Introduction to Meraki Integrations

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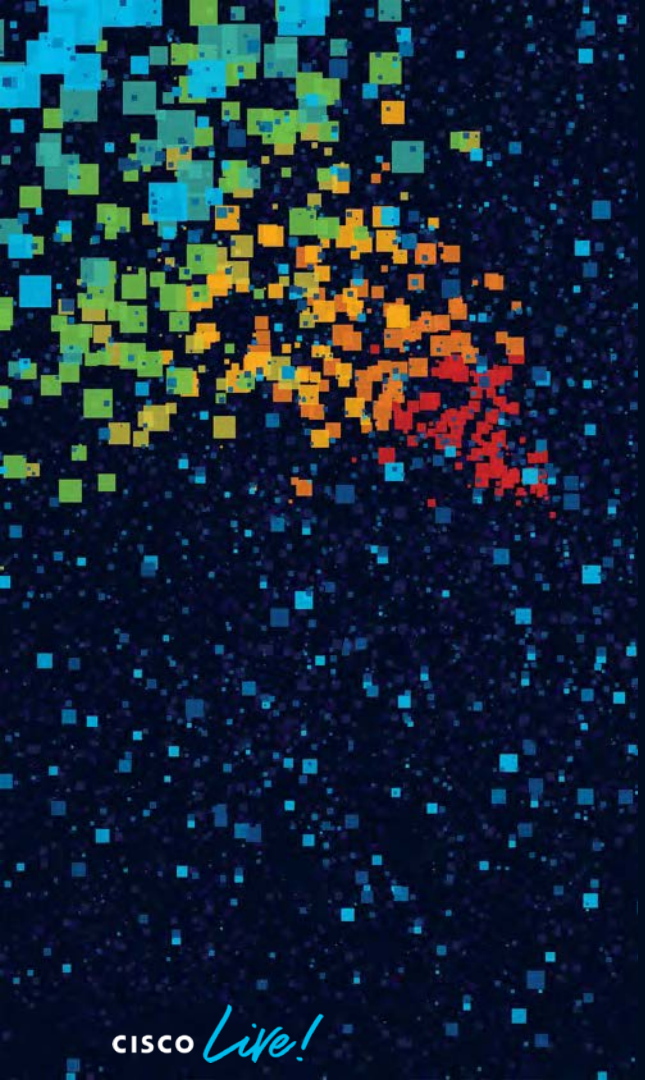


Agenda

- The Meraki Platform
- Why APIs
- Dashboard API
- Webhook Alerts
- Location Scanning API
- MV Sense
- External Captive Portal


The Meraki Platform

Meraki Cloud Platform

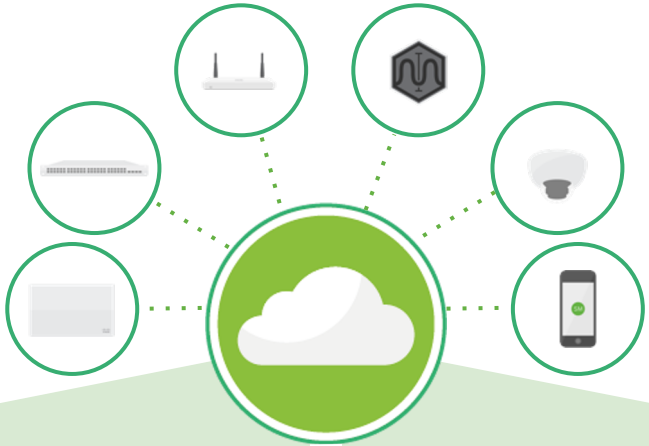
We run the largest and most battle-tested cloud platform in networking

- 450,000+ customers

- 6.7M Meraki devices

- 2.4M active networks

A Comprehensive Cloud Platform



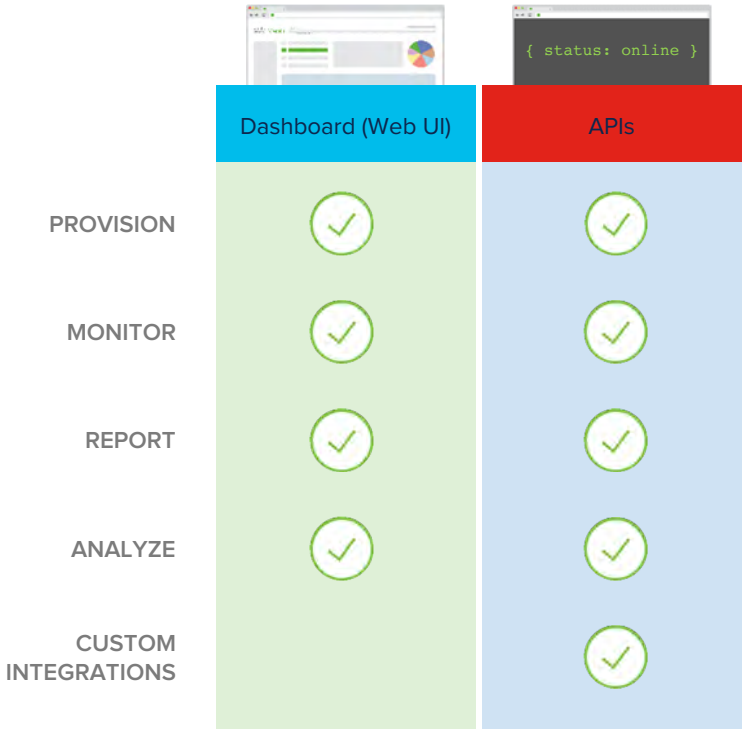
WWW

OUT-OF-THE-BOX
MANAGEMENT & ANALYTICS

{APIs}

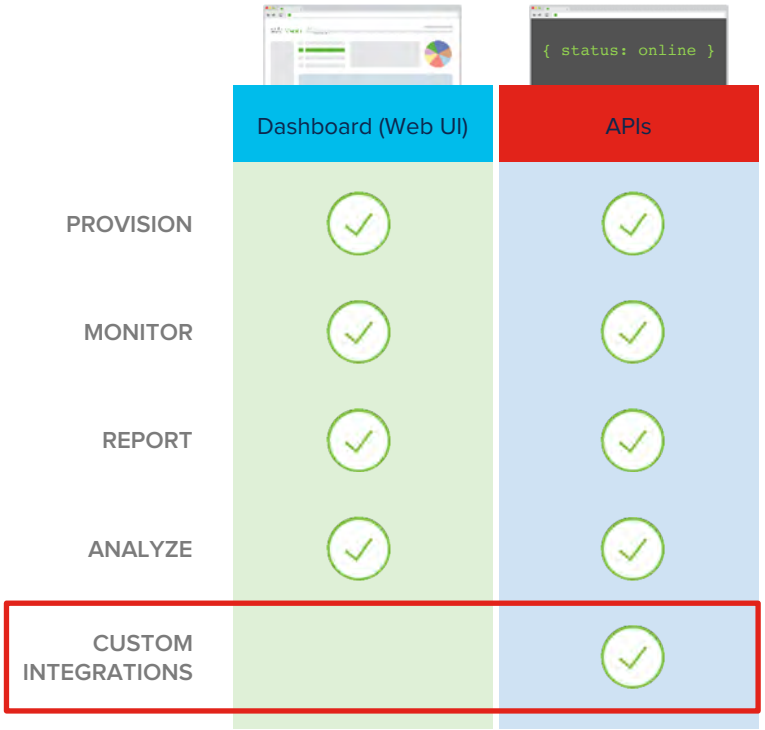
INTEGRATIONS & SOLUTIONS
POWERED BY MERAKI

AN INTERFACE FOR EVERY USE CASE



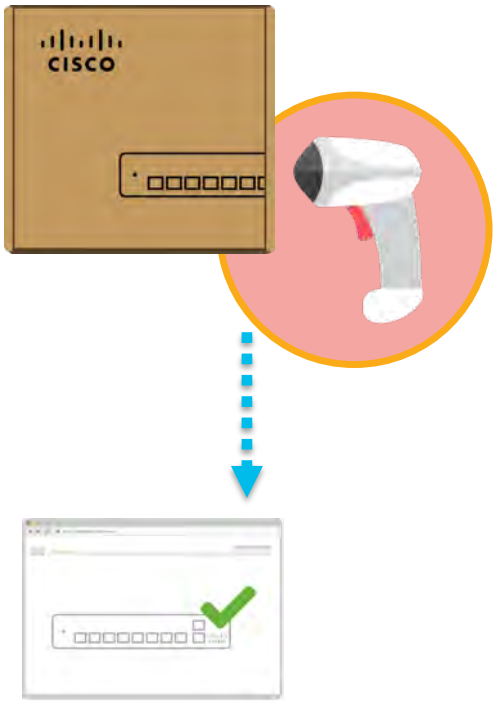
Meraki APIs and Their Value

AN INTERFACE FOR EVERY USE CASE

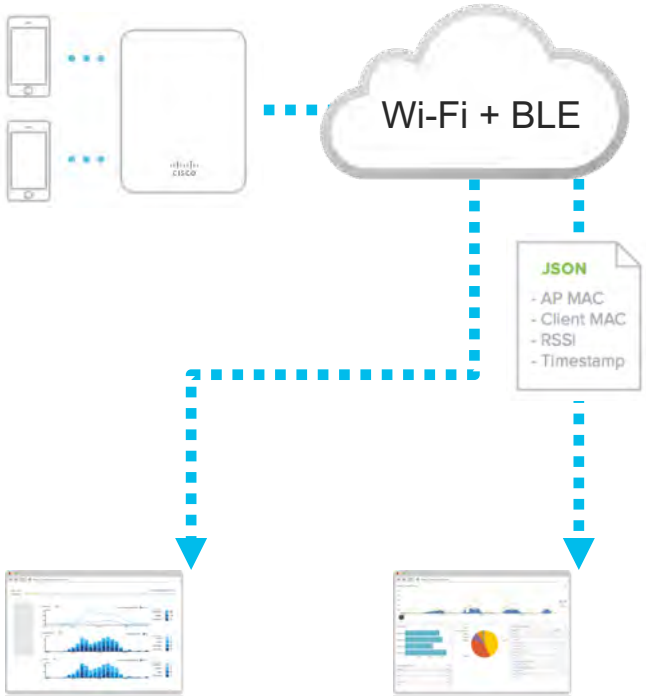


Meraki APIs

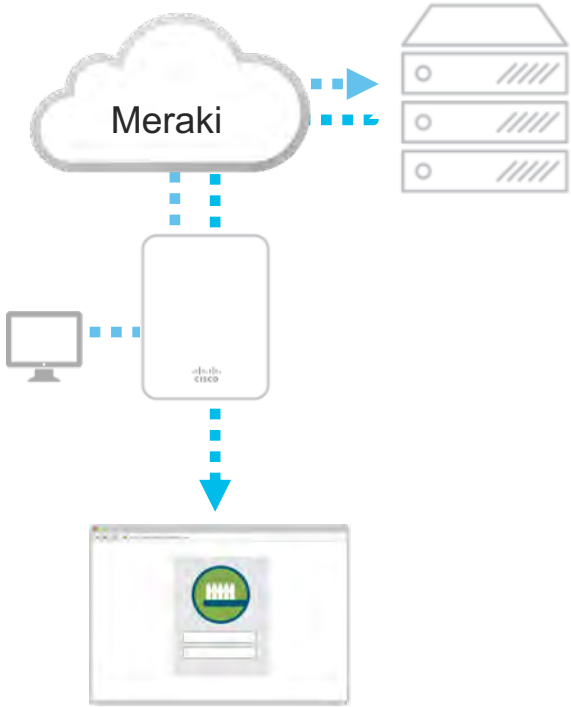
Dashboard API



Scanning API

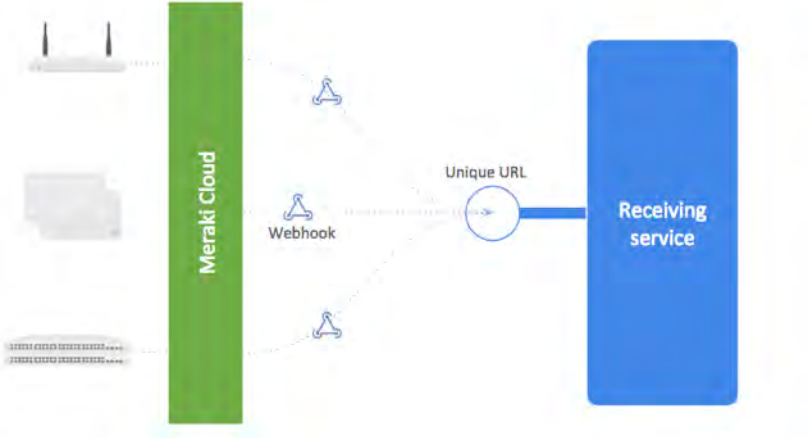


Captive Portal API

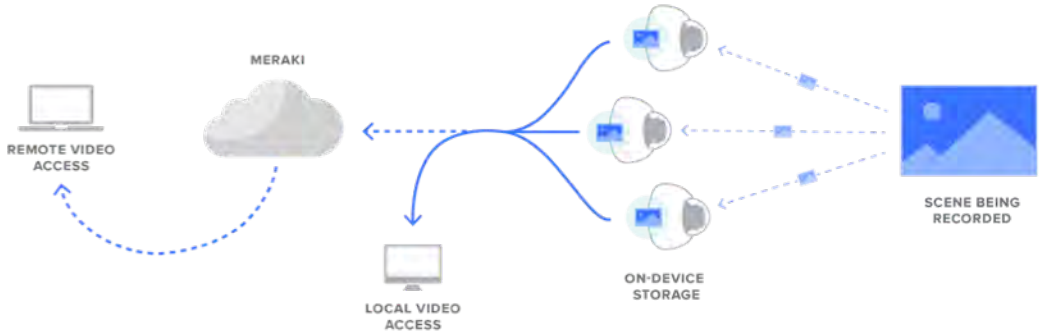


Meraki APIs – Continued

WebHook Alerts



MV Sense



APIs Enable Applications for How YOU Manage IT

Network Programmability & Automation

Provisioning
Setup 10K networks across 5 time zones

Configuration Management
Make a configuration change to 1,100 ports

Monitoring
Connection status of all 2,200 Meraki devices in Organization

Data Insights & Analysis

Reporting
Visualize what % of clients are on WiFi vs Wired

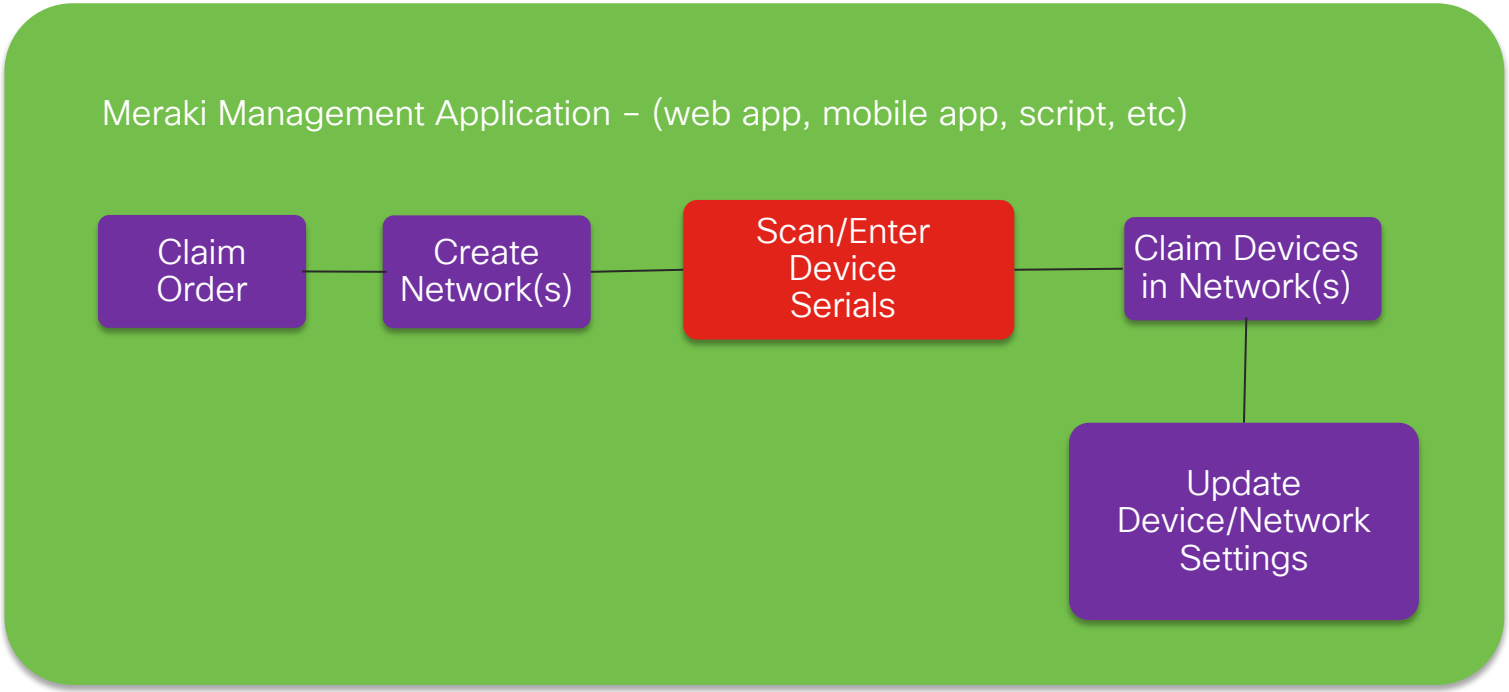
Meraki IQ
Processed data insights that deliver key business insights

Dashboard API

Why use the Dashboard API?

- Service Providers: OSS/BSS integration
  - Provision the customers in the Meraki cloud
  - Allocate customer devices
  - Set initial network configuration
  - Add administrator accounts for NOC staff and/or end customer access
- Enterprise: Network Automation
  - Automation of large deployment projects, e.g. many branches
  - Teleworker Off-boarding to disconnect VPN home office routers
  - Configure many sites in minutes
  - Build your own dashboard with controlled access

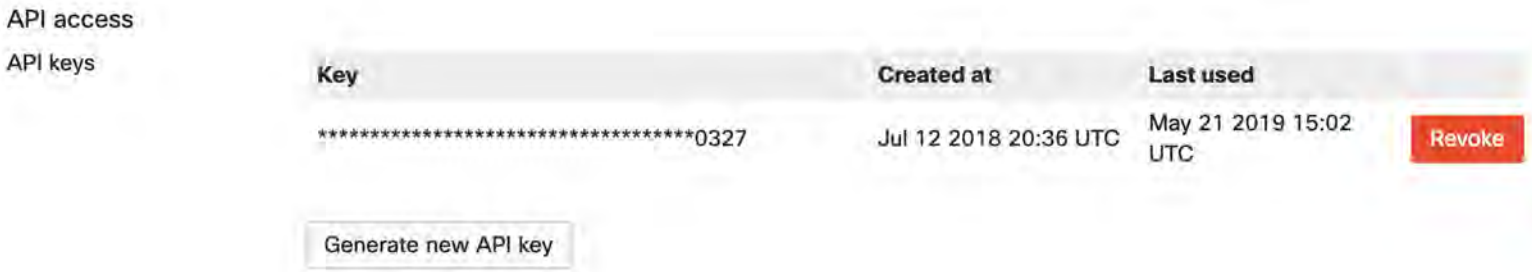
Deploy thousands of sites in minutes



Meraki API

Custom App

Enabling the Dashboard API



1. Organization > Settings > Enable API access
2. Go to My profile and Generate API key.
3. Go to https://developer.cisco.com/meraki/api/#/rest/getting-started

Provisioning New Networks

- **POST** /organizations/**{organizationId}**/networks -> Network name, type
- Take the resulting networkId and
- **POST** /networks/**{networkId}**/devices/claim with device serial body

Hardening the newly provisioned network

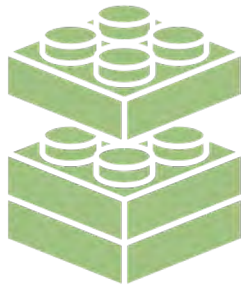
- Segment with VLANS – **POST** /networks/**{networkId}**/vlans
- Content Filtering – **PUT** /networks/**{networkId}**/contentFiltering
- Group Policies – **POST** /networks/**{networkId}**/groupPolicies
- Network Malware Settings – **PUT** /networks/**{networkId}**/security/malwareSettings
- Firewalled Services – **PUT** /networks/**{networkId}**/firewalledServices/**{service}**
- MX L7 Firewall Rules – **PUT** /networks/**{networkId}**/l7FirewallRules
- MX L3 Firewall Rules – **PUT** /networks/**{networkId}**/l3FirewallRules
- MR L3 Firewall Rules – **PUT** /networks/**{networkId}**/ssids/**{number}**/l3FirewallRules
- Switchport Management – **PUT** /devices/**{serial}**/switchPorts/**{number}**

Monitoring the network

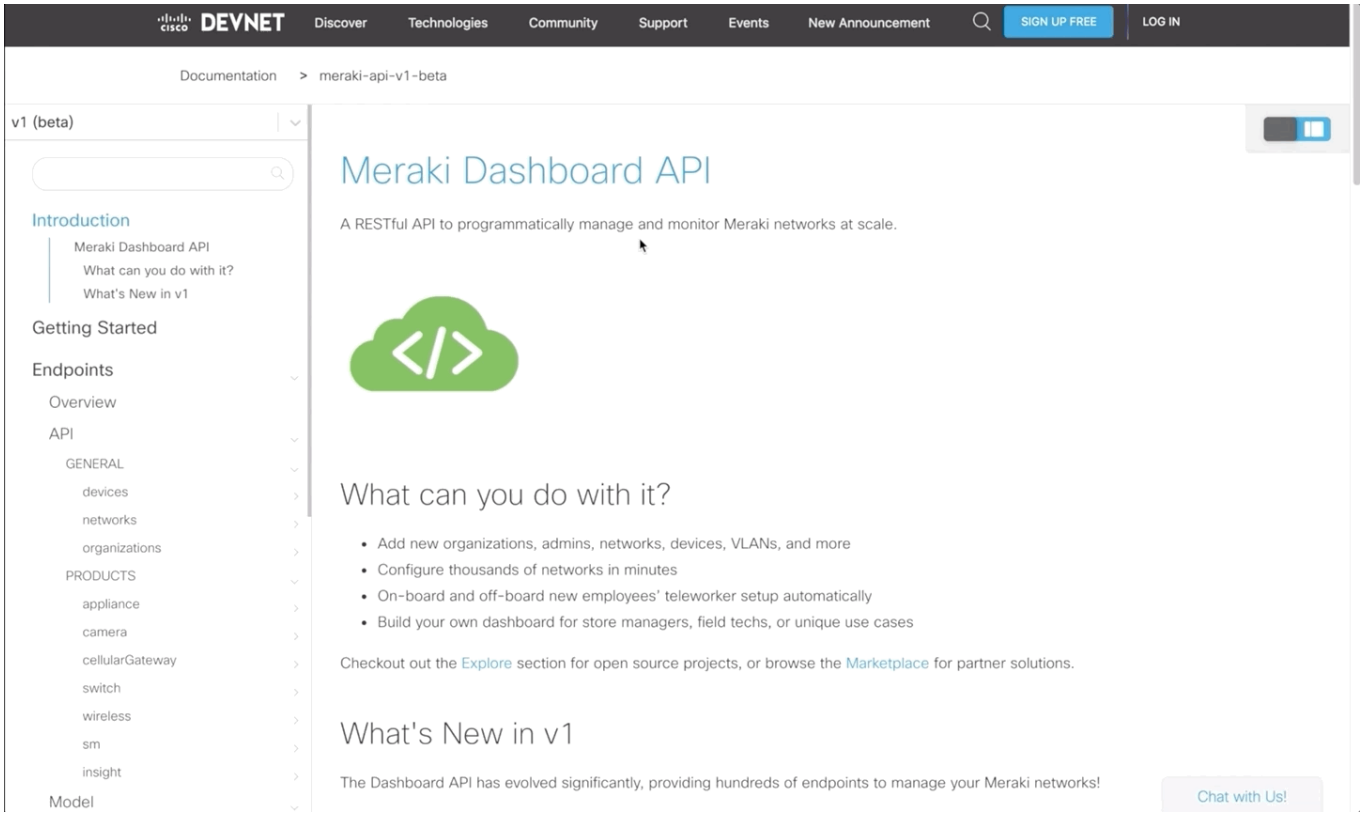
- Client level
  - GET /networks/**{networkId}**/clients/**{clientId}**/securityEvents
  - GET /networks/**{networkId}**/clients/**{idOrMacOrIp}**/events
  - GET /networks/**{networkId}**/clients/**{idOrMacOrIp}**
- Network level
  - GET /networks/**{networkId}**/devices/**{serial}**/lossAndLatencyHistory
  - GET /networks/**{networkId}**/airMarshal
  - GET /networks/**{networkId}**/traffic
  - GET /networks/**{id}**/splashLoginAttempts
  - GET /networks/**{networkId}**/clients/connectionStats
  - GET /networks/**{networkId}**/clients/latencyStats

Dashboard API Release V1

- **Enhanced Developer Experience (DX)**
  Improved organization of path structures, responses and documentation grouping
- **Consistency and adoption of new REST standards**
  Standardized approach to authentication and consistency in value formats
- **Increased Efficiency**
  Removal of duplicate path identifiers, focus on high-volume data retrieval for GET operations
- **New Features & Capabilities**

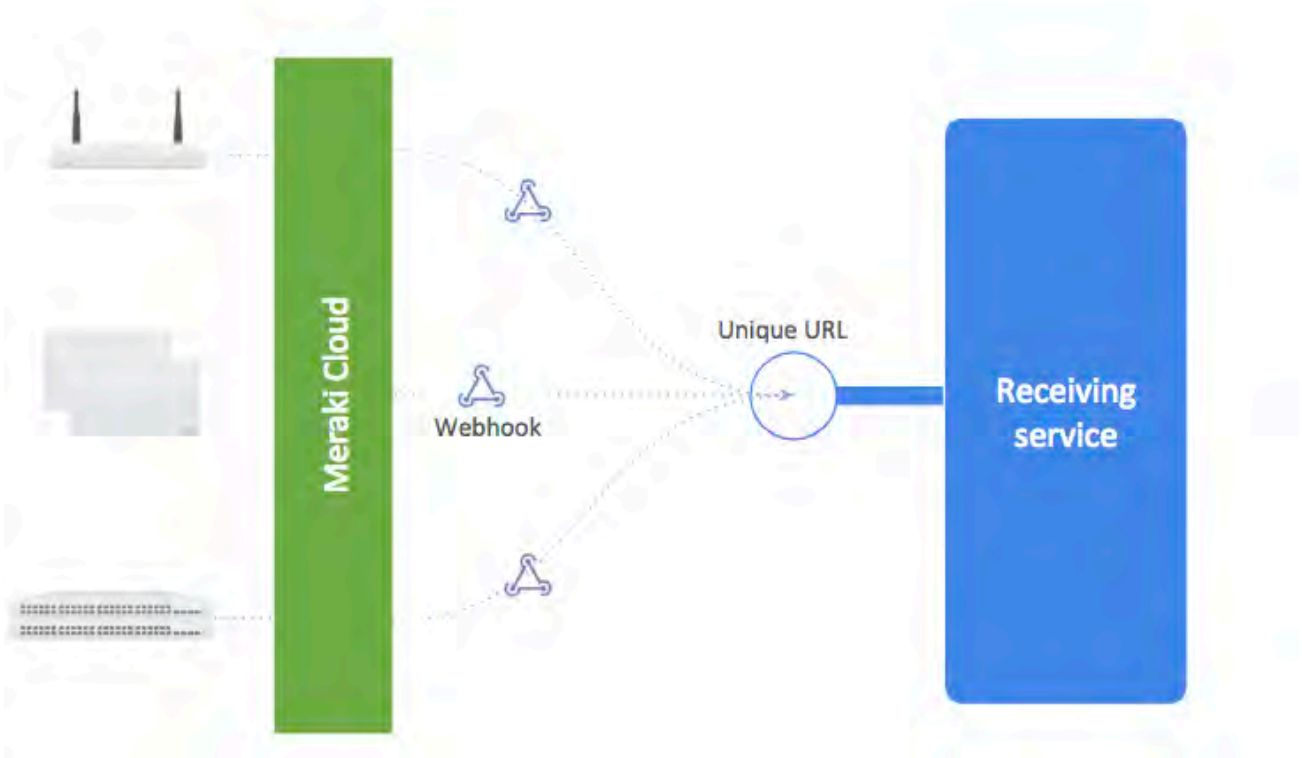


Dashboard API v1 Docs



Webhook Alerts

WebHook Alerts



Example WebHook Integrations and Solutions

Generate alarms or events in your monitoring or management system

solarwinds

zendesk

pagerduty

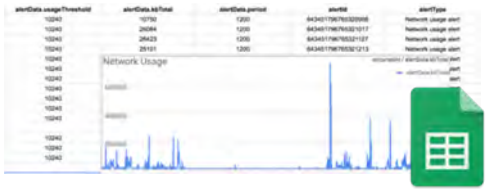
servicenow

Automate workflows based on network events

```
{
"alertId" : "643451796765250686",
"alertType" : "A switch port was disconnected",
"deviceMac" : "00:11:22:33:44:55",
"deviceName" : "Office",
"deviceSerial" : "AAAA-BBBB-CCCC"
}
```

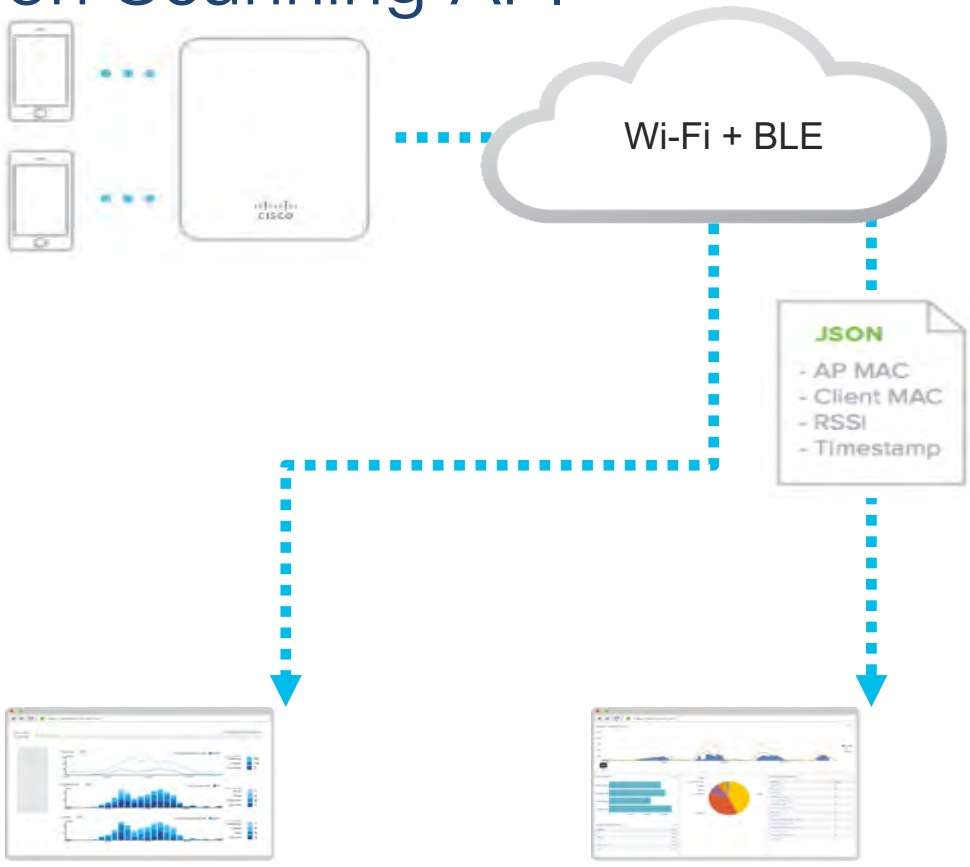
Webex Teams

Log alerts to a spreadsheet for interactive and flexible reporting



Location Scanning

Location Scanning API




```
{
  "apMac": <string>,
  "apTags": [<string, ...],
  "apFloors": [<string>, ...],
  "observations": [
    {
      "clientMac": <string>,
      "ipv4": <string>,
      "ipv6": <string>,
      "seenTime": <string>,
      "seenEpoch": <integer>,
      "ssid": <string>,
      "rssi": <integer>,
      "manufacturer": <string>,
      "os": <string>,
      "location": {
        "lat": <decimal>,
        "lng": <decimal>,
        "unc": <decimal>,
        "x": [<decimal>, ...],
        "y": [<decimal>, ...]
      },
    },...
  ]
}
```

Dashboard Configuration and API Flow

POST URL

https://YourServer.com

[GET]

YourServer responds with the **Validator** key defined by your Meraki Dashboard network.

[POST]

YourServer receives a JSON array of client observations, which includes a user defined **Secret** that can be used to ensure the integrity of the data.

Wi-Fi Location Scanning Elements

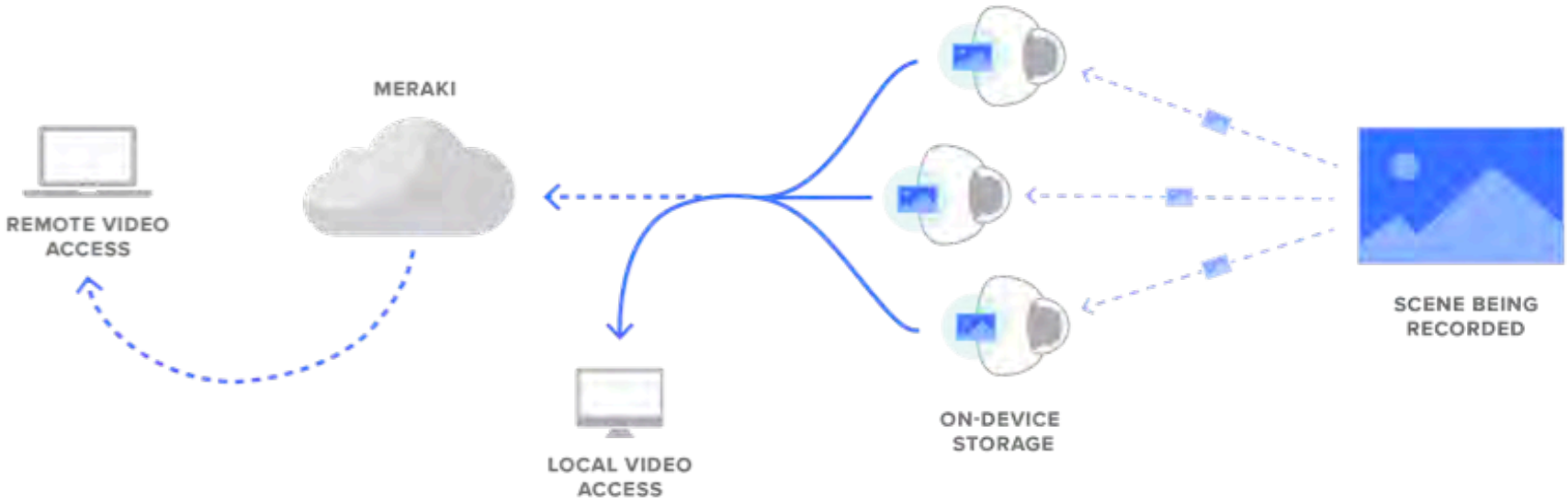
Name	Format	Description
apMac	string	MAC address of the observing AP
apTags	[string]	JSON array of all tags applied to the AP in dashboard
apFloors	[string]	JSON array of all floorplan names on which this AP appears
clientMac	string	Device MAC
ipv4	string	Client IPv4 address and hostname, in "hostname/address" format; only "/address" if no hostname, null if not available
ipv6	string	Client IPv6 address and hostname, in "hostname/address" format; only "/address" if no hostname, null if not available
seenTime	ISO 8601 date string	Observation time in UTC; example: "1970-01-01T00:00:00Z"
seenEpoch	integer	Observation time in seconds since the UNIX epoch
ssid	string	Client SSID name; null if the device is not connected
rssi	integer	Device RSSI as seen by AP
manufacturer	string	Device manufacturer; null if manufacturer could not be determined
os	string	Device operating system; null if the OS could not be determined
location	location	Device geolocation; null if location could not be determined
lat	decimal	Device latitude in degrees N of the equator
lng	decimal	Device longitude in degrees E of the prime meridian
unc	decimal	Uncertainty in meters
x	[decimal]	JSON array of x offsets (in meters) from lower-left corner of each floorplan
y	[decimal]	JSON array of y offsets (in meteres) from lower-left corner of each floorplan

Bluetooth Scanning Elements

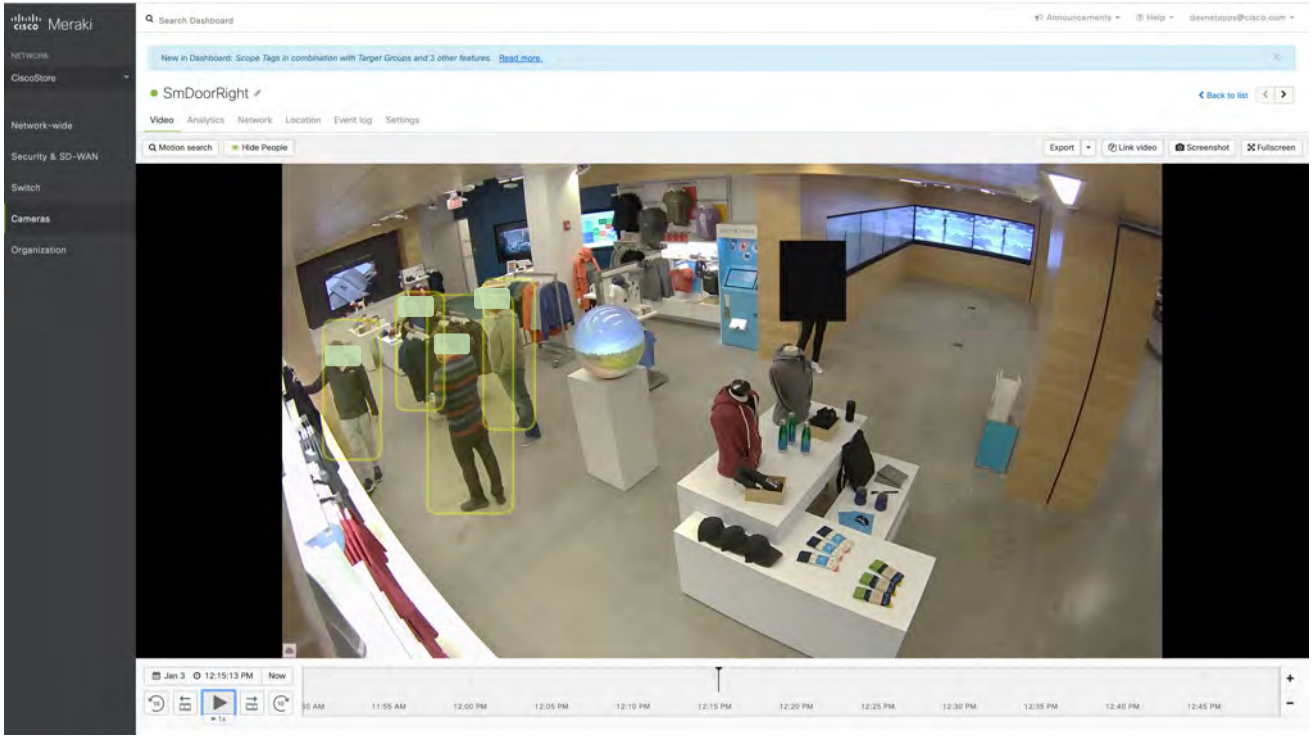
Name	Format	Description
apMac	string	MAC address of the observing AP
apTags	[string]	JSON array of all tags applied to the AP in dashboard
apFloors	[string]	JSON array of all floorplan names on which this AP appears
clientMac	string	Device MAC
seenTime	ISO 8601 date string	Observation time in UTC; example: "1970-01-01T00:00:00Z"
seenEpoch	integer	Observation time in seconds since the UNIX epoch
rssi	integer	Device RSSI as seen by AP
location	location	Device geolocation; null if location could not be determined
lat	decimal	Device latitude in degrees N of the equator
lng	decimal	Device longitude in degrees E of the prime meridian
unc	decimal	Uncertainty in meters
x	[decimal]	JSON array of x offsets (in meters) from lower-left corner of each floorplan
y	[decimal]	JSON array of y offsets (in meteres) from lower-left corner of each floorplan

MV Sense

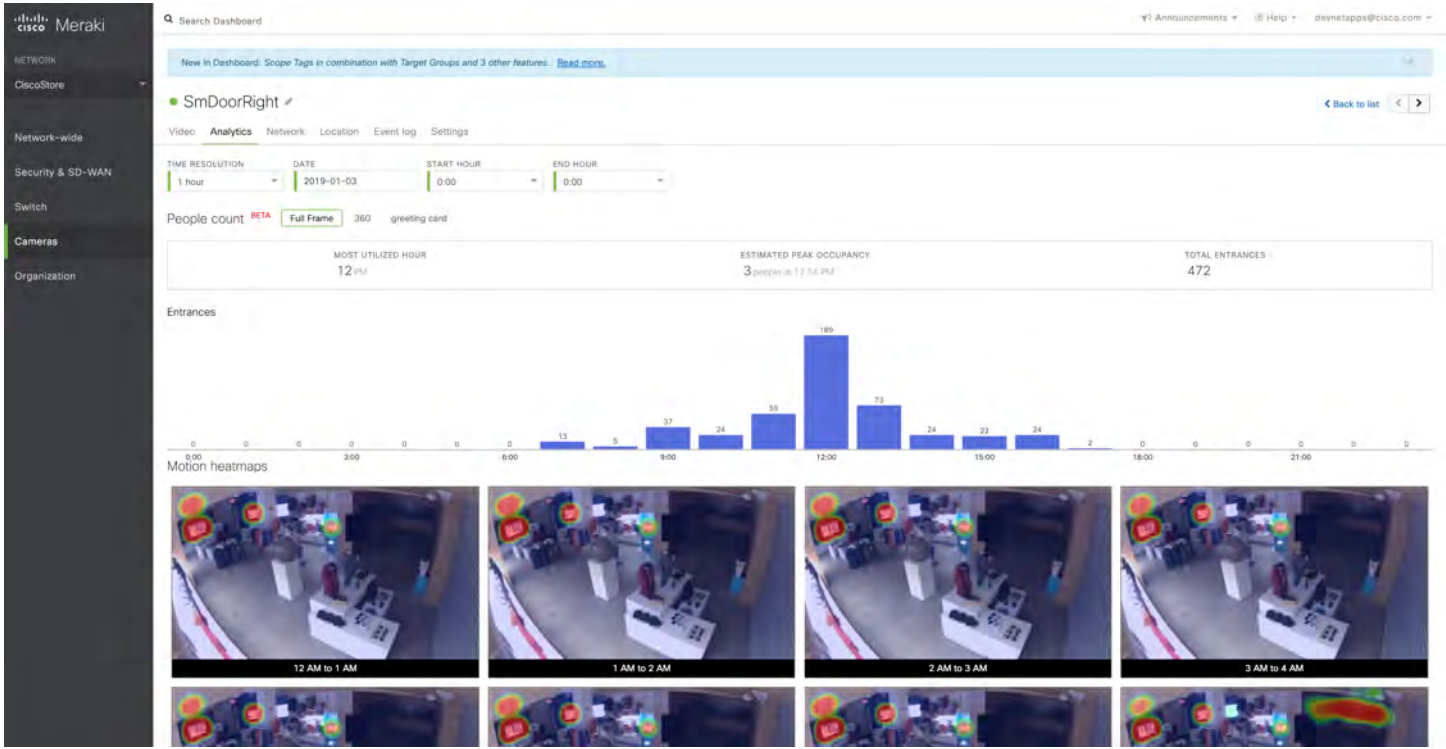
MV Sense



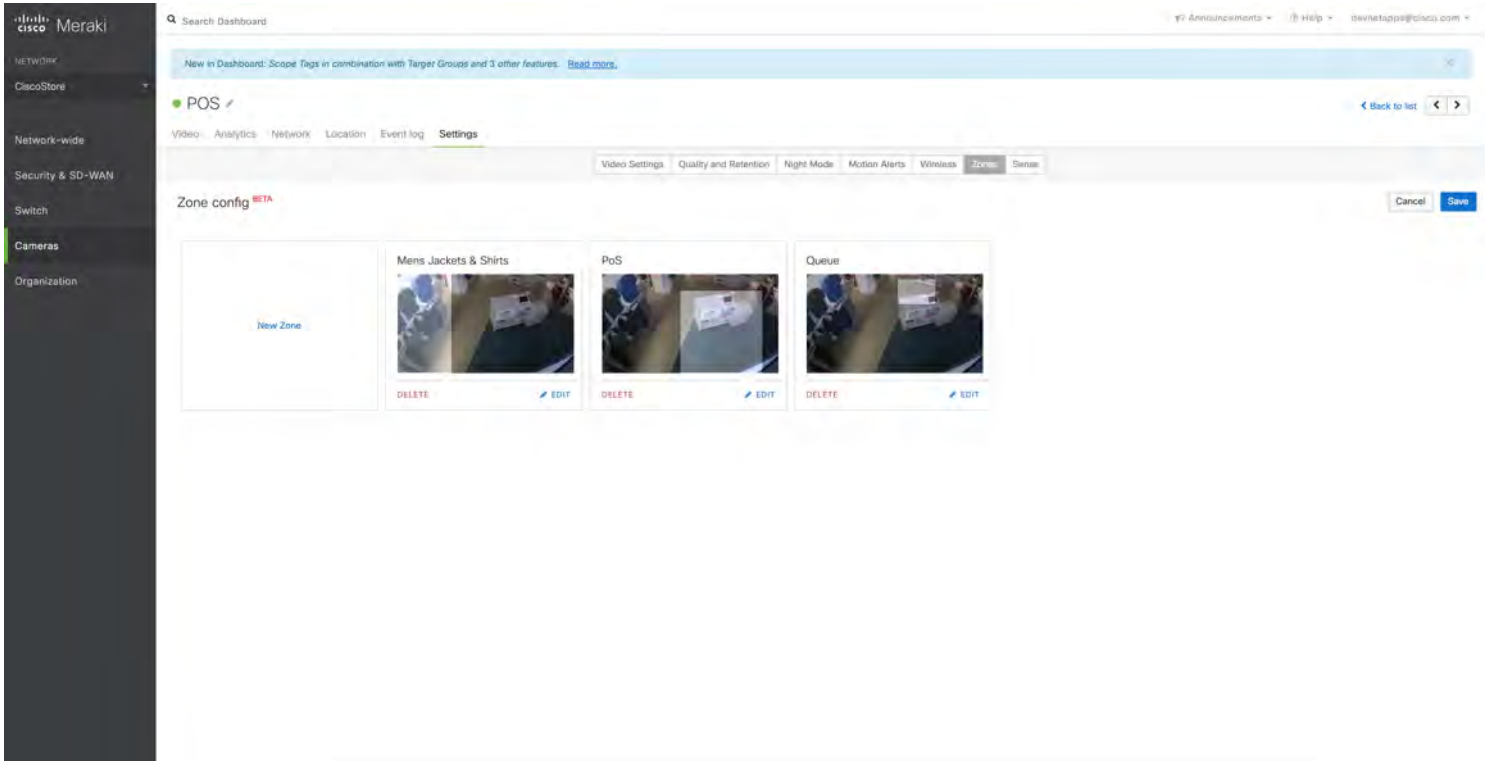
Dashboard: People detection in video



Dashboard: People Count Analytics



Dashboard: Interest Zones

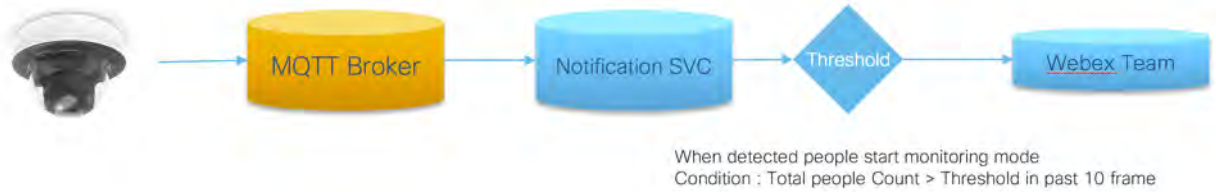


MV Sense Analytics REST API

- Returns an overview of aggregate analytics data for a timespan
  - /devices/[serial]/camera/analytics/overview
- Returns all configured analytics zones for this camera
  - /devices/[serial]/camera/analytics/zone
- Return historical records for analytic zones
  - /devices/[serial]/camera/analytics/zones/[zoneId]/history
- Returns most recent record for analytics zones
  - /devices/[serial]/camera/analytics/recent
- Returns live state from camera of analytics zones
  - /devices/[serial]/camera/analytics/live

MV Sense Real Time with MQTT

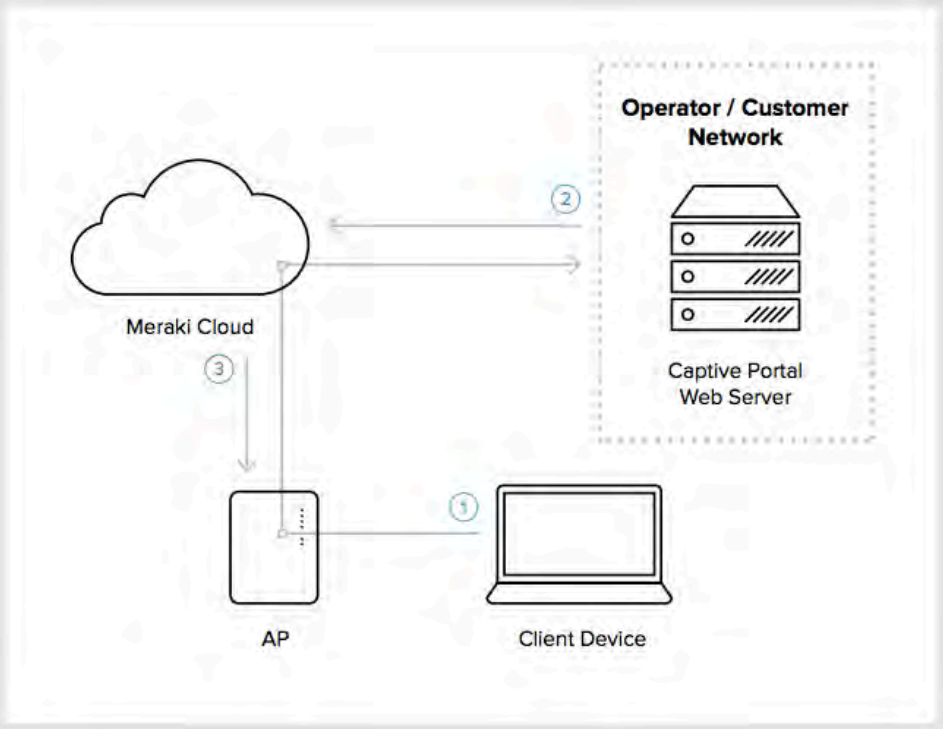
- MQTT is a Client Server publish/subscribe messaging transport protocol.
- MV Camera MQTT client publishes people detection count
- Meraki Camera Notification is sample app
  - App watches people count during off-hours
  - When unexpected people are detected it send alert message using WebEx Team bot.



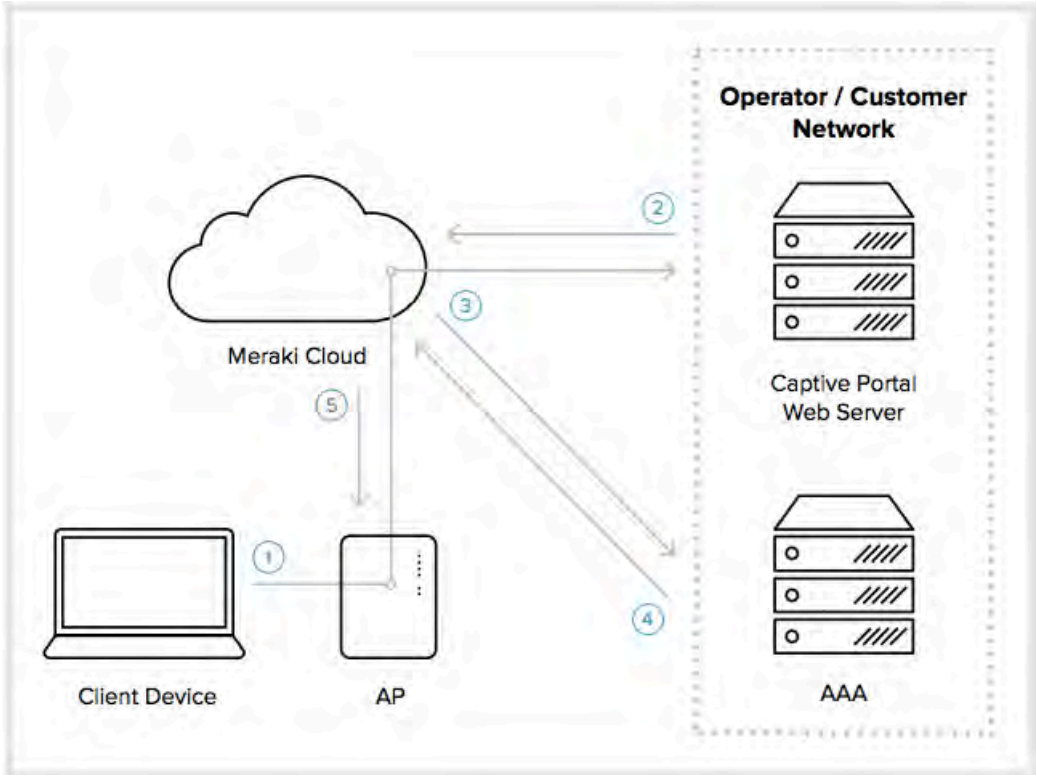
External Captive Portals

External Captive Portal (EXCAP)

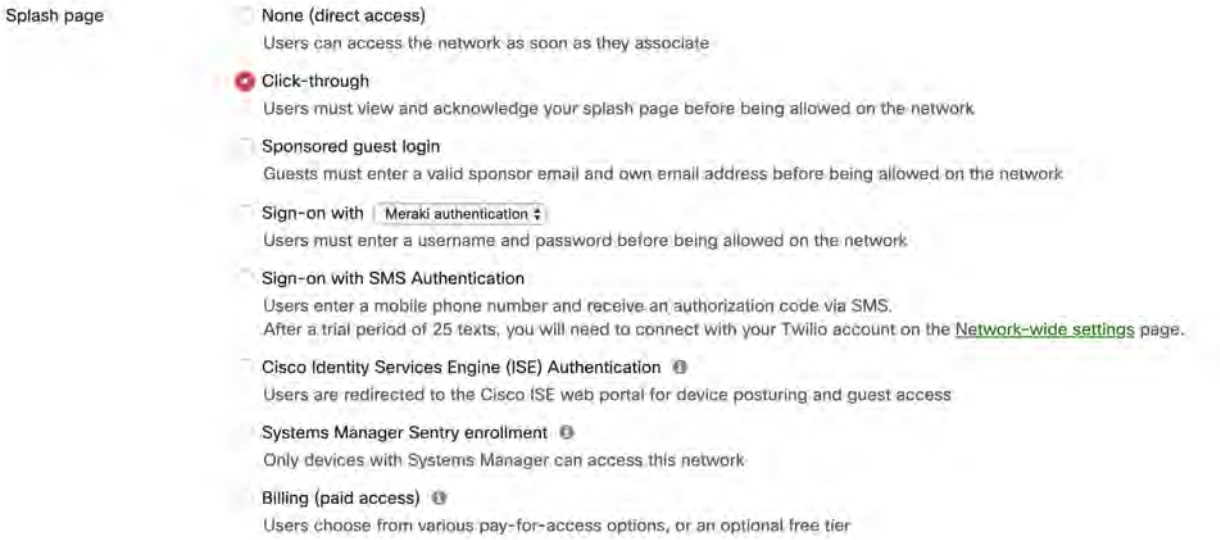
External Captive Portal – EXCAP



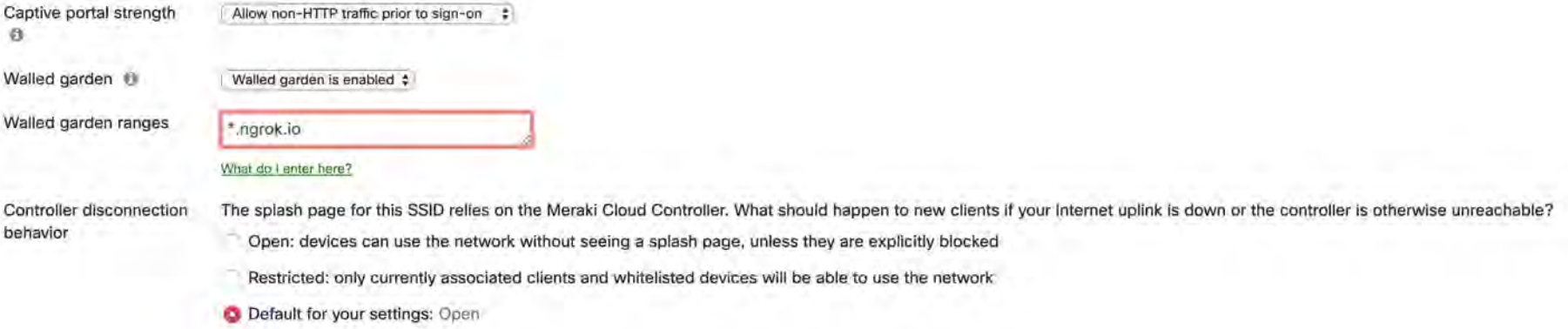
EXCAP with AAA



Configuration in Meraki – Type of captive portal



Configuration in Meraki – Walled Garden



Configuration in Meraki – The Splash page

Captive Portal APIs

PUT/networks/{networkId}/ssids/{number}

Parameters
splashPage – type of splash page
walledGardenEnabled
walledGardenRanges

Configuration

PUT/networks/{networkId}/ssids/{number}/splashSettings

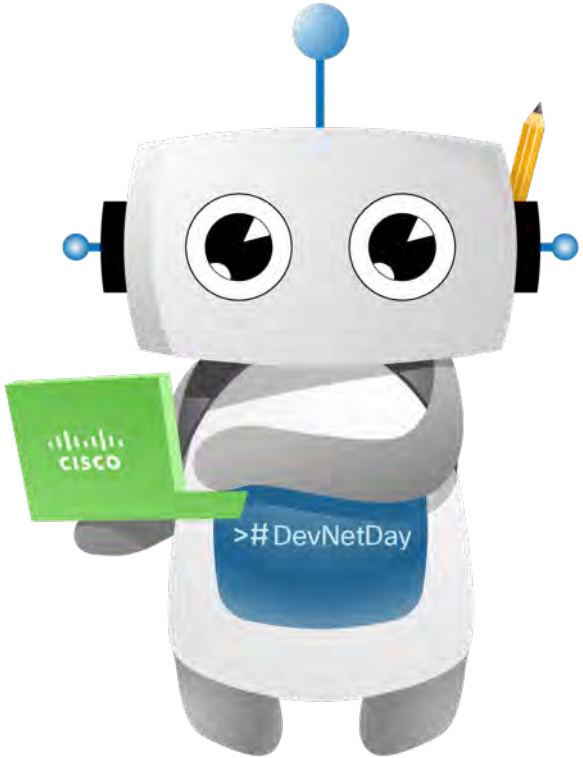
Parameters
splashUrl
useSplashUrl

Monitor

GET/networks/{networkId}/splashLoginAttempts

Explore More

- Meraki Learning Track: https://developer.cisco.com/learning/devnet-express/devnet-express-meraki



Thank you

Possibilities

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