

Ruijie Networks – Innovation Beyond Networks

Ruijie Cloud High-density Wi-Fi Network Implementation Guide

Ruijie Networks Co., Ltd.

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1 Overview

With popularity of intelligent STAs and socialization of the Internet, network experience at large conferences (such as large exhibitions, expositions, seminars, and enterprise annual meetings) gains increasing focus from managers and affects the reputation of the whole conferences. Deployment of high-density Wi-Fi networks at venues and stadiums usually encounters the following challenges:

- > A large number of APs need to be deployed to meet Internet access requirements of tens of thousands of users.
- > It needs to be ensured that the large number of densely deployed APs do not interfere with each other.
- > The egress bandwidth is limited and needs to be properly allocated, to ensure normal use of key applications.
- > The authentication service needs to be provided for access users to ensure network security.
- The authentication server needs to meet authentication requirements of a large number of users and ensure a smooth authentication process.

2 Basic Requirements

This chapter describes basic requirements and solutions for high-density Wi-Fi networks by using an example of an actual scenario.

2.1 Internet Gateway Requirements

 Two network lines of operators need to be deployed at the Internet gateway for redundancy, to balance load on the Internet gateway.

2.2 Wireless and Authentication Requirements

- The wireless network needs to meet connection and smoothness requirements of 10,000 to 20,000 users.
- Three SSIDs are enabled at a conference site, which respectively correspond to voucher-based authentication, one-click authentication, and WPA2 authentication. The voucher-based authentication is available to paid users, the one-click authentication is available to free users, and the WPA2 authentication is available to staff. The authentication needs to be perception-free to avoid repeated authentication caused by roaming of users' STAs.
- At the conference site, no-traffic go-offline is needed so that STAs automatically go offline when they generate no traffic in 30 minutes.
- All deployed APs need to be capable of automatically adjusting channels and power as required.

2.3 Access Control Related Requirements

 A rate of the voucher-based authentication needs to be limited to 5 MB/s, and a rate of the one-click authentication needs to be limited to 1 MB/s.

2.4 Security Requirements

- Different VLANs are configured to isolate APs, switches, and users.
- Port isolation is needed on access switches to prevent certain STAs from affecting stability of the entire network.
- DHCP snooping is needed on the access switches to prevent private IP addresses and interference from other invalid DHCP servers.

3 Implementation Solutions

3.1 Topology



3.2 Recommended Devices

Recommended models:

- RG-EG3000XE: Allows up to 20,000 concurrent users; supports 2x40G SFP ports and 8x10G SFP ports, to
 ensure sufficient bandwidth; supports high-speed data forwarding and diversified types of load balancing; and
 provides guaranteed bandwidth for key applications, which is the key of the high-density Wi-Fi network project.
- RG-8605E: Provides a switching capacity of 22.25 Tbps and a packet forwarding rate up to 2880 Mpps, and supports VSU and 40G SFP ports, to ensure a sufficient switching capacity and SFP port-based access for project success.
- RG-S2910-10GT2SFP-UP-H: 12-port full gigabit PoE switch that can ensure line-rate forwarding on all interfaces.
- RG-S2910-24GT4XS-UP-H: 28-port full gigabit PoE switch that can ensure line-rate forwarding on all interfaces.
- RG-AP740-I: Indoor AP that supports an ultra-high wireless network rate up to 2533 Mbps, ensuring wireless Internet access experience in high-density scenarios.
- RG-AP720-I: Indoor AP that supports a wireless network rate of 1267 Mbps, achieving a great leap in AP coverage performance in combination with the X-sense antennas.
- RG-AP720-L: Indoor AP that supports a wireless network rate of 1167 Mbps and the 802.11ac dual-band dual-radio function.
- RG-AP630(IODA): Outdoor omnidirectional AP that supports a wireless network rate of 1.75 Gbps, and provides an ultra-large coverage area to ensure quick access of wireless users in open areas.
- RG-AP630(IDA2): Outdoor directional AP that supports a wireless network rate of 2.533 Gbps, and adopts a housing design of an IP68 protection grade, to prevent impact of harsh weather and environments.



3.3AP Position Planning

With Ruijie Site Survey Planner (<u>https://survey.ruijienetworks.com</u>), customers can plan AP positions based on the floor plan, simulate AP signal coverage, and generate a site survey report.

For operation details, see the Site Survey User Guide:

http://ruijienetworks.com/service/document/read/58323



3.4VLAN/IP Planning

For higher security and ease of management, AP management addresses, switch management addresses, and user addresses are isolated at layer 2 by using different VLANs. Network segments are assigned based on user quantities allowed for different user access modes. It is suggested that the quantity of addresses be twice of the estimated quantity of users and discontinuous address segments be used, for better extensibility. Network segment examples:

- Switch management address segment: VLAN 10: 192.168.0.0/24; gateway address:192.168.0.1
- AP management address segment: VLAN 11: 192.168.8.0/20; gateway address: 192.168.8.1
- Address segment for users applying the voucher-based authentication: VLAN 100: 10.0.0/17; gateway address: 10.0.0.1
- Address segment for users applying the one-click authentication: VLAN 101: 10.1.0.0/17; gateway address: 10.1.0.1
- Address segment for users applying the WPA2 authentication: VLAN 102: 10.2.0.0/17; gateway address: 10.2.0.1

3.5 Authentication Schemes

The voucher-based authentication, one-click authentication, and WPA2 authentication are adopted, to ensure access speeds of tens of thousands of wireless users at a conference site and provide superb wireless network experience. When there are more than 50 web-authenticated users in the network, it is recommended that the EG device and the voucher function be used to configure local voucher-based authentication, and the one-click authentication and the WPA2 authentication be configured on the cloud. The voucher-based authentication and the one-click authentication are used for user access, and the WPA2 authentication is used for access to special devices. The voucher-based authentication is available to paid users, with a rate limited to 5 MB/s, and the one-click authentication is available to free users, with a rate limited to 1 MB/s.

3.6 Egress Bandwidth

Two WAN lines of different operators are deployed at the Internet gateway. One of the WAN lines has a fixed address and is used to guarantee the Internet access bandwidth of key applications at the conference site. The other WAN line is an ADSL line and is used by applications with a high downlink rate, for example, a download application and a video application. The total egress bandwidth can be configured by referring to the following figure and the total user quantity in the conference site, to ensure the wireless Internet access experience.

Application Name	Bandwidth for Single User
Webpage traffic (HTTP, HTTPS)	80 KB/s
Browser game (Web game)	60 KB/s
Online game (Steam, LOL, DOTA2)	80–150 KB/s
Mobile game (Mobile game)	80–150 KB/s
Online music (Google Play)	300 KB/s
P2P download (P2P HTTP download)	100–300 KB/s

Video service (YouTube)	300–500 KB/s
Social media (Facebook, Instagram, Twitter)	200–400 KB/s

3.7 Load Balancing

Load balancing based on application-based routing and load balancing based on floating routing are adopted on the egress device. The former guarantees Internet access performance of key applications with priority at the conference site, and the latter ensures a timely switch to a redundant line in case of an external network line exception, to ensure normal use of a wireless network line at the conference site.



4 Reference Configurations

4.1 Ruijie Cloud Configuration

For basic provisioning configurations, see the Ruijie Cloud Cookbook.

https://www.ruijienetworks.com/support/documents/slide_75464

This document describes some key configurations only.

4.1.1 Creating an SSID

Parintins						Sa	Ve More		
Wireless Configuration									
SSID	SSID 🔁								
WLAN ID	SSID	Encryption Mode	Hidden	Forward Mode	Radio	Auth Mode	Action		
1	Startcom Ilha Conectada	Open	No	bridge	1,2	Auth Disabled	区前		
2	Startcon	Open	No	bridge	1,2	Inner Portal	i D		
3	Startcom PDV	wpa2-psk	No	nat	1,2	Auth Disabled	i N		
	First	ous Page 1	of 1	Next Last		10 4	3 in total		

4.1.2 Configuring a Voucher

T	Voucher > M	lanage Package							Ð	+ - 23
	Add Package								Package Name	Q
	Package Name	Description	n Price	Max Concurrent	Devices Bind MAG	C Period	Data Quota	Max Download Ra	te Max Upload Rate	Action
	1 dia	1 dia	70.00	1	Yes	1 Day	Unlimited	1 Mbps	1 Mbps	C i
	3 dias	3 dias	70.00	1	Yes	3 Days	Unlimited	1 Mbps	1 Mbps	Z Ó
	4 dias	4 dias	70.00	1	Yes	4 Days	Unlimited	1 Mbps	1 Mbps	C i
	Emergência	Voucher de emêrgencia	0.00	1	Yes	2 Weeks	Unlimited	5 Mbps	5 Mbps	Z Ō
	Interno	Voucher interno	0.00	1	Yes	2 Weeks	Unlimited	10 Mbps	10 Mbps	Z Ó
	teste	teste	0.00	1	Yes	30 Minutes	Unlimited	Unlimited	Unlimited	C i
	VIP	VIP	70.00	1	Yes	2 Weeks	Unlimited	10 Mbps	10 Mbps	C i
			First Previous	Page 1	of 1	Next	Last		10 🔺	7 in total

Voucher
vouchei

Print Voucher

Voucher Code, Name/Ref, IQ

Manage Package More - O Total Vouchers: 25436 • Activated Vouchers: 0 • Depleted Vouchers • : 1588 Advanced Search ~

Voucher Code	Name/Ref	Package Name	Price	Period	Created at	Expired at	Devices	Bind MAC	Data Usage	Max Download RateMax
zvgtea	FarTest7	teste	0.00	30 Minutes	2019-06-26 14:06:57	2019-06-26 14:47:07	0/1	Yes 📋	0 MB/Unlimited	Unlimited
6cozg8	FarTest6	1 dia	70.00	1 Day	2019-06-26 13:45:14	2019-06-27 15:51:29	0/1	Yes 📋	0 MB/Unlimited	1 Mbps
d52oh7	test11	1 dia	70.00	1 Day	2019-06-26 12:27:37	2019-06-27 15:51:27	0/1	Yes 📋	0 MB/Unlimited	1 Mbps
zfmri7	FarTEST	teste	0.00	30 Minutes	2019-06-26 09:25:49	-	0/1	Yes	0 MB/Unlimited	Unlimited
qj6tg3	1	1 dia	70.00	1 Day	2019-06-26 07:47:19	-	0/1	Yes	0 MB/Unlimited	1 Mbps
vnlvvv	2	1 dia	70.00	1 Day	2019-06-26 04:05:26	-	0/1	Yes	0 MB/Unlimited	1 Mbps
262rg7	-	Interno	0.00	2 Weeks	2019-06-25 20:25:59	2019-07-09 20:56:03	1/1	Yes 📋	325 MB/Unlimited	10 Mbps
t4i2li	-	Interno	0.00	2 Weeks	2019-06-25 20:25:59	2019-07-09 21:26:10	1/1	Yes 📋	64 MB/Unlimited	10 Mbps
d5ybtf	-	Interno	0.00	2 Weeks	2019-06-25 20:25:59	2019-07-10 12:03:43	0/1	Yes 📋	0 MB/Unlimited	10 Mbps
2aw2j4	-	Interno	0.00	2 Weeks	2019-06-25 20:25:59	2019-07-13 21:38:30	0/1	Yes 📋	0 MB/Unlimited	10 Mbps

4.2 Ruijie EG Internet Gateway Reference Configuration

For basic provisioning configurations, see the RG-EG Implementation Cookbook.

https://www.ruijienetworks.com/support/documents/slide_75371

This document describes some key configurations only.

VEAN ID:	1	* (Range: 1-4087)				
IP Address:		*				
Submask:						
AnylP:	Enable					
Reverse Path:	Enable					
	Add					
ub Interface List	VLAN ID	Interface Info	Bandwidth	ISP	Action	
Sub Interface List Sub Interface GigabitEthernet	VLAN ID 102	Interface Info IP Address10.2.0.1	Bandwidth -	ISP -	Action Edit Delet	
Sub Interface List Sub Interface GigabitEthernet 0/2.102 GigabitEthernet 0/2.101	VLAN ID 102 101	Interface Info IP Address10.2.0.1 Submask: 255.255.255.0 IP Address10.1.0.1 Submask: 255.255.128.0	Bandwidth - -	ISP - -	Action Edit Dele Edit Dele	
Sub Interface List Sub Interface GigabitEthernet 0/2.102 GigabitEthernet 0/2.101 GigabitEthernet 0/2.100	VLAN ID 102 101 100	Interface Info IP Address10.2.0.1 Submask: 255.255.255.0 IP Address10.1.0.1 Submask: 255.255.128.0 IP Address10.0.0.1 Submask: 255.255.128.0	Bandwidth - - -	ISP - - -	Action Edit Dele Edit Dele Edit Dele	
Sub Interface List Sub Interface GigabitEthernet 0/2.102 GigabitEthernet 0/2.101 GigabitEthernet 0/2.100 GigabitEthernet 0/2.100 GigabitEthernet 0/2.101	VLAN ID 102 101 100 11	Interface Info IP Address10.2.0.1 Submask: 255.255.255.0 IP Address10.1.0.1 Submask: 255.255.128.0 IP Address10.0.0.1 Submask: 255.255.128.0 IP Address12.168.8.1 Submask: 255.255.248.0	Bandwidth - - - -	ISP - - - -	Action Edit Dele Edit Dele Edit Dele Edit Dele	

4.2.1 Creating a VLAN and a Corresponding Sub Interface

4.2.2 Creating a DHCP Address Pool

Set	ttings Static IP	Address User List				
+Ad	d DHCP XDelete Sele	ected DHCP ØExcluded Addr	ress Range DHCP: ON			
gs 🛛	Name	IP Address Range	Default Gateway	Lease Time	DNS	Action
	WPA2	10.2.0.1-10.2.127.254	10.2.0.1	Permanent	114.114.114.114	Edit Delet
	One-click	10.1.0.1-10.1.127.254	10.1.0.1	Permanent	114.114.114.114	Edit Delet
	Voucher	10.0.0.1-10.0.127.254	10.0.0.1	Permanent	114.114.114.114	Edit Delet
	AP_management	192.168.8.1-192.168.15.2 54	192.168.8.1	Permanent	114.114.114.114	Edit Delet

4.2.3 Configuring Local Authentication and Setting the Policy Type to Voucher

Ruij	jie EG				Scena	rio: General 🛛 🕻	Config Wiza	rd Ro	nline Service	Hi, admin 🗸
∂ Home	User	Auth Policy	Auth Server	Advanced Setti	ngs Whitelist S	ettings Sir	ngle Sign-On	Use	er Permission	1
Ē	Web Auth		Online Info							
Common	Local Auth	Note: 1. Bridge mo	ide is not supported.							
₩ Flow	IPFIX Accounting	2. Any two a 3. You can c 4. You can v	Any two among Web authentication, marketing authentication and local server authentication cannot be enabled at the same time. You can configure username and password on the User page. You can view AD domain user information on the User page.							
E Behavior	Block Internet Access	5. Users who 6. Please dis	o fail single sign-on will be sable flow control if you w	e matched with the other p ant to configure rate limit of	olicles. on cloud accounts for Auth Int	egration with Cloud. C	therwise, rate limi	ting may not	function accurat	ely.
 Cache 		+Add Policy ×	Delete Selected	Local Server Aut	h: ON Auth Integrat	ion with Cloud:	N 🧾			
		Policy	Name	P Range	Auth Server	Policy Type	Policy Status	Status	Match Order	Action
ecurity		🔍 Vou	cher 10.0.0	1-10.0.127.255	Account Auth	Voucher	Enable	Active		Edit Delete
Q User		Show No.: 10 V	Total Count: 1				🛿 First 🖣	Pre 1 N	ext ⊁ Last⊁	1 GO
8										

4.2.4 Checking Connection Statuses on Dual WAN Interfaces

Ruij	jie eg			Scer	nario: General 🍘	Config Wizard	🖄 Online Service	Hi, admir	
∂ Home	Interface	Basic Settings Mult	ti-PPPoE Interface Co	nversion	Link Detection				
÷	Route/Load	Tip: Click the interface to config	Tip: Click the interface to configure it. The DHCP interface does not support line escape or link detection.						
ommon	DNS Settings	Tip: Gi0/0 corresponds to WAN AnyIP: AnyIp is used to simulat	Tip: Gi0/0 corresponds to WAN0. Gi0/1 corresponds to WAN1. Gi0/2 corresponds to LAN2-LAN7. AnvIP: AnvIo is used to simulate the gateway to respond to all ARP requests and generate direct routes for users, allowing them to access Internet without changing						
₩ Flow	VPN	configuration.							
E ehavior	NAT/Port Mapping	l Panel							
(M)	DHCP	Ruíjie	WANO	LAN2 LAN4	LAN6	RG-EG2100-P			
Lache		Console 4	WAN	LAN Bridge Bridge Bridge	Bridge				
(!) Security		O U	Reset O WANI			Рос: О	Powered-on		
O User		Click the interface to con	figure it.	LAINS LAINS	LAIN7				

4.2.5 Enabling Flow Control, Selecting a Flow Control Template, and Setting Bandwidth of WAN Interfaces

Ruij	jie EG	Scenario: General 👔 🛛 🗟 Config Wizard 😤 Online Service 🛛 Hi, admin 🗸
∂ Home	Traffic Monitoring	Smart Flow Control
Common	Flow Control Policy	Note: Entertainment template and office template give priority to your entertainment and office application respectively. You can also customize a template by selecting the expert template. Tip: Please make sure that the bandwidth settings are correct.
■ 🗠 Flow	Object	Flow Control: OFF If you want to test the network speed, please disable flow control first.
Eehavior		
(Cache		
() Security		
Q User		
() Network		
Ruj	jie eg	Scenario: General 😗 🛛 🔽 Config Wizard 🔗 Online Service Hi, admin
☆ Home	Traffic Monitoring	Smart Flow Control
Common	Flow Control Policy	Note: Entertainment template and office template give priority to your entertainment and office application respectively. You can also customize a template by selecting the expert template. Tip: Please make sure that the bandwidth settings are correct.
▪ <mark>낟</mark> Flow	Object	Flow Control: ON If you want to test the network speed, please disable flow control first.
Eehavior		Select Template: Office •
(🏹 Cache		Interface: Gi0/0_Connected to ISP A Gi0/1_Connected to ISP B
(1) Security		Gi0/0_Connected to ISP A Bandwidth: Downlink 100 Mbps Uplink 100 Mbps
User .		Gi0/1_Connected to ISP B Bandwidth: Downlink 500 Mbps Uplink 50
() Network		Save

4.2.6 Configuring Load Balancing for WAN Interfaces

For load balancing configuration, visit <u>https://www.ruijienetworks.com/support/video-1720</u>

Ruij	jie EG		Scenario: General 🚷	Config Wizard	오 Online Service	Hi, admin 🗸
∂ Home		Policy-Based Route IP-Based Route Load Balance				
÷	Route/Load	Load Balance Settings				
Common	DNS Settings	Load Balance: Allocate traffic to different links according to the policy. (It takes effect only on the interface con	figured with IP-based route.)Click Enable, a	ind the traffic will be alloca	ited automatically.	
Flow		[View Load Balance Effect] [Custom Interface Weight]				
Behavior	NAT/Port Mapping	Save				
	DHCP					
Security						
User						
Network						
						
WLAN						
ري} Advanced						
		Model: EG2100-P Web Version: 2018.9.20.19 Details	©2000-2019 Ruijie Networks Co., I	Ltd Service Portal Servic	Mail Official Website	Online Service
Du	TO FO				<u></u>	
	JIE EG		Scenario: General 🚷	G Config Wizard	📯 Online Service	Hi, admin ∨
Home	Interface	Policy-Based Route IP-Based Route Load Balance				
Common	DNIS Settings	Load Balance Settings Load Balance: Allocate traffic to different links according to the policy. (It takes effect only on the interface con	figured with IP-based route.)Click Enable, a	and the traffic will be alloc.	ated automatically.	
¥	VPN	Load Balance: @Enable				
Flow	NAT/Port	[View Load Balance Effect] [Custom Interface Weight]				
Behavior	Mapping	Save				
(1) Security	DHCP					
ڪ						
User						
Network						
WLAN						
ø						
Aqvanceq						
Rui	jie EG		Scenario: General 😗	Config Wizard	3 Online Service	Hi, admin ∽
1 Home	Interface	Policy-Based Route IP-Based Route Load Balance				
ŧ	Route/Load	Load Balance Settings				
Common	DNS Settings	Load Balance: Allocate traffic to A Not secure 192.168.1.1/route_pi/milb_weight_view.htm		e allocated	automatically.	
Flow		Tip: By default, the multi-link load balance regards the bandwidth value as i following conditions. If the bandwidth usage of an interface is ensulface of	ts weight value. Users can change the weig ease increase/decrease its weight so that to	ht in the		
Behavior	NAT/Port Mapping	increase/decrease the bandwidth usage.				
\bigcirc	DHCP	Interface: Gi0/0 •				
Security		Weight: 5 * (1~40	00000, Default: 100000)			
User		Add				
Network		Interface Weight	Action			
		Show No.: 10 • Total Count:0	≪Previous 1 Next Last ₩	1 GO		
WLAN		1				
ري Advanced						
				J.		
		Nodeb EG2100-P Web Version: 2018.9.20.19 Details	©2000-2019 Ruiiie Networks Co Ltd	Service Portal 1 Service M	ail Official Website O	nline Service 1

] Interface me	Policy-Based Route	IP-Based Route Load Balance			
Route/Load	Load Balance Settings	The second second second second second			~
mon DNS Settings	Load Balance: Allocate traffic to	Not secure 192.168.1.1/route_pi/mllb	_weight_view.htm	- U	e allocated automatically.
∠ w vpn	Load Balance	Tip: By default, the multi-link load balance reg	ards the bandwidth value as its weight val	ue. Users can change the weight in the	
NAT/Port		following conditions. If the bandwidth usage of	an interface is small/large, please increas	e/decrease its weight so that to	
Mapping		increase/decrease the bandwidth usage.			
7 DHCP		Interface: Gi0/1	*		
irity		Weight: 5	* (1~40000000, D	efault: 1000000)	
S er		Add			
2					
vork		Interface	Weight	Action	
		GigabitEthernet 0/0	5 (Default: 100000)	Edit Delete	
		Show No.: 10 + Total Count:1	Il First Previous	1 Next Last ₱ 1 0	60
ያ nced					
	Model: EG2100-P Web Version: 20	018.9.20.19 Details	©2000	-2019 Ruijie Networks Co., Ltd Service F	Portal Service Mail Official Website Online Serv
UTTE EG				Scenario: General 🙆 🛛 🐻 Cor	nfin Wizard 🔗 Online Service Hi adn
	T				
ne Interface	Policy-Based Route	IP-Based Route Load Balance			
Route/Load	Load Balance Settings				
DNS Settings	Load Balance: Allocate traffic to	different links according to the policy. (It takes effe	ct only on the interface configured with IF	P-based route.}Click Enable, and the traf	fic will be allocated automatically.
w VPN	Load Balance	Strable Custom load Relation Effect Custom lot of	in en Melekki		
NAT/Port	L L	(View Load balance Litect) (Custom Inten	ace weight)		
vior Mapping		Save			
rity					
er					
er					
er) work					
ork					
er Joork S					
ser Norik S NN Need					
Ser Norik Sev NN Seced					
s ar ork N N					
S ar S NN Nn Creed	Model: E62100-P. Web Version: 20	018.9.20.19 Details	\$200	D-2019 Ruijie Networks Co., Ltd Service	Portal Service Mail Official Website Online Se
S ar S NN S Inced	Model: EG2100-P. Web Version: 20	318.9.20.19 Details	\$200	D-2019 Ruijie Networks Co., Ltd Service	Portal Service Mail Official Website Online Se
or monk ww cred	Model: EG2100-P. Web Version: 20	318.920.19 Details	6200	D-2019 Ruijie Networks Co., Ltd Service Scenario: General 🜒 🕫 Co	Portal Service Mail Official Website Oriline Se nfig Wizard 온 Online Service Hi, adr
ork NNN NNN Acced	Model: EG2100-P Web Version: 20 Policy-Based Route	178.9.20.19 Details	6200	0-2019 Ruijje Networks Co., Ltd Service Scenario: General @ Co	Portal Service Mail Official Website Online Se nfig Wizard 온 Online Service Hi, adr
ork NN Scool Cuffe EG Interface Powerface	Model: EG2100-P Web Version: 20 Policy-Based Route	118.9.20.19 Details IP-Based Route Load Balance	\$200	D-2019 Ruijje Networks Co., Ltd Service Scenario: General Ø 🕼 Co	Portal Service Mail Official Website Online Ser nfig Wizard 😤 Online Service Hi, adn
Content of the second of the s	Model: E62100-P Web Version: 20 Policy-Based Route Load Balance Settings	IP-Based Route Load Balance	\$200	D-2019 Ruijje Netwerks Co., Ltd Service Scenario: General Ø G Co	Portal Service Mail Official Website Online Ser nfig Wizard & Online Service Hi, adn
er ont NU hered Cuffee EG Interface Route/Load NNS Settings	Model: E62100-P: Web Version: 20 Policy-Based Route Load Balance: Allocate traffic to Load Balance: Allocate traffic to	IP-Based Route Load Balance 72 View Load Balance Effect - Google Chrome © Not secure 192.168.1.1/route_pi/last	€200 are_view.htm	0-2019 Ruijie Networks Co., Ltd Service Scenario: General @ 🔽 Co	Portal Service Mall Official Website Online Ser nfig Wizard A Online Service Hi, adn x e allocated automatically.
er ont NN ceed ceed interface Route/Load DNS Settings vPN	Model: E62100-P: Web Version: 20 Policy-Based Route Load Balance Allocate traffic to Load Balance	IP-Based Route Load Balance IP-Based Route Load Balance View Load Balance Effect - Google Chrome Not secure 192.168.1.1/route_pi/fast Note: Click here to view the load balance effect	c200 are_view.htm ct.	D-2019 Ruijie Networks Co., Ltd Service Scenario: General Ø Co – –	Portal Service Mail Official Website Orline Se nfig Wizard R Online Service Hi, adr
	Model: E62100-P. Web Version: 20 Policy-Based Route Load Balance: Allocate traffic to Load Balance: Allocate traffic to Load Balance	IP-Based Route Load Balance View Load Balance Effect - Google Chrome O Not secure 192.168.1.1/route_pi/fast, Note: Click here to view the load balance effect Load Balance Effect	c200 .are_view.htm ct.	D-2019 Ruijie Networks Co., Ltd Service Scenario: General Ø Co – –	Portal Service Mall Official Website Online Ser nfig Wizard & Online Service Hi, adm
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4.3 Switch Reference Configuration

(Note: the following vlan configuration is just for reference, please adjust accordingly in project.)

S2910-24GT4XS-UP-H#config S2910-24GT4XS-UP-H(config)#vlan 10 S2910-24GT4XS-UP-H(config-vlan)#vlan 11 S2910-24GT4XS-UP-H(config-vlan)#vlan 100 S2910-24GT4XS-UP-H(config-vlan)#vlan 101 S2910-24GT4XS-UP-H(config-vlan)#vlan 102 S2910-24GT4XS-UP-H(config)#int gi 0/24 S2910-24GT4XS-UP-H(config-if-GigabitEthernet 0/24)#ip dhcp snooping trust S2910-24GT4XS-UP-H(config-if-GigabitEthernet 0/24)#switchport mode trunk S2910-24GT4XS-UP-H(config-if-GigabitEthernet 0/24)#switchport trunk allowed vlan only 10-11,100-102 S2910-24GT4XS-UP-H(config-if-GigabitEthernet 0/24)#exit S2910-24GT4XS-UP-H(config)#ip dhcp snooping S2910-24GT4XS-UP-H(config)#int ran gi 0/1-23 S2910-24GT4XS-UP-H(config-if-range)#sw S2910-24GT4XS-UP-H(config-if-range)#switchport pro S2910-24GT4XS-UP-H(config-if-range)#switchport protected S2910-24GT4XS-UP-H(config-if-range)# switchport trunk native vlan 11 S2910-24GT4XS-UP-H(config-if-range)# switchport trunk allowed vlan only 10-11,100-102 S2910-24GT4XS-UP-H(config-if-range)#end S2910-24GT4XS-UP-H# S2910-24GT4XS-UP-H#wr

4.4 Wireless Optimization Configuration

Targeted wireless optimization is required after deployment to improve wireless Internet access experience of users in high-density scenarios. The automatic RF planning function of Ruijie Cloud can be used to automatically optimize APs on the entire network.

Ĩ		MONITORING CONFIGURATION MAINTENANCE
品 GROUPS		default ~ Q Time Zone: (GMT+0:00)Africa/Abidjan
		Country/Region China(CN) •
٩	WIRELESS	RF1(2.4G) Default Bandwidth 40MHz •
	Basic	RF2(5G) Default Bandwidth 80MHz *
	Layout	RF3(5G) Default Bandwidth 80MHz •
	Load Balance	
	RF Planning	Save
	Roaming	
	Bluetooth	Smart RRM Custom Channel 🗄 Recent RF Scan History 🕒 Schedule Settings
۲	AUTHENTICATION	Scan Mode: O Quick Scan O Deep Scan
	Voucher	The WiFI service won't be interrupted O The result will cover almost all WiFI
	PPSK	during scanning process. Interference.
		C The scanning result may not include all C The WIFI service will be interrupted
		Interference. during scanning process(disconnect and
		reconnect).
		Sync to Device :

5 Management and Maintenance

5.1 Ruijie Cloud APP

The Ruijie Cloud APP (downloaded from Google's or Apple's APP store) can be installed on mobile phones of administrators, so that the administrators can perform basic maintenance anytime anywhere, for example, view, optimize, modify configuration of, and add devices to the current network, and can upgrade network devices anytime anywhere. In this way, management and maintenance efficiency can be significantly improved, thereby ensuring Internet access experience of users.

5.2 Instructions for Use

For instructions for use, visit https://www.ruijienetworks.com/support/video-1713





6 Conclusion

For high-density wireless network projects, the Ruijie Cloud high-density Wi-Fi network solution provides access control for all devices on the cloud and can speed up portal display by using EG Internet Gateway local authentication, thereby increasing the user access speed and ensuring superb Internet access experience for users. In addition, Ruijie Cloud APP is used by O&M personnel to detect an existing network, upgrade devices, and optimize configurations anytime anywhere, thereby achieving optimal wireless network experience. Moreover, dual WAN interfaces are used to secure stable running of the wireless network at the conference site in case of a network line exception, thereby ensuring Internet access performance of wireless STAs at the entire conference site and guaranteeing a good reputation of the

whole project.

7 References

• Ruijie Cloud Cookbook V1.4

https://www.ruijienetworks.com/support/documents/slide_75464

Ruijie Cloud Product Videos

https://www.ruijienetworks.com/product/Video-1638/

RG-AP630 Series Access Point Hardware Installation and Reference Guide V2.0

https://www.ruijienetworks.com/resources/preview/75447

RG-Switch Implementation Cookbook V1.1

https://www.ruijienetworks.com/support/documents/slide_75280

• RG-EG Implementation Cookbook (V1.0)

https://www.ruijienetworks.com/support/documents/slide_75371

• EG-EG Product Videos

https://www.ruijienetworks.com/product/Video-1690

• Ruijie EG Security Gateway datasheet_EG2100P EG3250

https://www.ruijienetworks.com/resources/preview/75394

• RG-EG2100-P V2 Hardware Installation and Reference Guide

https://www.ruijienetworks.com/resources/preview/75320

• Site Survey User Guide:

http://ruijienetworks.com/service/document/read/58323