The bridge to possible

Meraki 202: Programmatic Action

Simplicity at Scale

Jon Hartman, Meraki TSA, CCIE 34941
@techdojo

cisco Live!

DEVNET-2177

Cisco Webex App

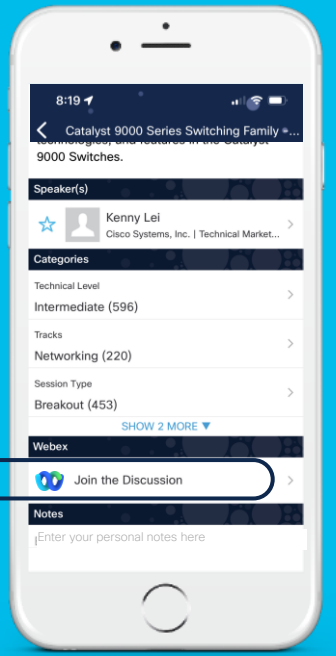
Questions?

Use Cisco Webex App to chat
with the speaker after the session

How

1. Find this session in the Cisco Live Mobile App
2. Click “Join the Discussion”
3. Install the Webex App or go directly to the Webex space
4. Enter messages/questions in the Webex space

Webex spaces will be moderated until February 24, 2023.



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Agenda

- Introduction
- Mechanisms
- Examples
- Conclusion

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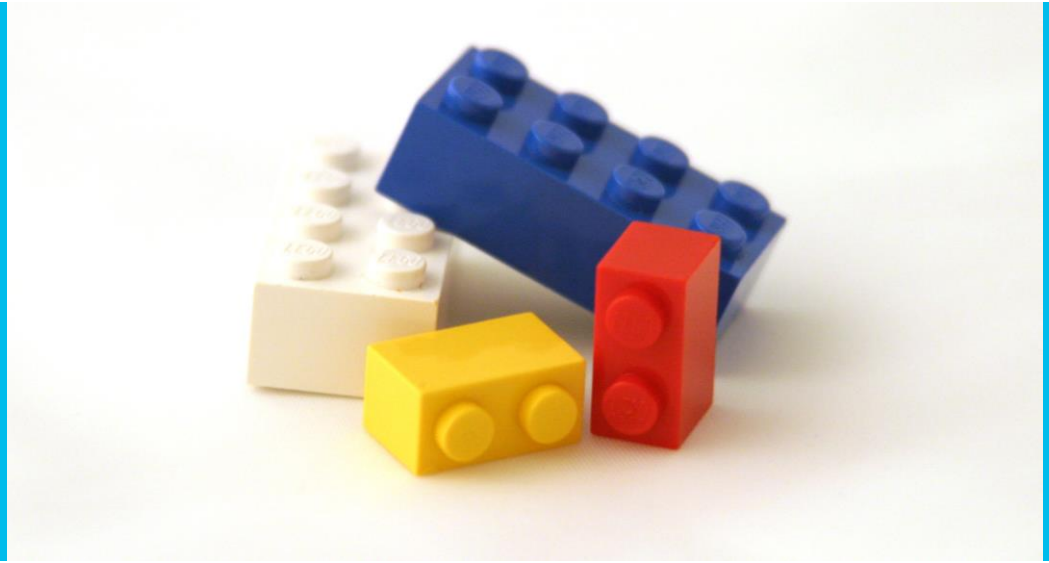
In the beginning…



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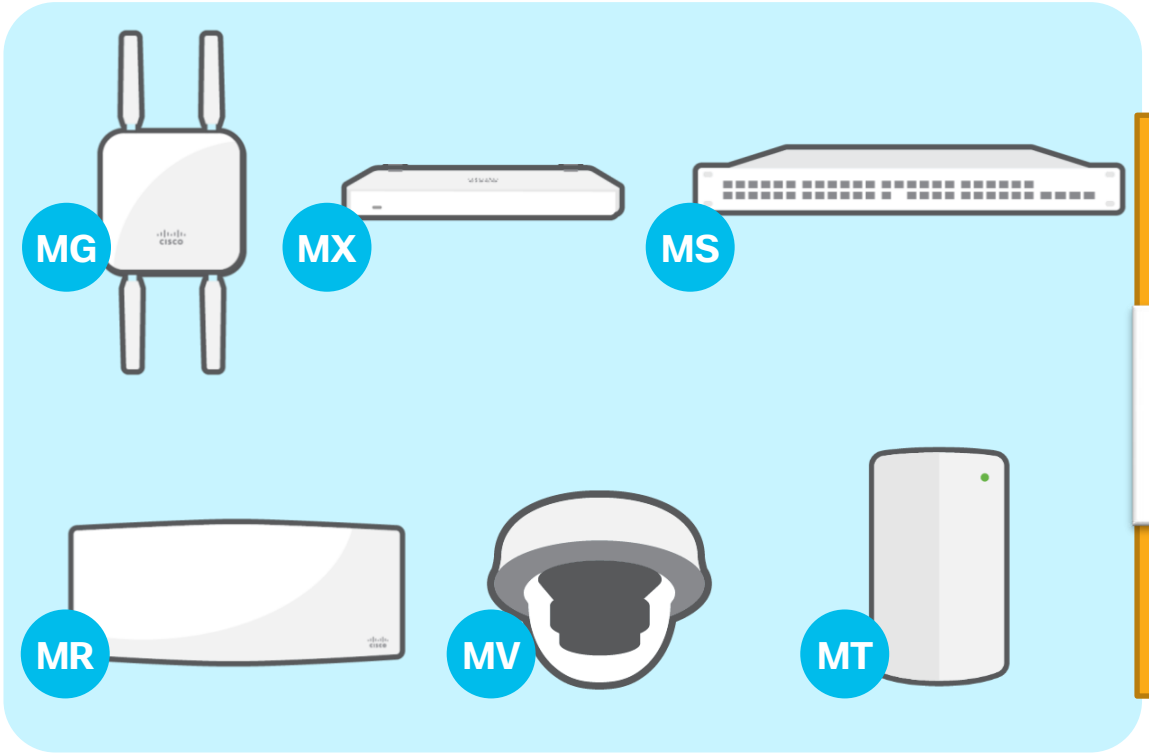
In the beginning…



Collector

Harvester

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In the beginning...

Collector

Harvester

BSS / OSS

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Business Outcomes

Data + Action = Result

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Business Outcomes

Data + Action = Result

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Business Outcomes

Data + Action = Result

location

status

event

count

Type?

fetch

receive

stream

Method?

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Business Outcomes

Data + Action = Result

- status
- location
- event
- count

- fetch
- receive
- stream

- AAA
- Billing
- Monitoring
- Performance
- Reporting
- Service

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Business Outcomes

Data + Action = Result

- status
- location
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- Process
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Business Outcomes

status

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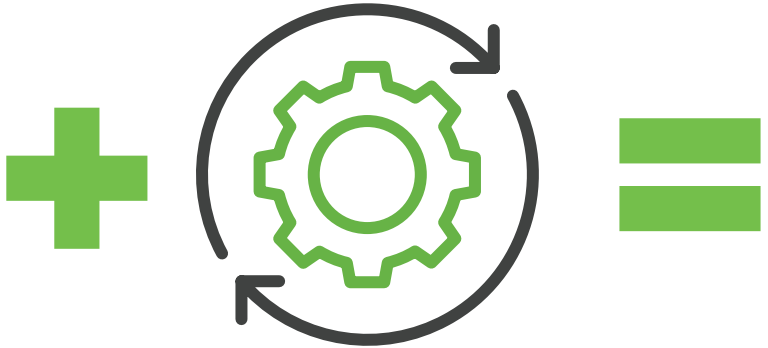

AAA

Billing

Monitoring

Performance

Reporting

Service

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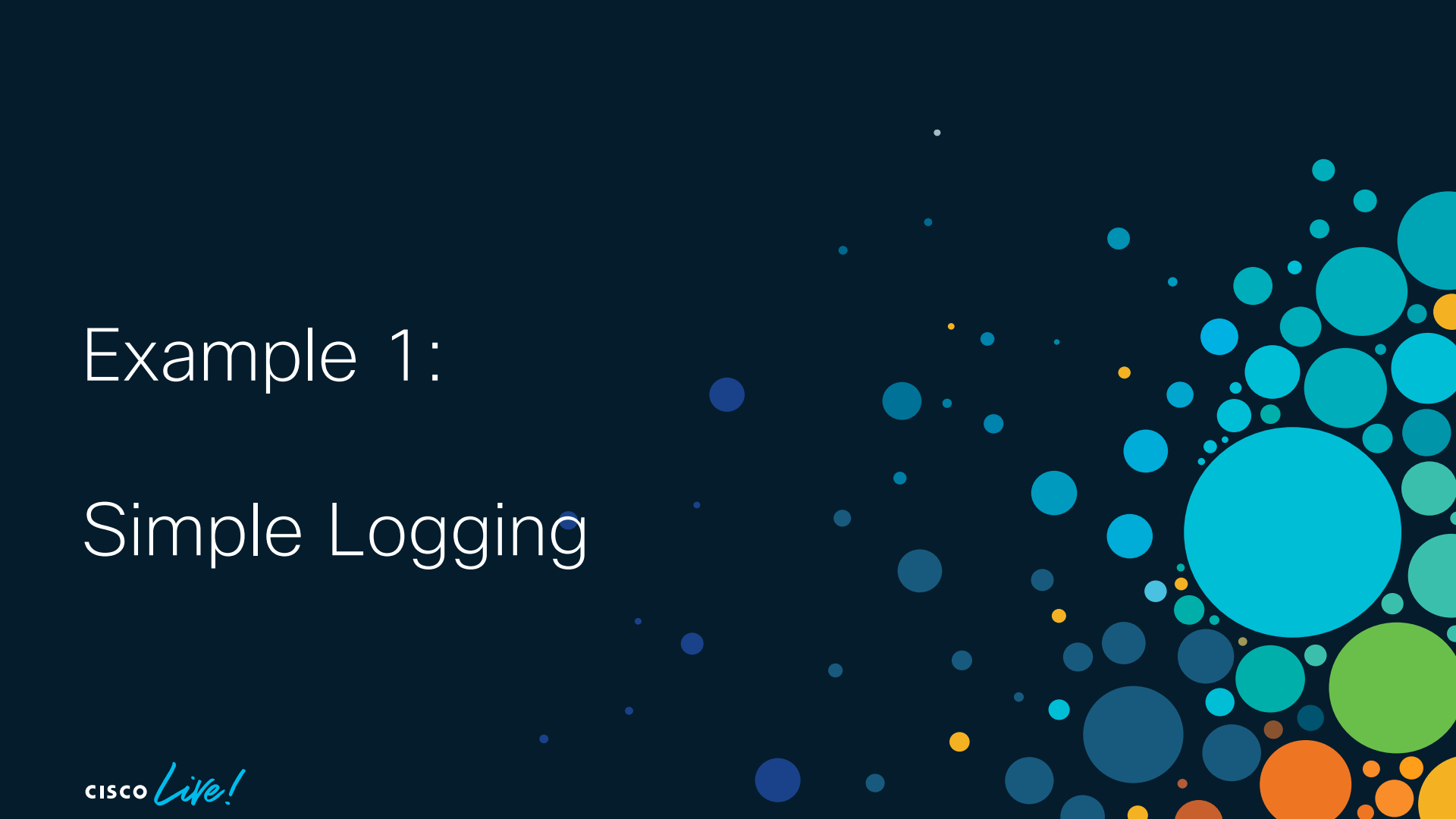
Example 1:

Simple Logging



E1: Simple Logging

Syslog

```
00:00:46: %LINK-3-UPDOWN: Interface Port-channel1, changed state to down
```

SNMP Traps

```
1.3.6.1.4.1.9.9.43.2.0.1 ciscoConfigManEvent
```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E1: Simple Logging

Webhook

```
{
    "sharedSecret": "abc123",
    "sentAt": "2022-09-07T14:14:14.568284Z",
    "organizationId": "2930418",
    "organizationName": "My organization",
    "networkId": "N_24329156",
    "networkName": "Main Office",
    "deviceSerial": "Q234-ABCD-5678",
    "deviceName": "My appliance",
    "deviceModel": "MX",
    "alertTypeId": "cellular_down",
    "occurredAt": "2018-02-11T00:00:00.123450Z",
}
```


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E1: Simple Logging

Webhook

```
{
    "sharedSecret": "abc123",
    "sentAt": "2022-09-07T14:14:14.568284Z",
    "organizationId": "2930418",
    "organizationName": "My organization",
    "networkId": "N_24329156",
    "networkName": "Main Office",
    "deviceSerial": "Q234-ABCD-5678",
    "deviceName": "My appliance",
    "deviceModel": "MX",
    "alertTypeId": "cellular_down",
    "occurredAt": "2018-02-11T00:00:00.123450Z",
}
```


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E1: Simple Logging

Webhook

```
from flask import Flask, request

app = Flask(__name__)

@app.route('/', methods=['POST'])
def logging():
    with open('/tmp/logfile', 'a') as logfile:
        logfile.writelines(f'{request.json["occurredAt"]} '
                           f'{request.json["alertTypeId"]} '
                           f'{request.json["deviceName"]}\n')
    return "Success."
```


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E1: Simple Logging

Logfile

```
2023-01-25T01:36:12.527870Z power_supply_down Gateway McGatewayface
2023-01-25T01:36:34.218564Z power_supply_down Gateway McGatewayface
2023-01-25T01:36:50.113615Z power_supply_down Gateway McGatewayface
```


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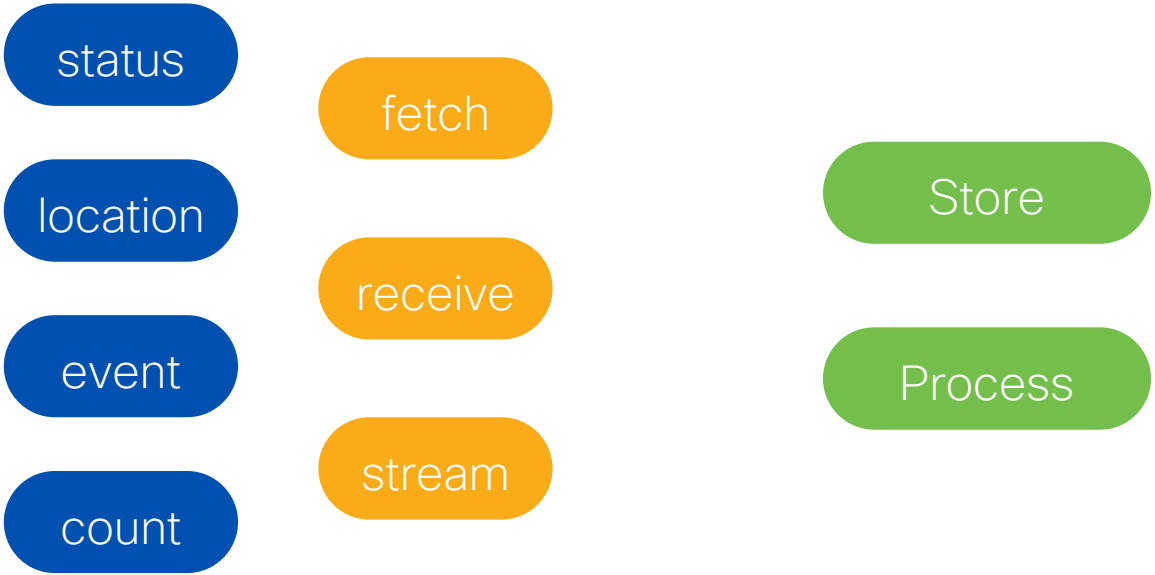
Example 2:

IM Notifications

E2: IM Notifications

Data + Action = Result



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E2: IM Notifications

Data + Action = Result

status

location

event

count

fetch

receive

stream

Store

Process

AAA

Billing

Monitoring

Performance

Reporting

Service

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E2: IM Notifications

Webhooks

HTTPS receivers

Name	URL	Shared secret	Payload template	Webhook tests
Webex	https://webexapis.com/	••••••	Webex (included)	Send test webhook

Add an HTTPS receiver

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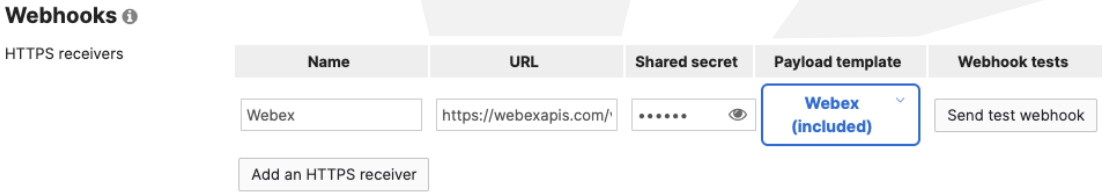
E2: IM Notifications

https://webexapis.com/



Included templates

- Meraki
- Webex
- Slack
- Microsoft Teams
- ServiceNow

Custom templates

- PVT Custom Template
- Test Format

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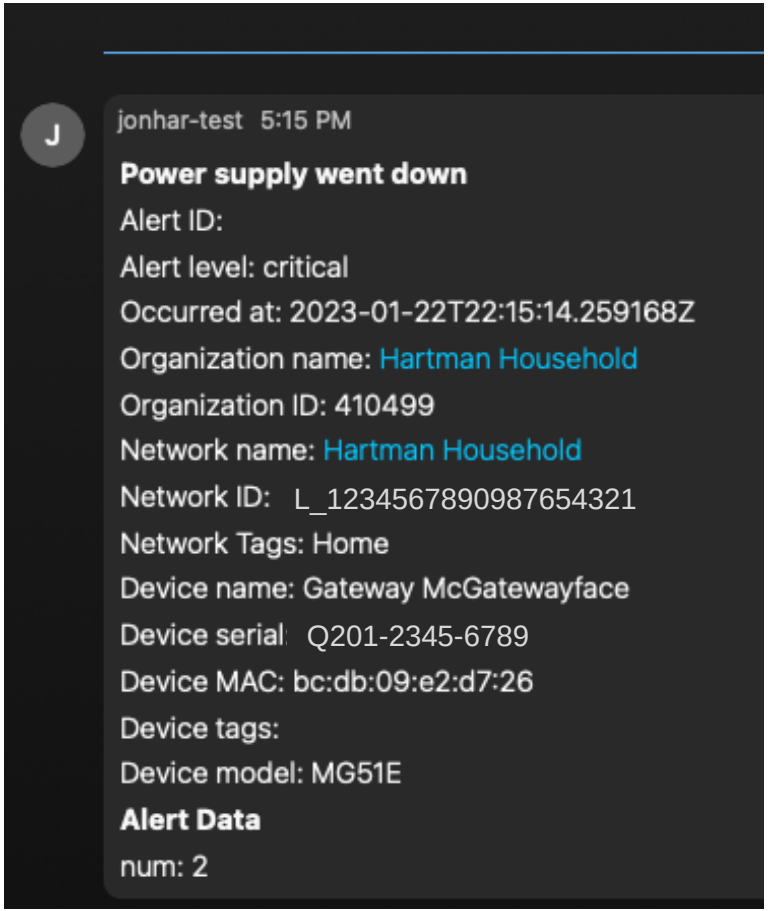
E2: IM Notifications



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E2: IM Notifications

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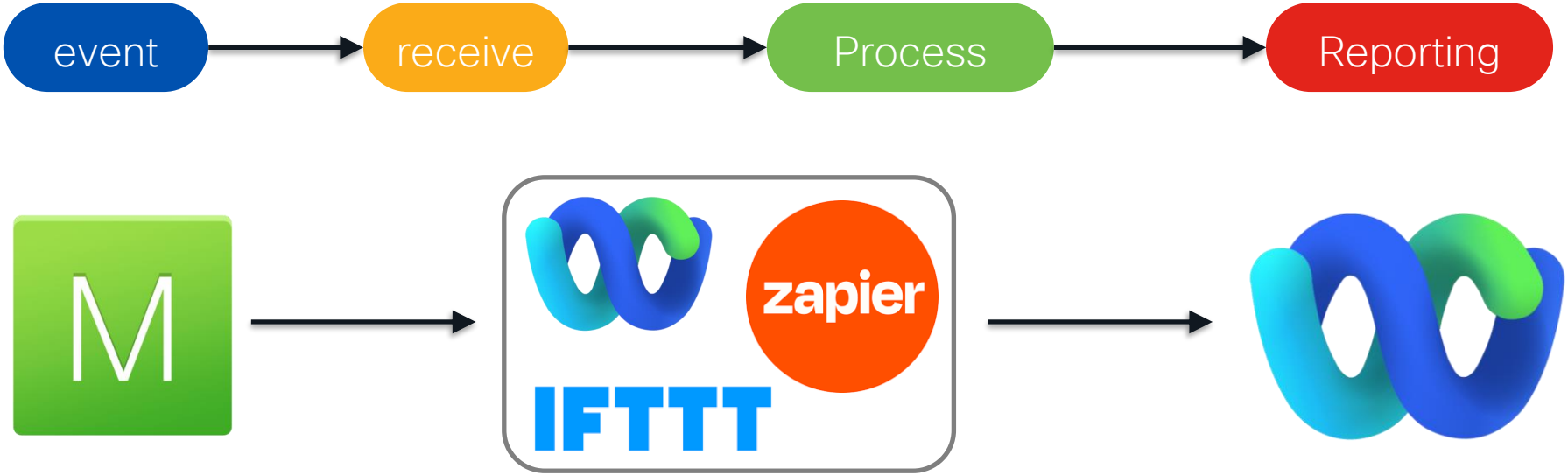
E2: IM Notifications

Data + Action = Result



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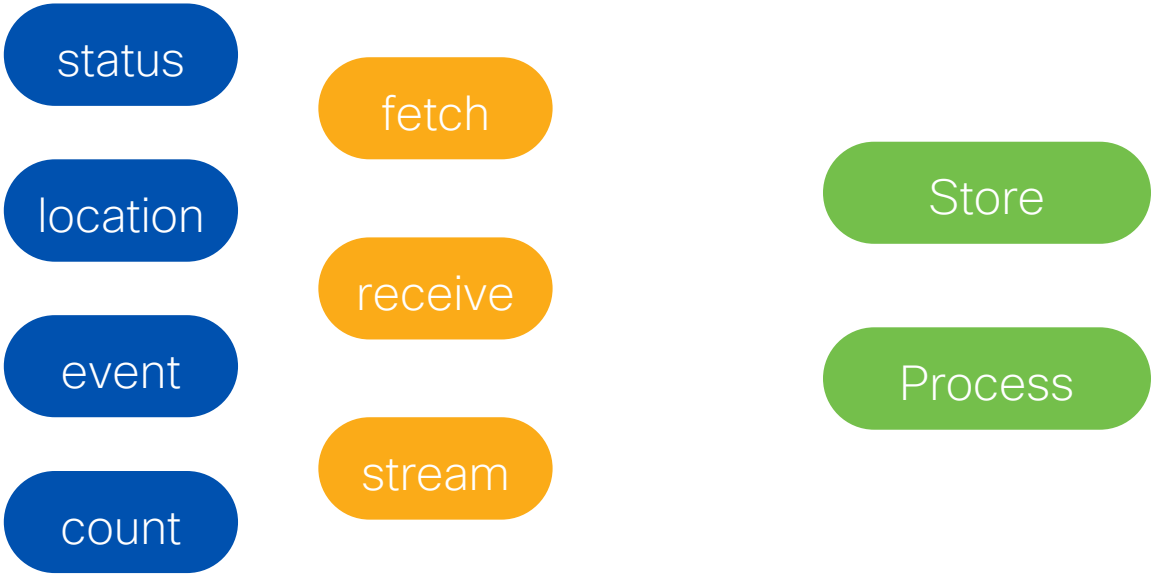
Example 3:

Metric Display

E3: Metric Display

Data + Action = Result



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E3: Metric Display

Data + Action = Result

status

location

event

count

fetch

receive

stream

Store

Process

AAA

Billing

Monitoring

Performance

Reporting

Service

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E3: Metric Display

Data + Action = Result

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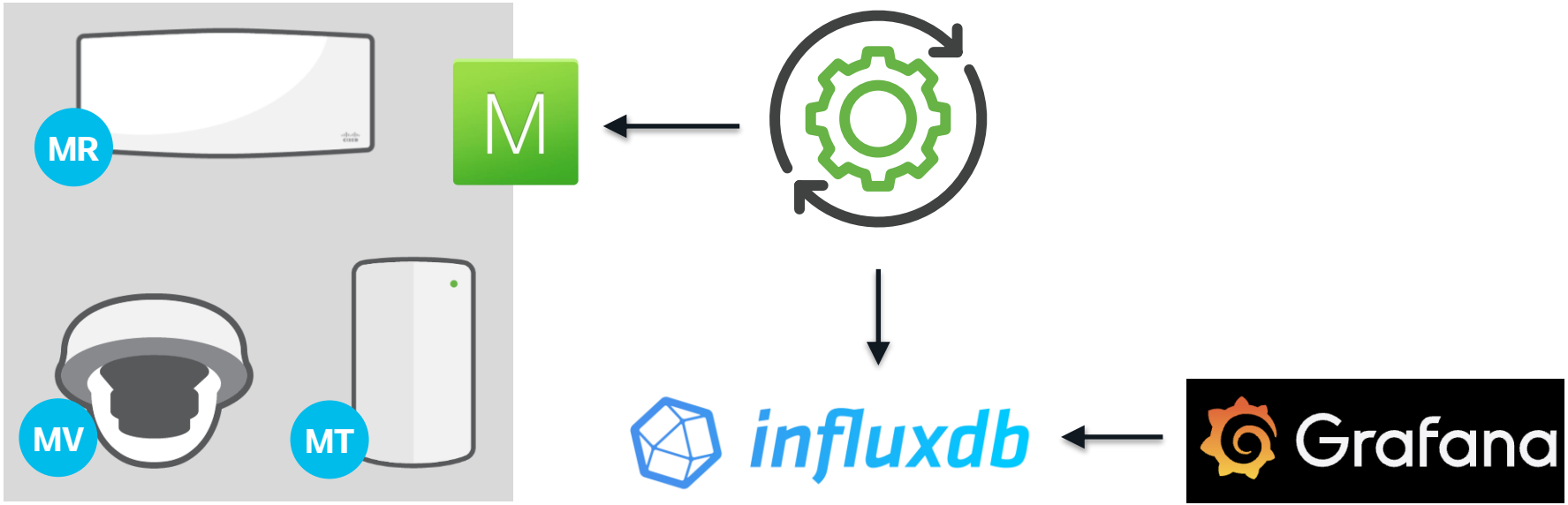
E3: Metric Display



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E3: Metric Display

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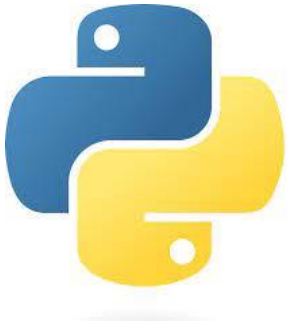
E3: Metric Display



https://github.com/jonhartman/meraki-sensor-data-grabber

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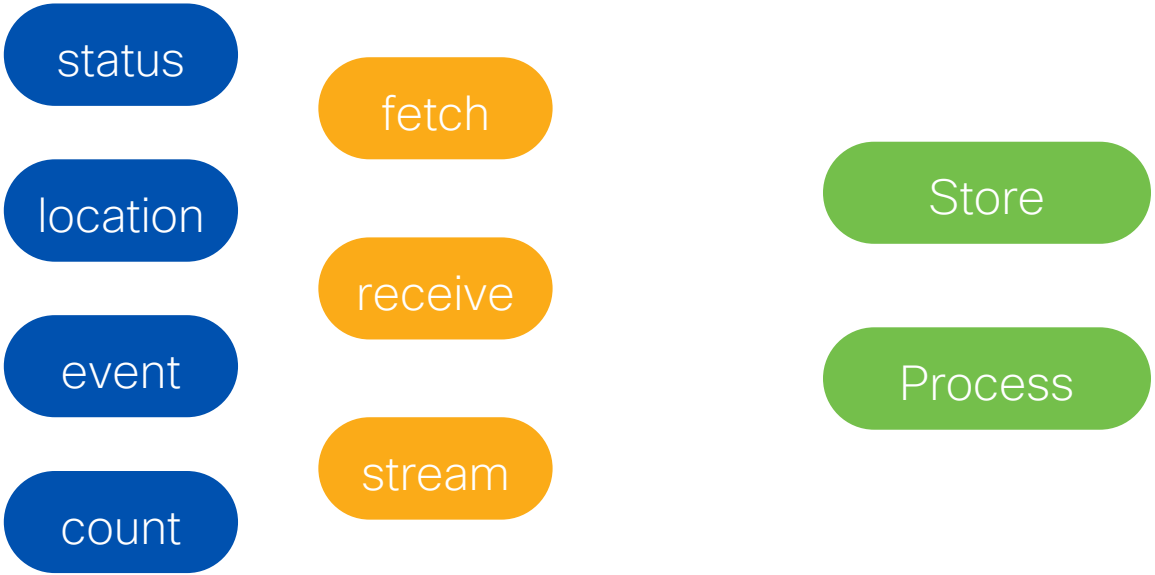
Example 4:

Person Detector

E4: Person Detector

Data + Action = Result



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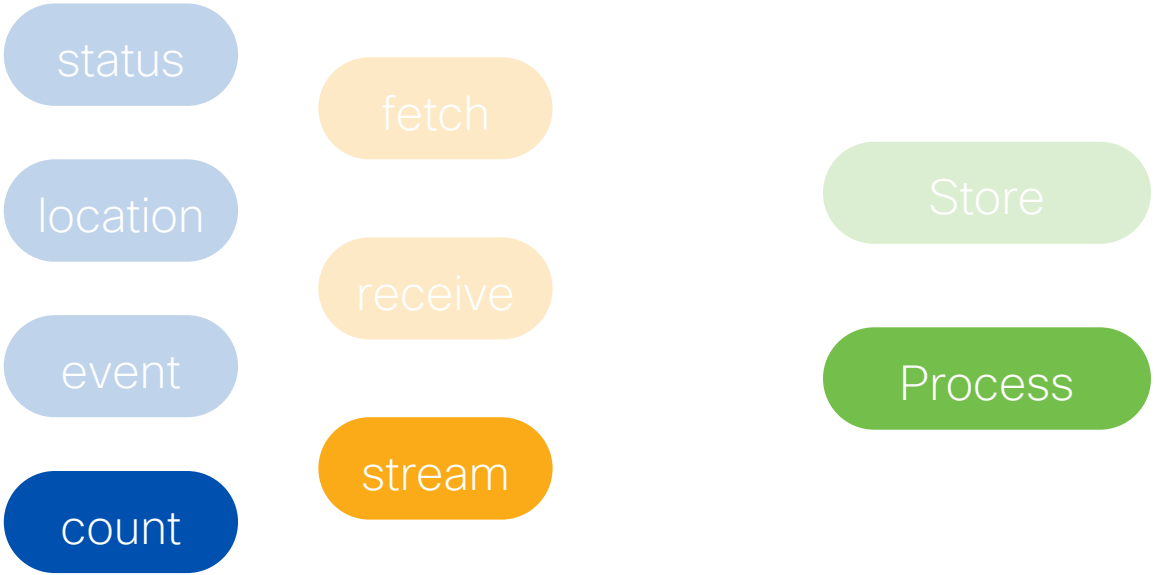
E4: Person Detector

Data + Action = Result



AAA

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E4: Person Detector

Data + Action = Result

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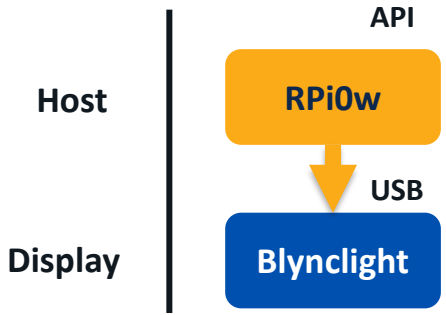
E4: Person Detector

Request	`http://10.10.10.15:8888/light/0/on/green`

Response	`{"light_id":0,"action":"on","color":"green"}`



BusyLight

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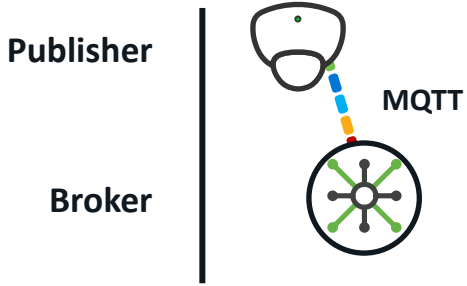
E4: Person Detector



```
/merakimv/Q2EV-R6FG-BCSV/raw_detections {"objects" : [],"ts" : 1673550196021}

/merakimv/Q2EV-R6FG-BCSV/0 {"ts":1673550196820, "counts":{"person":0}}

/merakimv/Q2EV-R6FG-BCSV/light {"lux": 6.2}

/merakimv/Q2EV-R6FG-BCSV/audio_analytics {"audioLevel" : -61,"ts" : 1673550196836}
```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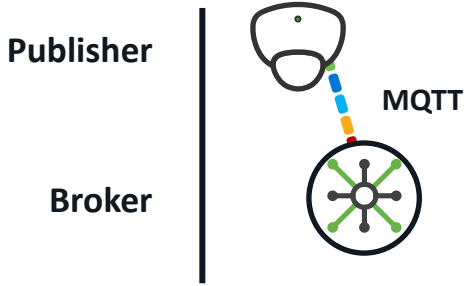
E4: Person Detector



```
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```


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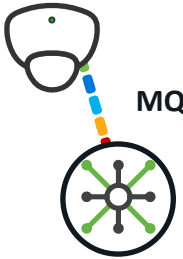
E4: Person Detector

Publisher

Broker



MQTT

mosquitto

API

Host

RPi0w

USB

Display

Blynclight

BusyLight

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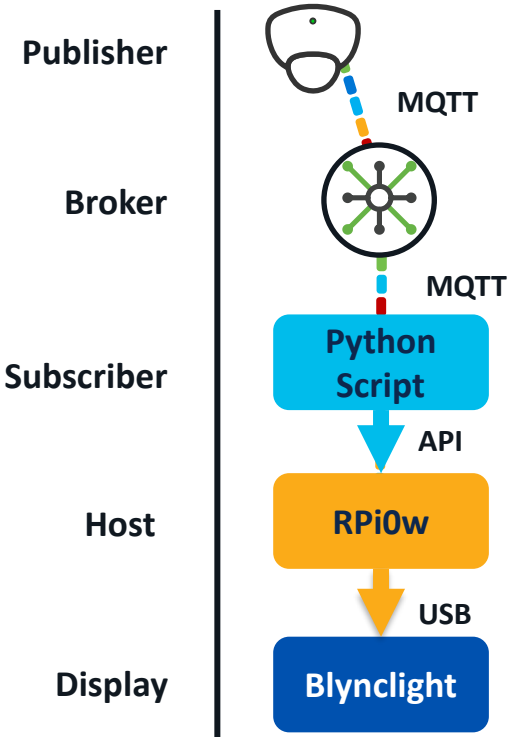
E4: Person Detector



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E4: Person Detector

Python Script

- Subscribe to MQTT topic `/merakimv/+/0`
- Add people counts from every camera for last second
- If count > 0 & color is red, change it to green via API.
- If count = 0 & color is green, change it to red via API.

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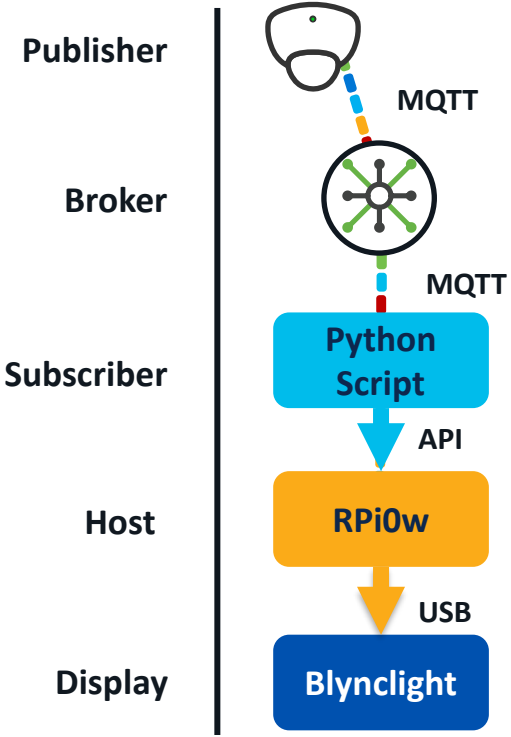
E4: Person Detector



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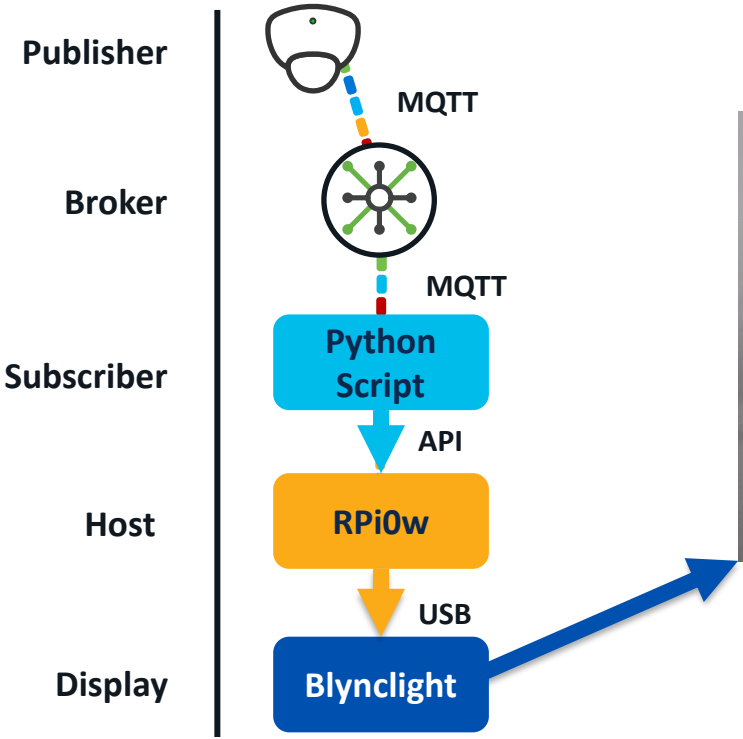
E4: Person Detector



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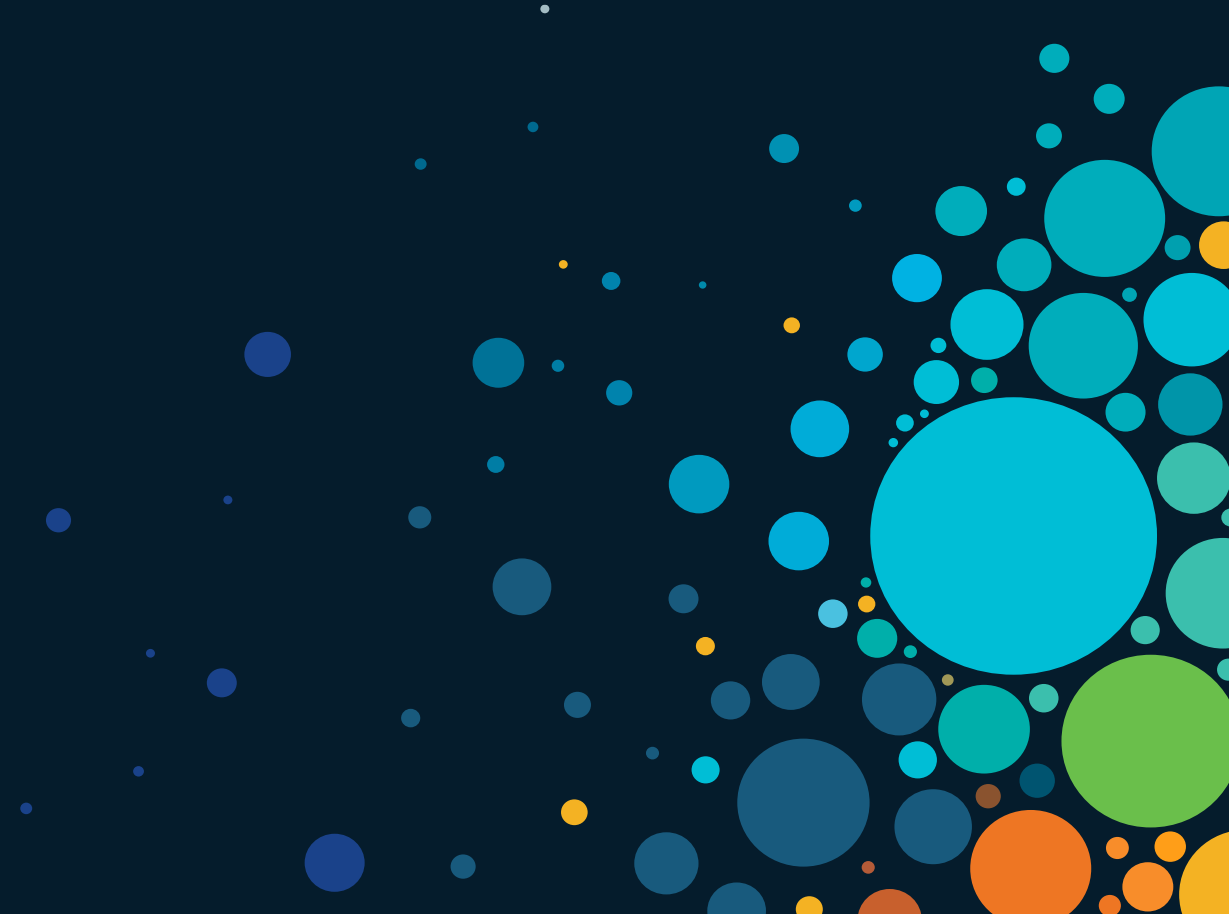
E4: Person Detector

http://cs.co/meraki-kbyg

- Overview
- Libraries
- Code

Conclusion



Final thoughts

- Start with an objective.
- Find a project home. (GitHub, VM)
- Elevate: API budget, action batches, SDK.
- Use your imagination!

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cs.co/DNZCLEUR2023

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- All surveys can be taken in the Cisco Events Mobile App or by logging in to the Session Catalog and clicking the " Attendee Dashboard" at https://www.ciscolive.com/emea/learn/sessions/session-catalog.html

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