i-Share+ Product Overview

Contents

Preface

Audience

Ruijie business partners and customers who are responsible for configuring and maintaining Ruijie wireless devices.

Revision Record

Release Date	Change Contents	Reviser
2016.06	Initial publication V1.0	TAC Oversea

Note :

For more detail configuration , see configuration guide for each product . you can download configuration guide at http://www.ruijienetworks.com

For more technical enquiry , you can visit Ruijie Service portal at http://case.ruijienetworks.com . You need to sign up before submit a case.

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Product Overview

The i-Share+ products are designed based on digital signal transmission and independent radio frequency (RF) indoor coverage. It has the following features:

- The standard category 5 network cable is used, which supports the maximum 100 m transmission distance and can be prepared on site.

- Sufficient bandwidth is provided through the indoor coverage of standard 1,000 Mbps Ethernet digital signals.

- The dual-channel and dual-band 802.11ac indoor mini AP is adopted, with performance equal to that of Wall APs.

- The 24-port gigabit master AP is adopted. The AP adopts a 19-inch rack design for standard deployment in low voltage room or flexible installation on small rack in corridor

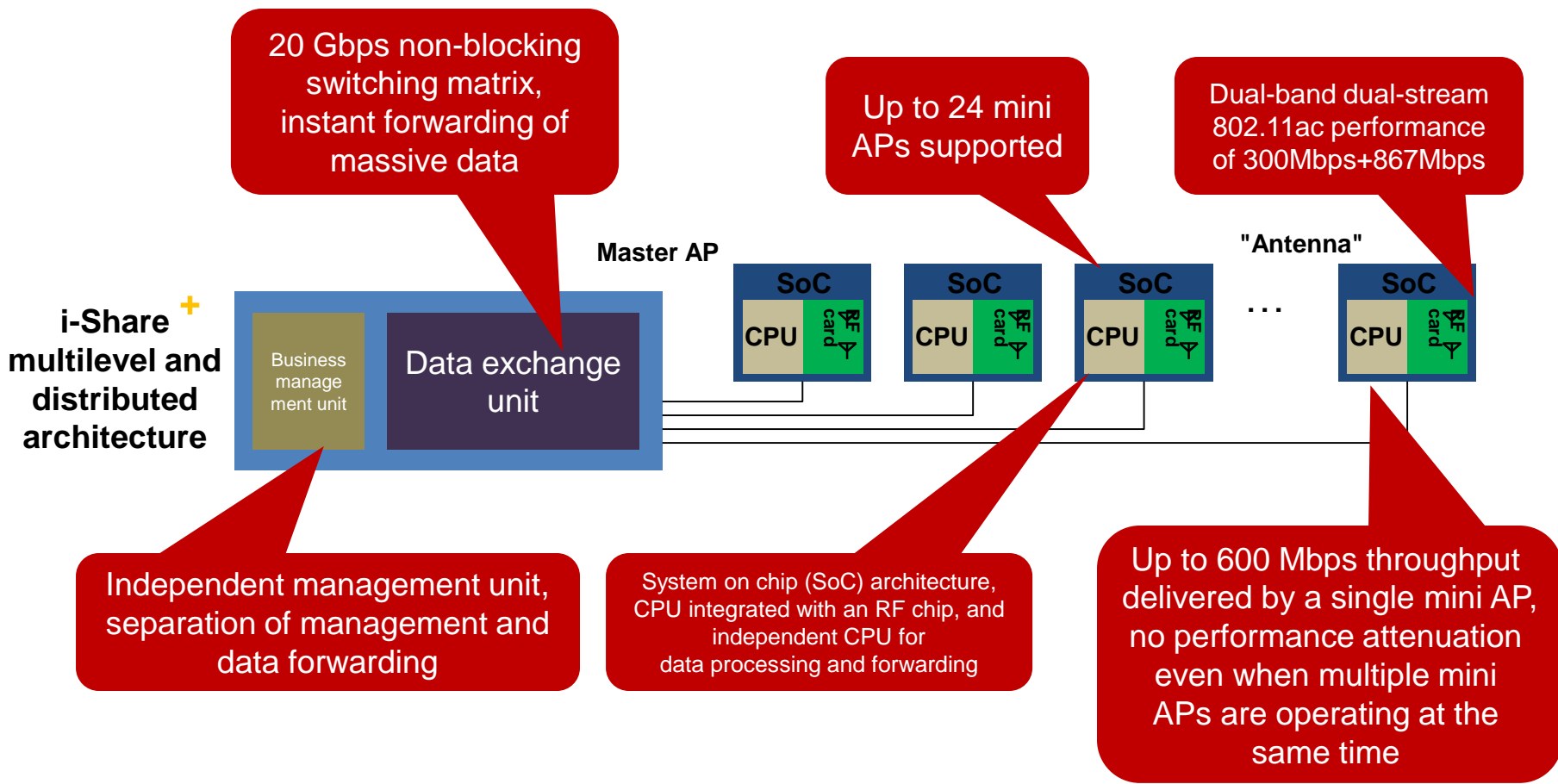- Only mini APs need to be replaced during upgrade.

i-Share+ System Overview

Access controller (AC)

i-Share+ master AP
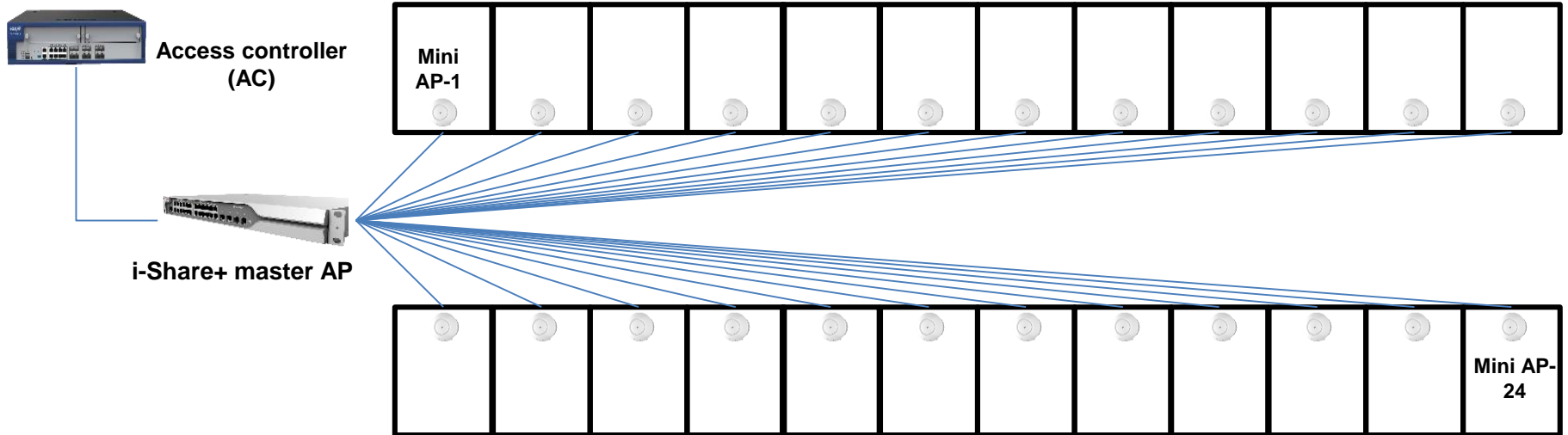
Mini AP-1

Mini AP-24

- A master AP is deployed in a power room, and mini APs are deployed in individual rooms. The mini APs are connected to the master AP by standard network cables, at a maximum distance of 100 m.

- A single master AP supports up to 24 mini APs, which adopt the dual-channel and dual-band 802.11ac specification.

- After the mini APs are powered on, the master AP detects them as RF cards. All of master APs and mini APs are managed by a universal AC in a unified manner.

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i-Share+ System Overview

20 Gbps non-blocking switching matrix, instant forwarding of massive data

Up to 24 mini APs supported

Dual-band dual-stream 802.11ac performance of 300Mbps+867Mbps

Master AP

"Antenna"

i-Share⁺ multilevel and distributed architecture

Business management unit

Data exchange unit

SoC — CPU — RF card

SoC — CPU — RF card

SoC — CPU — RF card

. . .

SoC — CPU — RF card

Independent management unit, separation of management and data forwarding

System on chip (SoC) architecture, CPU integrated with an RF chip, and independent CPU for data processing and forwarding

Up to 600 Mbps throughput delivered by a single mini AP, no performance attenuation even when multiple mini APs are operating at the same time

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Mini AP Architecture

Low power consumption and small size

A mini AP adopts a simplified hardware design, with power consumption lower than 3 W and a size about 100 mm. It supports wall-mounted installation.
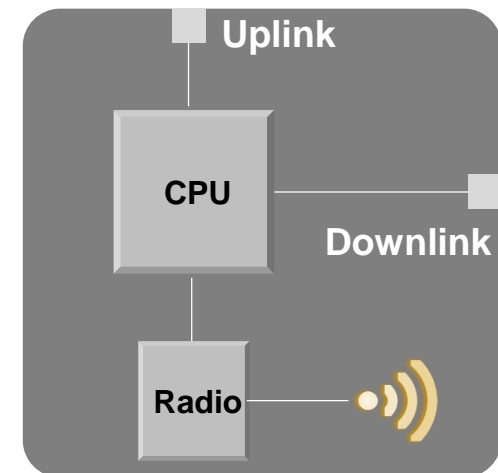
RF module

A mini AP has an independent dual-band RF module and supports dual-stream 802.11ac.

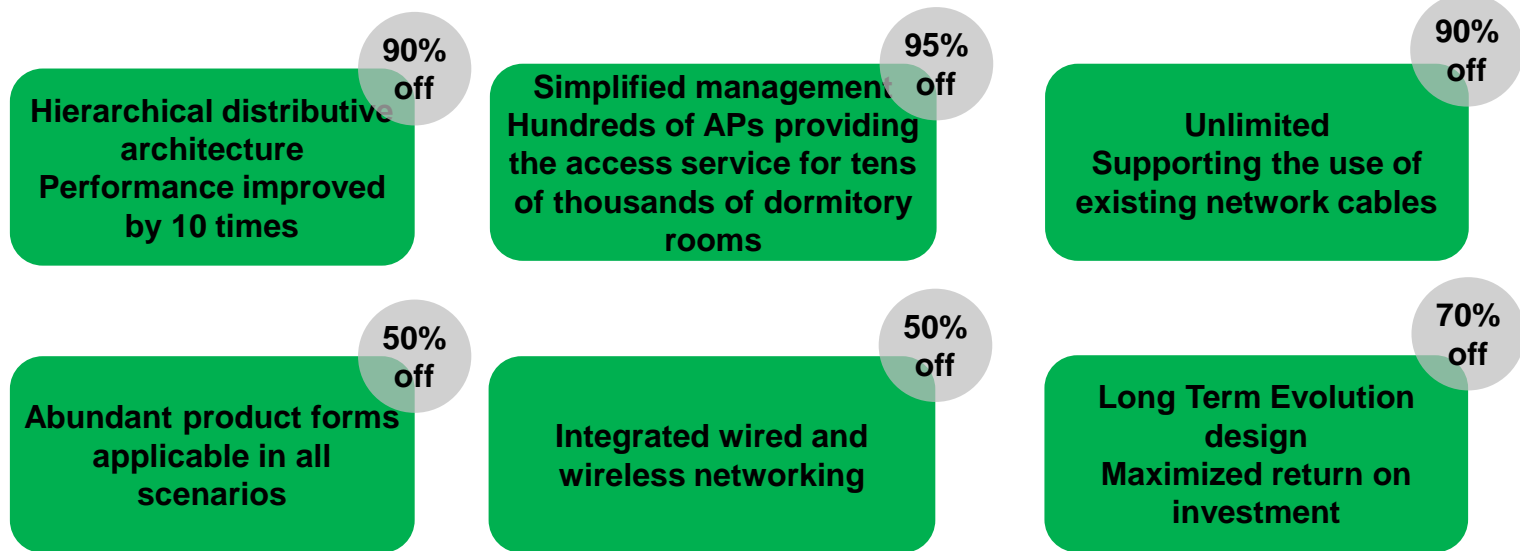1,000 Mbps uplink and 100 Mbps downlink (optional)

A mini AP provides a 1,000 Mbps uplink port to support high bandwidth.

A mini AP provides an optional 100 Mbps downlink port, which can be used to extend a wired telecommunication outlet in the same room.

Uplink

CPU

Downlink

Radio

Advantages of the i-Share+ Solution

90% off

Hierarchical distributive architecture
Performance improved by 10 times

95% off

Simplified management
Hundreds of APs providing the access service for tens of thousands of dormitory rooms

90% off

Unlimited
Supporting the use of existing network cables

50% off

Abundant product forms applicable in all scenarios

50% off

Integrated wired and wireless networking

70% off

Long Term Evolution design
Maximized return on investment

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Master AP Product Form

AM5528

- Twenty-four gigabit PoE ports, which can be connected to a maximum of 24 mini APs

- Two gigabit electrical ports plus two 10GB/ gigabit adaptive optical ports

- A single master AP delivering the 20 Gbps data forwarding performance

- Single-AP management logic

- Standard deployment in a low voltage room or flexible installation on a small rack in corridor

Mini AP Product Forms

MAP552   MAP552-W

- Indoor deployment with aesthetics
- Wall or panel mounting
- Support of 802.11ac rates: 300 Mbps and 867 Mbps
- A single mini AP delivering up to 600 Mbps actual data throughput
- Plug-and-play, powered-on mini APs detected as RF cards by the master AP, which simplifies management
- Support of downlink connected to wired terminals

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Product Naming

The entire product series is named i-Share+.

The product series represents the evolution of i-Share+.

Master AP name: RG-AM5528

AM indicates "AP Manager". The code 5528 has the following two meanings: The RG-AM5528 has 28 external ports, of which 24 ports are connected to mini APs and four ports are uplink ports.
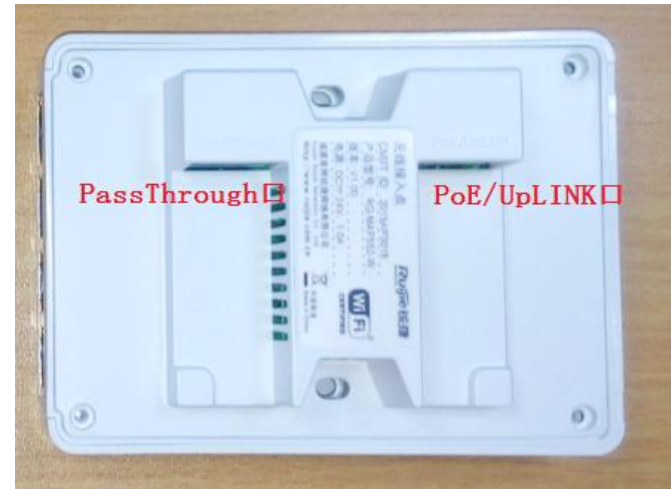
Mini AP name: RG-MAP552

MAP indicates "mini AP", indicating a small size and light weight. The code 552 indicates a relationship with the AM5528.

MAP552 Product Form

MAP552-W Product Form

4个有线口

PassThrough口　　　PoE/UpLINK口

Indicator States

Indicator State	Meaning
Indicator turned off	The mini AP is not powered on, or it is in do-not-disturb state and can be shut down through software.
Blinking yellow	The mini AP is being initialized. If the indicator keeps blinking, the mini AP is abnormal.
Blinking yellow continuously at short intervals	Mini AP initialization is completed, but the communication with the master AP is abnormal.
Blinking green at an interval of 4s	The mini AP works and communicates with the master AP normally. The wireless port does not have user access.
Blinking green for 2s at an interval of 4s	The mini AP works and communicates with the master AP normally. The wireless port has user access.
Blinking red	The mini AP is locating and searching for the specified AP.

Simple Deployment

① The complexity of construction is greatly reduced. **Network cables** are used instead of feeders with limited transmission distances. The network cables can be embedded or the existing wired network can be used, thereby driving down the construction cost.

② Indoor APs can be **mounted on wall or on a panel** with flexible cabling. No construction work is required for panel mounting.

③ Indoor APs support **downlink ports**. For a reconstruction project, network ports inside the rooms where APs are installed can be used. Only an additional network port needs to be provided for each AP. The network ports of users are not required for the project.

④ A master AP can support **24 mini APs**, the quantity being the same as traditional switches. Field survey is not required, and statistics are easy to collect.

Easy Management

The mini APs connected to a master AP are geographically concentrated. The master AP can use the same management policy to manage all mini APs. Because the scale of master APs is relatively small, the number of APs included in AP group management is reduced, thereby reducing the workload of management and maintenance and simplifying the management page.

A master AP uses only one IP address, whereas **mini APs do not use IP addresses**, thereby saving address resources.

Mini APs support the plug-and-play feature, which supports the replacement for new mini APs without configuration on the AC.

Device Performance

The information of mini APs is summarized on the master AP, which reduces the number of packets sent to the AC, saves bandwidth resources, and reduce AC overhead.

Compared with the third-generation i-Share, the i-Share+ effectively increases the bandwidth per user and optimizes the experience of 802.11ac performance.

Redirection is not required during roaming within the range of a master AP, thereby increasing the effective horizontal bandwidth of the master AP.

A master AP has two gigabit electrical ports and two 10GB optical ports. It supports up to 20 Gbps line rate forwarding, thereby ensuring the bandwidth of multiple users.

Device Reliability

An AP separates the control plane, management plane, and forwarding plane. It adopts an advanced hierarchical architecture which improves system reliability. A master AP is responsible for the management plane and control plane, and adopts the simplified kernel mechanism which provides higher performance and avoids system crash. A mini AP is responsible for the forwarding plane, thereby reducing system complexity and improving reliability.

Mini APs are play-and-plug. After a fault is rectified or a network cable is reconnected, the mini AP can be assigned configuration from the master AP without restart. This avoids interaction with the AC for configuration assignment.

Investment Protection

When an indoor mini AP is faulty, only the mini AP must be replaced, whereas the master AP can be retained, thereby reducing the depreciation cost.
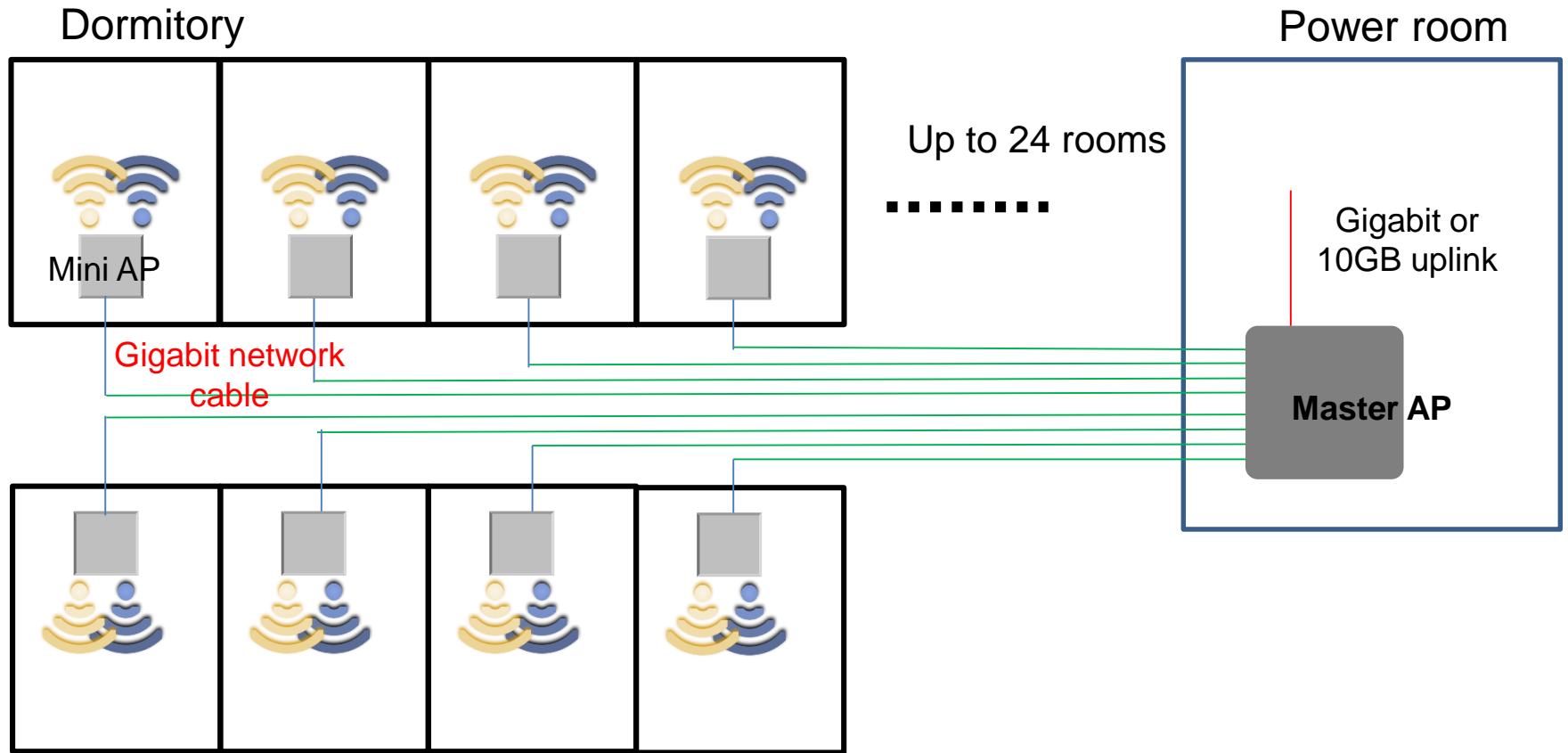
Mini APs can be directly upgraded without replacing the master AP, which maximizes the return on investment.

The RF signal end is separated from the control plane. Only RF components need to be replaced during WLAN upgrade.
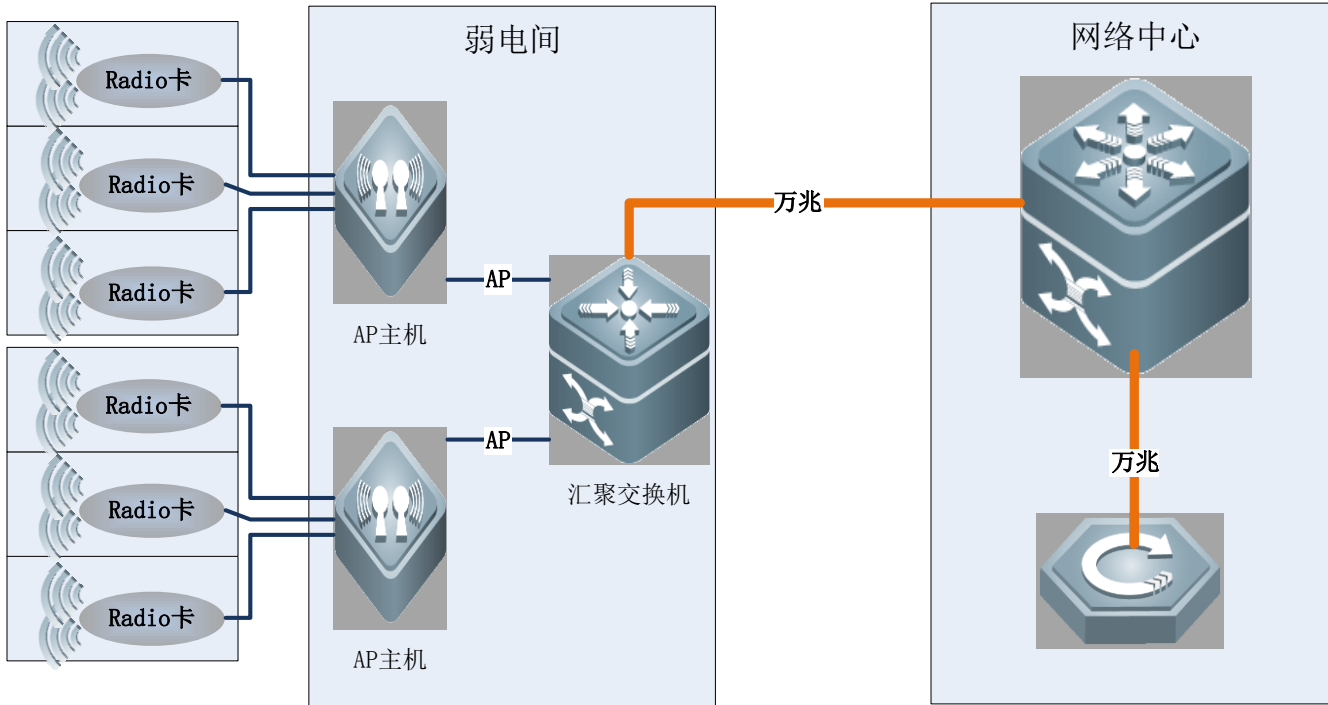
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Typical Deployment Mode

Dormitory

Power room

Up to 24 rooms

Mini AP

Gigabit network cable

Gigabit or 10GB uplink

Master AP

Typical Deployment Mode

① The master APs are deployed in a power room and directly connected to mini APs.
② The mini APs are deployed indoors. One mini AP can provide coverage in one or multiple rooms.
③ The master APs are supplied with AC power, and the mini APs are powered by the master APs through network cables.
④ A master AP can have a single gigabit uplink electrical port, two gigabit uplink electrical ports bound into an aggregate port, a single 10GB uplink optical port, and two 10GB uplink optical port bound into an aggregate port.

Cascade Deployment of Master APs
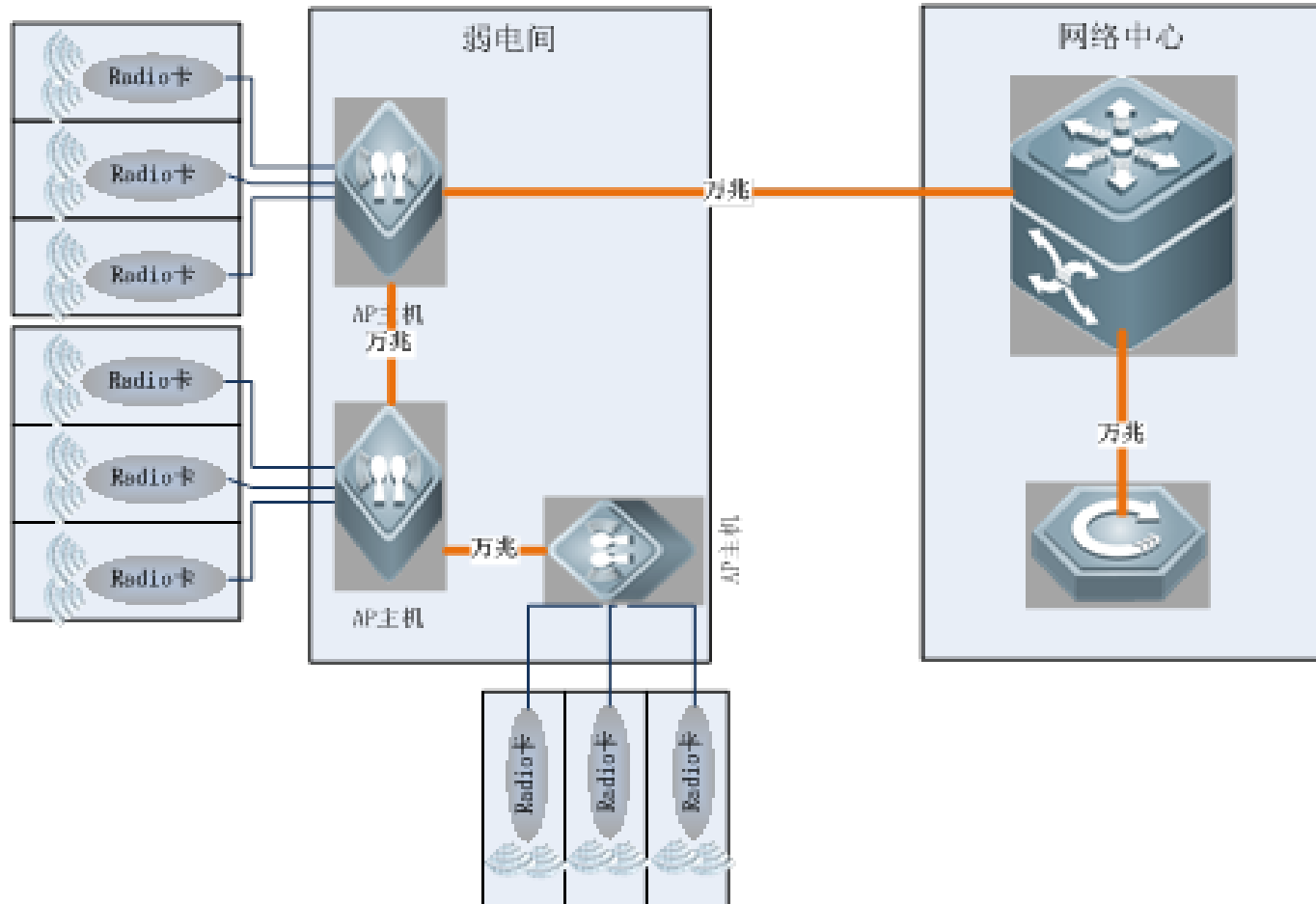
Cascade Deployment of Master APs

As shown in the preceding figure, multiple master APs are cascaded. The cascaded ports can be gigabit electrical ports or 10GB optical ports. The latter is recommended to ensure sufficient bandwidth for uplink ports.

A master AP is connected to the core device in the network center through the uplink 10GB optical port to realize the connection between access and core devices.

This deployment mode does not require the installation of an independent convergence device in the power room, and removes the uplink connection between the master AP and core device.

Master APs can be upgraded in distributed mode. When a master AP is restarted after upgrade, other master APs in the same topology do not need to re-download the new firmware.

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