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The bridge to possible

A quick tour to Meraki Scanning API

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DEVNET-1248

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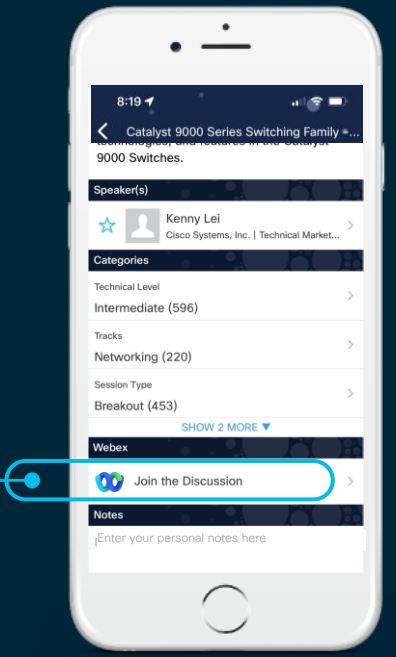

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Abstract

- According to Fortune Business Insights the global location-based services (LBS) market size was USD 16.14 billion in 2018 and is projected to reach USD 66.61 billion by 2026, exhibiting a CAGR of 20.0% during the forecast period. Location-based services may include store location, proximity-based marketing, emergency services, travel information, among others.
- Meraki technology allows to aggregate raw client location data reported and provides a real-time estimate on the location of Wi-Fi (associated and non-associated) and Bluetooth Low Energy (BLE) devices in real-time using using the physical placement of each access point on the Map & Floorplan of the Dashboard.
- Bring your python skills because we will code a couple of use cases.

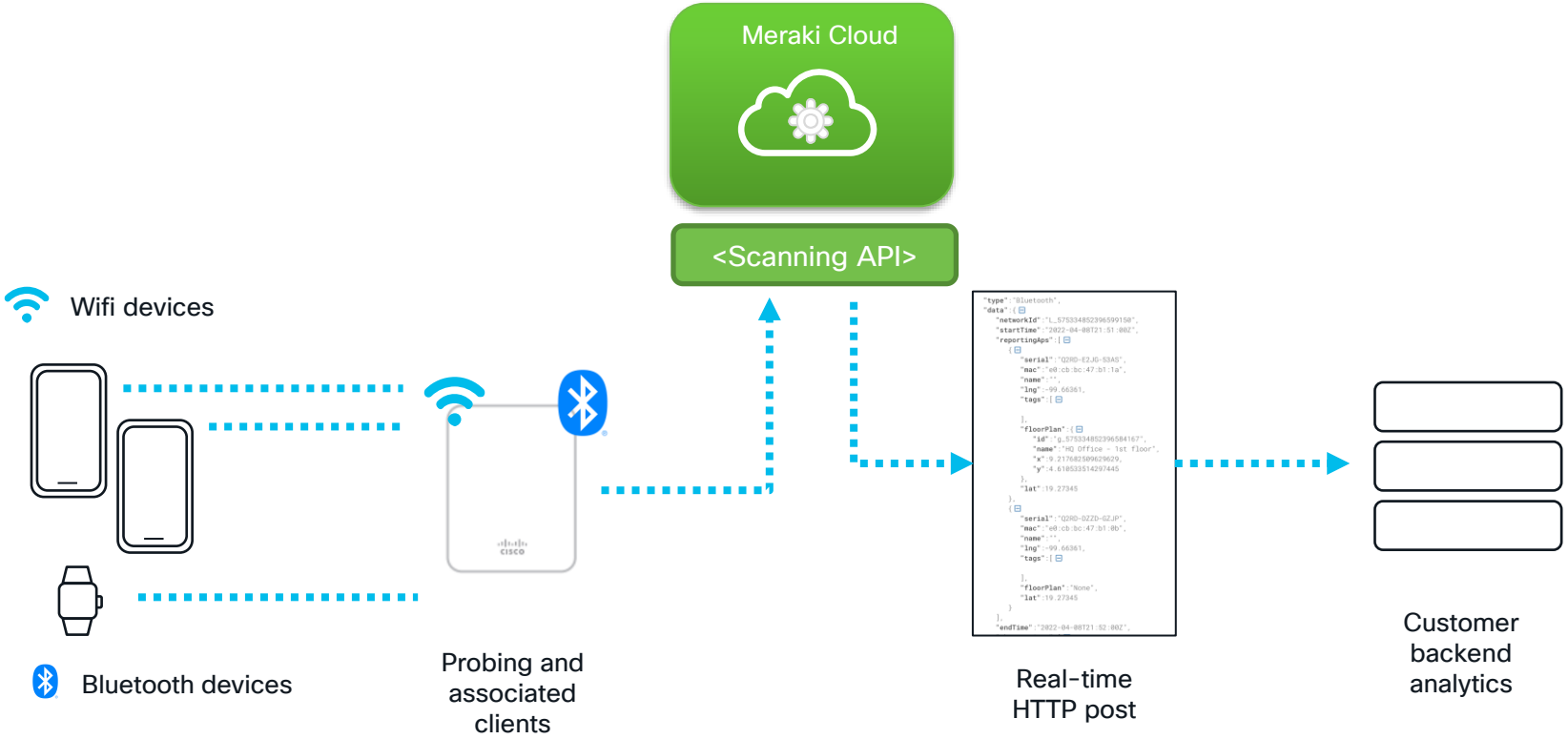
Agenda

- Introduction to Scanning API
- How Scanning API works
- Configuring Scanning API
- DNA Spaces integration
- Your own server integration
- Conclusion

Scanning API

- Using the physical placement of each access point on the Map & Floorplan of the Dashboard, the Meraki cloud aggregates raw client location data reported and provides a real-time estimate on the location of Wi-Fi (associated and non-associated) and Bluetooth Low Energy (BLE) devices in real-time. The Scanning API delivers this data to your real-time location application, data warehouse, or business intelligence systems.

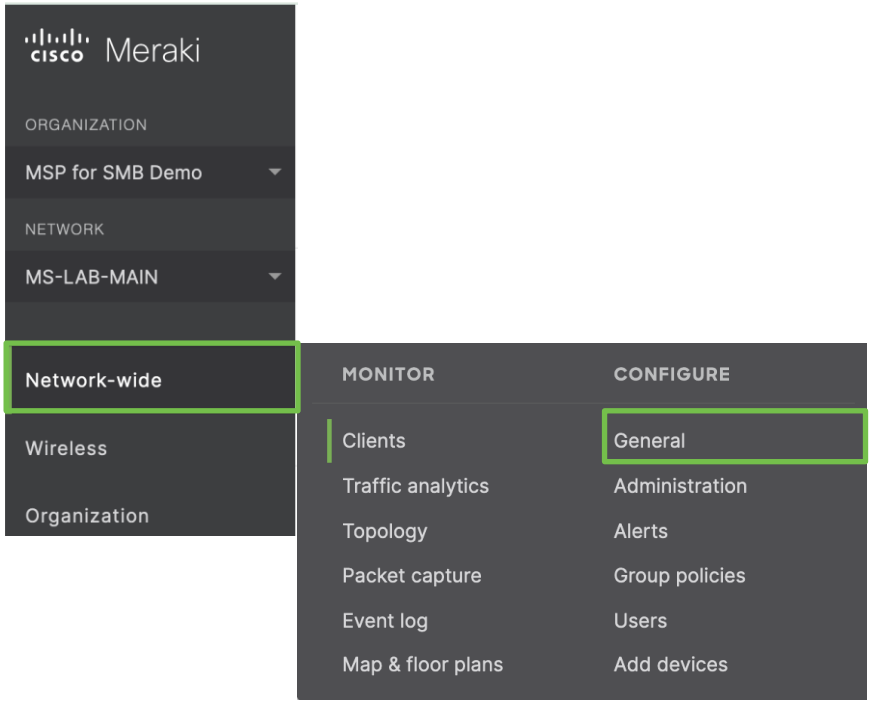
How Scanning API works

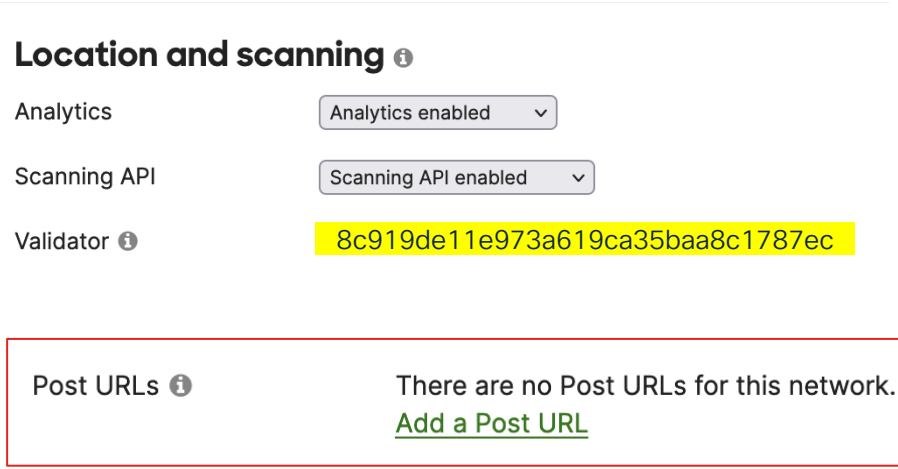


Meraki Scanning API basics

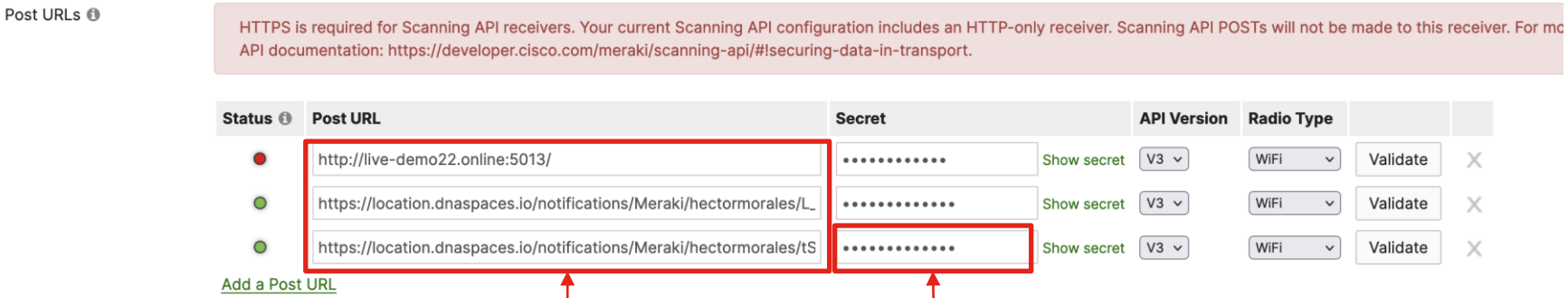
- Two versions: v2 and v3 (v1 is deprecated)
- Scanning API V3 uses a triangulation approach for computing location of the client devices. This requires the wireless client to be heard by 3 or more APs to have location information populated via the API output.
- In contrast, Scanning API V2 uses a “x/y/z” approach, and only requires Z number of APs.
- Scanning API V3 offers higher accuracy for location analytics compared to the V2.
- Scanning API V3 offers a better-organized data structure compared to V2, based on actual user feedback.

Configuring Scanning API





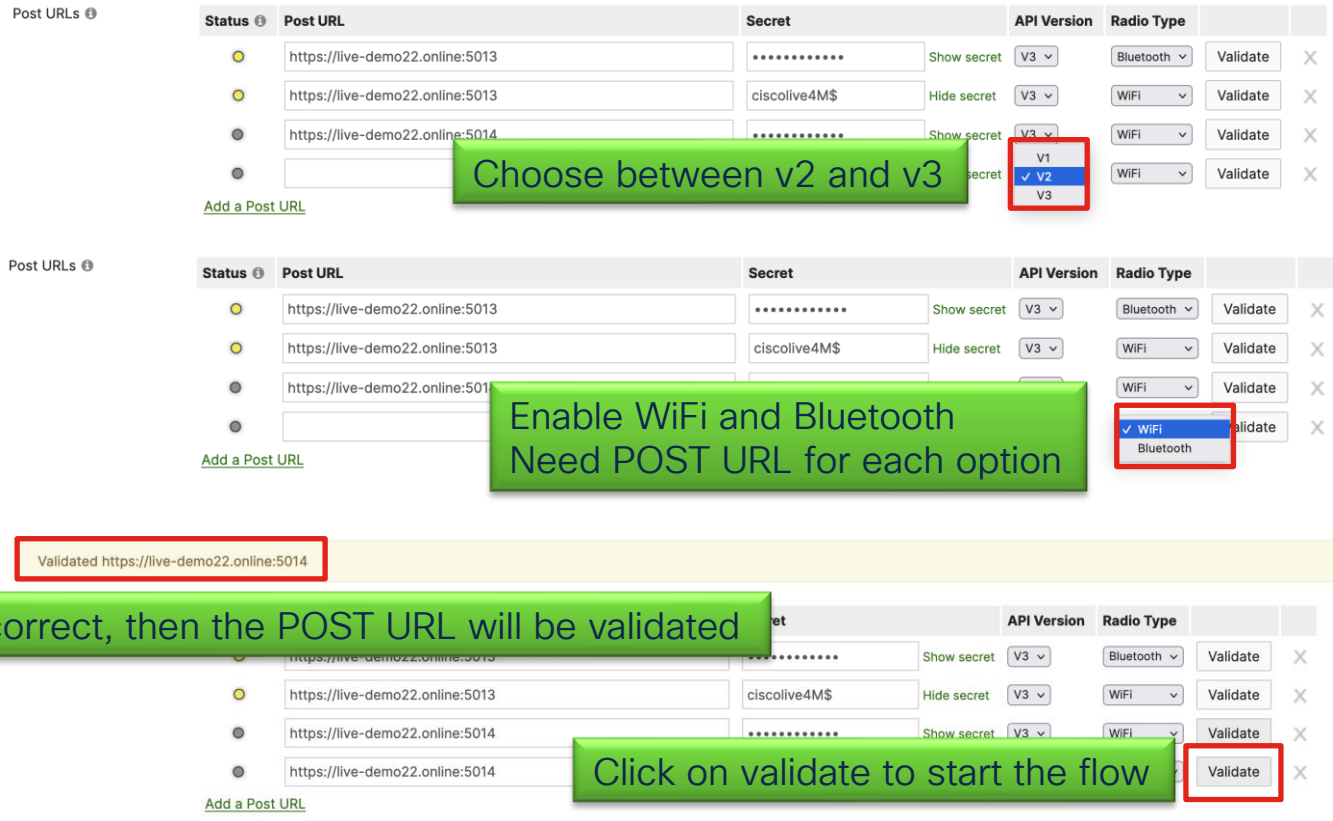
Adding POST URL



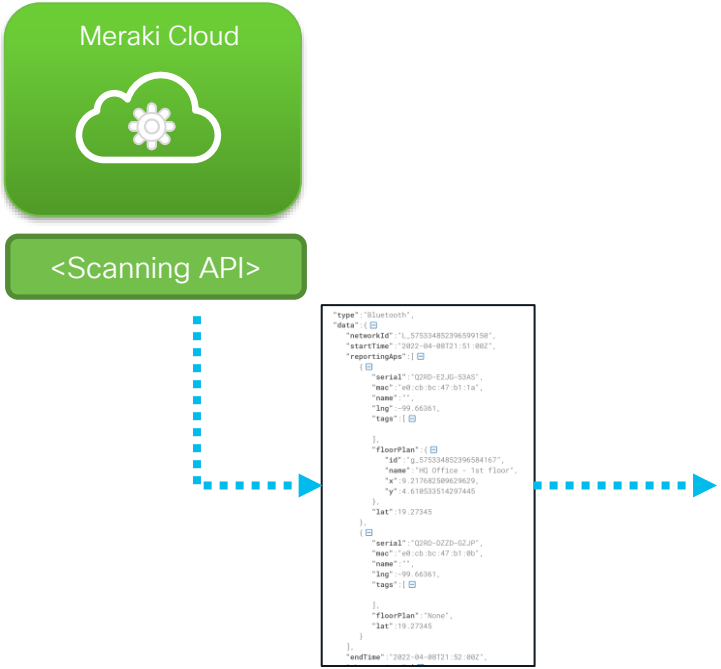
POST URL
HTTP Server location

Secret
All messages contain the secret in the JSON body

Scanning API Options



Validator and Post URL's

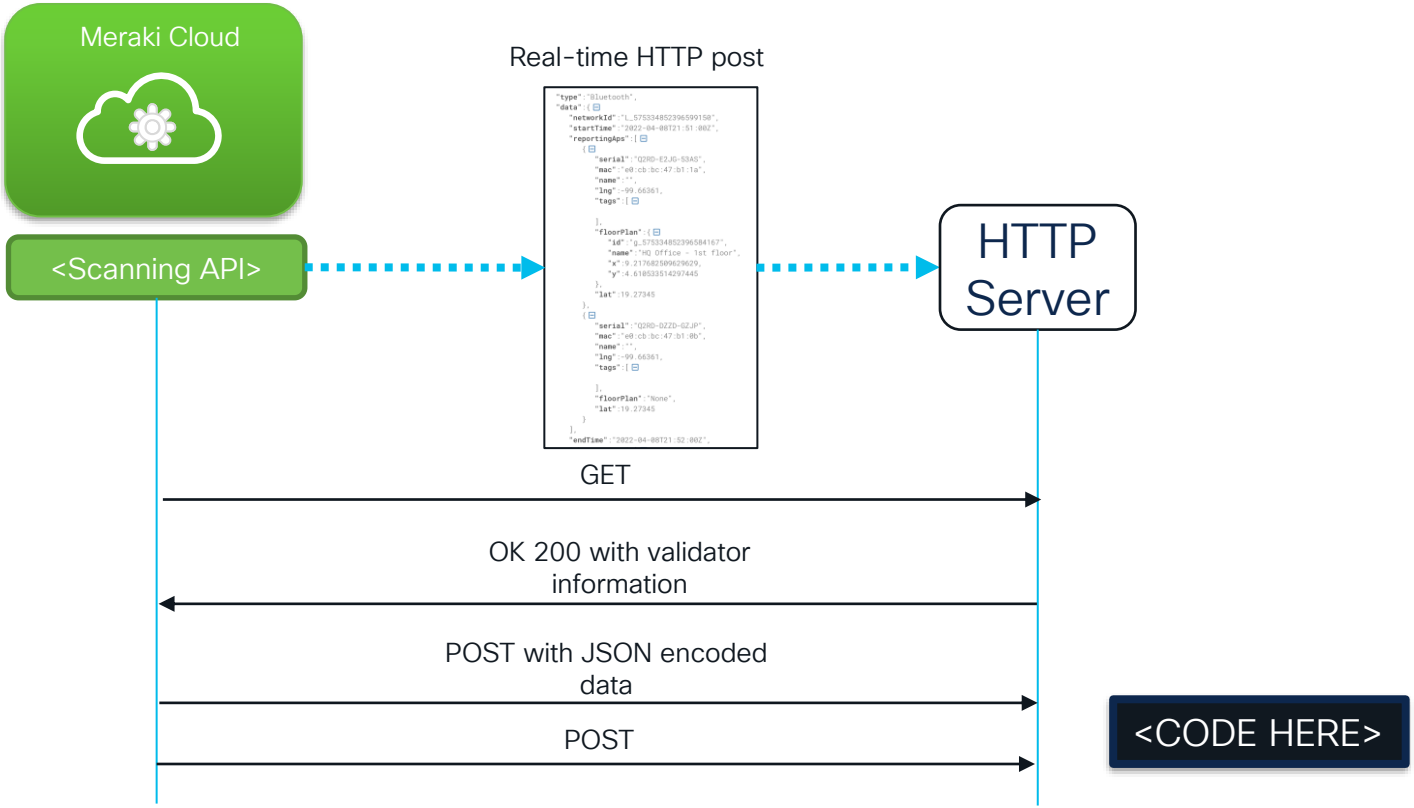


Real-time HTTP post

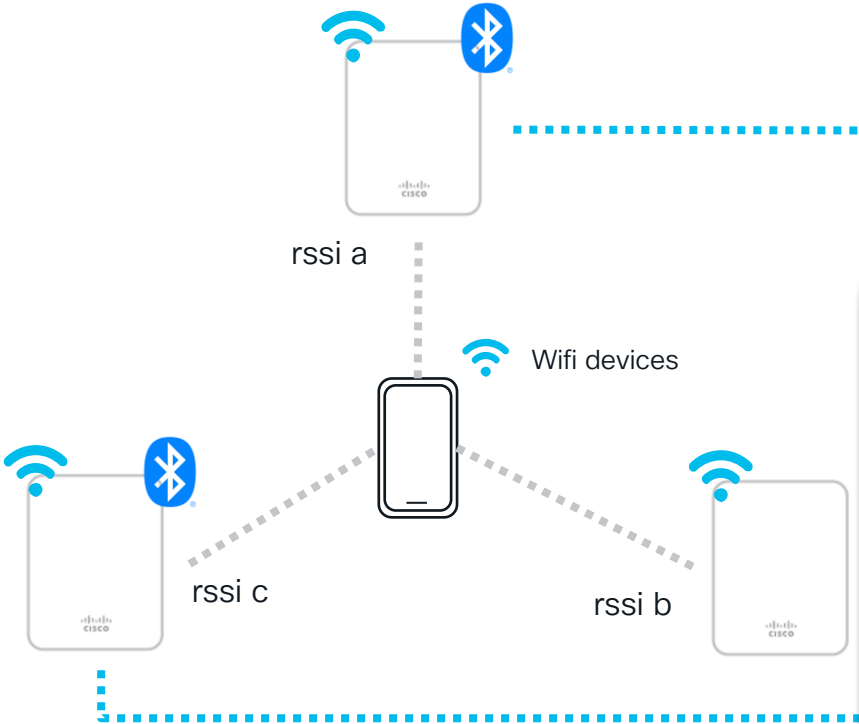
- When Scanning is enabled, Meraki cloud sends Scanning information from the configured MRs
- Scanning API requirements:
  - Firmware R26 for WiFi observations [1]
  - Firmware R27.5 for BLE observations
- Scanning information is sent in a POST message to an HTTP server
- Validator is used for Meraki Cloud to verify that the remote HTTP server is properly configured

1 AP models which pre-date 11AC Wave 2, r27 and subsequent firmware versions are not supported. More information

Validator and Post URL's



Scanning API v3 triangulation

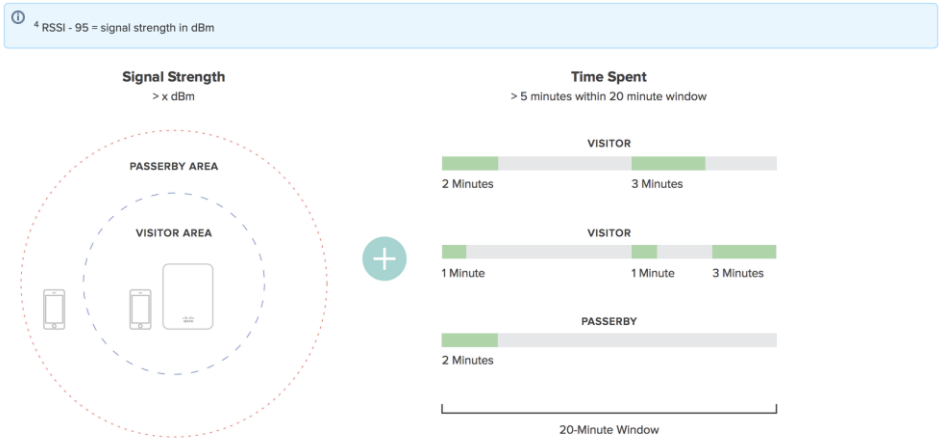


Scanning information

Meraki Cloud

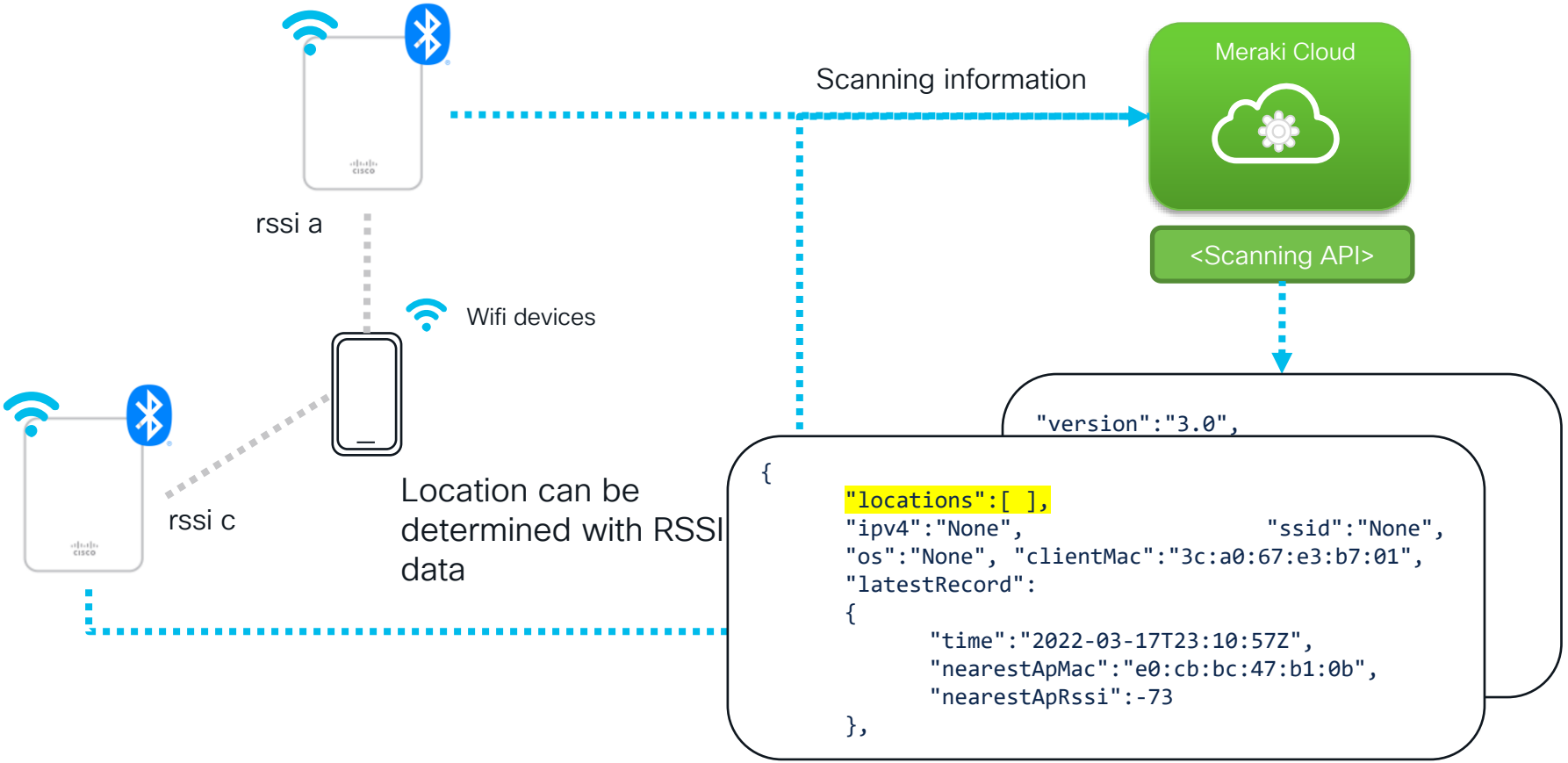

```
{"locations":
[
{       "x": "7.976651798199431",
        "lng": 6.0957744807924485,
        "floorPlanName": "3rd Floor",
        "rssiRecords": [
        {
                "apMac": "aa:aa:aa:11:11:11",
                "rssi": -32
        },
        {
                "apMac": "aa:aa:aa:22:22:22",
                "rssi": -54
        },
        {
                "apMac": "aa:aa:aa:33:33:33",
                "rssi": -51
        }
        ]
]
```

What is RSSI?



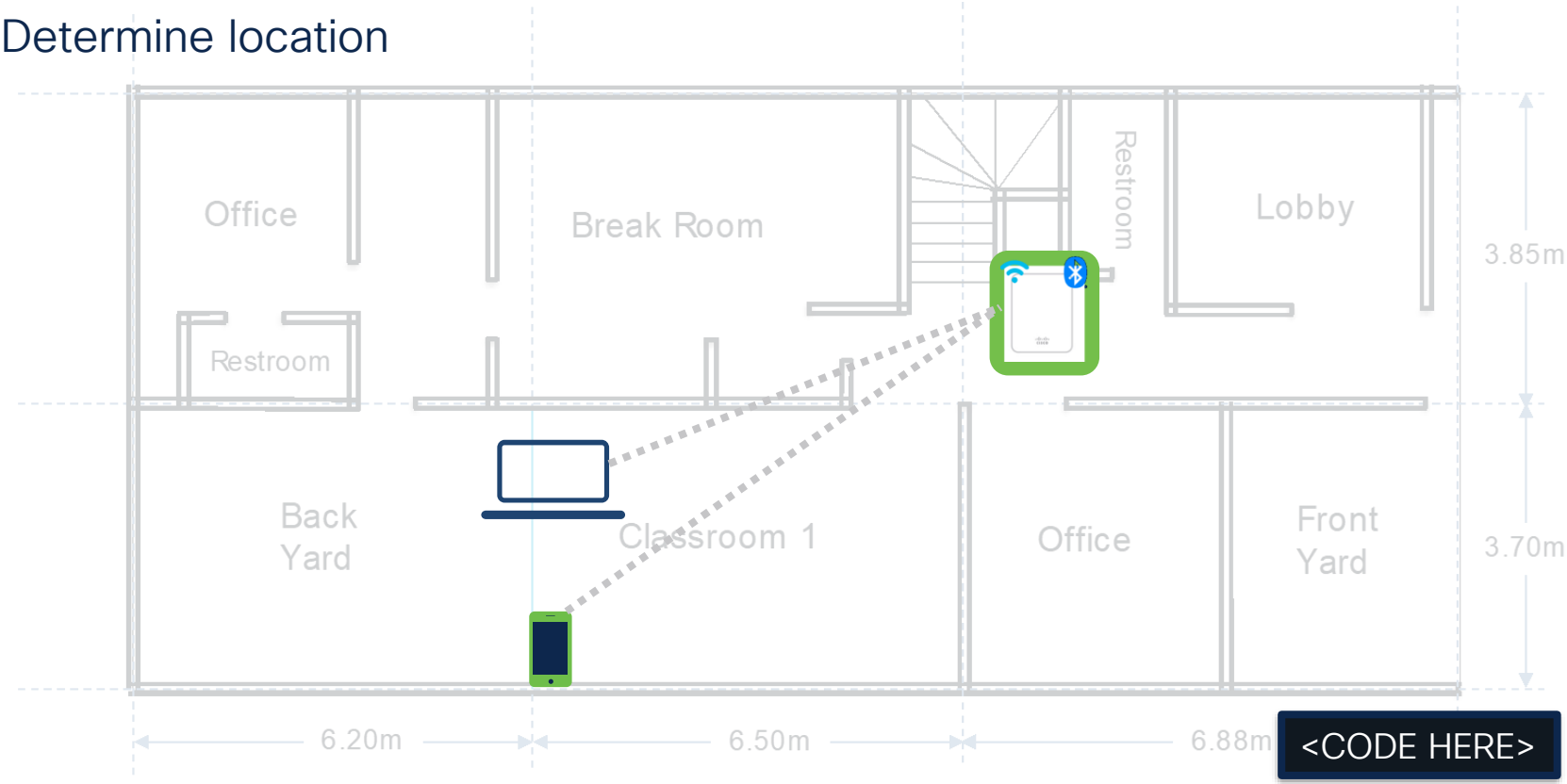
- RSSI, or “Received Signal Strength Indicator,” is a measurement of how well your device can hear a signal from an access point or router. It’s a value that is useful for determining if you have enough signal to get a good wireless connection. Note: Because an RSSI value is pulled from the client device’s Wi-Fi card (hence “received” signal strength), it is not the same as transmit power from a router or AP.
- RSSI is a term used to measure the relative quality of a received signal to a client device, but has no absolute value. The IEEE 802.11 standard (a big book of documentation for manufacturing Wi-Fi equipment) specifies that RSSI can be on a scale of 0 to up to 255 and that each chipset manufacturer can define their own “RSSI_Max” value. Cisco, for example, uses a 0-100 scale, while Atheros uses 0-60. It’s all up to the manufacturer (which is why RSSI is a relative index), but you can infer that the higher the RSSI value is, the better the signal is.
- More information on Meraki Location Analytics
- Location analytics in Meraki Dashboard

Scanning API v3 with less than 3 MR's

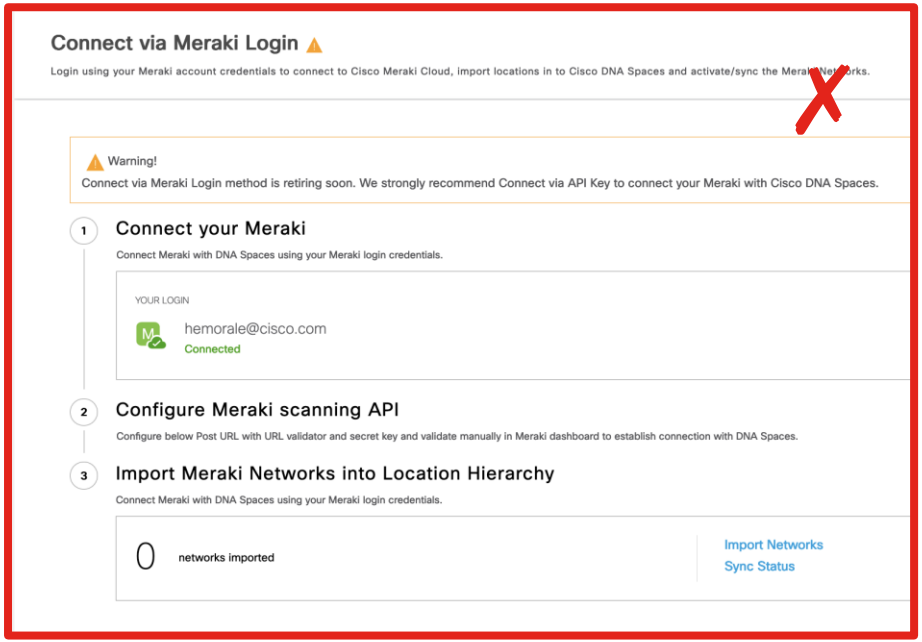


Floor map and RSSI

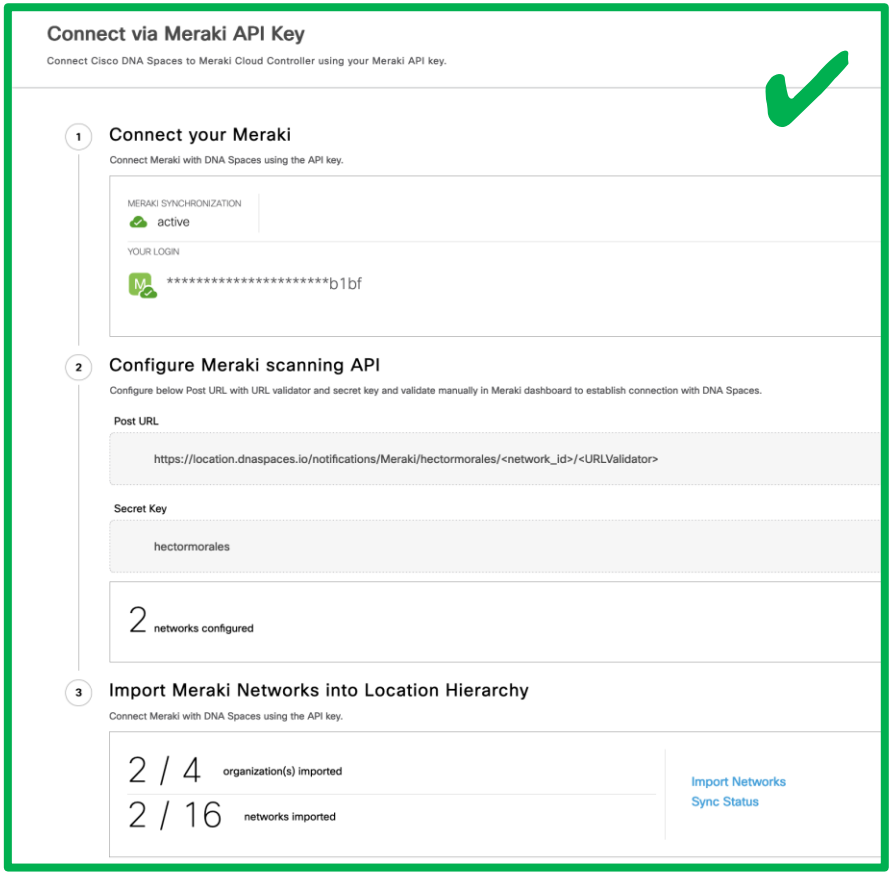
Determine location



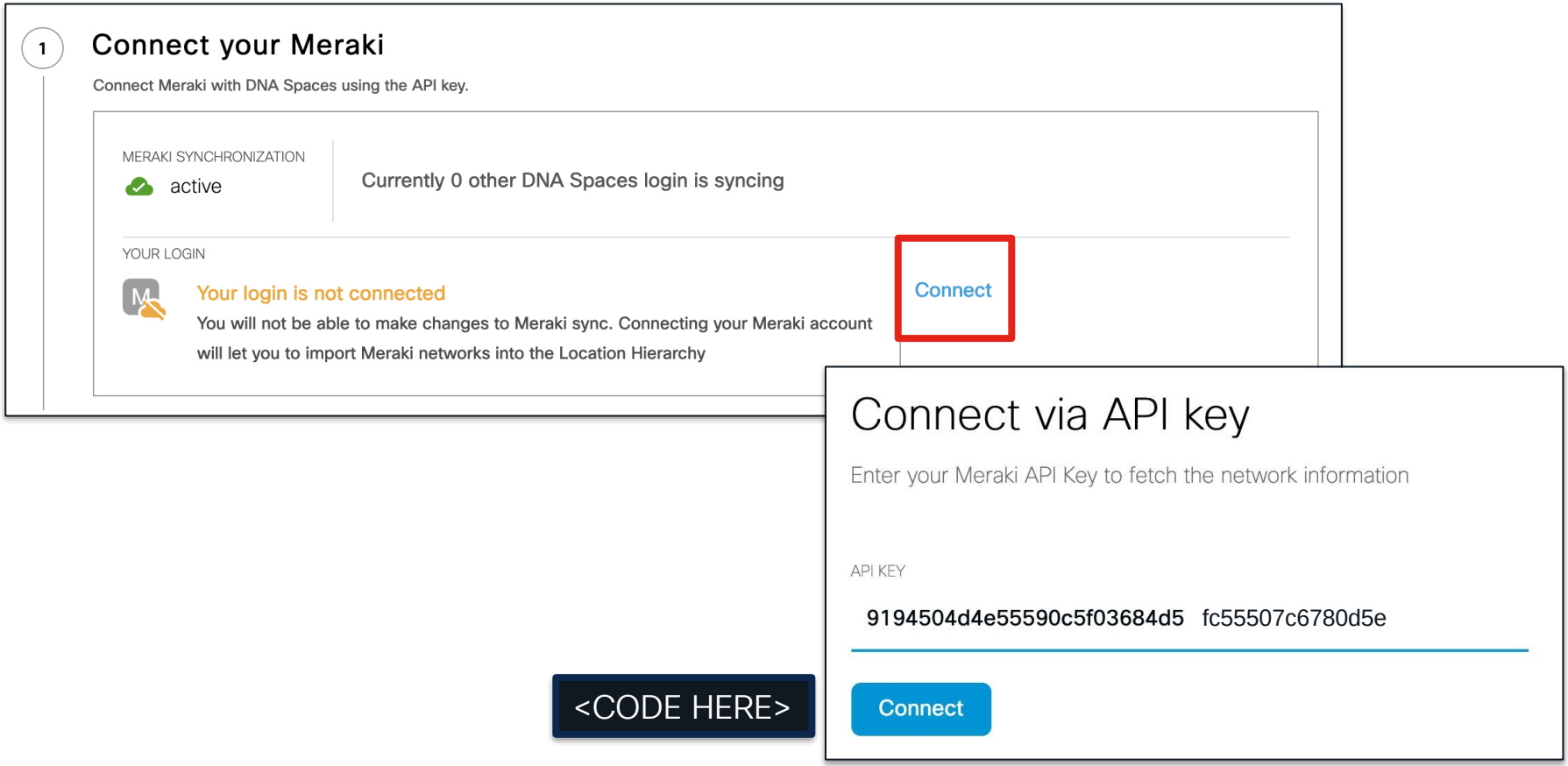
Meraki and DNA Spaces integration



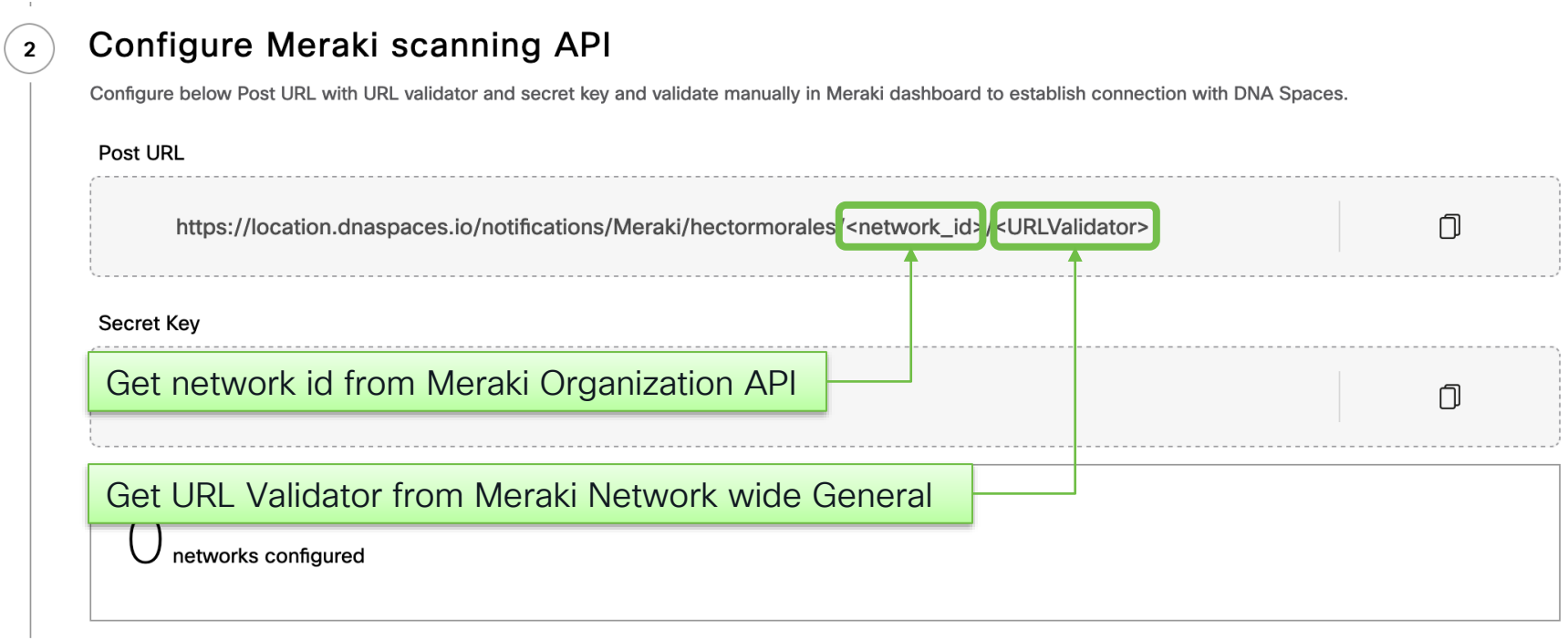
Old method



Meraki and DNA Spaces integration



Meraki and DNA Spaces integration



Meraki and DNA Spaces integration

https://n22.meraki.com/api/v0/organizations

```
5:
    id:     "657525545596093462"
    name:   "ACME SD-WAN"
  ▾ url:    "https://n168.meraki.com/o/zi7yVcOc/manage/organization/overview"
```

https://n168.meraki.com/api/v0/organizations/657525545596093462/networks

```
▾ 0:
    id:                     "L_657525545596103966"
    organizationId:         "657525545596093462"
    name:                   "HQ Site"
    timeZone:               "America/Los_Angeles"
    tags:                   null
  ▾ productTypes:
      0:                    "appliance"
      1:                    "wireless"
    type:                   "combined"
    disableMyMerakiCom:     false
    disableRemoteStatusPage: true
```

2 **Configure Meraki scanning API**

Configure below Post URL with URL validator and secret key and validate manually in Meraki dashboard to establish connection with DNA Spaces.

Post URL

https://location.dnaspaces.io/notifications/Meraki/hectormorales/<network_id>/<URLValidator>

Secret Key

hectormorales

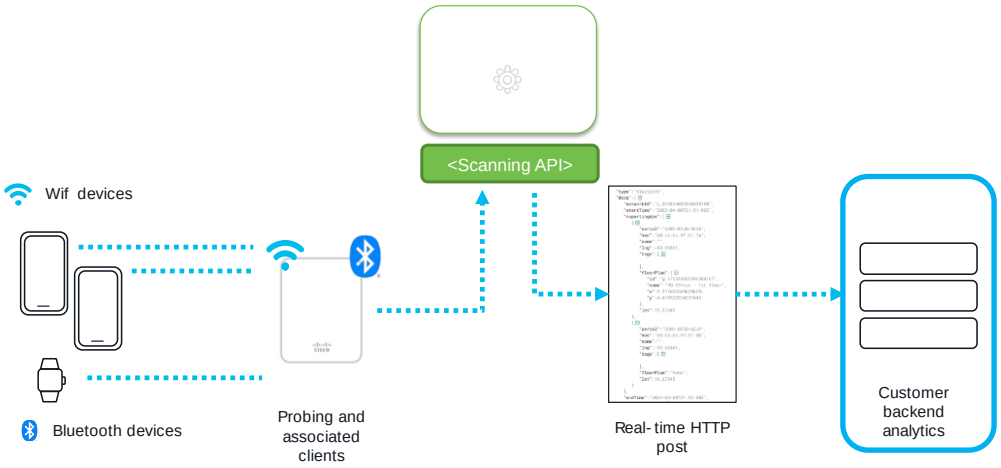
0 networks configured

<CODE HERE>

Meraki and DNA Spaces integration

Get network id from the organization

Your own server integration



- Web server in the cloud (azure)
- Server running python and responds to HTTP request messages
- Interpretation of JSON body

<CODE HERE>

Demo

Q&A

References

- https://documentation.meraki.com/MR/Monitoring_and_Reporting/Scanning_API_for_Location_Analytics_Solutions
- https://www.fortunebusinessinsights.com/industry-reports/location-based-services-market-101060
- https://dnaspaces.io/login

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