cloud to further enhance the WiFi optimization services. Couple with marketing leading technology like Pre-AX, CorrectLink & AirReorder, it delivers the best wireless user experience even in high density wireless deployment.

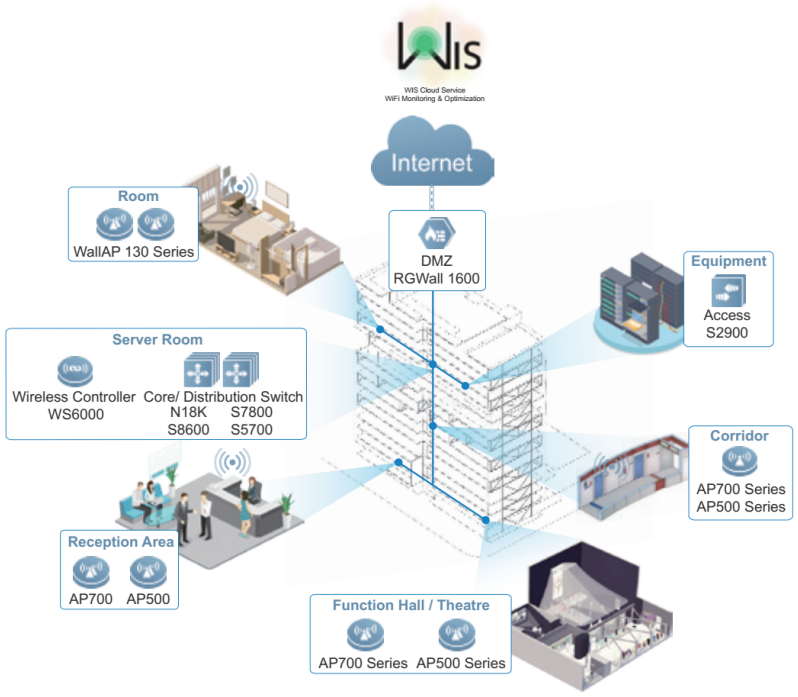


Figure 13: Typical Application Scenario with WIS Optimization Service

Ordering Information

Model	Description
RG-M18000-WS-ED	WS Series Wireless Controller Module for RG-N18000 Switch Series, 2 1G/10GBASE-X SFP+ ports, 128 APs License by default, maximum 2560 APs or 4000 Wall APs License
RG-M8600E-WS-ED	WS Series Wireless Controller Module for RG-S8600E Switch Series, 2 1G/10GBASE-X SFP+ ports, 128 APs License by default, maximum 2560 APs or 4000 Wall APs License
RG-WS6024	WS Series Wireless Controller, 24 10/100/1000BASE-T ports (PoE+), 2 100/1000M SFP ports (combo), 2 1G/10GBASE-X SFP+ ports, 2 Expansion Slots, 24 APs License by default, maximum 128 APs License (Power module sold separately and at least one module required)
RG-WS6816	Next-Generation Wireless Controller, 8-Port 10/100/1000Base-T, 8 GE SFP and 4-Port 10G Combo Ports, 2 Expansion Modules, Dual redundancy power supply (1 power supply is included), 128 APs license by default, maximum 2560 APs License or maximum 4000 APs License for Wall AP
RG-WS6108	WS Series Wireless Controller, 6 1000BASE-T ports, 2 1000BASE-T/1000BASE-X ports (combo), 32 APs License by default, maximum 320 APs or 640 Wall APs License
RG-WS6008	WS Series Wireless Controller, 6 1000BASE-T ports, 2 1000BASE-T/1000BASE-X ports (combo), 32 APs License by default, maximum 200 APs or 400 Wall APs License

License	
LIC-WS-16	WS Series Wireless Controller Upgrade License for 16 APs or 32 Wall APs (For RGOS 11.x or above)
LIC-WS-32	WS Series Wireless Controller Upgrade License for 32 APs or 64 Wall APs (For RGOS 11.x or above)
LIC-WS-128	WS Series Wireless Controller Upgrade License for 128 APs or 256 Wall APs (For RGOS 11.x or above)
RG-LIC-WS-512	WS Series Wireless Controller Upgrade License for 512 APs or 1024 Wall APs (For RGOS 11.x(11.1(2)B1) or above)
Optional Accessories	
RG-M6000-WS	WS Series Wireless Controller Module for RG-WS6024, 32 APs License by default, maximum 128 APs/Wall APs License (Each RG-WS6024 supports maximum one RG-M6000-WS module)
RG-PA300I	AC Power Module for RG-WS6816, 300W
RG-M5000E-AC500P	AC Power Module for RG-WS6024, 370W power budget for PoE, up to 24 PoE ports or 12 PoE+ ports
RG-PA1150P-F	AC Power Module for RG-WS6024, 740W power budget for PoE, up to 48 PoE ports or 24 PoE+ ports
RG-M5000E-DC500P	DC Power Module for RG-WS6024, -32VDC to -72VDC input voltage, 370W power budget for PoE, up to 24 PoE ports or 12 PoE+ ports
WNM-2XS-S	Expansion Module for RG-WS6816, support 2 10GBASE-X ports
WNM-4GE-S	Expansion Module for RG-WS6816, support 4 1000BASE-T/1000BASE-X combo ports
M2910-01XS	1-Port 10G SFP+ Interface Module for RG-WS6024 PoE support
M2910-01XT	1-Port 10G copper Interface Module for RG-WS6024 PoE support
XG-SFP-SR-MM850	10GBASE-SR, SFP+ Transceiver, MM (850nm, 300m, LC)
XG-SFP-LR-SM1310	10GBASE-LR, SFP+ Transceiver, SM (1310nm, 10km, LC)