



Powerful, Programmable Cloud Networking with Meraki APIs

Tony Carmichael, Product Manager - Meraki API &
Dev Platform

BRKRST-1733



Agenda

- Introduction to the Meraki Cloud Platform
- Growth & Adoption
- Product Updates
- Automation Use Cases & User Stories
- Live Automation Demo
- Resources & Next Steps

Introduction to the Meraki Cloud Platform



You make multi-cloud **possible**

Meraki Cloud – A Comprehensive Platform

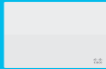
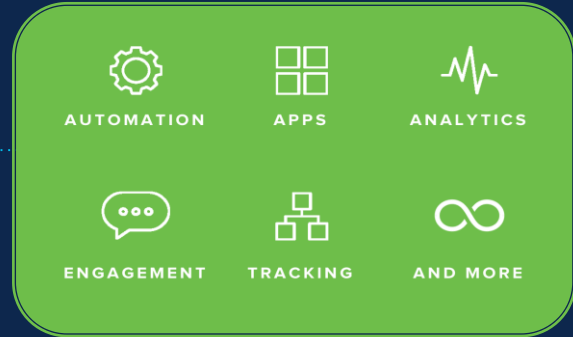
OUT-OF-THE-BOX MANAGEMENT & ANALYTICS



{ APIs }

INTEGRATIONS & SOLUTIONS

POWERED BY MERAKI



Automation of repetitive tasks
“1 click vs 1,328 clicks”

Platform Integrations
“Meraki plus _____”

Tailored solutions
“Seamless device onboarding”

WHAT'S POSSIBLE WITH MERAKE APIS?



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



Automation

Apply a group policy if a device matches certain criteria



Reporting

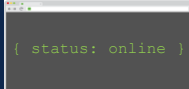

Visualize what % of clients are on WiFi vs Wired



Data Insights (IQ)

Processed data insights that deliver key new business insights

An Interface for Users and Developers



	Dashboard Web UI	APIs
CONFIGURE	✓	✓
MONITOR & ALERT	✓	✓
REPORT	✓	✓
ANALYZE & ENGAGE	✓	✓
INTEGRATIONS & ADVANCED APPLICATIONS		✓

Dashboard API – A Simple Example

Dashboard Web UI

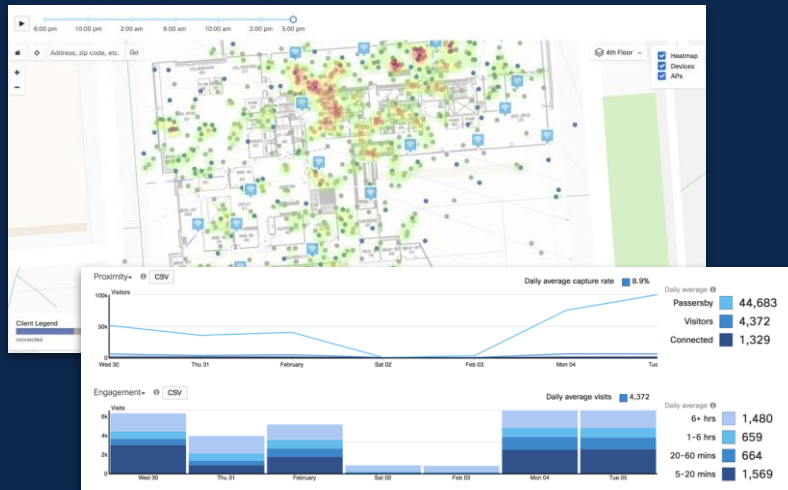
20	●	<u>2.55</u>	<div style="width: 100%;"></div>	MR52
21	●	<u>2.25</u>	<div style="width: 100%;"></div>	MR52
22	●	<u>2.54</u>	<div style="width: 100%;"></div>	MR52
23	●	<u>2.53</u>	<div style="width: 100%;"></div>	MR52
24	●	<u>5.10</u>	<div style="width: 100%;"></div>	MR42
25	●	<u>5.36 - Axe</u>	<div style="width: 100%;"></div>	MR42
26	●	<u>5.12</u>	<div style="width: 100%;"></div>	MR53

APIs

```
{
  "name": "2.55",
  "serial": "Q2TD-LS8S-J6YJ",
  "mac": "0c:8d:db:7a:01:64",
  "publicIp": "67.188.23.251",
  "networkId": "L_599541700393699125",
  "status": "alerting",
  "lanIp": "192.168.1.174"
},
{
  "name": "2.25",
  "serial": "Q2DK-2H9N-JSTE",
  "mac": "00:18:0a:5b:0c:b0",
  "publicIp": "67.188.23.251",
  "networkId": "L_599541700393699125",
  "status": "online",
  "lanIp": "172.16.0.5"
},
}
```

Location API – A Simple Example

Dashboard Web UI



APIs

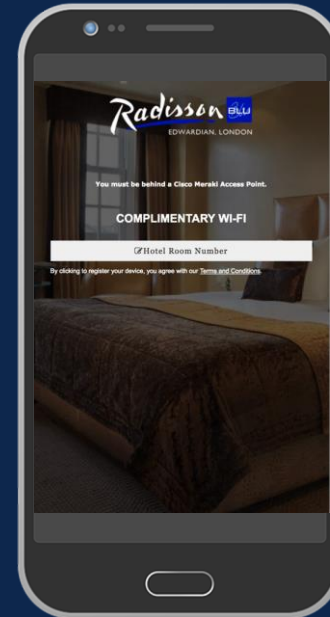
```
{  
  "ipv4": "/192.168.0.63",  
  "location": {  
    "lat": 51.5355157,  
    "lng": -0.06990350000000944,  
    "unc": 0.20755340376944298,  
    "x": ,  
    "y": ,  
  },  
  "seenTime": "2016-09-24T00:06:27Z",  
  "ssid": ".interwebs",  
  "os": null,  
  "clientMac": "18:fe:34:e1:b4:7a",  
  "seenEpoch": 1474675587,  
  "rssi": 56,  
  "ipv6": null,  
  "manufacturer": "Espressif"  
}
```


Captive Portal API – A Simple Example

Dashboard Web UI

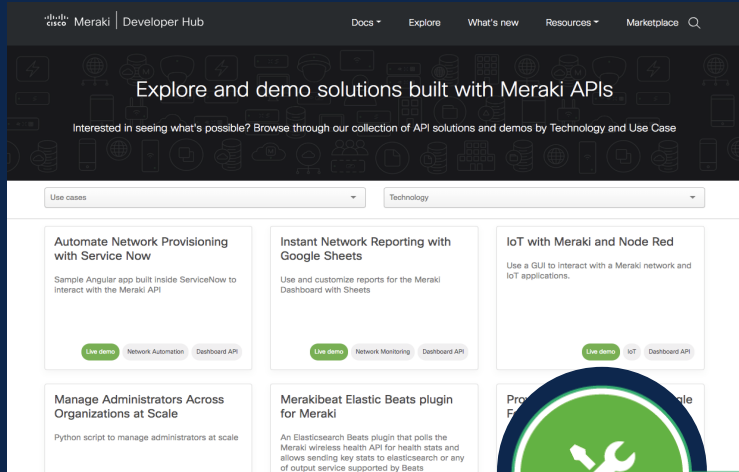


APIs

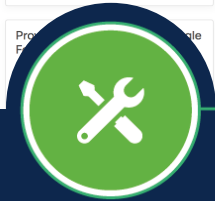


A Thriving Ecosystem

MERAKI DEVELOPER HUB



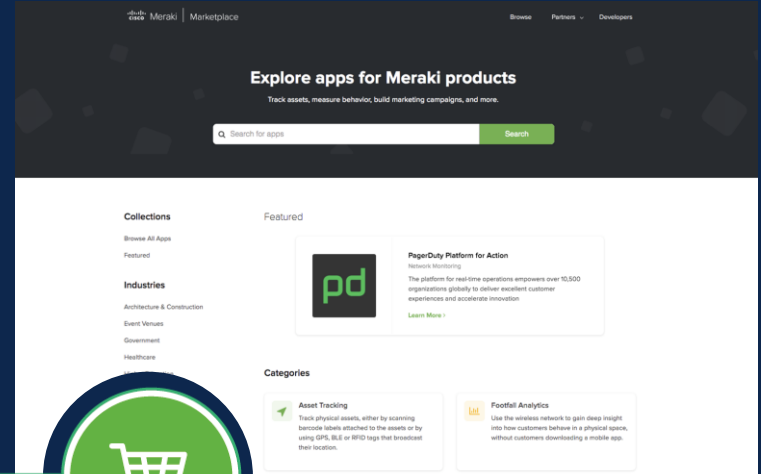
CREATE & BUILD
meraki.com/developers



APIs

APIs

MERAKI MARKETPLACE



EXPLORE TURNKEY SOLUTIONS
meraki.com/marketplace



API Product Updates



You make the power of data **possible**

API Growth and Adoption Highlights

- 60M Daily API requests
- 5.7M Connected Meraki devices
- 75K Active API users
- 80+ Technology partners on the Meraki Marketplace
- 2.5M Active Meraki Networks

Robust Services with High-scale Adoption

 50+ Turnkey Partner Apps

100K+ Custom Integrations



Dashboard API



320+ RESTful endpoints
60M daily requests

Scanning & Webhook



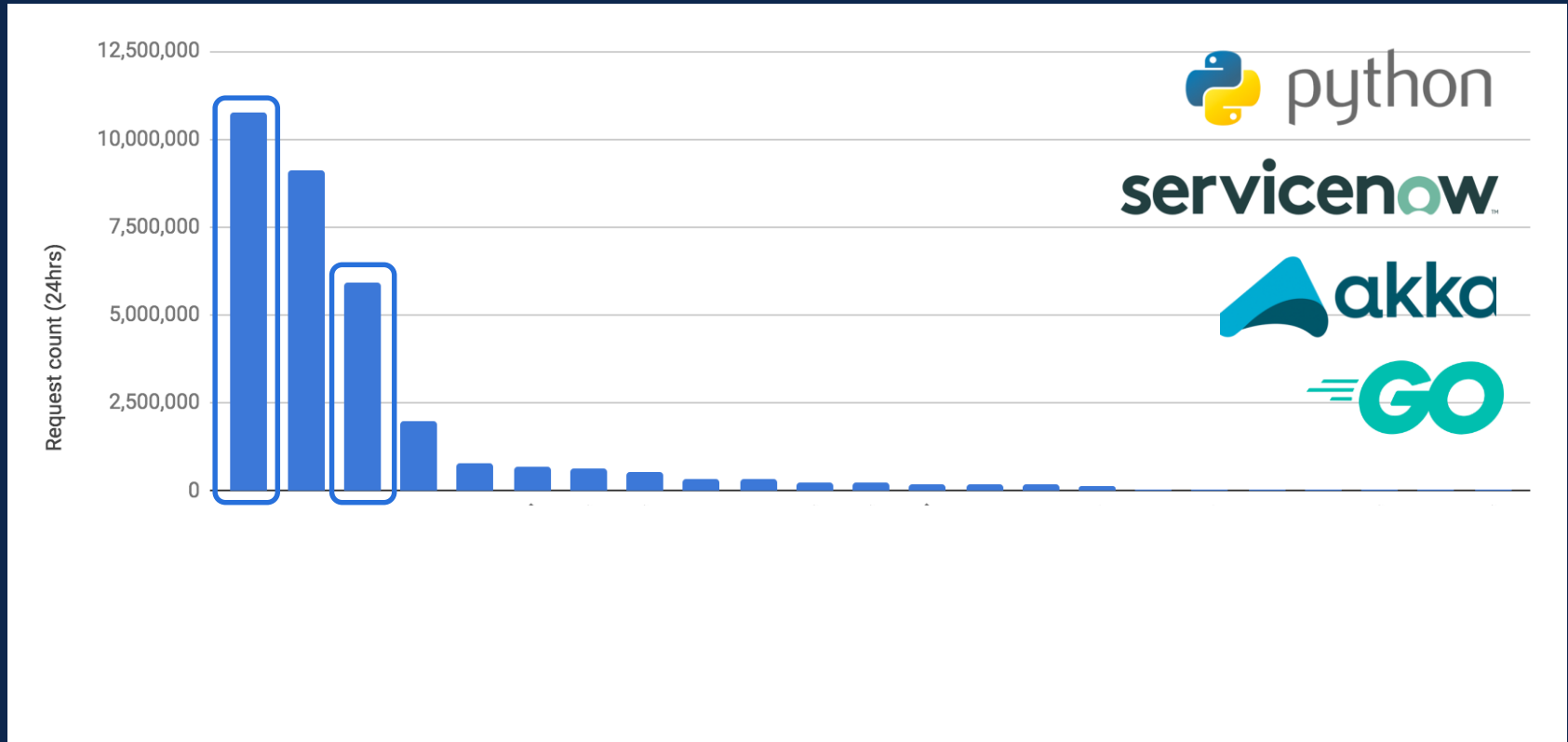
250M global BLE
beacons daily

Captive Portal



100M+ custom splash
pages served daily

API Growth and Adoption Highlights



New Configuration Endpoints



MX & SD-WAN

- VLAN & DHCP configuration
- Layer 3 & Layer 7 firewall
- Port forwarding rules
- WAN uplink bandwidth
- Traffic Shaping for MX
- Threat protection
- Content filtering



LAN & Wireless

- Splash page configuration
- Wireless RF-profile binding
- Switch stack configuration
- Switch combined power settings
- Group policy configuration
- Traffic shaping



Network-wide

- Group policy configuration
- Client provisioning
- Reboot via API
- Blink LED via API
- Alert configuration
- Split & Combine
- Snapshot API (MV)

New Monitoring Endpoints



MX & SD-WAN

- Organization-wide loss & latency monitoring
- MX loss & latency timeseries
- Cellular status



Full-stack

- Organization-wide device status monitoring
- Organization-wide device attributes
- Network-wide clients
- Organization-wide device attributes

NEW: Action Batches

- Submit batch configuration changes
- High efficiency (1 request vs 1k)
- Support for synchronous and asynchronous actions

Supported resources include:

Networks

Devices

Switch ports

VLANs

IDS/IPS settings

Group policies

Management IP Addressing

Traffic shaping

RF-profile binding

```
{
  "confirmed": true,
  "synchronous": true,
  "actions": [
    {
      "resource": "/networks/L_568579452955528009/vlans",
      "operation": "create",
      "body": {
        "id": "123",
        "name": "test",
        "subnet": "10.1.2.0/24",
        "applianceIp": "10.1.2.3"
      }
    },
    {
      "resource": "/devices/Q2VP-DRGX-XUKC/switchPorts/5",
      "operation": "update",
      "body": {
        "type": "access",
        "vlan": "123"
      }
    },
    {
      "resource": "/networks/N_568579452955552381/groupPolicies/100",
      "operation": "update",
      "body": {
        "name": "Block streaming video"
      }
    }
  ]
}
```

NEW: Action Batches

Example batch:

- Create 20 networks
- Claim 20 switches
- Add switches per network
- Configure all device attributes and settings
- Configure all switch ports

...in 1 POST

```
{
  "confirmed": true,
  "synchronous": true,
  "actions": [
    {
      "resource": "/networks/L_568579452955528009/vlans",
      "operation": "create",
      "body": {
        "id": "123",
        "name": "test",
        "subnet": "10.1.2.0/24",
        "applianceIp": "10.1.2.3"
      }
    },
    {
      "resource": "/devices/Q2VP-DRGX-XUKC/switchPorts/5",
      "operation": "update",
      "body": {
        "type": "access",
        "vlan": "123"
      }
    },
    {
      "resource": "/networks/N_56857945295552381/groupPolicies/100",
      "operation": "update",
      "body": {
        "name": "Block streaming video"
      }
    }
  ]
}
```

NEW: Meraki Developer Hub

The screenshot shows the Meraki Developer Hub website. At the top, there is a navigation bar with the Cisco logo, 'Meraki | Developer Hub', and links for 'Docs', 'Explore', 'What's new', 'Resources', and 'Marketplace'. The main heading is 'Deploy, Build, & Engage'. Below this, a paragraph states: 'Meraki APIs make it possible to rapidly deploy and manage networks at scale, build on a platform of intelligent, cloud-connected IT products, and engage with users in powerful new ways'. There are three news cards: 'API LAUNCH NEWS: Meraki Open API Specification and SDKs now available!', 'APIS @ CISCO LIVE: Coming to Cisco Live? Sign up for one of our API sessions!', and 'UPCOMING WEBINAR: Embracing Cloud Services and APIs with Meraki'. Below the cards, a section titled 'What can you do with the Meraki API?' features three green callout boxes: '150K Pageviews / week', 'Weekly Updates', and '50+ open source solutions'. The background has faint icons of a helmet, a person, a cloud, and a keyboard.

NEW: Meraki Developer Hub

OpenAPI Specification



Interactive, powerful API docs

```
result = organizations_controller.get_organizations()
```



Try it out

Codegen SDKs



Ruby



python™

Code Samples & Live Demos

IoT with Meraki and Node Red

Use a GUI to interact with a Meraki network and IoT applications.

Link demo IoT Dashboard API



API Changelog

A screenshot of the Meraki Developer Hub API Changelog page. The page header includes 'DEVNET', 'Meraki', and 'Developer Hub'. The main content area shows the date 'April 2019' and the heading 'New endpoints'. A list item 'Radio settings' is shown with a bullet point and a link. Below it, the endpoint is listed as 'GET /networks/{networkId}/devices/{serial}/wireless/radioSettings'. The page also features a search bar and navigation links like 'Docs', 'Explore', and 'What's new'.

Automation Use Cases and User Stories



You make multi-cloud **possible**

Nationwide Rental Company

CUSTOMER PROFILE

\$3.4B
2017 revenue

18,000
employees

2,000
retail locations

CHALLENGE

- Automate deployment of 2,000+ nation-wide locations over 4 months
- Streamline and simplify operations to reduce overhead and costs

SOLUTION

- Rapid, fully automated network setup and provisioning with the Meraki dashboard API
- Automate setup of all networks, bind them to configuration templates via an elegant web tool built for the field deployment team

Products used
MS | MR | MX

APIs used
Dashboard API

Built by
Customer

Multi-national Financial Services Company

CUSTOMER PROFILE

\$275B+
2017 total assets

47,500+
employees

290+
credit unions

1,000+
points of service

CHALLENGE

Provisioning, configuring, reporting and automation across

1,100 branches

1 campus HQ

1,000 teleworkers

SOLUTION

- Comprehensive network setup and provisioning with the Meraki dashboard API and CI/CD workstream
- Detailed deployment wide auditing and reporting using Meraki APIs

Products used

MS | MR | MX

APIs used

Dashboard API

Built by

Customer



Live Automation Demo

Live Network Automation Demo

CHALLENGE

Deploy 7 sites with FULL STACK in minutes

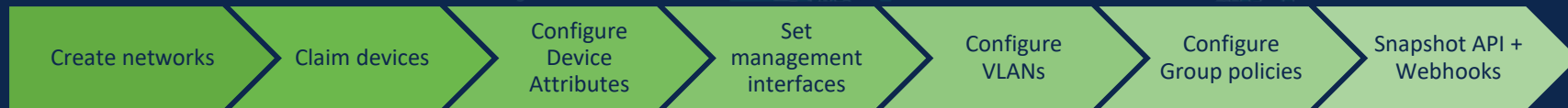
SOLUTION

- Comprehensive API automation script using Python and Action Batches

Products used
Full Stack

APIs used
Dashboard API

Built by
Meraki Solutions
Architect



Resources and Next Steps



You make customer experience **possible**

Developer Tools & Resources

The screenshot shows the Cisco Meraki Developer Hub website. The header includes the Cisco Meraki logo, "Developer Hub", and navigation links for Docs, Explore, What's new, Resources, and Marketplace. The main banner features the text "Explore and demo solutions built with Meraki APIs" and "Interested in seeing what's possible? Browse through our collection of API solutions and demos by Technology and Use Case". Below this, there are two tabs: "Use cases" and "Technology". The "Use cases" tab is active, displaying a grid of solution cards. Each card includes a title, a brief description, and a "Live demo" button along with associated tags like "Network Automation", "Network Monitoring", "IoT", and "Dashboard API".

meraki.com/developers

- Automate Network Provisioning with Service Now**
Sample Angular app built inside ServiceNow to interact with the Meraki API
Live demo | Network Automation | Dashboard API
- Instant Network Reporting with Google Sheets**
Use and customize reports for the Meraki Dashboard with Sheets
Live demo | Network Monitoring | Dashboard API
- IoT with Meraki and Node Red**
Use a GUI to interact with a Meraki network and IoT applications.
Live demo | IoT | Dashboard API
- Manage Administrators Across Organizations at Scale**
Python script to manage administrators at scale
- Merakibeat Elastic Beats plugin for Meraki**
An Elasticsearch Beats plugin that polls the Meraki wireless health API for health stats and allows sending key stats to elasticsearch or any of output service supported by Beats
- Provision Networks with a Google Form**
Use a Google form with the Meraki API to make changes to the network

Developer Tools & Resources

OpenAPI Specification

Interactive, powerful API docs

```
result = organizations_controller.get_organizations()
```

Codegen SDKs

Code Samples & Live Demos

IoT with Meraki and Node Red

Use a GUI to interact with a Meraki network and IoT applications.

API & Feature Changelog

DEVNET

Meraki | Developer Hub

Docs | Explore | What's new

April 2019

New endpoints

- Radio settings

Sandbox & Learning Labs

```
GET /api/meraki.com/api/v0/organizations/{organizationId}/deviceStatuses
```

```
60 {
61   {
62     "name": "m11",
63     "serial": "Q208-2PCX-3CY2",
64     "mac": "34:36:fc:c5:6d:28",
65     "publicIp": "64.103.26.57",
66     "networkId": "L_646823496481102811",
67     "status": "online",
68     "location": "192.168.128.3"
69   },
70   {
71     "name": "m11",
72     "serial": "Q208-3JAG-STZY",
```



You make **possible**