

TIP OpenWIFI & ecCLOUD Managed Solution

2022

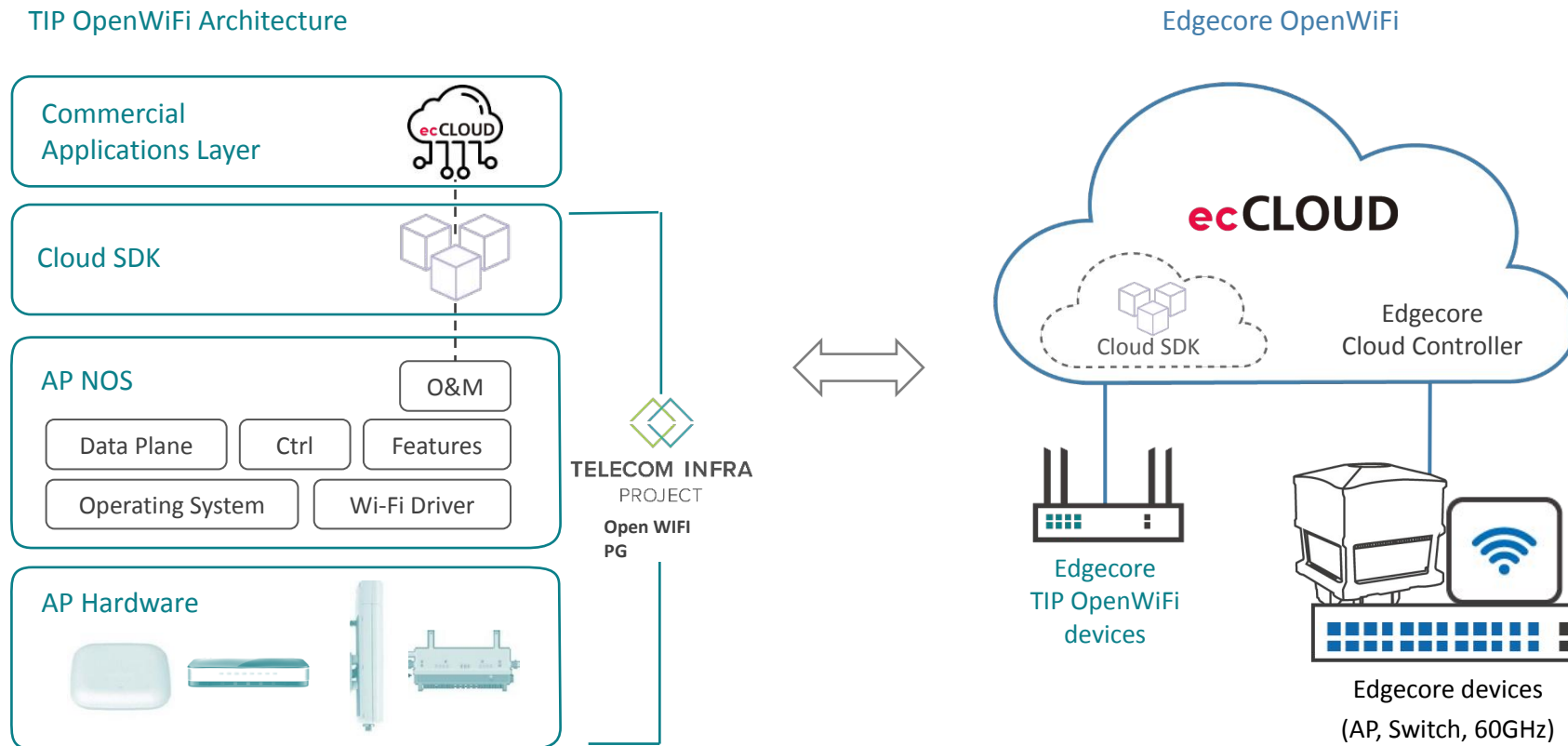
Telecom Infra Project (TIP) OpenWiFi

Edgecore is one of the active contributing members of the TIP Wi-Fi Project Group

- The Telecom Infra Project (TIP) is a global community of companies, organizations, and institutions, founded by Facebook, as known as Meta now. They're working together to accelerate the development and deployment of open, disaggregated, and standards-based technology solutions.
- **OpenWiFi** is a community-developed, disaggregated Wi-Fi software system, offered as free open-source software, that includes both a **cloud controller SDK** and an **Enterprise-grade Access Point (AP) firmware**, designed and validated to work seamlessly together.

Edgecore OpenWiFi Solution

- Edgecore provides a range of access points that comes preinstalled with TIP's Open AP software that offers users an open platform for further customization. From SMB to MDUs to larger venues, Edgecore TIP-ready access points and the integration between ecCLOUD and CloudSDK solutions can meet various usage and requirements.



Efficiency: Cloud Controller SDK

- The cloud controller SDK provides open north-bound APIs, so over-the-top Wi-Fi applications can be integrated once and then be used with multiple vendor solutions, saving integration costs and reducing time to market

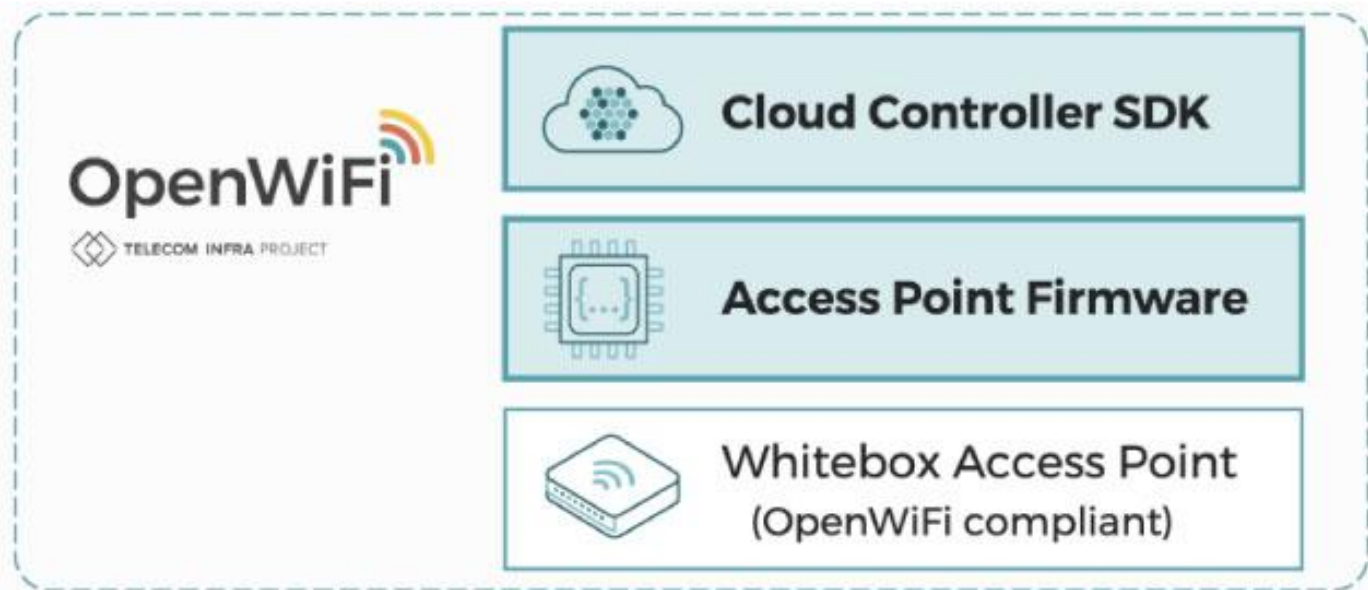
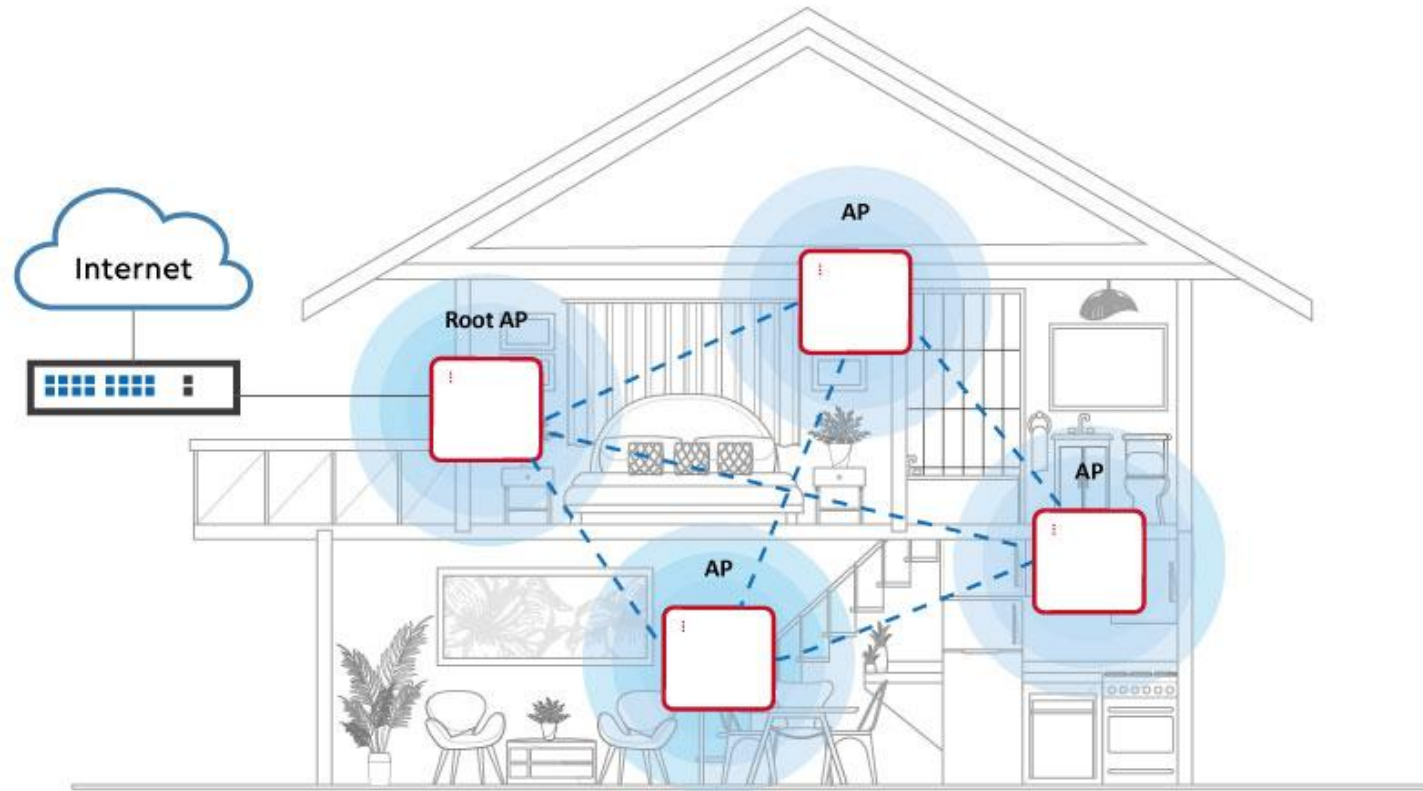


Image source: <https://telecominfraproject.com/openwifi/>

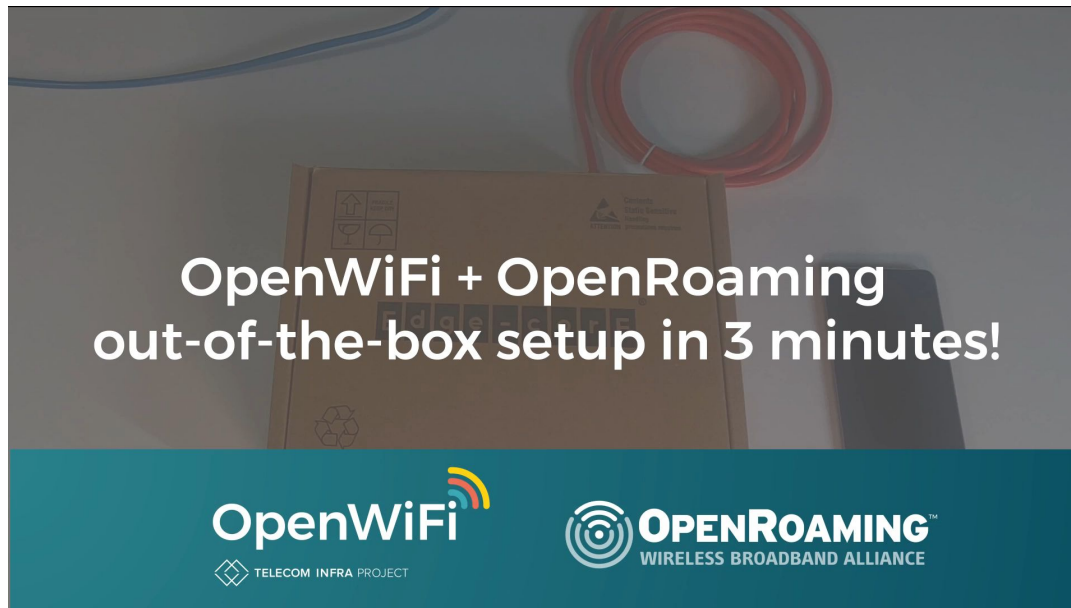
Scalability: OpenMesh

- OpenMesh allows you to connect your AP wirelessly to one another, providing an intuitive way to extend the Wi-Fi signal to a larger area and minimizing dead zones.



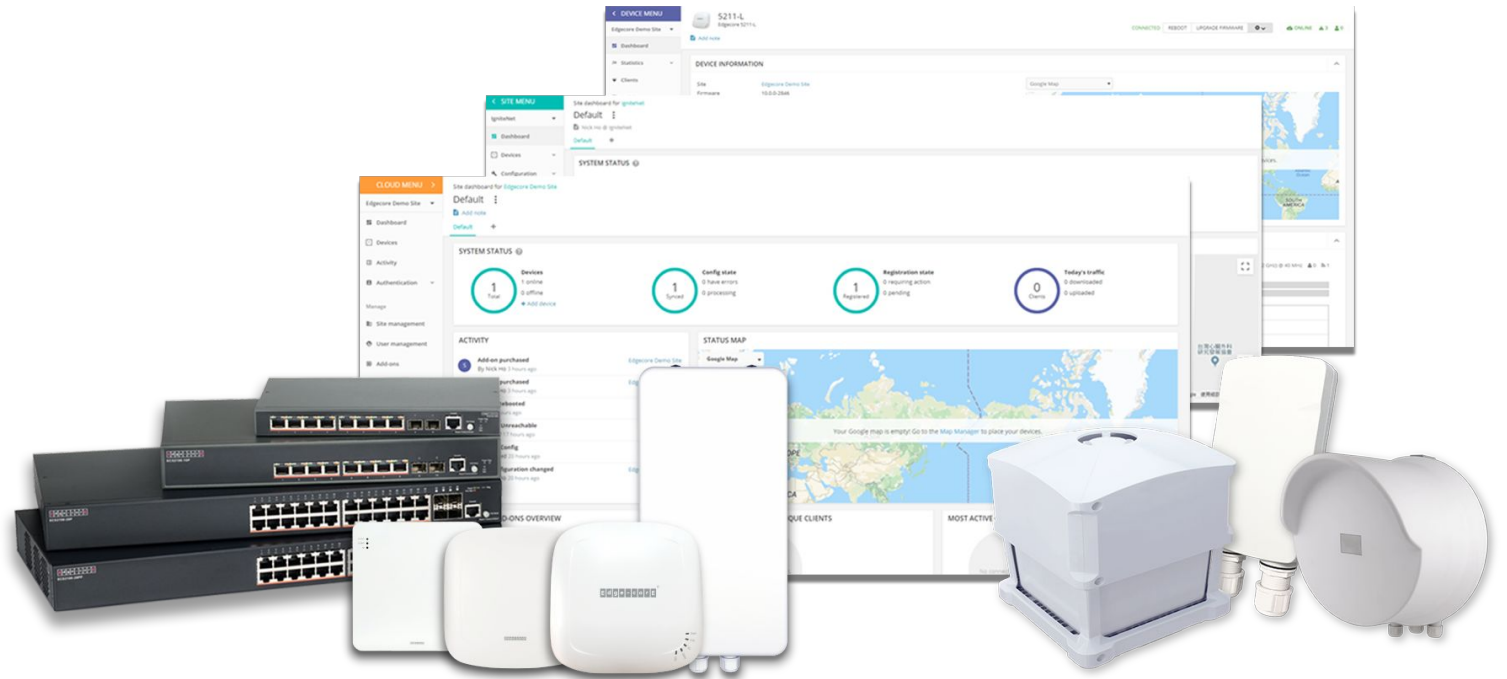
Flexibility: WBA OpenRoaming

- WBA OpenRoaming provides assurance that the Wi-Fi / Cellular networks automatically interoperate with each other to deliver an automatically connected networks experience, allowing users to securely roam from location to location without the need for logins, registrations or passwords.
- Check out the video of the conduct trial of the WBA's OpenRoaming with Edgecore OpenWiFi AP:
<https://lnkd.in/g73aHrn>



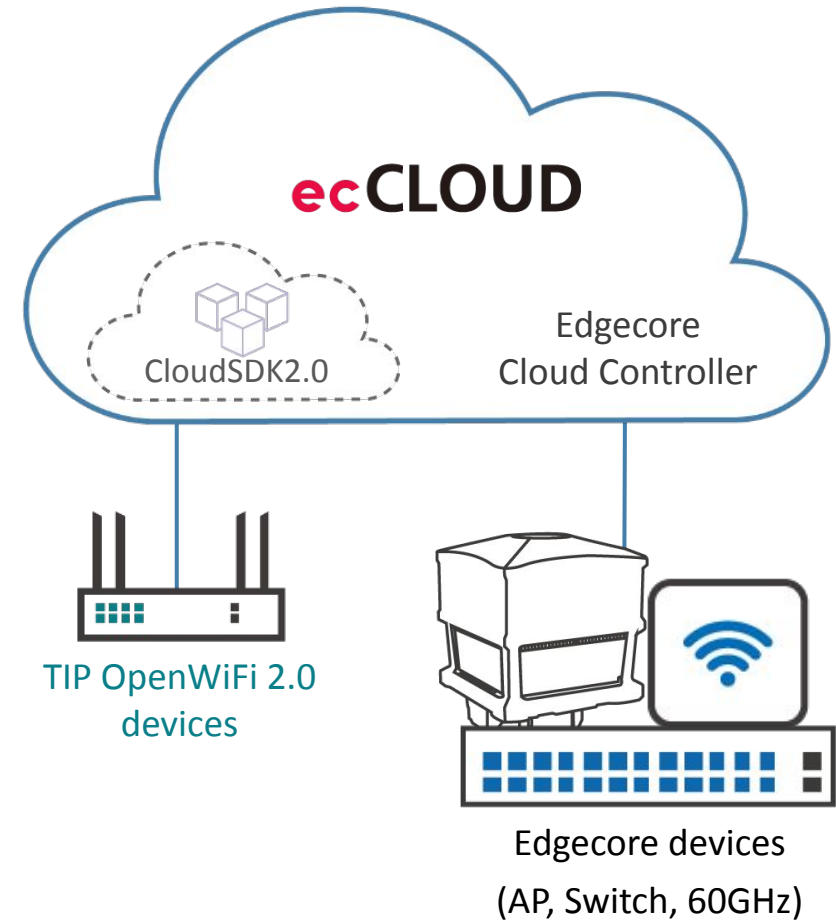
ecCLOUD – Edgecore Cloud Controller

- The Edgecore ecCLOUD is a cloud-based controller that provides unified visibility and control for Edgecore wired and wireless devices, including AP, PoE switch, and Terragraph products.
- ecCLOUD simplifies the task of device deployment, management and monitoring at a single site or multiple sites across different geographical locations.
 - Centralized management
 - Multi-site and Multi-level
 - Firmware management
 - Device provisioning
 - Custom Captive Portal
 - Logs, Report and Monitoring

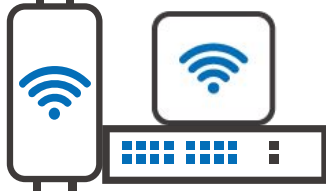


ecCLOUD & CloudSDK 2.0 Integration

- By converging with CloudSDK 2.0, the highlight of OpenWiFi 2.0, ecCLOUD can provide central management and visibility to all TIP OpenWiFi devices.
- Being the world's first TIP OpenWiFi cloud controller, ecCLOUD can support the full range of TIP OpenWiFi hardware devices and software applications, which realizes the dream of commercializing TIP OpenWiFi and making it a sustainable business model.



Edgecore OpenWiFi Advantages



- ✓ Comprehensive product series including indoor / outdoor AP, and PoE switch
- ✓ Multiple international certifications



- ✓ Supply products and services with global partners
- ✓ Offer hardware & software technical support worldwide



- ✓ Device onboarding service
- ✓ Centralized manage all TIP OpenWiFi 2.0 devices
- ✓ ecCLOUD public API for third-party applications



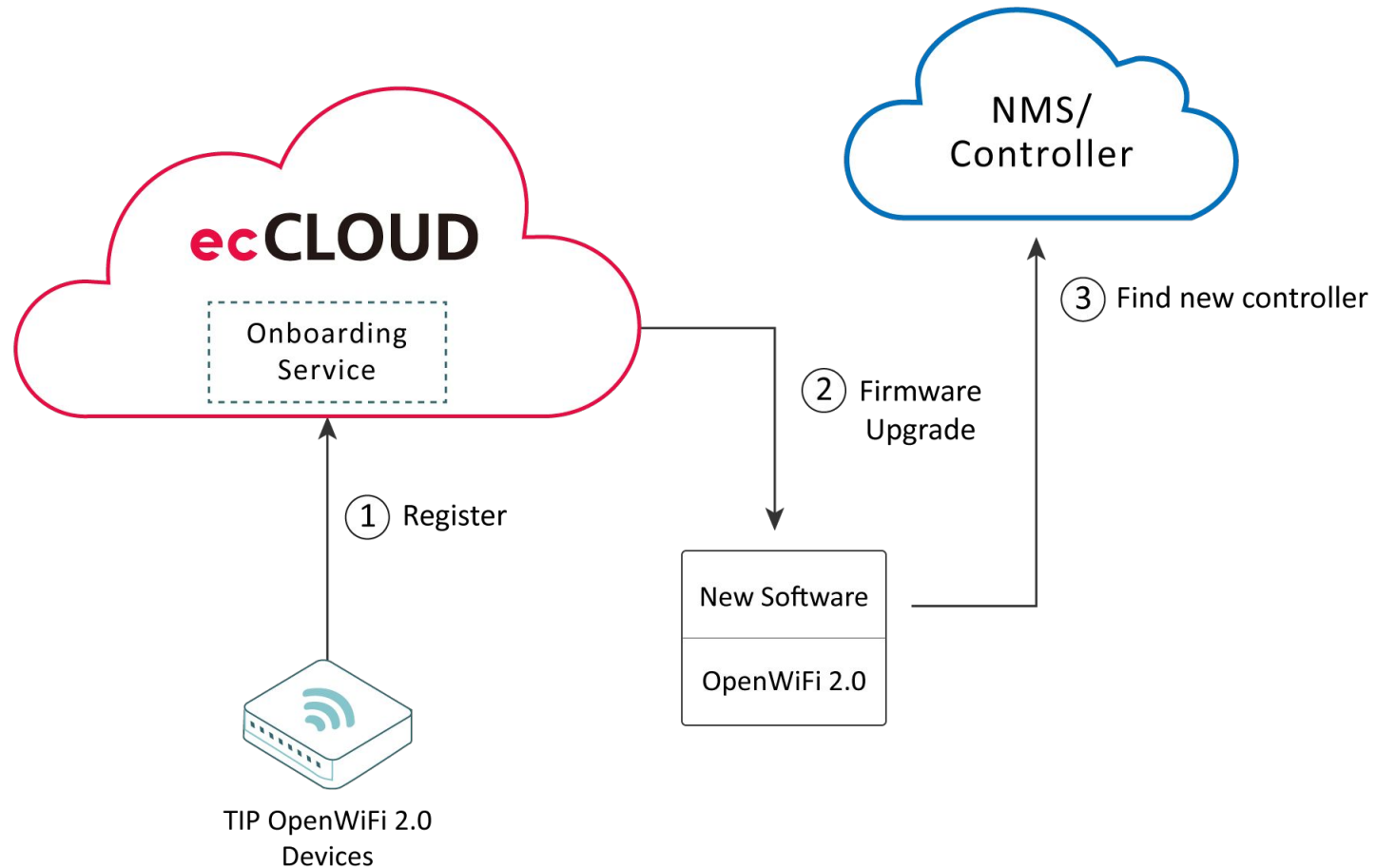
- ✓ High productivity in manufacturing
- ✓ High standard of quality control
- ✓ Complete logistics and RMA services



- ✓ Easy to develop with pre-loaded TIP OpenWiFi image
- ✓ Web GUI-ready for quick start up

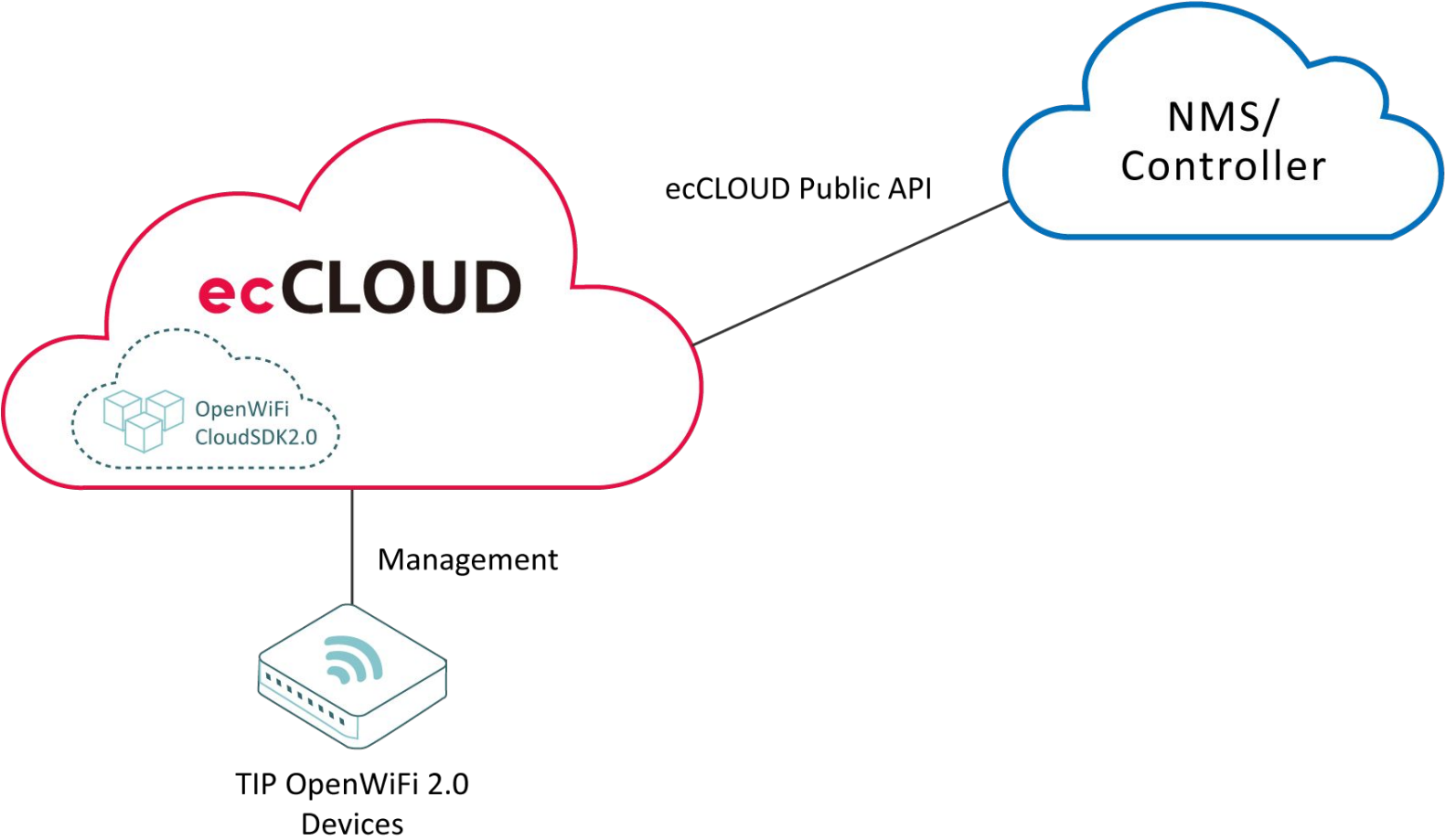
Device Onboarding Service

- With the device onboarding service, the TIP OpenWiFi devices can be easily upgraded to customized firmware or redirected to another cloud controller



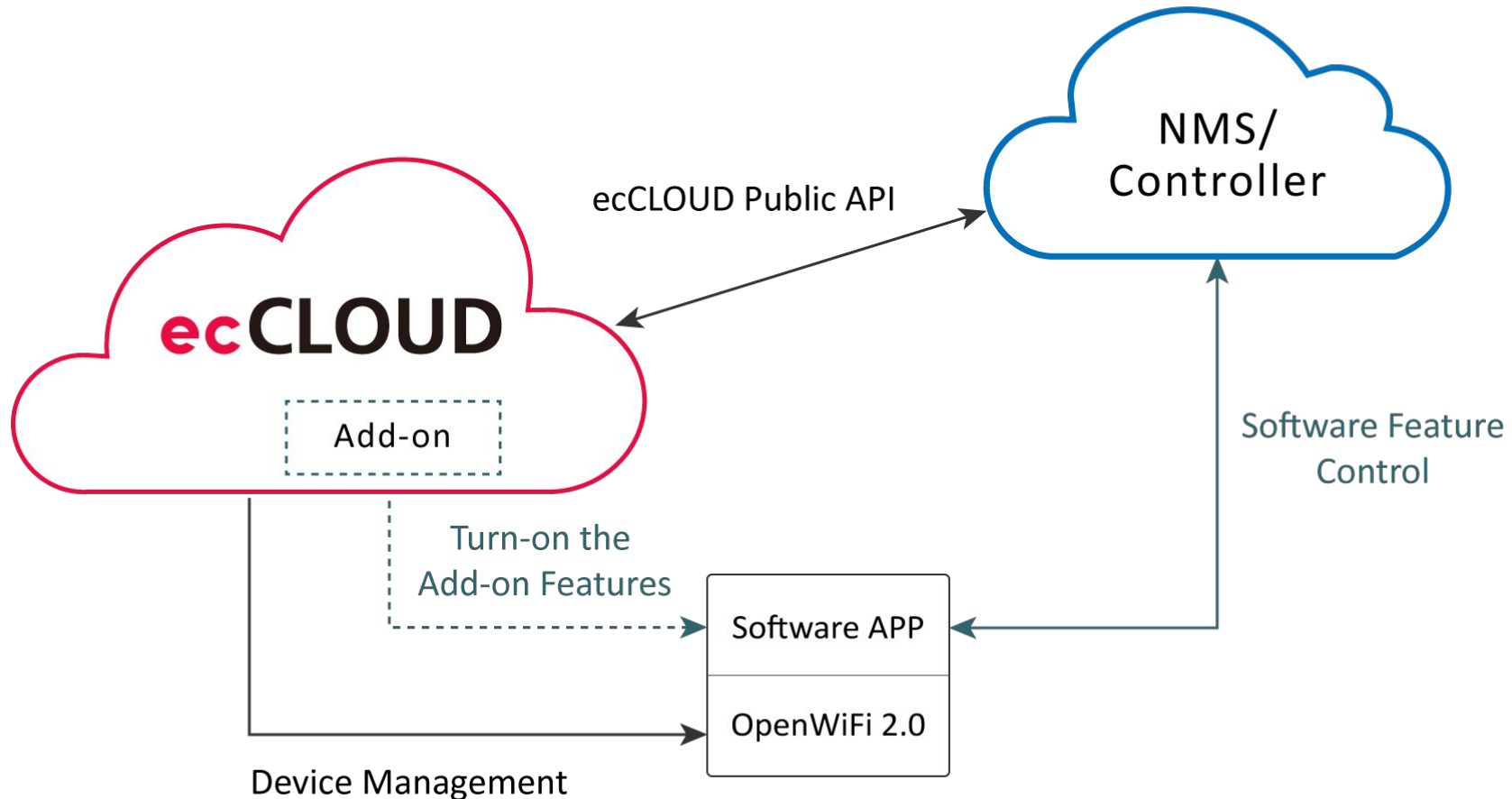
Applications

- ISP/MSP/Telcos can manage their OpenWiFi devices on ecCLOUD

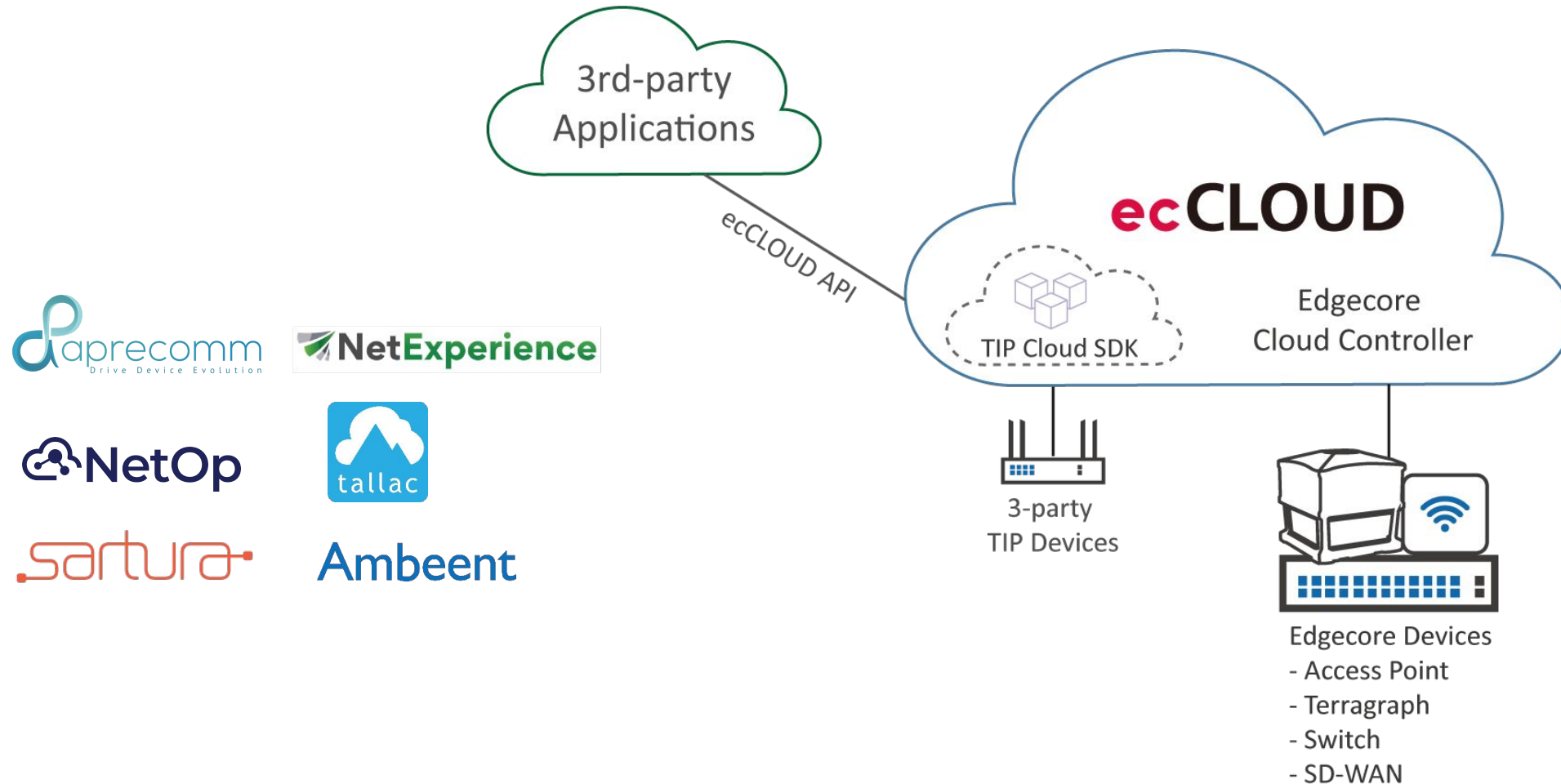


Applications

- For an OpenWiFi software partners, they can install their software on OpenWiFi AP NOS, and use ecCLOUD's northbound API to manage the devices.



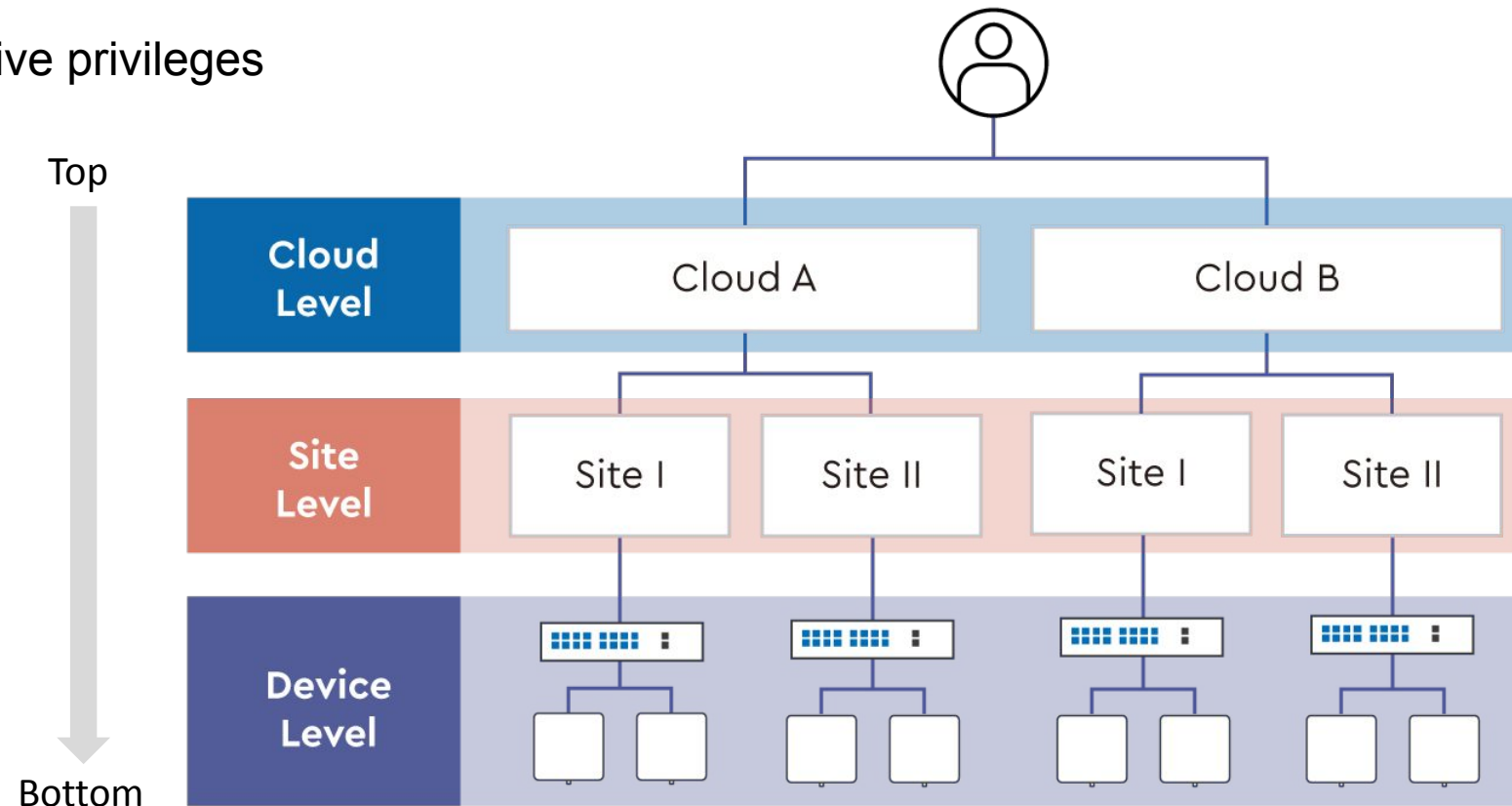
ecCLOUD API for Third-party Applications



ecCLOUD Hierarchy

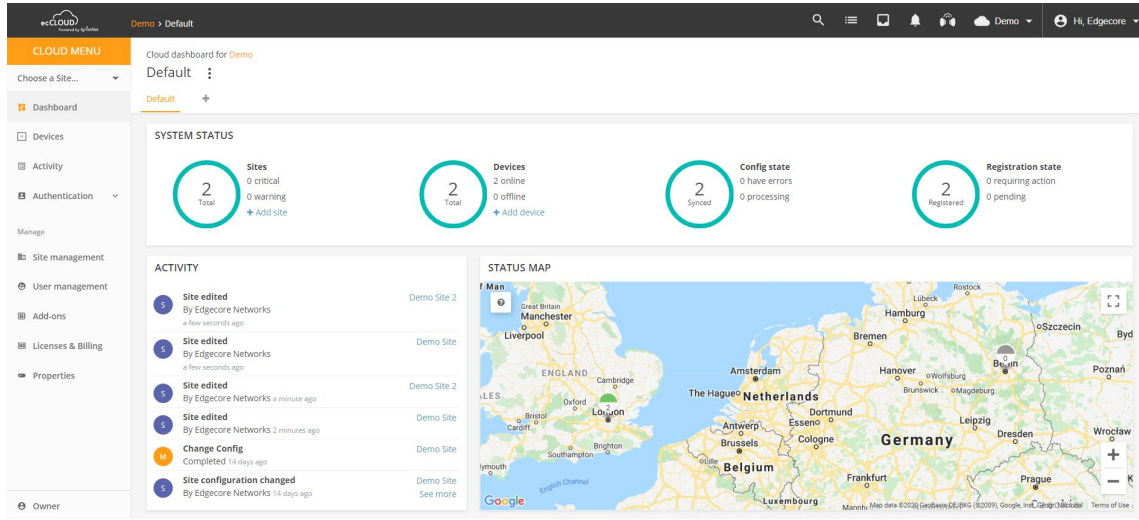
- **Multi-level management**

- Each site can have a distinct set of configurations, users, maps, and so on
- Each device can inherit or not to inherit site-level settings
- Role-based administrative privileges

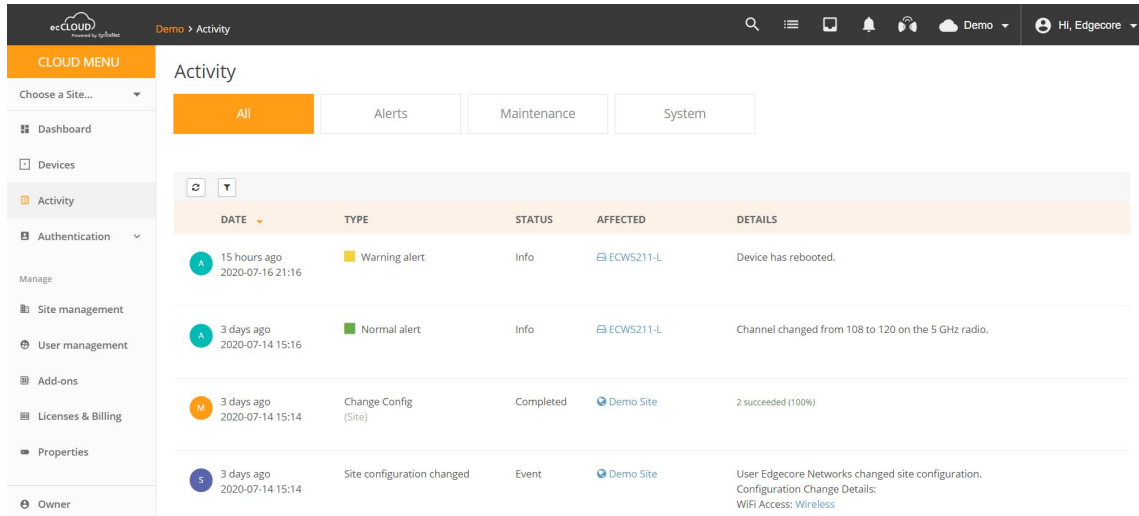


Intuitive Dashboard & Statistics

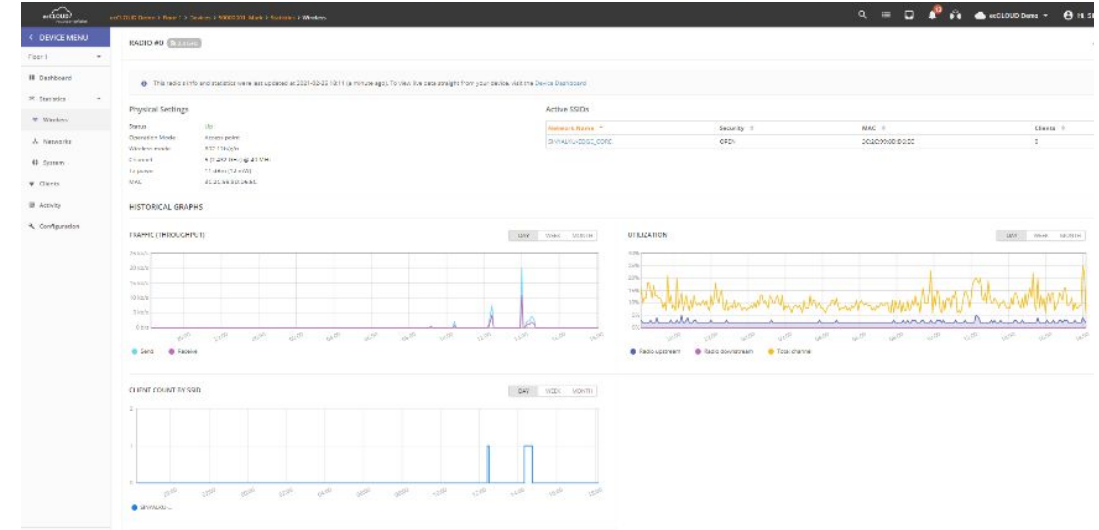
Cloud Dashboard



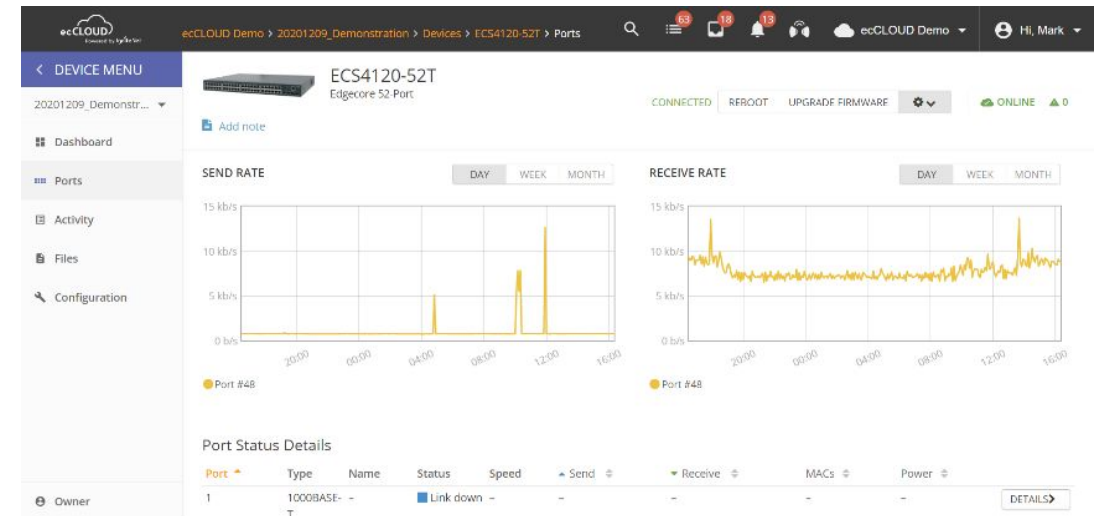
Alerts & Notifications



Wireless Client

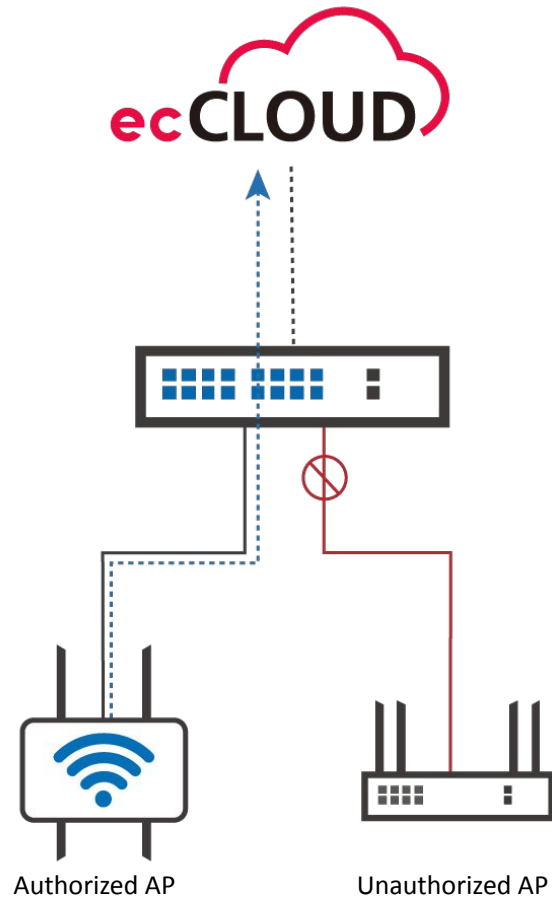


Switch Port Activity

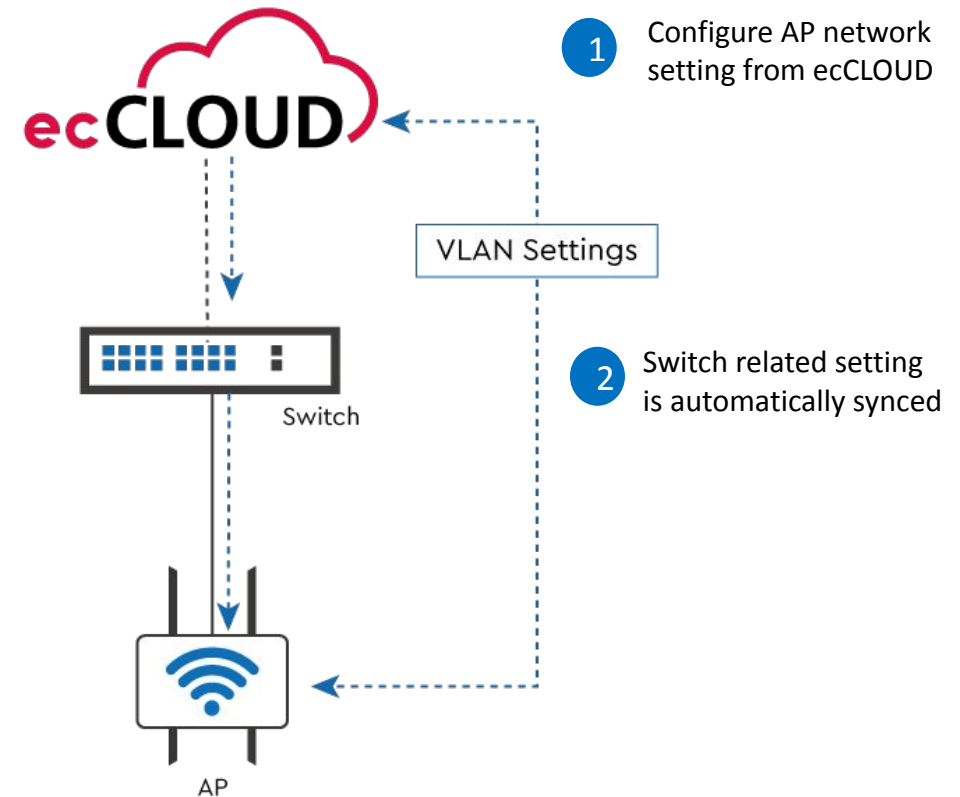


Integrated Wired & Wireless Management

- Port Security

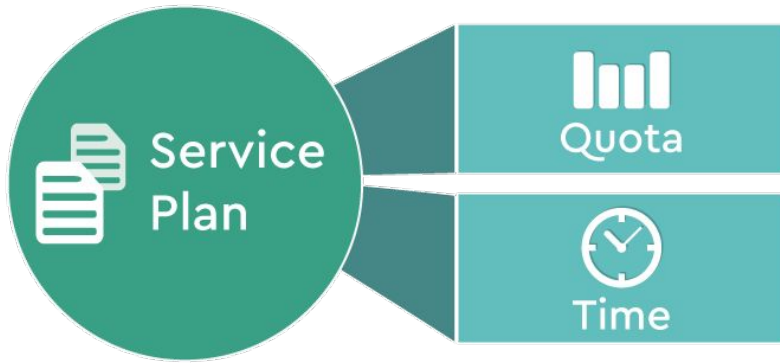


- VLAN Setting Automatic Sync



Network Security & Access Control

- AuthPort – AAA of wireless clients
 - Authentication against cloud's authentication server & account database
 - Authorization of network privileges as defined by service plans
 - Accounting to keep track of account usage

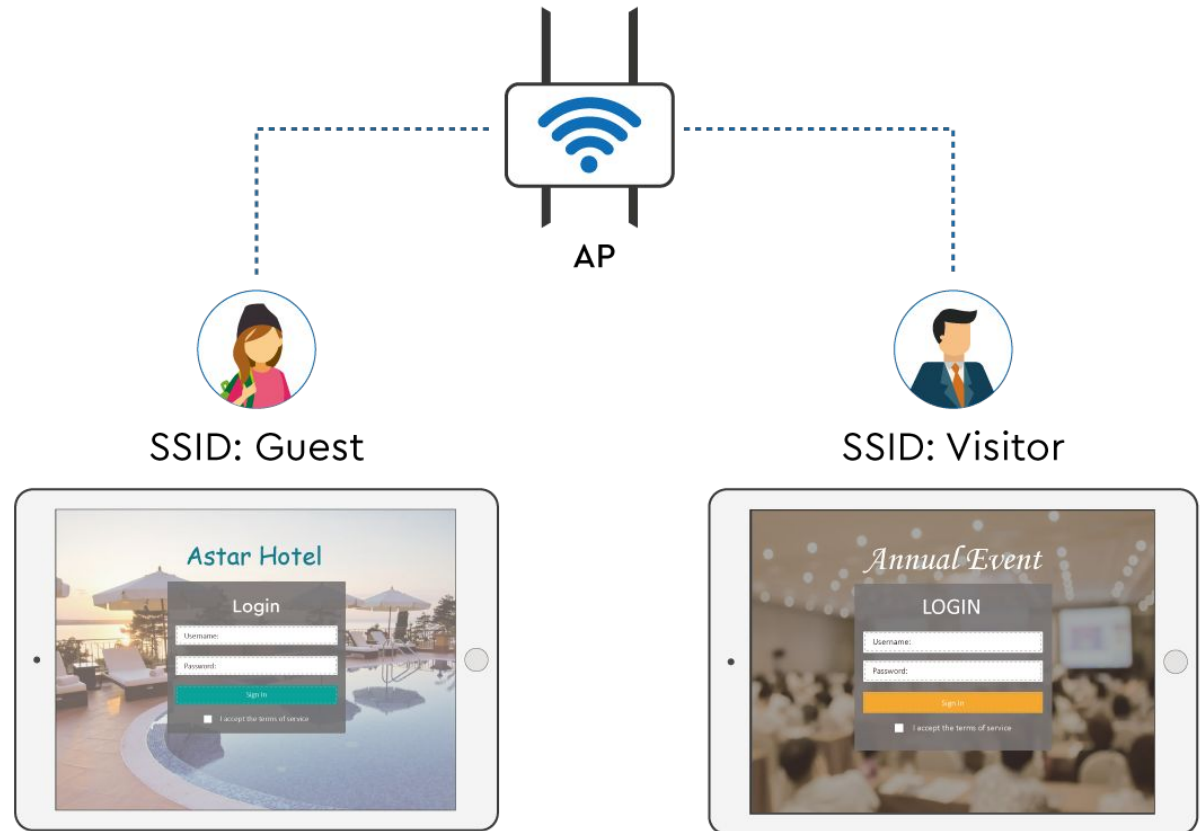
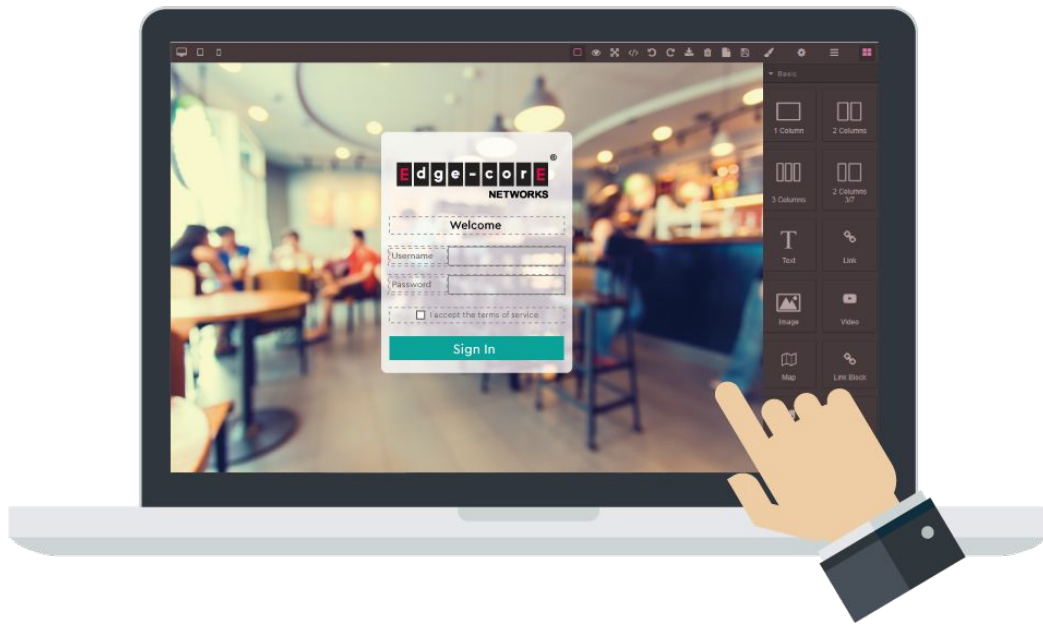


The screenshot shows the 'ecCLOUD' interface for 'SP-W2 Cloud > Authentication Servers > Account List'. The page title is 'Authentication Servers - Account List'. A search bar and '+ ADD ACCOUNTS' button are visible. The table below lists account details:

DELETED	STATUS	ONLINE	USERNAME	PASSWORD	PLAN NAME	EXPIRATION	QUOTA	NOTE	ACTIONS
<input type="checkbox"/>	Expired	<input type="radio"/>	79zg	....	Daily	2020-06-06 17:23	20 MBytes of 20 MBytes	N/A	⋮
<input type="checkbox"/>	Expired	<input type="radio"/>	8X7L	....	bb	2020-06-05 15:51	Unlimited	N/A	⋮
<input type="checkbox"/>	Expired	<input type="radio"/>	BJEE	....	6	2020-06-08 09:41	14 MBytes of 15 MBytes	N/A	⋮
<input type="checkbox"/>	Activated	<input type="radio"/>	EqVz	....	dd	2020-06-15 11:49	50 MBytes of 50 MBytes	N/A	⋮
<input type="checkbox"/>	Activated	<input type="radio"/>	LkVz	....	QQ	Doesn't expire	9 MBytes of 10 MBytes	N/A	⋮
<input type="checkbox"/>	Activated	<input type="radio"/>	Masx	....	dd	2020-06-15 10:12	50 MBytes of 50 MBytes	N/A	⋮

Customize Your Captive Portal as Needed

- Multiple customized captive portals can be saved
- Independent captive portal setting for each SSID



Dashboard Overview

- ① The top section shows your current location on ecCLOUD. You can do key searches here, check the tasks, latest news and alerts. You can also switch clouds here

- ② On the left section, you can get to other levels, Site and Devices



And you can go to manage and add-ons' section here

The dashboard interface includes a top navigation bar with search, menu, and user options. The left sidebar is titled 'CLOUD MENU' and lists various management options. The main content area features a 'SYSTEM STATUS' section with four circular gauges: Sites (2 Total, 0 critical, 0 warning), Devices (2 Total, 2 online, 0 offline), Config state (2 Synced, 0 have errors, 0 processing), and Registration state (2 Registered, 0 requiring action, 0 pending). Below this is an 'ACTIVITY' section with a list of recent events, and a 'STATUS MAP' showing a map of Europe with device locations marked.

- ③ On the right section, you can see the system status, including device health, configuration state, registration state and traffic. There's also an activity box, showing configuration changes, channel changes and so on. Then, on the status map, you can see where the devices associated with this site have been placed.

Site-Level Device List

The screenshot displays the 'Manage devices' interface in the ecCLOUD system. The left sidebar contains a 'SITE MENU' with options like Dashboard, Devices, Configuration, Activity, Wireless Clients, Maps, Add-ons, Site Properties, Notifications, and Owner. The main content area shows a table of devices with various action icons and columns for device details.

					NAME	PRODUCT	FW	REG. STATE	CREATED ON ↓	CLIENTS	TRAFFIC
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			ECW5211-L_uCentral	OPENWIFI 001PD406F139	2.1.0-rc3-bcd07e4	Registered	2 hours ago 2021-09-28 18:55	2	328 b/s
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			EAP101_uCentral	OPENWIFI 903CB3BC998B	2.1.0-rc3-bcd07e4	Registered	4 hours ago 2021-09-28 16:53	1	96.7 b/s
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			EAP102_uCentral	OPENWIFI F88EA14E21DC	2.1.0-rc3-bcd07e4	Registered	5 hours ago 2021-09-28 15:44	1	35.8 b/s

Filtered 3 rows from a total of 5

Rows per page: 25 | 1-3 of 3

Dashboard – Information

ecLOUD Powered by IyigaNet | Edge-Core > Demo_uCentral > Devices > EAP101_uCentral > Dashboard

Hi, Tester

DEVICE MENU

- Demo_uCentral
- Dashboard
- Statistics
- Wireless
- Networks
- System
- Clients
- Activity
- Configuration

EAP101_uCentral
OPENWIFI

CONNECTED | REBOOT | UPGRADE FIRMWARE | ONLINE ▲ 14 👤 2

DEVICE INFORMATION

Site	Demo_uCentral
Firmware	2.1.0-rc3-bcd07e4
Main MAC address	90:3C:B3:BC:99:8B
Serial Number	903CB3BC998B
Model	OPENWIFI
Configuration state	✔
Inherit site settings	✔
Hostname	eap101-ucentral
Created on	2021-09-28 16:53 (a day ago)
Last contact	2021-09-29 15:10 (a minute ago)
Uptime	21 minutes 19 seconds
System time	Wed Sep 29 15:29:01 2021
WAN IP	10.131.5.111
CPU utilization	3%
Memory usage	Used: 137MB (total 893MB)

taipei office | SHOW COVERAGE

Client locations: Jim, Dwight, Andy, Phyllis, Stanley, Creed, Darryl, Ryan

LIVE STATUS

✔ **5 GHz Radio** | 149 (5.745 GHz) @ 80 MHz | 1 | 1

Operational mode	Access point
Channel utilization	33%
Radio utilization	9%

80 Mb/s

✔ **2.4 GHz Radio** | 6 (2.437 GHz) @ 40 MHz | 1 | 1

Operational mode	Access point
Channel utilization	84%
Radio utilization	25%

10 Mb/s

Owner

Firmware Upgrade

ecCLOUD Powered by IyzeNet Edge-Core > Demo_uCentral > ...

Hi, Tester

New Firmware Upgrade Task

Select Product Line: All

Select Model: OpenWifi

Upgrade to version: 2.2.0-rc1-09c23e4

Give this task a name: Upgrade Firmware (version 2.2.0-rc1-09c23e4)

When do you want to start upgrade?
 Now
 Later

How do you want the upgrade performed?
 All at the same time
 One at a time 0 minutes

Which devices do you want to upgrade?
 All out-of-date compatible devices
 Let me choose

Reset to device defaults?

Upgrade firmware to two bootbanks?

Number of selected devices: 0

Device Name	Product	Current FW	New FW	MAC
<input type="checkbox"/> EAP101_uCentral_1	OPENWIFI	v2.1.0-rc3-bcd07e4	v2.2.0-rc1-09c23e4	90:3C:B3:BC:98:B9

Show 10 entries of 1 entries (filtered from 5 total entries)

Configuration

ecLOUD Powered by IgniteNet Edge-Core > Demo_uCentral > Devices > EAP101_uCentral > Configuration

Hi, Tester

EAP101_uCentral
EAP101

CONNECTED REBOOT UPGRADE FIRMWARE ONLINE 5 0

Device Configuration USE SITE SETTINGS DISCARD SAVE

Wireless SSID Radio Settings General Networking Local Networks Local Logins System Settings

SSID LIST + ADD SSID

ORIGIN	SSID	RADIOS	NETWORK BEHAVIOR	SECURITY	ENCRYPTION KEY	STATE	ACTIONS
Site	Demo_uCentral	5 GHz / 2.4 GHz	Route to Internet	WPA2-PSK (AES)	••••••••	Enabled	

WIRELESS SCHEDULING + ADD SCHEDULE

ORIGIN	NAME	START TIME	END TIME	DAYS	ENABLED	ACTIONS
No data available for this list						

Owner

Activities

< SITE MENU

- Demo_uCentral
- Dashboard
- Devices
- Configuration
- Activity
- Wireless Clients
- Manage
 - Maps
 - Add-ons
 - Site Properties
 - Notifications
- Owner

Activity

All Alerts Maintenance System

DATE	TYPE	STATUS	DEVICE	DETAILS
33 minutes ago 2021-09-29 16:11	Critical alert	Active	EAP101_uCentral_1	Unable to reach device.
2 hours ago 2021-09-29 15:08	Critical alert	Resolved	EAP101_uCentral	Unable to reach device.
2 hours ago 2021-09-29 15:08	Warning alert	Info	EAP101_uCentral	Device has rebooted.
2 hours ago 2021-09-29 15:08	Warning alert	Info	ECW5211-L_uCentral	Device has rebooted.
2 hours ago 2021-09-29 15:07	Warning alert	Info	EAP102_uCentral	Device has rebooted.
2 hours ago 2021-09-29 15:00	Change Config (Device)	Completed	EAP101_uCentral	Configuration was successfully updated on the device. Configurations sent to device: Wireless.
2 hours ago 2021-09-29 15:00	Device configuration changed	Event	EAP101_uCentral	User Tester Admin changed configuration for device. Configuration Change Details: Wireless 5 GHz

Edgecore

TIP OpenWiFi Devices

Wi-Fi 6 TIP Access Point



EAP101

Indoor Access Point

802.11ax

2x2:2
MU-MIMO

Dual Radio
2.4GHz +
5GHz

Up to
1.7 Gbps



EAP102

Indoor Access Point

802.11ax

4x4:4
MU-MIMO

Dual Radio
2.4GHz +
5GHz

Up to
2.9 Gbps

Wi-Fi 5 Indoor TIP Access Point



ECW5211-L

Indoor Access Point

802.11ac
Wave2

2x2:2
MU-MIMO

Dual Radio
2.4GHz +
5GHz

Up to
1.2 Gbps



ECW5410-L

Indoor Access Point

802.11ac
Wave2

4x4:4
MU-MIMO

Dual Radio
2.4GHz +
5GHz

Up to
1.73 Gbps

Wi-Fi 5 Outdoor TIP Access Point



SP-W2-AC1200

Indoor/Outdoor Access Point

802.11ac
Wave2

2x2:2
MU-MIMO

Dual Radio
2.4GHz +
5GHz

Up to
1.3 Gbps



SS-W2-AC2600

Indoor/Outdoor Access Point

802.11ac
Wave2

4x4:4
MU-MIMO

Dual Radio
2.4GHz +
5GHz

Up to
2.5 Gbps



OAP100

Outdoor Access Point

802.11ac
Wave2

2x2:2
MU-MIMO

Dual Radio
2.4GHz +
5GHz

Up to
1.3 Gbps

TIP PoE Switch



ECS4100-12PH
Gigabit Ethernet Access Switch

8-port PoE	2 FE/1G uplink SFP ports	Ultra PoE 60 W	24 Gbps switching capacity
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ECS4125-10P
Gigabit Ethernet Access Switch


2.5G RJ45 port	10G SFP+ Fixed Fiber port	Ultra PoE 60 W	80 Gbps switching capacity
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OpenWiFi Facilitating Program


- To further thrive together with the TIP OpenWiFi ecosystem, Edgecore Networks launches the OpenWiFi Facilitating Program
- In this collaborative program, customers can:
 - Hardware vendors can test the ecCLOUD management functions with their OpenWiFi devices.
 - Software vendors can utilize ecCLOUD API for third-party application development

THANK YOU

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