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AI/ML Computer Vision to improve safety

Wai Li
Solutions Engineer
DEVNET-2300

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How

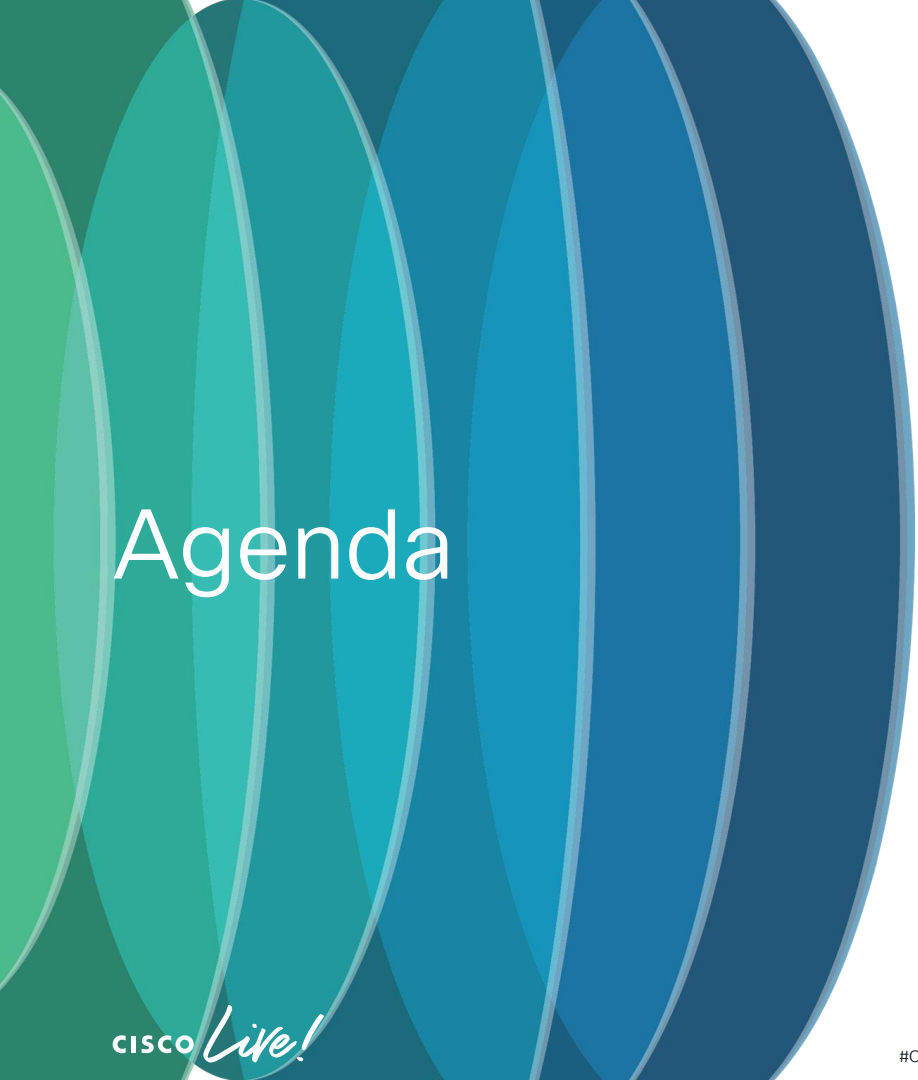
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<https://ciscolive.ciscoevents.com/ciscolivebot/#DEVNET-2300>





Agenda

- Computer Vision
- Meraki MV Smart Cameras
- MV Camera APIs
- Demo

Computer Vision

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
PROJECT MAC

Artificial Intelligence Group
Vision Memo. No. 100.

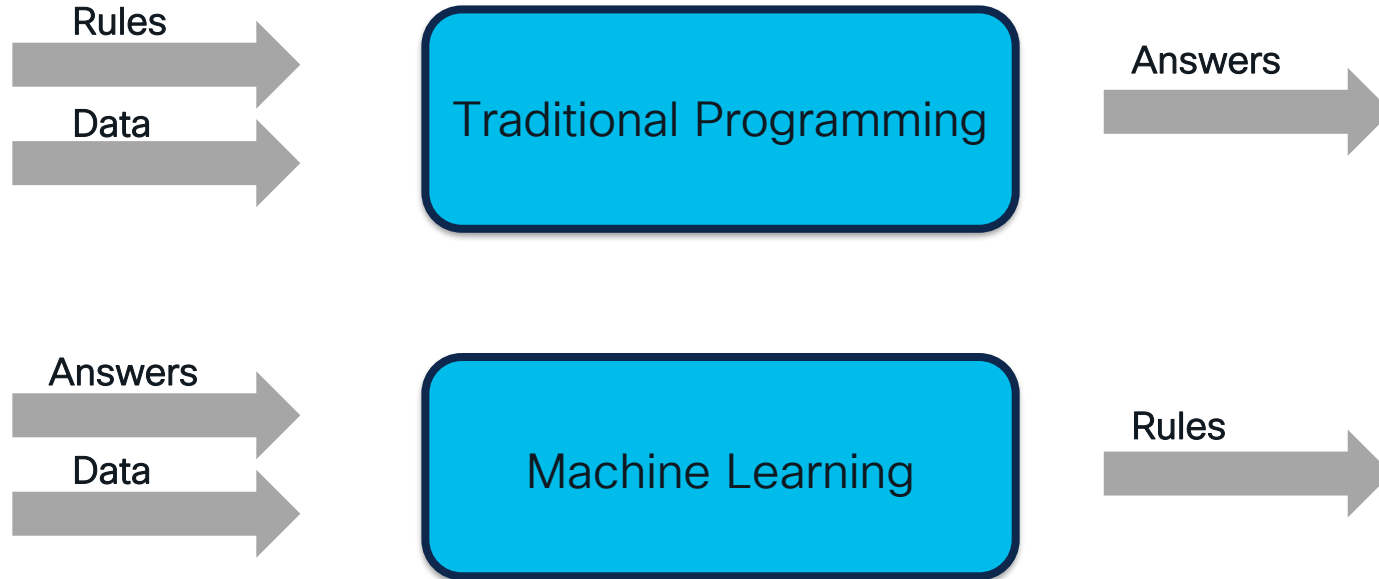
July 7, 1966

THE SUMMER VISION PROJECT

Seymour Papert

The summer vision project is an attempt to use our summer workers effectively in the construction of a significant part of a visual system. The particular task was chosen partly because it can be segmented into sub-problems which will allow individuals to work independently and yet participate in the construction of a system complex enough to be a real landmark in the development of "pattern recognition".

New paradigm

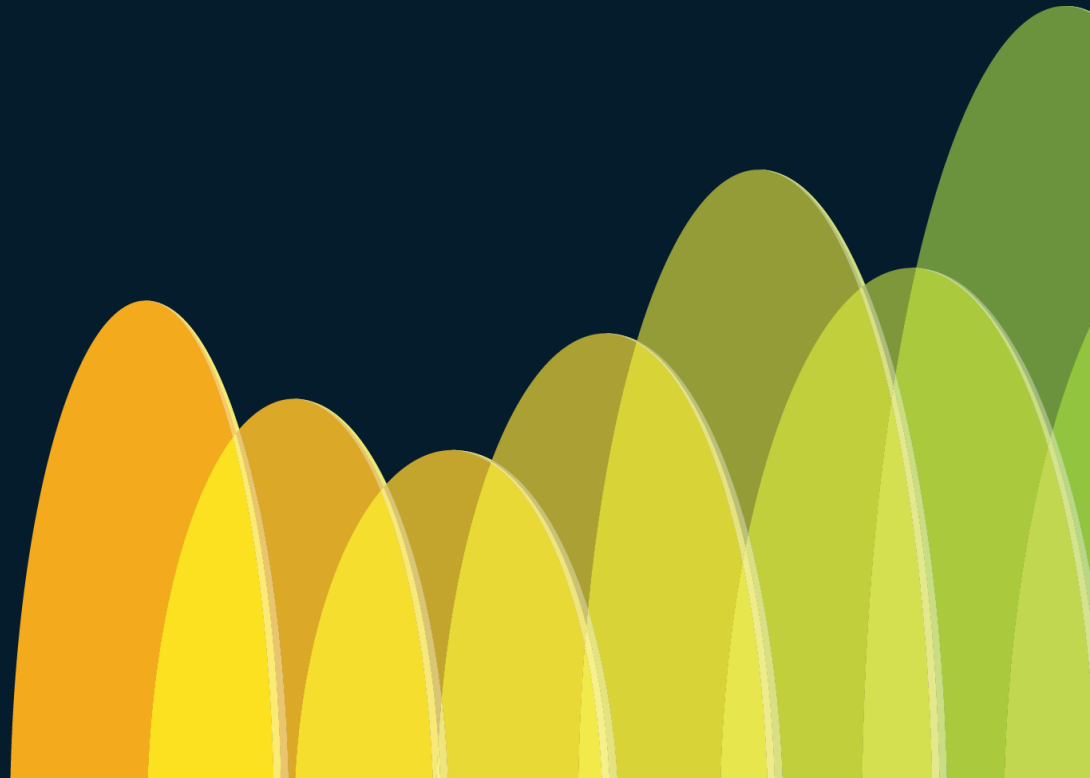


Use cases

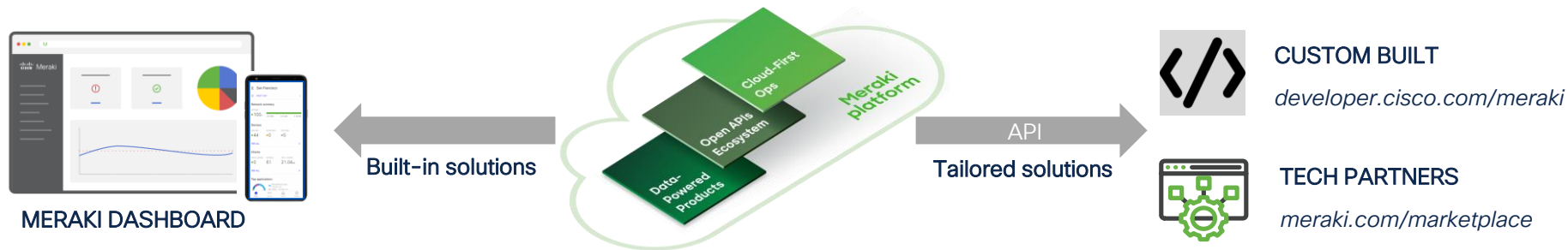
- Security and Surveillance
- Quality Control in Manufacturing
- Improving warehouse efficiency
- Medical Imaging
- Retail and Shopping
- Sports analytics
- Intelligent Transportation Systems



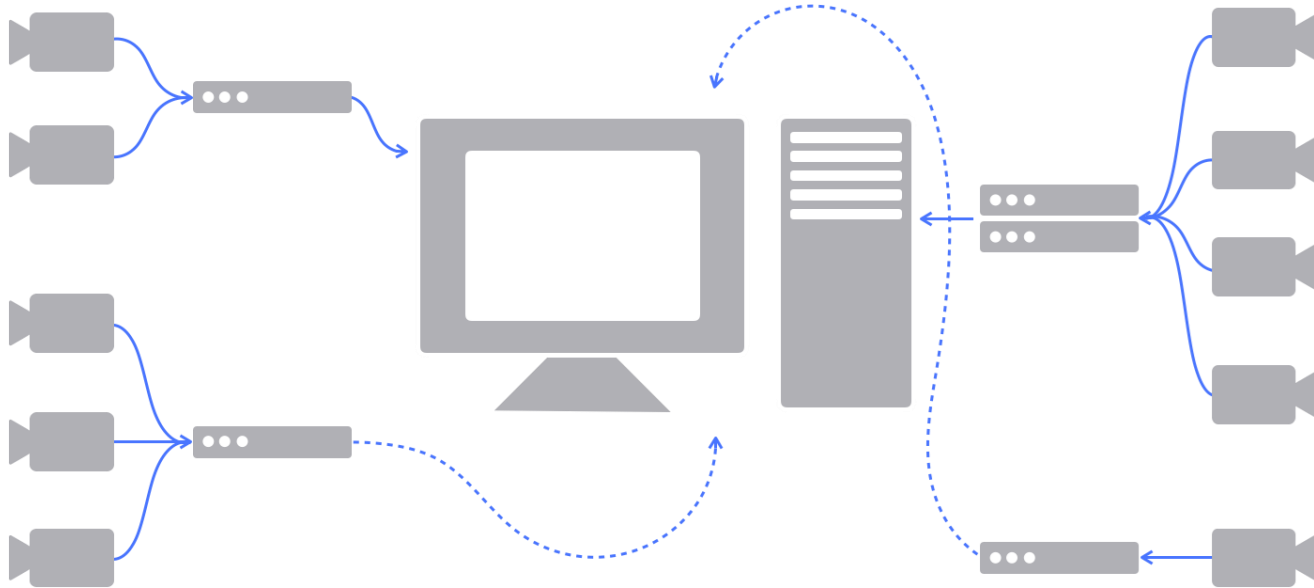
Meraki Vision (MV) Smart Cameras



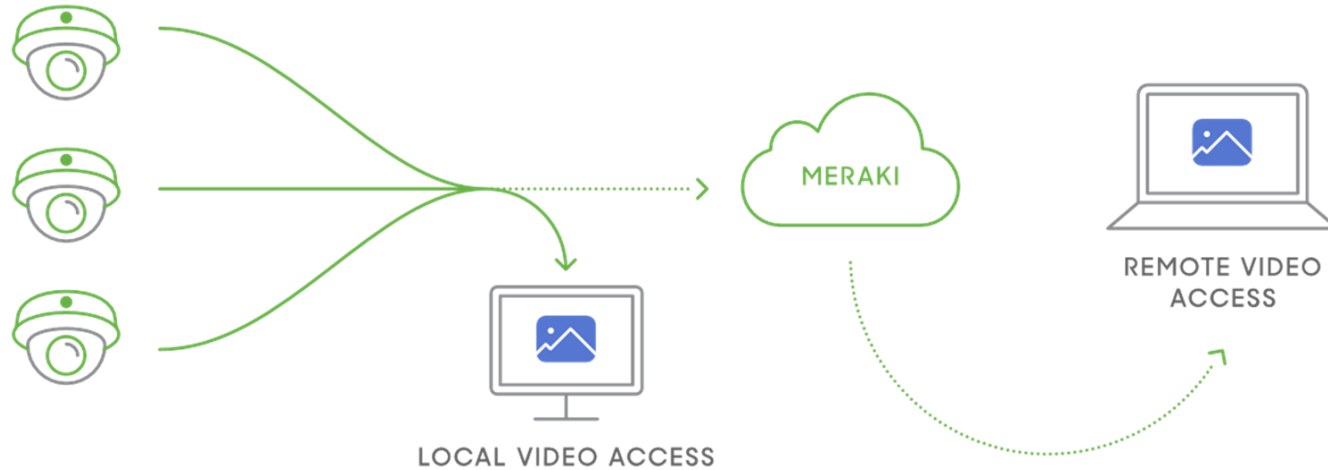
The Meraki platform: A foundation for IT and IoT



Traditional systems



Scalable architecture



EVERYTHING IN THE BOX

Eliminates the NVR, VMS,
and extra analytics

ACCESS ANYWHERE

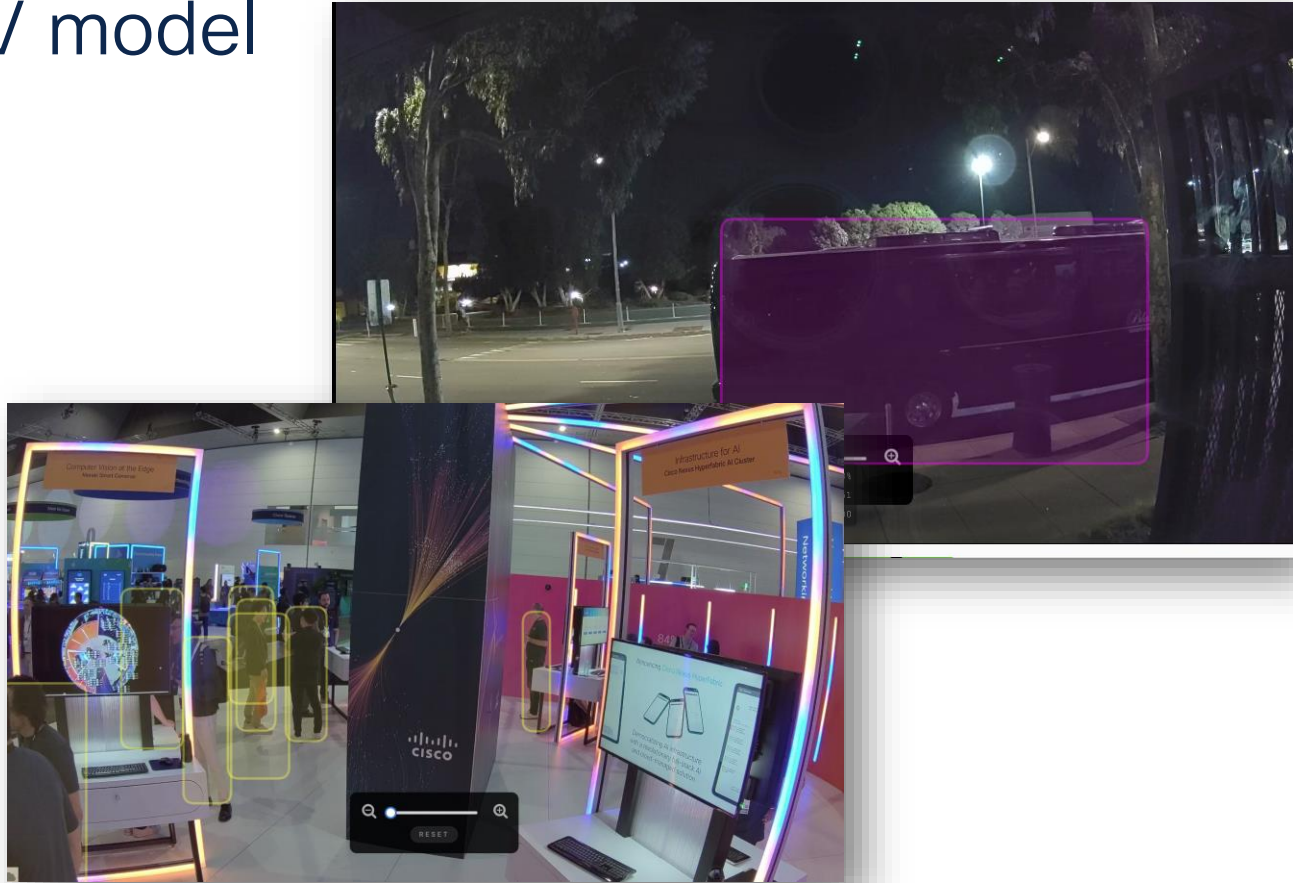
View locally or remotely

SMART PROCESSING

Video is analyzed on-camera
at the edge in real time without additional
hardware

Built-in ML/CV model

- Object detection
- Classification
- Tracking
- Audio Detection

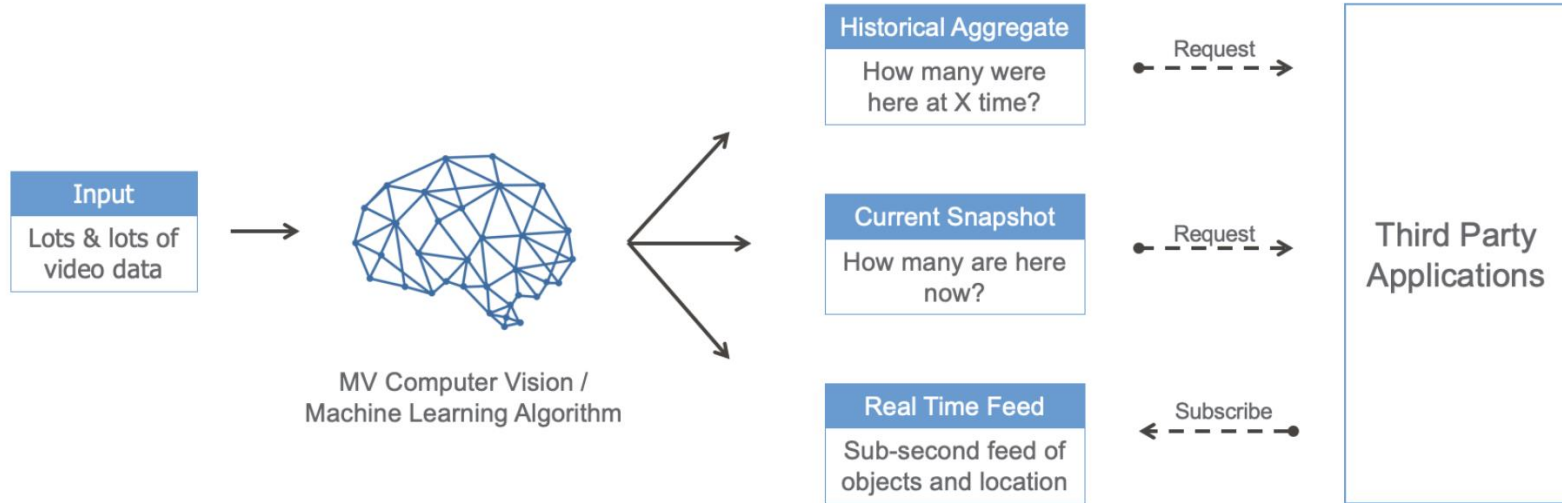


MV Sense APIs



MV Sense

- People Detection
- Vehicle Detection (cars, bikes, trucks)
- Light Level Readings

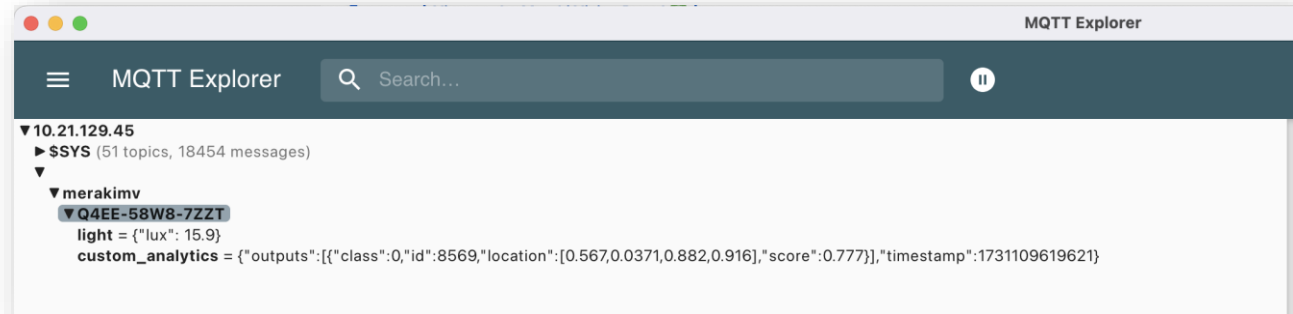


REST vs MQTT

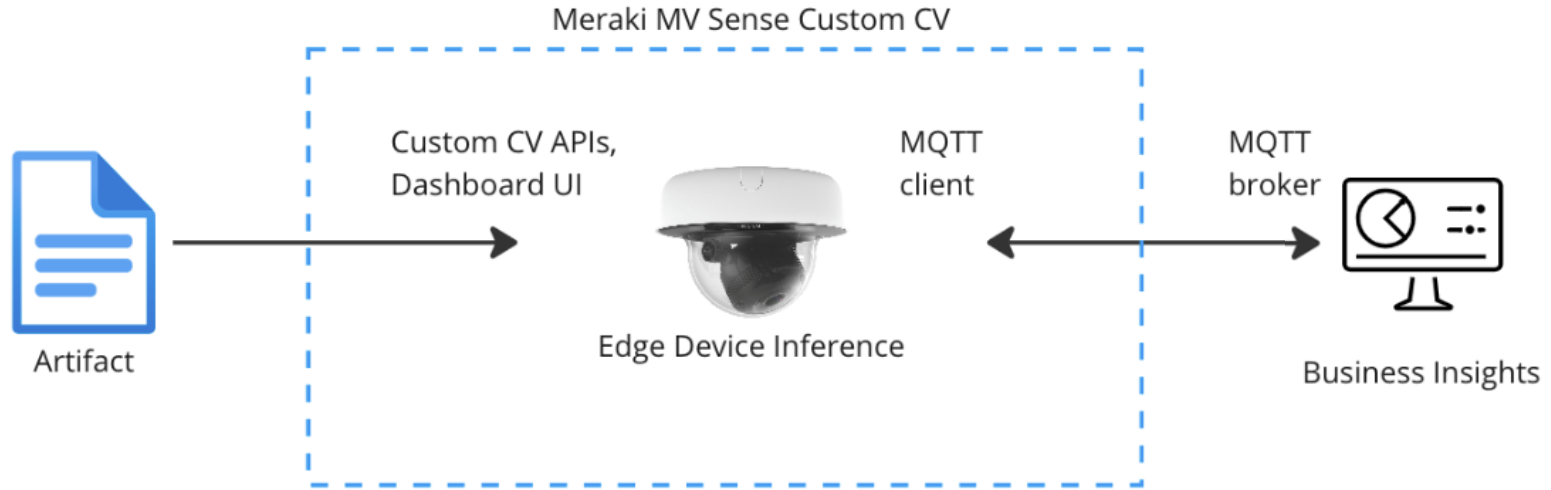
- **REST** protocols create on-demand connections, activating only when data is requested. Meraki MV Sense REST APIs provide historical or near real-time people detection data from cameras.
- **MQTT** protocols use a publish-subscribe model for continuous data flow. MV Sense MQTT APIs provide real-time people detection, location data, and light level readings from cameras.

MV MQTT data points

- Object detection:
 - Persons
 - Vehicles
- Lux light levels
- Audio Analytics
- Custom Analytics



Custom CV



Demo

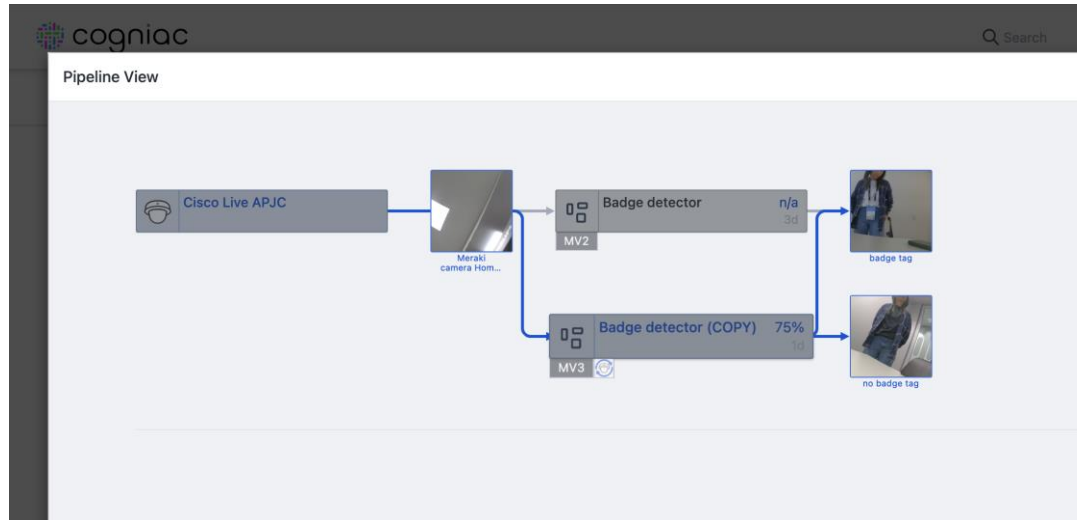


What do we need?

- MV 2nd or 3rd generation camera
- Pre-trained model
- MQTT broker

Training a new computer vision model

- Sending snapshots to ML services
- Using no-code platforms like Cogniac, Teachable Machine



Raise the bar for smart security

FLEXIBLE LOW COST

GENERAL COVERAGE AREAS

LARGER SPACES

360 FISHEYE

Indoor



MV2

Flex lens
103° FoV
Up to 1080p video
No on-camera storage



MV12 Series

Fixed lens
Wide 114° FoV or Narrow
73° FoV
Up to 1080p video
128-256GB storage



MV13 Series

Fixed lens
101.3° FoV
Up to 4K video
256-512GB storage
Up to 60 days of retention

Now in
512GB



MV22 Series

Varifocal lens
36-112° FoV
Up to 1080p video
256-512GB storage



MV23 Series

Varifocal lens
36-112° FoV
Up to 4K video
512GB-1TB storage
Up to 120 days of retention

NEW



MV32

Fisheye lens
360° FoV
Up to 2058×2058
resolution
8.4MP sensor
256GB storage



MV33 Series

Fisheye lens
360° FoV
Up to 2880×2880 resolution
12.3MP sensor
256-512GB storage
Up to 60 days of retention

Now in
512GB

BULLET STYLE

MORE DETAIL AND STORAGE OPTIONS

360 FISHEYE

Outdoor



MV52

Bullet lens
12-37° FoV
Up to 4K video
1TB storage



MV63 Series

Fixed lens
102° FoV
Up to 4K video
256GB-1TB storage
Up to 60 days of retention

Now in
512GB



MV72 Series

Varifocal lens
36-112° FoV
Up to 1080p video
256-512GB storage



MV73 Series

Varifocal lens
36-112° FoV
Up to 4K video
512GB-1TB storage
Up to 120 days of retention

NEW



MV93 Series

Fisheye lens
360° FoV
Up to 4072×3046 resolution
12.4MP sensor
256GB-1TB storage
Up to 60 days of retention

Now in
512GB

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Code Repo

green-monitoring

cisco-open +4 Github contributor

Tracks an open-source stack of services that monitor the energy and CO2-eq emissions of IOS-XR, NX-OS devices, Meraki switches, UCSs, ACI APIC nodes, Eaton and Raritan PDUs.

Python Data Center IOS XR

☆ 17 🌟 3 ▼ 5

Code Repo

NSO-Playground-System-Install

CiscoDevNet +3 Github contributor

Quick start for NSO Playground System Install

Data Center Network Services Orchestrator (NSO)

☆ 1 🌟 14 ▼ 0

Code Repo

GreenOps-Tracker

mahoutukaisai +2 Github contributor

This project has been created to participate "Cisco AI & Sustainability Code Challenge" contest.

Data Center

☆ 3 🌟 1 ▼ 1

< >

Run repos in Cisco Cloud IDE

Code Repo

nextbox-ui-plugin

Repo with Automation Use Case

automation-scripts

Repo with Automation Use Case

cloud-security

Meraki Marketplace

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Thank you

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