X-sense

Tolly.
Certified

RG-AP500 Series
Wireless Access Point

Leveraging 802.11ac technology, the compact RG-AP500 Series delivers high-bandwidth, low-latency network connection at a low cost. The RG-AP500 Series is designed to serve the high-density, high-ceiling Wi-Fi scenarios with strong and consistent AP signals, ideal for sectors of higher education, government, healthcare, finance and enterprises. Compatible with the RG-MACC platform, the RG-AP500 Series supports robust and scalable Wi-Fi deployment and management to stay ahead of the evolving requirements of wireless networks.

The full series, featuring the dual-radio, dual-band performance enhancement, supports a maximum throughput of up to 1750Mbps, significantly eliminating Gigabit wireless bottlenecks. The RG-AP520-I(G2) maximizes the access rate and mobile connectivity with the latest patented "X-Sense 3" antenna and 2x3 multiple-input multiple-output (MIMO) technology, offering an exception user experience. On top of a variety of wireless features, the RG-AP520(BT), built-in with BT4.0 and iBeacon Module, enables a wide range of location-based services (LBS) including a special "WeChat Shake" feature to increase the value of the wireless network for the users. In addition, the RG-AP500 Series offers a one-stop wireless management via the MACC solution, by taking full care of wireless network security, RF control, mobile access, QoS and seamless roaming.

The RG-AP500 Series aims to increase the working efficiency and productivity while ensuring a robust and mobile user experience.

Feature Highlights

Best Price/Performance 802.11ac AP

- A maximum user throughput of up to 1750Mbps to deliver the best-in-class user experience

- Extended AP coverage with strong, stable and consistent Wi-Fi signal

- Capable of supporting up to 200+ concurrent users per AP

- Automated interference mitigation to effectively reduce Wi-Fi interference

Cloud Management Ready

- Decreased network complexity with the unified cloud management of the RG-MACC-BASE

- Scable and intuitive AP deployment configuration with the cloud operation and maintenance via the RG-MACC-BASE

- Intelligent and streamlined AP planning and management to boost network efficiency with RG-MACC-SSP

Advanced Security Protection and Integrated Marketing Features

- Integrated Bluetooth iBeacon and wireless positioning technology to support the RG-MACC-LBS module

- Customizable social media logins with captive portals and custom ads/campaign management enabled by the RG-MACC-SAM

- Versatile security management with ISP-level authentication of the RG-MACC-SAM
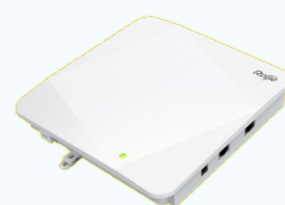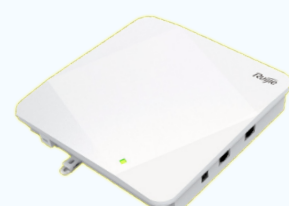
RG-AP520(DA)　　　　RG-AP520(W2)

RG-AP530-I V2

RG-AP520-I(G2)　　　　RG-AP520(BT)

Figure 1: RG-AP500 Series Product Family

PRODUCT FEATURES

Smart Wireless Coverage

802.11ac Gigabit Access Rate

The 5GHz band of RG-AP500 Series supports 802.11ac, the next-generation Wi-Fi standard, and offers a maximum connection rate up to 1300Mbps. When the dual bands operate simultaneously, the APs achieve an ultra-fast speed of up to 1.75Gbps. Comparing to the conventional 802.11n standard, the throughput is greatly enhanced. The RG-AP500 Series delivers a truly high-speed user experience.
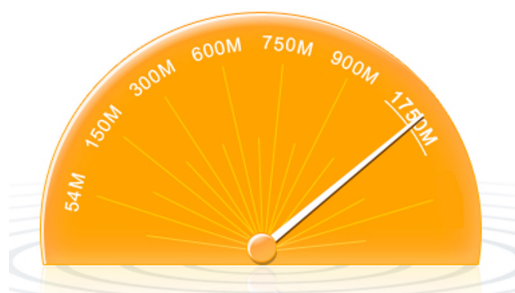

Figure 2: Maximum Throughput of RG-AP530-I V2 up to 1750Mbps

Remarkable Energy-saving Design

The RG-AP500 Series adopts advanced power-saving features including single-antenna standby, dynamic MIMO power saving, enhanced transmission technology with automatic power saving and packet-by-packet power control. Coupled with the high-performance power supply design, the APs guarantee high-speed wireless access and maximized signal coverage under 802.3af power supply.

Industry-leading Local Forwarding Technology

In collaboration with Ruijie RG-WS Wireless AC Series, users can flexibly pre-set a forwarding mode for the RG-AP500 Series. The APs can determine whether to forward data to the AC according to a SSID or user VLAN, or directly send the data to a wired network for data exchange.

The local forwarding technology can forward large-scale, delay-sensitive and real-time transmission data through the wired network. The feature significantly alleviates the traffic pressure on the wireless controllers and better fulfills the high traffic transmission requirements of 802.11ac network.

Abundant QoS Policies

The RG-AP500 Series supports an extensive array of QoS policies. For example, it provides bandwidth limitations in WLAN/AP/STA modes and Wi-Fi multimedia (WMM) that defines different priorities for different service data. The RG-AP500 Series realizes timely and quantitative transmission of audio and video and guarantees smooth operation of multi-media applications.

With the multicast-to-unicast conversion technology, the RG-AP500 Series resolves the video interruption problem due to packet loss or long delay in the wireless Video on Demand (VoD) system. The RG-AP500 Series highly enhances user experience with multicast video over wireless networks.

Built-in Latest "X-Sense 3" Smart Antenna

The RG-AP520-I(G2) of the RG-AP500 Series implements Ruijie's leading "X-Sense 3" Smart Antenna. The antenna deploys vertical polarization and horizontal polarization antenna arrays. In the "X-Sense 3" Smart Antenna matrix architecture, the RG-AP520-I(G2) with 12 built-in array antennas dynamically selects up to 4,096 different antenna combinations and effectively solves the weakness of coverage dead zones of traditional antennas. Regardless of the location of smart device, the "X-Sense 3" Smart Antenna customizes and aligns the best signal path to achieve full coverage. In comparison with traditional smart antenna, the "X-Sense 3" wireless gain has improved more than 5dB with a market-leading 5GHz coverage performance. An optimal signal experience is ensured with ease regardless of how the end device is placed (no matter the device is set up horizontally or vertically).
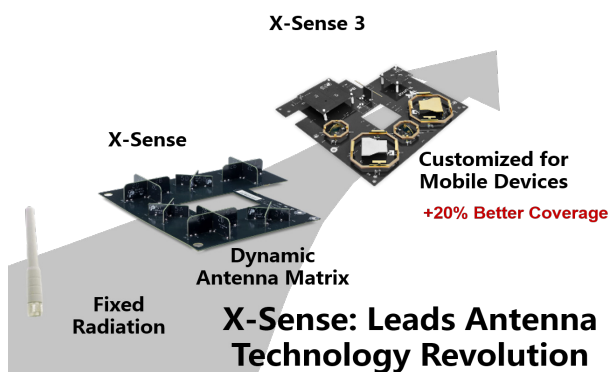

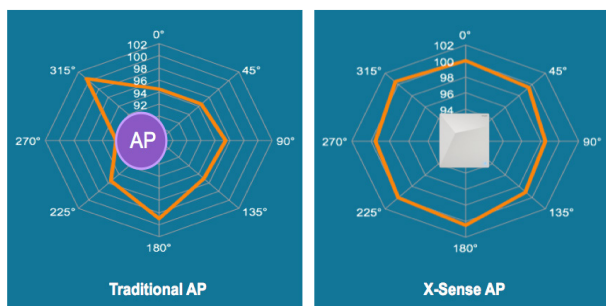**Figure 3: "X-Sense 3" Smart Antenna**

Figure 4: Comparison of Traditional Antenna and X-Sense Smart Antenna Coverage

Bluetooth 4.0 Integration

The RG-AP520(BT), with a built-in BT4.0 module, brings revolutionary changes to LBS marketing through iBeacon. iBeacon, first developed by Apple and later widely supported by other mobile devices, is a protocol leveraging Bluetooth low-energy (BLE) wireless technology to provide location-based information and services. Gearing up with this BT 4.0 integration, the AP becomes a powerful O2O marketing tool, enabling customers to get exclusive offers from nearby shops, view details on mobile when they are close to a featured product, get alerts on what's in-store next and many more. The RG-AP520(BT) of the RG-AP500 Series achieves the above marketing features with ease and offers breadth of marketing possibilities for enhanced personalization.

Figure 5: iBeacon Application with Bluetooth 4.0

Flexible Switching Between FAT and FIT Modes

The RG-AP500 Series supports flexible switching over the FAT and FIT modes according to the networking requirements of different industries. When there are few APs, users can adopt the FAT mode for easy, independent network establishment. For large-scale networks, the APs can operate at FIT mode and works with RG-WS ACs to allow centralized management of all the APs and

other aspects such as security, traffic management, QoS and IP management. Smooth transition from one mode to another, the RG-AP500 Series fully protects user investment.

Cloud Management Ready

The RG-AP500 Series can be managed in a cloud-enabled and unified approach that features the real-time and intuitive monitoring, planning, configuration and maintenance over the Ruijie RG-MACC-BASE platform. In conjunction with RG-MACC-BASE, the RG-AP500 Series can be flexibly deployed, efficiently managed and easily upgraded, freeing up significant level of IT manpower with increased manageability.

Advanced Security and Integrated Marketing Features

As the key components of the Ruijie's intelligent cloud-based RG-MACC platform, the RG-AP500 Series offers the secure and optimal network connections that are required in multiple scenarios. The RG-AP500 Series supports convenient and high-efficiency Protected Extensible Authentication Protocol (PEAP), Web Portal Authentication, SMS Authentication, and Voucher (QR code) Authentication[1].

Voucher (QR code) Login authentication is another wireless security and accounting highlight, enabled by Ruijie's cloud-based platform RG-MACC-SAM. It would generate one-time or pay-per-use vouchers in recurring or one-time format on time-based policies, streamlining and simplifying the generation and management of QR code or vouchers.
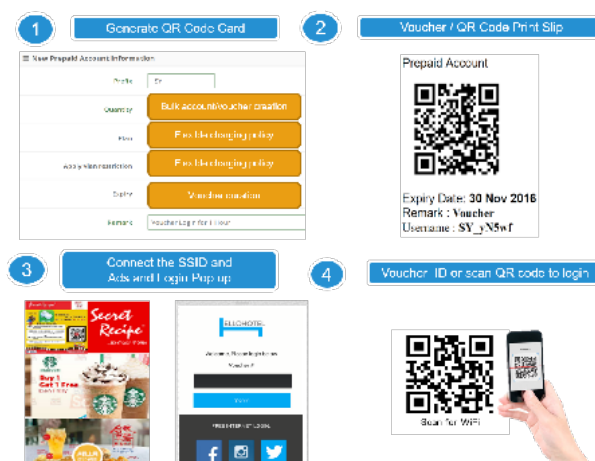

Figure 6: Advanced Guest Interfaces of the QR Code Authentication

Note:
[1]The authentication modes require the deployment of the RG-MACC-SAM.

TECHNICAL SPECIFICATIONS

Model	RG-AP530-I V2	RG-AP520(BT)	RG-AP520(W2)	RG-AP520-I(G2)	RG-AP520(DA)
Target Deployments	For sectors of higher education, government, healthcare, finance and enterprises				
Basic Specifications — Radio	Concurrent dual-radio dual-band				
Protocol	802.11a/b/g/n/ac	802.11a/b/g/n/ac	802.11a/b/g/n/ac Wave 2	802.11a/b/g/n/ac	802.11a/b/g/n/ac
Operating bands	802.11b/g/n: 2.4GHz to 2.483GHz 802.11a/n/ ac: 5.150GHz to 5.350GHz, 5.47GHz to 5.725GHz, 5.725GHz to 5.850GHz (vary depending on countries)	802.11b/g/n: 2.4GHz to 2.483GHz 802.11a/n/ ac: 5.150GHz to 5.350GHz, 5.47GHz to 5.725GHz, 5.725GHz to 5.850GHz (vary depending on countries) Bluetooth: 2.402GHz to 2.48GHz	802.11b/g/n: 2.4GHz to 2.483GHz 802.11a/n/ ac: 5.150GHz to 5.350GHz, 5.47GHz to 5.725GHz, 5.725GHz to 5.850GHz (vary depending on countries)	802.11b/g/n: 2.4GHz to 2.483GHz 802.11a/n/ ac: 5.150GHz to 5.350GHz, 5.47GHz to 5.725GHz, 5.725GHz to 5.850GHz (vary depending on countries)	802.11b/g/n: 2.4GHz to 2.483GHz 802.11a/n/ ac: 5.150GHz to 5.350GHz, 5.47GHz to 5.725GHz, 5.725GHz to 5.850GHz (vary depending on countries)
Antenna	Built-in Antenna 3×3 MIMO	Built-in Antenna 2x2 MIMO	Built-in Antenna 2×2 SU-MIMO 2×2 MU-MIMO	Built-in X-Sense Smart Antenna 2×3 MIMO	Built-in Directional Antenna 2x2 MIMO
Antenna gain	3dBi	3dBi	3dBi	3dBi	8dBi
Max throughput	450Mbps@2.4GHz 1300Mbps@5GHz 1.75Gbps per AP	300Mbps@2.4GHz 867Mbps@5GHz 1.167Gbps per AP	300Mbps@2.4GHz 867Mbps@5GHz 1.167Gbps per AP	300Mbps@2.4GHz 867Mbps@5GHz 1.167Gbps per AP	300Mbps@2.4GHz 867Mbps@5GHz 1.167Gbps per AP
Spatial streams	3	2	2	2	2
Modulation	OFDM: BPSK@6/9Mbps QPSK @12/18Mbps 16-QAM @24Mbps 64-QAM @48/54Mbps DSSS: DBPSK@1Mbps DQPSK@2Mbps CCK @5.5/11Mbps MIMO-OFDM: BPSK, QPSK, 16QAM, 64QAM and 256QAM	OFDM: BPSK@6/9Mbps QPSK @12/18Mbps 16-QAM @24Mbps 64-QAM @48/54Mbps DSSS: DBPSK@1Mbps DQPSK@2Mbps CCK @5.5/11Mbps MIMO-OFDM: BPSK, QPSK, 16QAM, 64QAM and 256QAM, Bluetooth: GFSK	OFDM: BPSK@6/9Mbps QPSK @12/18Mbps 16-QAM @24Mbps 64-QAM @48/54Mbps DSSS: DBPSK@1Mbps DQPSK@2Mbps CCK @5.5/11Mbps MIMO-OFDM: BPSK, QPSK, 16QAM, 64QAM and 256QAM	OFDM: BPSK@6/9Mbps QPSK @12/18Mbps 16-QAM @24Mbps 64-QAM @48/54Mbps DSSS: DBPSK@1Mbps DQPSK@2Mbps CCK @5.5/11Mbps MIMO-OFDM: BPSK, QPSK, 16QAM, 64QAM and 256QAM	OFDM: BPSK@6/9Mbps QPSK @12/18Mbps 16-QAM @24Mbps 64-QAM @48/54Mbps DSSS: DBPSK@1Mbps DQPSK@2Mbps CCK @5.5/11Mbps MIMO-OFDM: BPSK, QPSK, 16QAM, 64QAM and 256QAM
Maximum transmit power	≤100mW (20dBm, transmit power of the RF card only)				
IP rating	IP41				

Model		RG-AP530-I V2	RG-AP520(BT)	RG-AP520(W2)	RG-AP520-I(G2)	RG-AP520(DA)
Basic Specifications	Receiver sensitivity	11b: -93dBm (1Mbps), -89dBm (5Mbps), -87dBm (11Mbps) 11a/g: -89dBm (6Mbps), -82dBm (24Mbps), -78dBm (36Mbps), -72dBm (54Mbps) 11n: -85dBm@MCS0, -67dBm@MCS7, -83dBm@MCS8, -65dBm@ MCS15 11ac HT20: -85dBm (MCS0), -60dBm (MCS9) 11ac HT40: -82dBm (MCS0), -60dBm (MCS9) 11ac HT80: -79dBm (MCS0), -54dBm (MCS9)	11b: -99dBm (1Mbps), -93dBm (5.5Mbps), -90dBm (11Mbps) 11a/g: -93dBm (6Mbps), -85dBm (24Mbps), -82dBm (36Mbps), -77dBm (54Mbps) 11n: -92dBm@MCS0, -74dBm@MCS7, -92dBm@MCS8, -73dBm@ MCS15 11ac HT20: -90dBm (MCS0), -63dBm (MCS9) 11ac HT40: -85dBm (MCS0), -60dBm (MCS9) 11ac HT80: -82dBm (MCS0), -58dBm (MCS9)	11b: -99dBm (1Mbps), -93dBm (5.5Mbps), -90dBm (11Mbps) 11a/g: -93dBm (6Mbps), -85dBm (24Mbps), -82dBm (36Mbps), -77dBm (54Mbps) 11n: -92dBm@MCS0, -74dBm@MCS7, -92dBm@MCS8, -73dBm@ MCS15 11ac HT20: -90dBm (MCS0), -65dBm (MCS9) 11ac HT40: -85dBm (MCS0), -60dBm (MCS9) 11ac HT80: -82dBm (MCS0), -58dBm (MCS9)	11b: -99dBm (1Mbps), -93dBm (5.5Mbps), -90dBm (11Mbps) 11a/g: -93dBm (6Mbps), -85dBm (24Mbps), -82dBm (36Mbps), -77dBm (54Mbps) 11n: -92dBm@MCS0, -74dBm@MCS7, -92dBm@MCS8, -73dBm@ MCS15 11ac HT20: -90dBm (MCS0), -63dBm (MCS9) 11ac HT40: -85dBm (MCS0), -60dBm (MCS9) 11ac HT80: -82dBm (MCS0), -58dBm (MCS9)	11b: -99dBm (1Mbps), -93dBm (5.5Mbps), -90dBm (11Mbps) 11a/g: -93dBm (6Mbps), -85dBm (24Mbps), -82dBm (36Mbps), -77dBm (54Mbps) 11n: -92dBm@MCS0, -74dBm@MCS7, -92dBm@MCS8, -73dBm@ MCS15 11ac HT20: -90dBm (MCS0), -63dBm (MCS9) 11ac HT40: -85dBm (MCS0), -60dBm (MCS9) 11ac HT80: -82dBm (MCS0), -58dBm (MCS9)
Ports	Service port	2 10/100/1000 BASE-T Ethernet uplink ports	1 10/100/1000 BASE-T Ethernet port	1 10/100/1000 BASE-T Ethernet uplink port	2 10/100/1000 BASE-T Ethernet ports 1 USB port	2 10/100/1000 BASE-T Ethernet ports 1 USB 2.0 port
	Management port	1 console port (RJ45)				
Power	Power supply	Local power supply (DC 48V) and PoE (802.3af) (Power adapters sold separately)	Local power supply (DC 12V) and PoE (802.3af) (Power adapters sold separately)	Local power supply (DC 12V) and PoE (802.3af) (Power adapters sold separately)	Local power supply (DC 48V) and PoE (802.3af) (Power adapters sold separately)	Local power supply (DC 48V) and PoE (802.3af) (Power adapters sold separately)
	Power consumption	<12.95W				
WLAN	Maximum clients per AP	Up to 256				
	BSSID capacity	Up to 16 per radio Up to 32 per AP				
	SSID hiding	Support				
	Configuring the authentication mode, encryption mechanism, and VLAN attributes for each SSID	Support				
	Remote Intelligent Perception Technology (RIPT)	Support				
	X-speed	Support				
	Intelligent load balancing based on the number of users or traffic	Support				

Model		RG-AP530-I V2	RG-AP520(BT)	RG-AP520(W2)	RG-AP520-I(G2)	RG-AP520(DA)
WLAN	STA control	SSID/radio-based				
	Bandwidth control	STA/SSID/AP-based speed control				
	Preference for 5GHz (band select)	Support				
	Wireless position tracking	Support				
	Dynamic Frequency Selection (DFS)	Future release support				
Security	PSK, web, and 802.1x authentication	Support				
	Data encryption	WPA (TKIP), WPA2 (AES), WPA-PSK, and WEP (64 or 128 bits)				
	QR code authentication	Support				
	SMS authentication	Support				
	PEAP authentication	Support				
	Data frame filtering	Whitelist, static/dynamic blacklist				
	User isolation	Support				
	Rogue AP detection and countermeasure	Support				
	Dynamic ACL assignment	Support				
	RADIUS	Support				
	CPU Protection Policy (CPP)	Support				
	Network Foundation Protection Policy (NFPP)	Support				
	Wireless Intrusion Detection System (WIDS)	Support				
	Wireless Intrusion Prevention System (WIPS)	Support				
Bluetooth	BT4.0 (BLE)	N/A	Support	N/A	N/A	N/A
	iBeacon	N/A	Support	N/A	N/A	N/A
Routing	IPv4 address	Static IP address				
	IPv6 CAPWAP tunnel	Support	Support	Support	Support	N/A
	ICMPv6	Support				
	IPv6 address	Manual or automatic configuration				
	IPv6 tunnel	Manual or automatic configuration				
	IPv6 transparent transmission	Support				
	ISATAP	Support				
	Multicast	Multicast to unicast conversion				

Model		RG-AP530-I V2	RG-AP520(BT)	RG-AP520(W2)	RG-AP520-I(G2)	RG-AP520(DA)
Management and Maintenance	Network management	SNMP v1/v2C/v3, Telnet, SSH, TFTP, FTP and web management	SNMP v1/v2C/v3, Telnet, SSH, TFTP, FTP and web management	SNMP v1/v2C/v3, Telnet, SSH, TFTP, FTP and web management	SNMP v1/v2C/v3, Telnet, SSH, TFTP, FTP and web management	SNMP v1/v2C/v3, Telnet, Syslog/Debug
	Visualized wireless heat map analysis	Support (need to integrate with SNC)				
	Real-time spectrum analysis	Support (need to integrate with SNC)				
	Fault detection and alarm	Support				
	Cloud AC management	Support				
	Statistics and logs	Support				
	FAT/FIT switching	The AP working in FIT mode can switch to the FAT mode through the RG-WS wireless AC.				
		The AP working in FAT mode can switch to the FIT mode through a local console port or Telnet.				
External Characteristics	Lock	Support				
	LED indicators	1 LED (red, green, blue, orange, and flashing modes, breathing flashing mode for smart device access, and the indicator can be switched off to silent mode)				
Relevant Standard	Wi-Fi alliance certification	Support				
	Safety standard	GB4943, EN/IEC 60950-1				
	EMC standard	GB9254, EN301 489	GB9254, EN301 489	GB9254, EN301 489	GB9254, GB17618, EN301 489-1, EN301 489-17, EN55022, EN55024	GB9254, EN301 489
	Health standard	EN 62311				
	Radio standard	EN300 328, EN301 893				
	Vibration standard	EC60068-2-31, ETSI EN300 019, NEBS GR-63-CORE				
Specifications	Dimensions (W x D x H) (mm)	205 × 205 × 42	140 ×140 ×27	194 × 194 × 37 (Height of AP only, excluding case and mount kit)	205 × 205 × 42	205 × 205 × 42
	Weight	0.7kg	0.2kg	0.42kg (only main device)	0.8kg	0.7kg
Work Environment	Temperature	Operating Temperature: -10°C to 50°C	Operating Temperature: -10°C to 55°C	Operating Temperature: -10°C to 50°C	Operating Temperature: -10°C to 55°C	Operating Temperature: 0°C to 45°C
		Storage Temperature: -40°C to 70°C				
	Humidity	Operating Humidity: 5% to 95% (non-condensing)				
		Storage Humidity: 5% to 95% (non-condensing)				
Installation Mode		Ceiling/wall-mountable				

TYPICAL APPLICATION

Application Scenario 1

As a key component of the cloud-managed RG-MACC solution, the high-performance RG-AP500 Series is targeted at high-capacity scenario, such as shopping malls and Smart City projects, featuring BT integration for IoT readiness. Integrating with the RG-MACC platform, the RG-AP500 Series is able to scale its deployment according to the evolving requirements of enterprise-grade networks as shown in the following solution diagram.
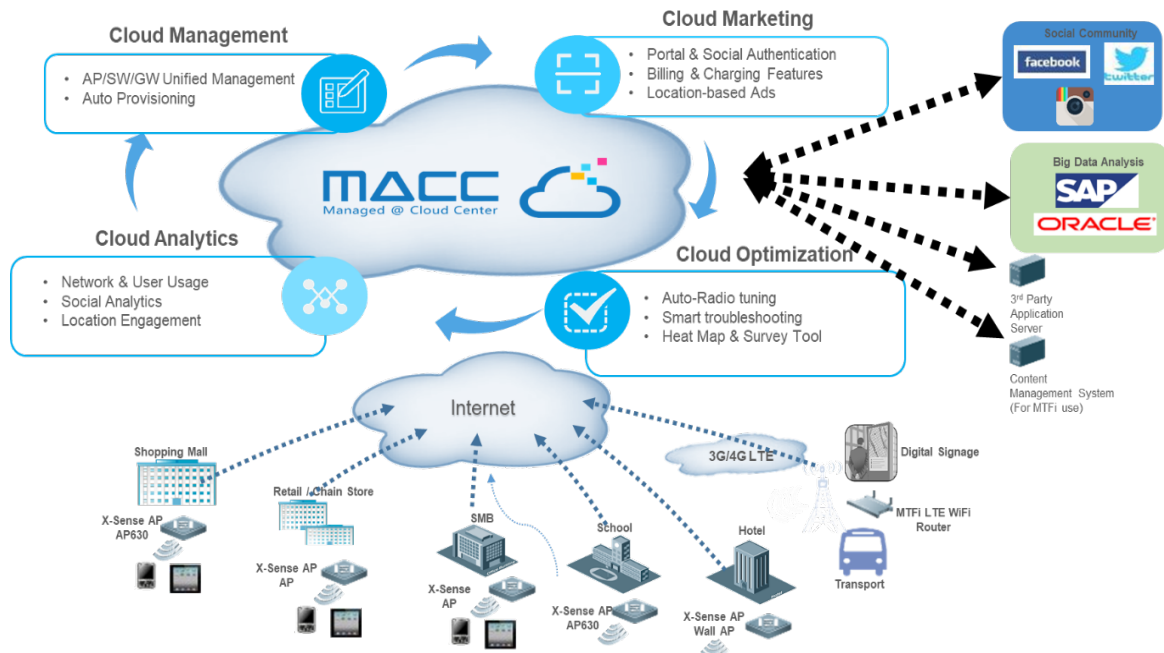

Figure 7: RG-MACC Solution Diagram

Application Scenario 2

The RG-AP500 Series helps you to innovate your hotel with a smart network. Our 4D Hospitality Solution features ubiquitous Wi-Fi, robust backbone, Layer 7 security protection and unified management to transform your hotel network into a revenue-generating asset with a competitive edge.

The whole network can be centrally managed via the on-premises hardware WLAN controller and Ruijie's network management software RG-SNC or another option can be to manage the whole network using Ruijie's RG-MACC Managed Cloud Solution to unify management and configuration of APs, switches and gateway devices, reducing the total cost of investment while ensuring high usability.
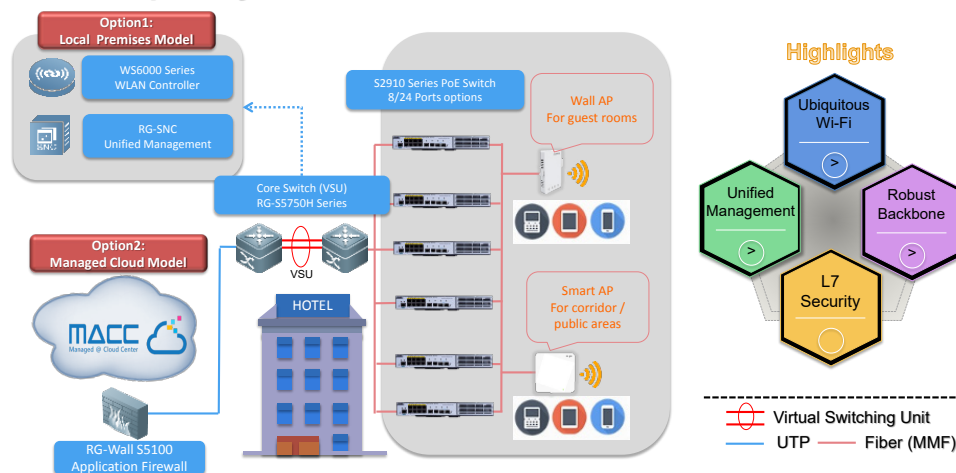

Figure 8: 4D Hospitality Solution

Application Scenario 3

The RG-AP500 Series is an ideal match for spacious and simple-structured buildings with high end user density, such as meeting rooms, libraries, classrooms, bars, and recreation centers. Clients can deploy the devices flexibly according to their needs.
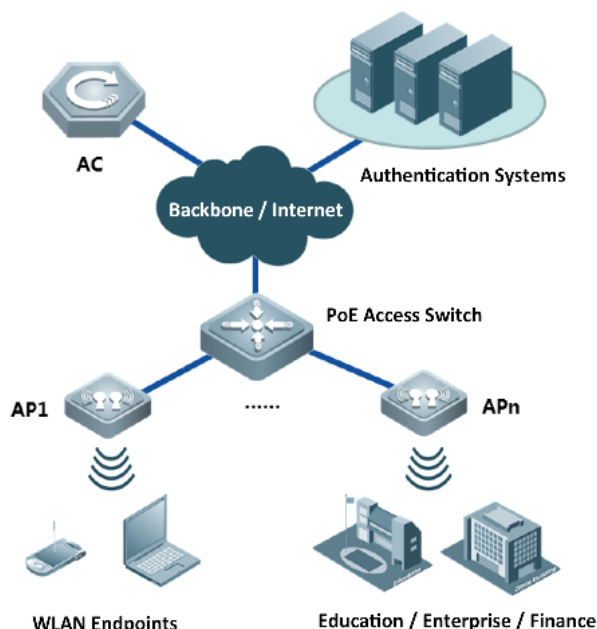

Figure 9: RG-AP500 Series Topology Diagram

ORDERING INFORMATION

Model	Description
RG-AP520(BT)	Indoor Wireless Access Point, dual-radio, dual-band, 2 spatial streams, access rate up to 1.167Gbps per AP, support concurrent 802.11ac and 802.11a/b/g/n, FAT/FIT modes, Bluetooth 4.0 & iBeacon, 1 10/100/1000BASE-T uplink port, support PoE and local power supply (PoE and local power adapters sold separately)
RG-AP520(W2)	Indoor Wireless Wave 2 Access Point, dual-radio, dual-band, 2 spatial streams, access rate up to 1.167Gbps per AP, support concurrent 802.11ac Wave 2 and 802.11a/b/g/n, MU-MIMO, FAT/FIT modes, 1 10/100/1000BASE-T uplink port, support PoE and local power supply (PoE and local power adapters sold separately)
RG-AP520-I(G2)	Indoor Wireless Access Point, built-in "X-Sense 3" Smart Antenna, dual-radio, dual-band, 2 spatial streams, access rate up to 1.167Gbps per AP, support concurrent 802.11ac and 802.11a/b/g/n, FAT/FIT modes, 2 10/100/1000BASE-T uplink ports, 1 USB 2.0 port, support PoE and local power supply (PoE and local power adapters sold separately)
RG-AP520(DA)	Indoor Wireless Access Point, ideal for venues, built-in directional antenna, Dual-radio, Dual-band, supports 802.11a/b/g/n/ac connections, FAT/FIT modes, 300Mbps in 2.4GHz and 867Mbps in 5GHz, supports PoE (PoE and local power adapters need to be purchased separately)
RG-AP530-I V2	Indoor Wireless Access Point, dual-radio, dual-band, 3 spatial streams, access rate up to 1750Mbps per AP, support concurrent 802.11ac and 802.11a/b/g/n, FAT/FIT modes, 1 10/100/1000BASE-T uplink port, support PoE and local power supply (PoE and local power adapters sold separately)

Innovation · Simplicity · Experience

For further information, please visit our website: http://www.ruijienetworks.com