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Let's go



The bridge to possible

Fantastic APIs on Your Factory Floor

And Where to Find Them.

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@StienVDHallen*

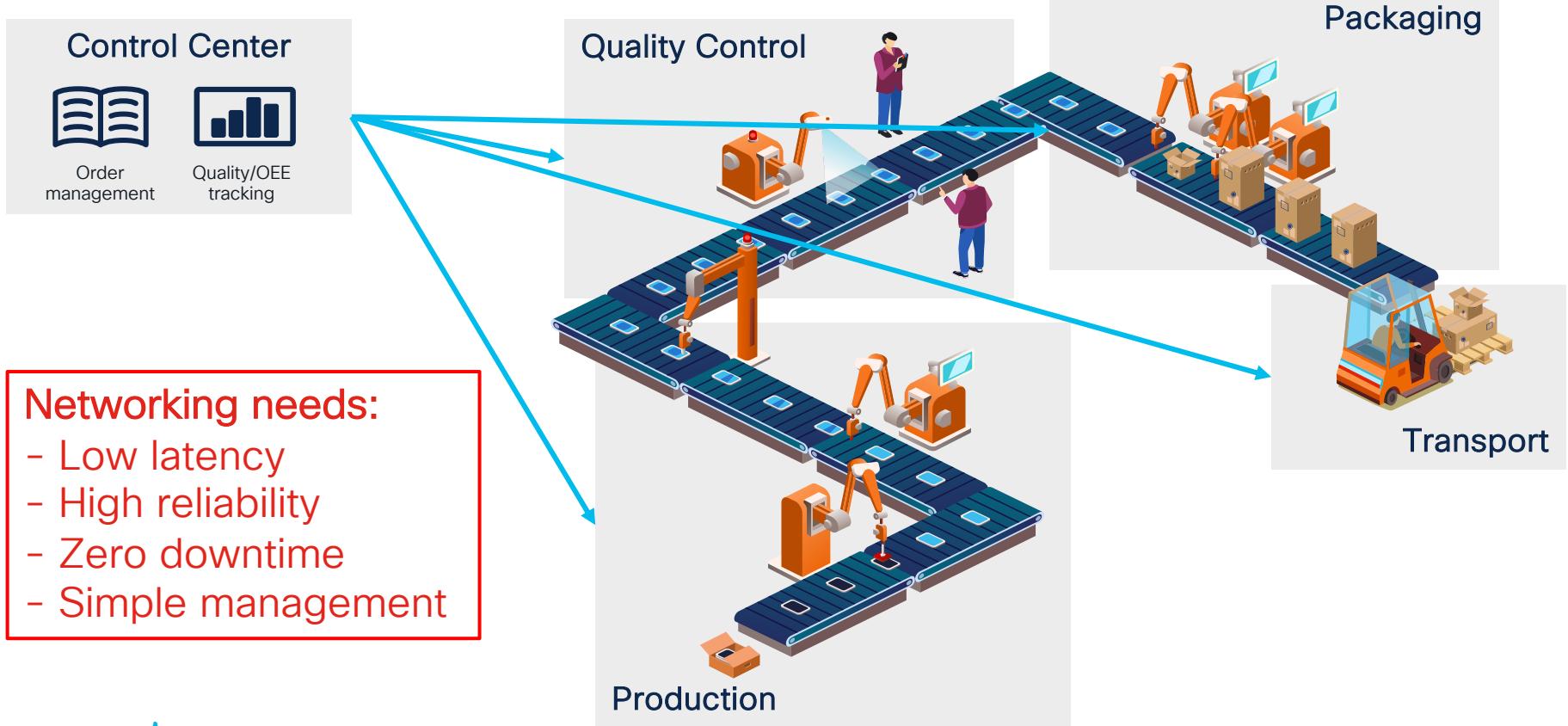
Agenda

CISCO Live!

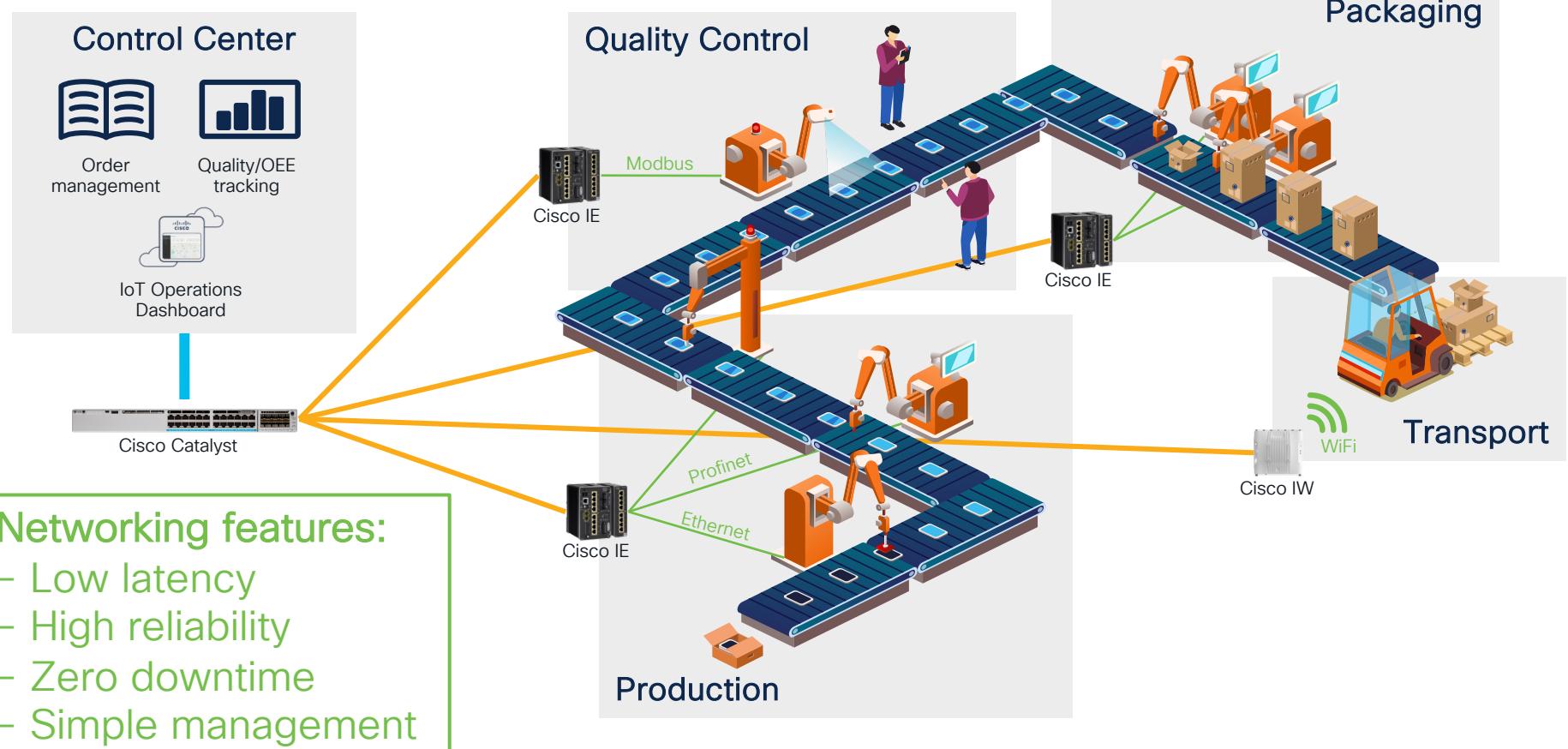
- The Factory Floor
- Finding the APIs
- Using the APIs

The Factory Floor

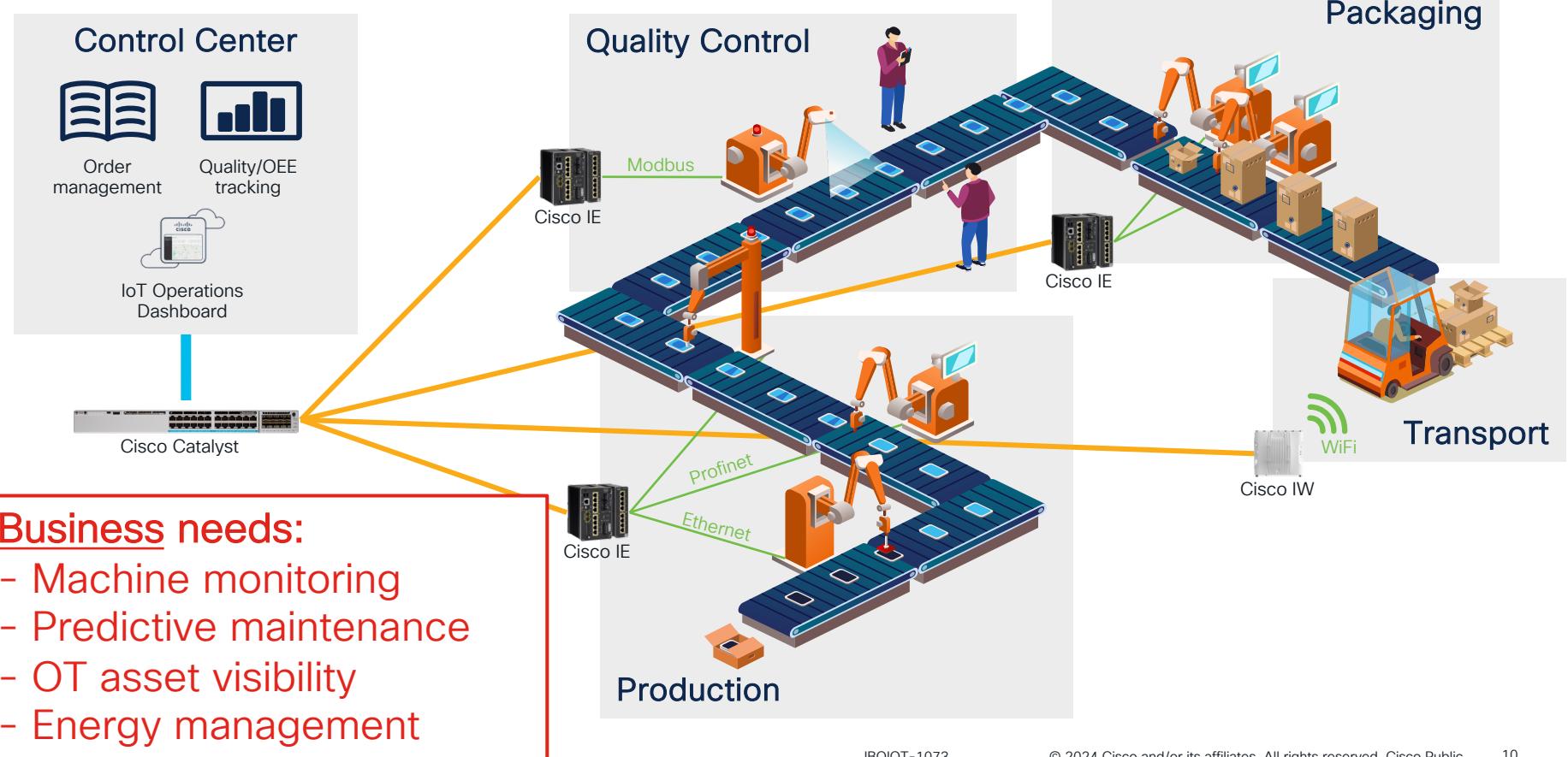
On the factory floor, we care about Making Stuff.



On the factory floor, we care about Making Stuff.



On the factory floor, we care about Making Stuff.



Finding the APIs



Model-driven
configuration



NETCONF

RESTCONF

gNMI

YANG data models

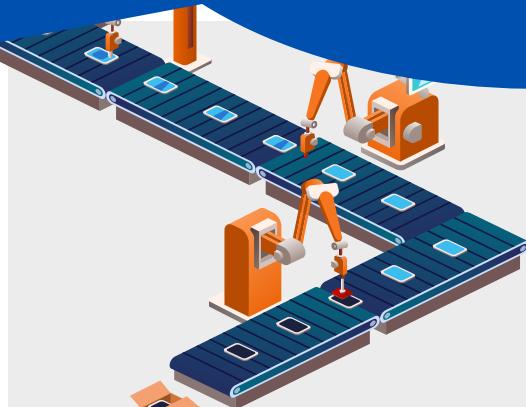
SNMP variables



Quality C

Packaging

To make sure the packaging machine works, the PLCs controlling it need to have L2 connectivity. I want them all in the same VLAN.

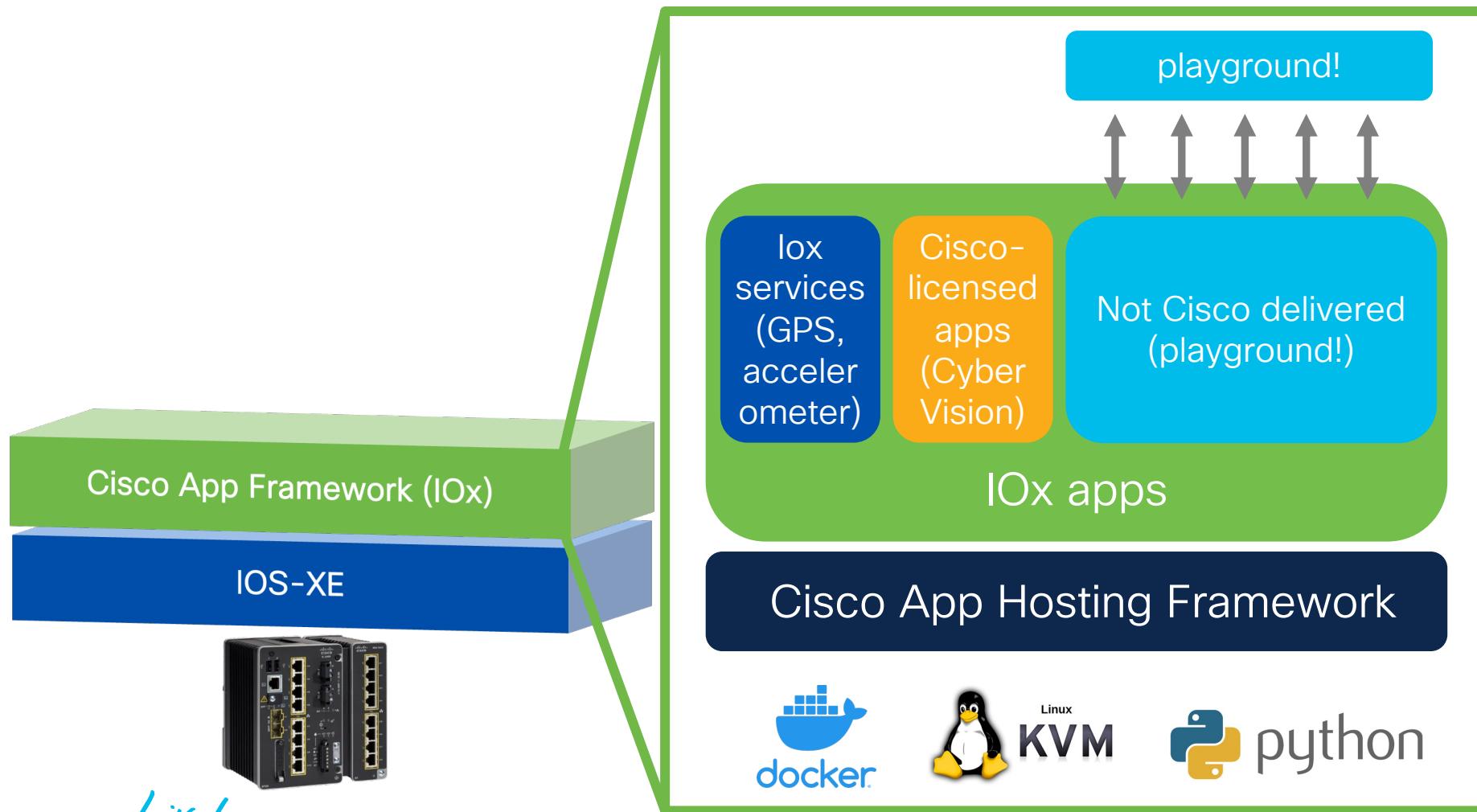


Transport

1. Browse YANG model

2. Build RESTCONF URL

3. Build request in Python

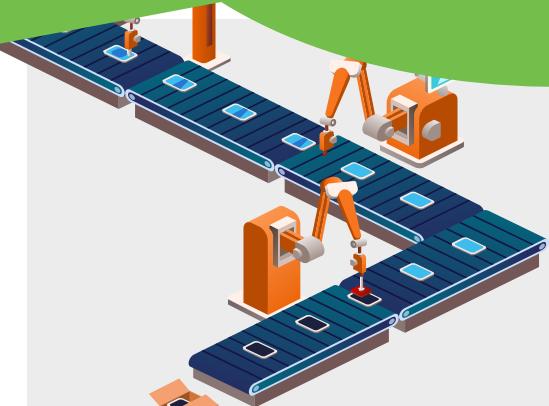




Quality Control

Packaging

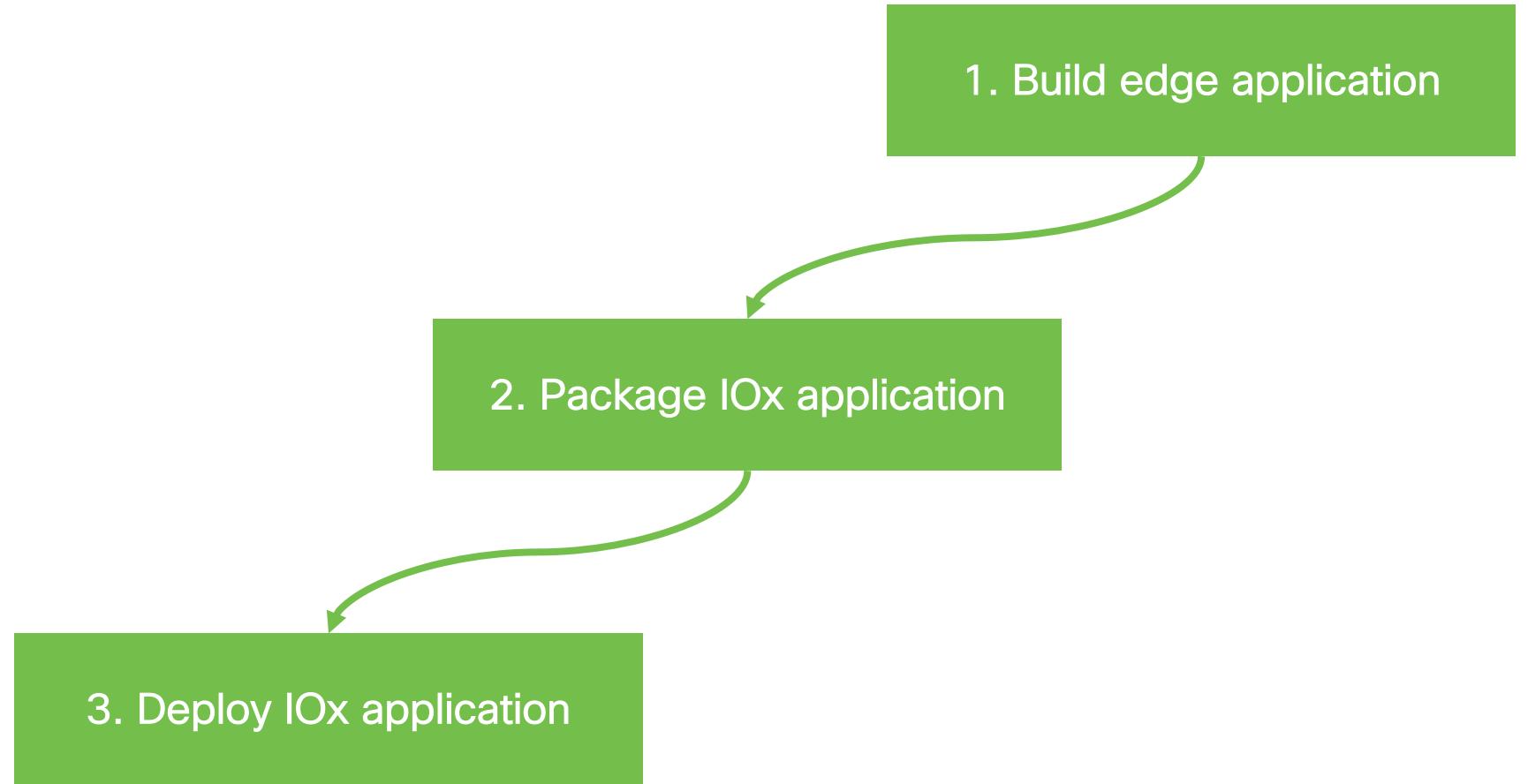
Every hour, I need to go to the factory floor to verify all lines are operating within normal temperature range.

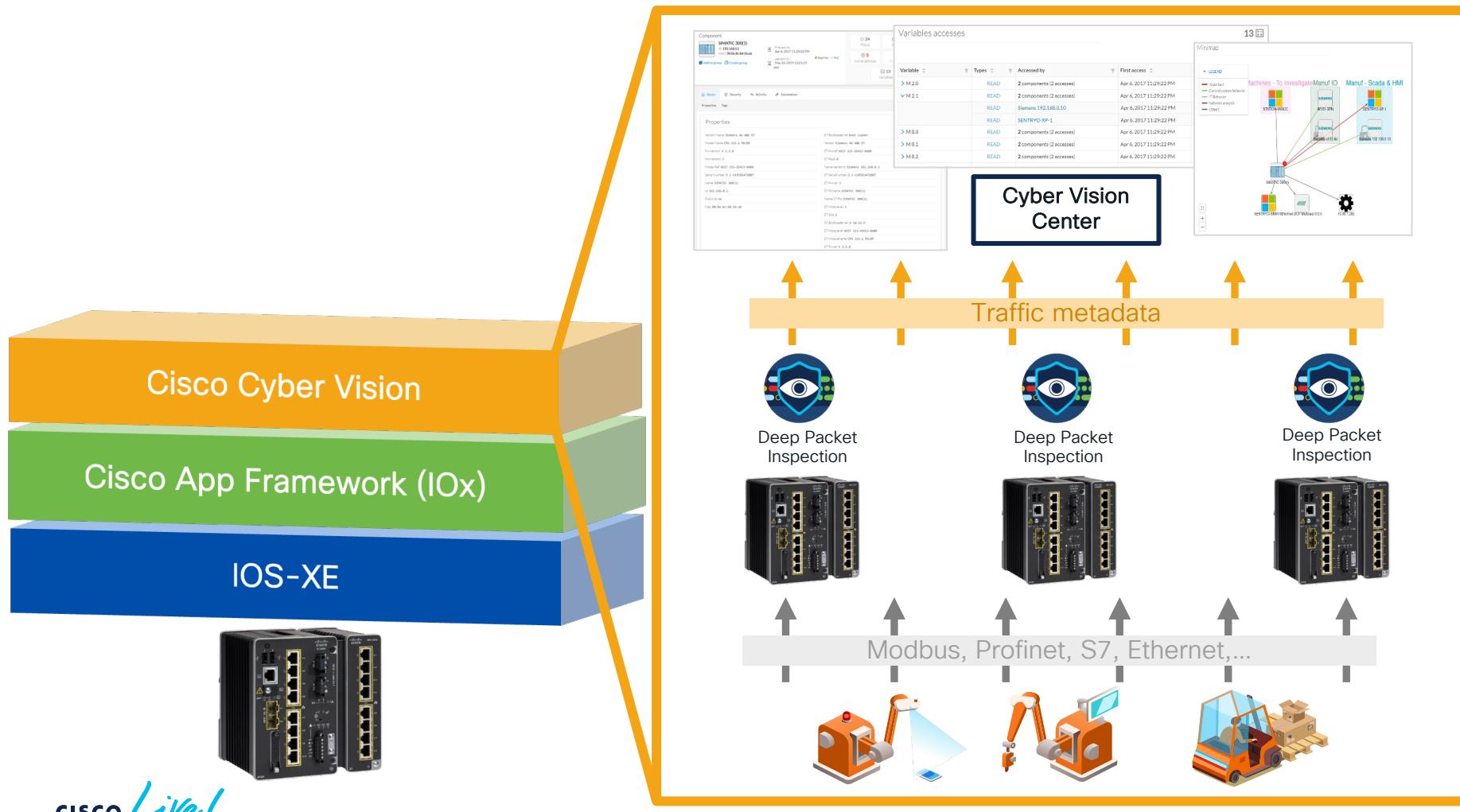


Production



Transport







Quality C

Packaging

Whenever a highly critical security event occurs in the factory network, I want to get an e-mail notification.



Production

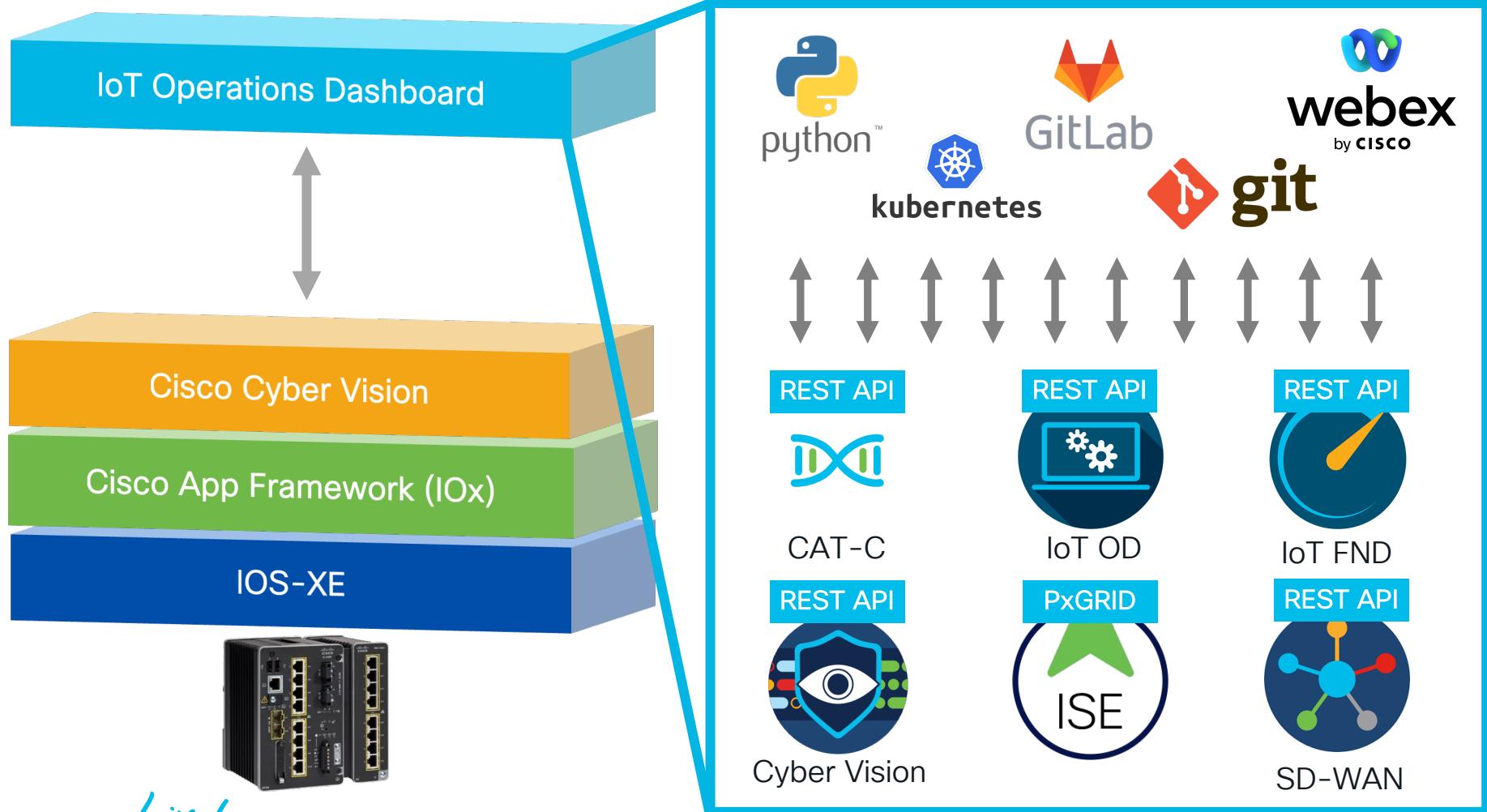


Transport

1. Explore Cyber Vision API

2. Set up API keys

3. Script API request

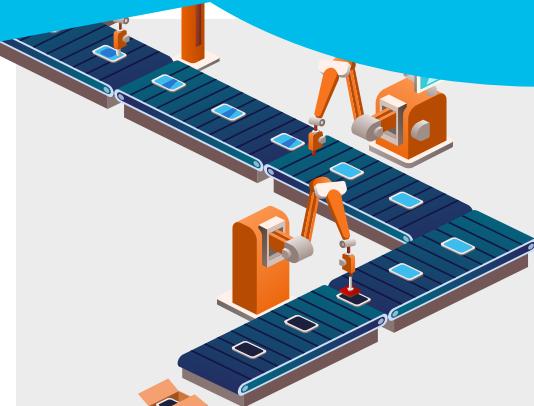




Quality Control

Packaging

By default, all my networking devices are named after their serial number. That does not mean anything to me.



Production



Transport

1. Explore controller API

2. Set up API keys

3. Script API request

Cisco Webex App

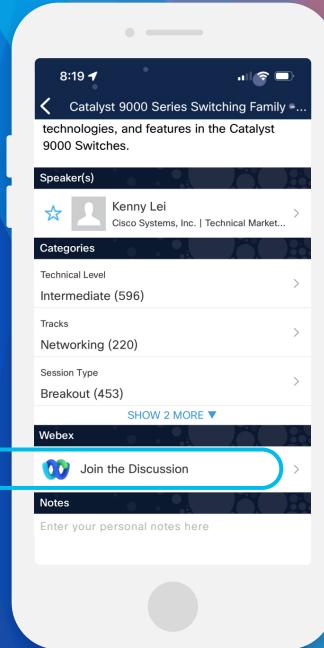
Questions?

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

How

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- 4 Enter messages/questions in the Webex space

Webex spaces will be moderated by the speaker until February 23, 2024.



<https://ciscolive.ciscoevents.com/ciscolivebot/#IBOIOT-1073>

Where to go from here?

Large scale road condition monitoring
with in-vehicle Cisco router deployment
leveraging unsupervised deep learning

IBOIOT-1427

You are
here



Connecting moving
assets with Cisco IoT
Solutions
BRKIOT-1126

-40°C Industrial Networking: Where
Enterprise Products Fear to Go -
BRKIOT-2104

The New Digital Substation
- more efficient, more secure and ready
for demanding modern Grid applications

BRKIOT-2015

Sensors, sensors everywhere!
Using LoRaWAN and Cisco
Industrial Asset Vision
IBOIOT-1083

Big BrothIR is Watching!
IBOIOT-1942

Using IOT + Collab + Meraki API's
for a safer return to the school
DEVNET-2778

You Know What Really Floats My Boat?
Cisco Edge Intelligence.
DEVNET-1073

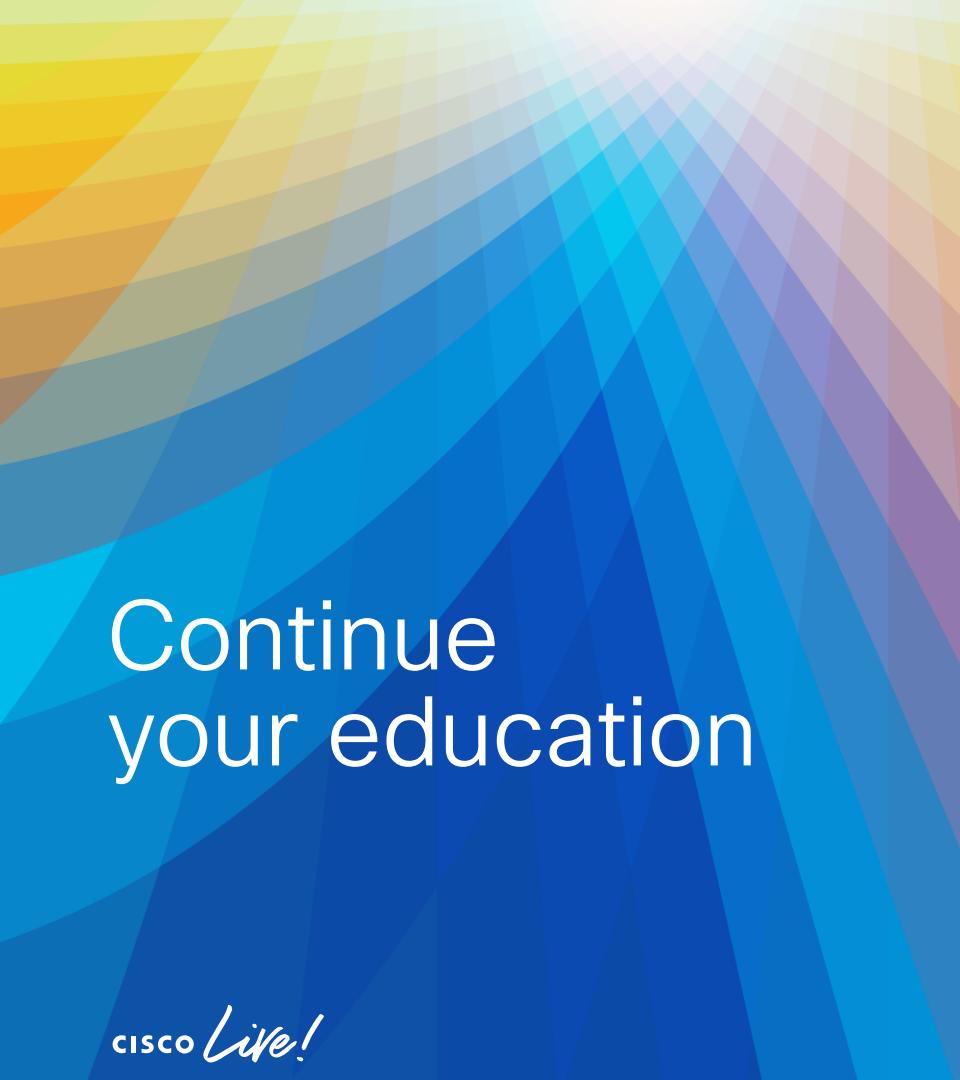
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The bridge to possible

Thank you



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Let's go

References

ALL Code and slides: <https://github.com/Stienvdh/iboiot1073-cisco-industrial-apis>

Module 1 - RESTCONF

- YANG model repository: <https://github.com/YangModels/yang/tree/main/vendor/cisco/xe>
- YANGsuite: <https://github.com/CiscoDevNet/yangsuite>

Module 2 - IOx

- loxclient: <https://developer.cisco.com/docs/iox/#!iox-resource-downloads/downloads>
- lox deployment guide:
https://www.cisco.com/c/en/us/td/docs/security/cyber_vision/publications/IR1101/Release-4-2-0/b_Cisco_Cyber_Vision_Network_Sensor_Installation_Guide_for_Cisco_IR1101/m_Procedure_with_the_Local_Manager_IRxxxx.pdf

Module 3 – Cyber Vision

- Cyber Vision API:
https://www.cisco.com/c/dam/en/us/td/docs/security/cyber_vision/Cisco_Cyber_Vision_REST-API_User_Guide_Release_3_1_0.pdf

Module 4 – IoT Operations Dashboard

- IOT OD EDM API: <https://developer.cisco.com/docs/iotod/edm/#!overview>
- IOT OD EDM API authentication: <https://developer.cisco.com/docs/iotod/edm/#!authentication>