



ML Ops with IoT

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What is Machine Learning?



Agenda

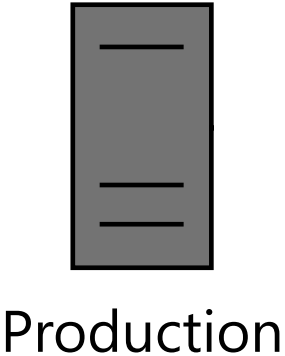
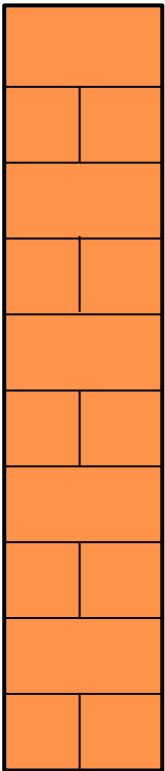
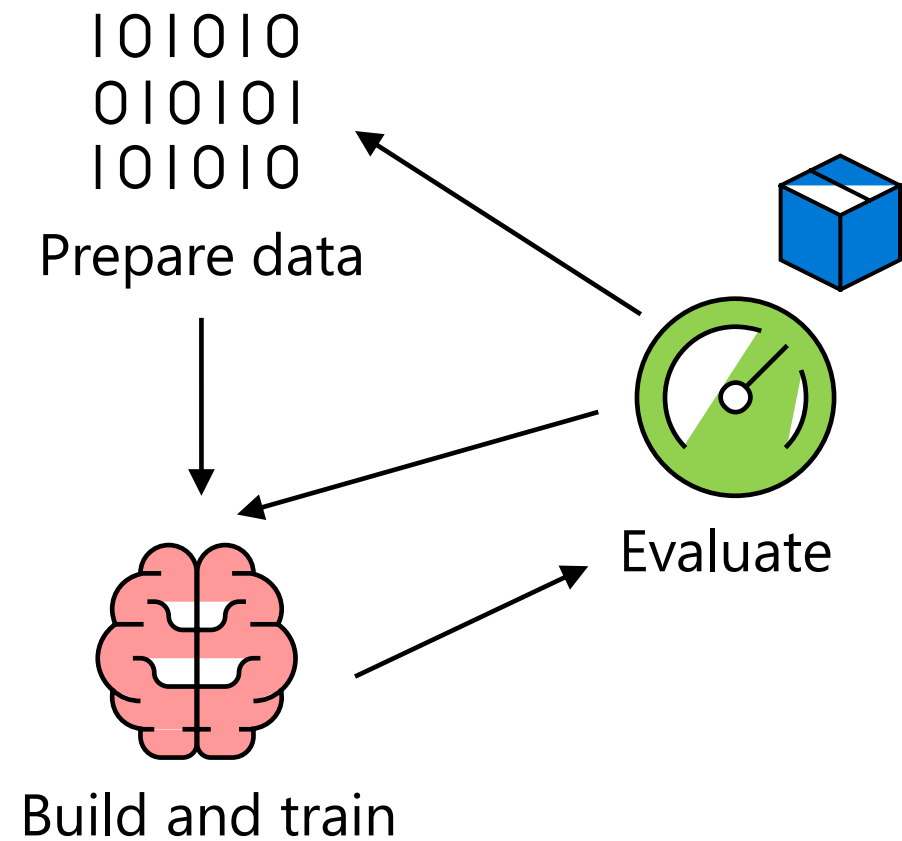
Life-Cycle of Model
(ML+Ops)

Deployment and Delivery in
Edge

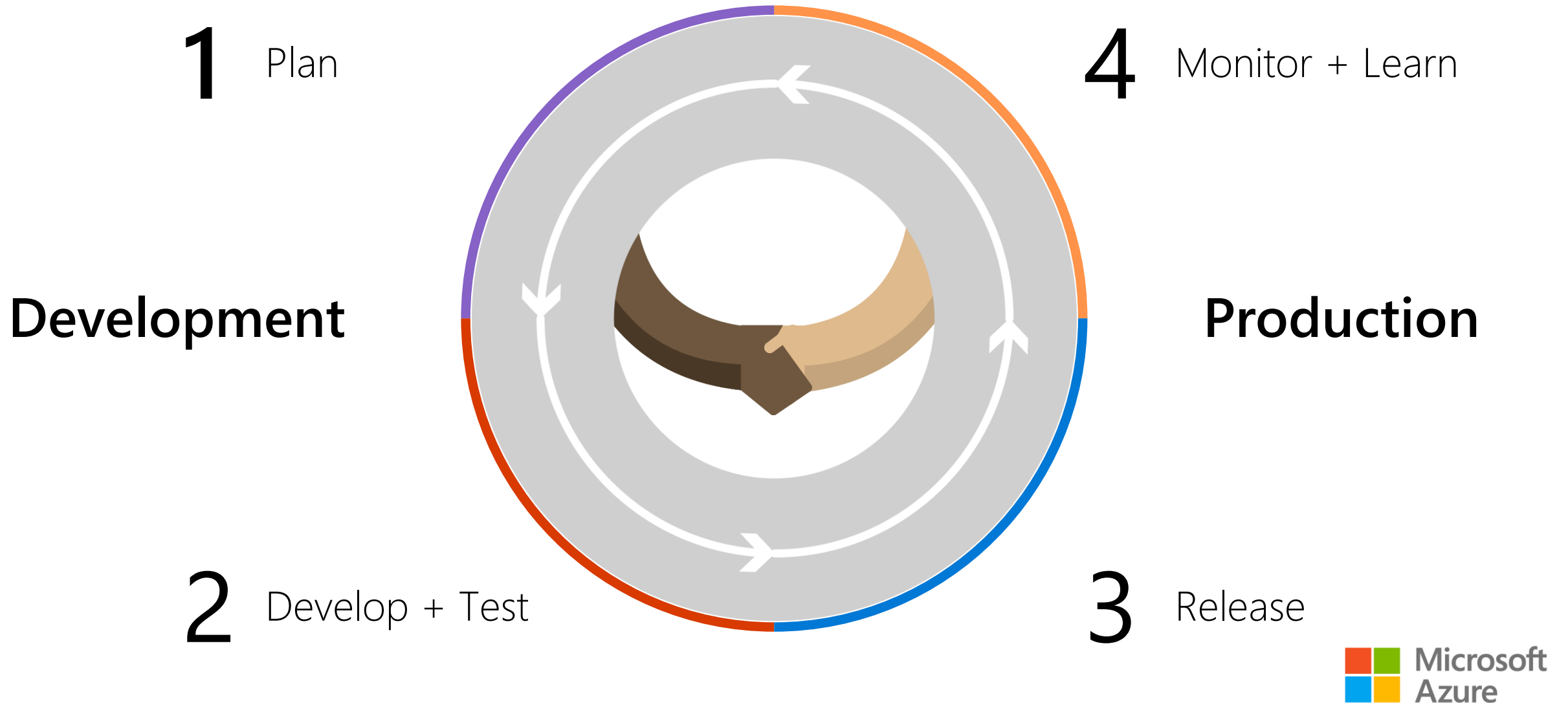
Life-Cycle of Model (ML+Ops)



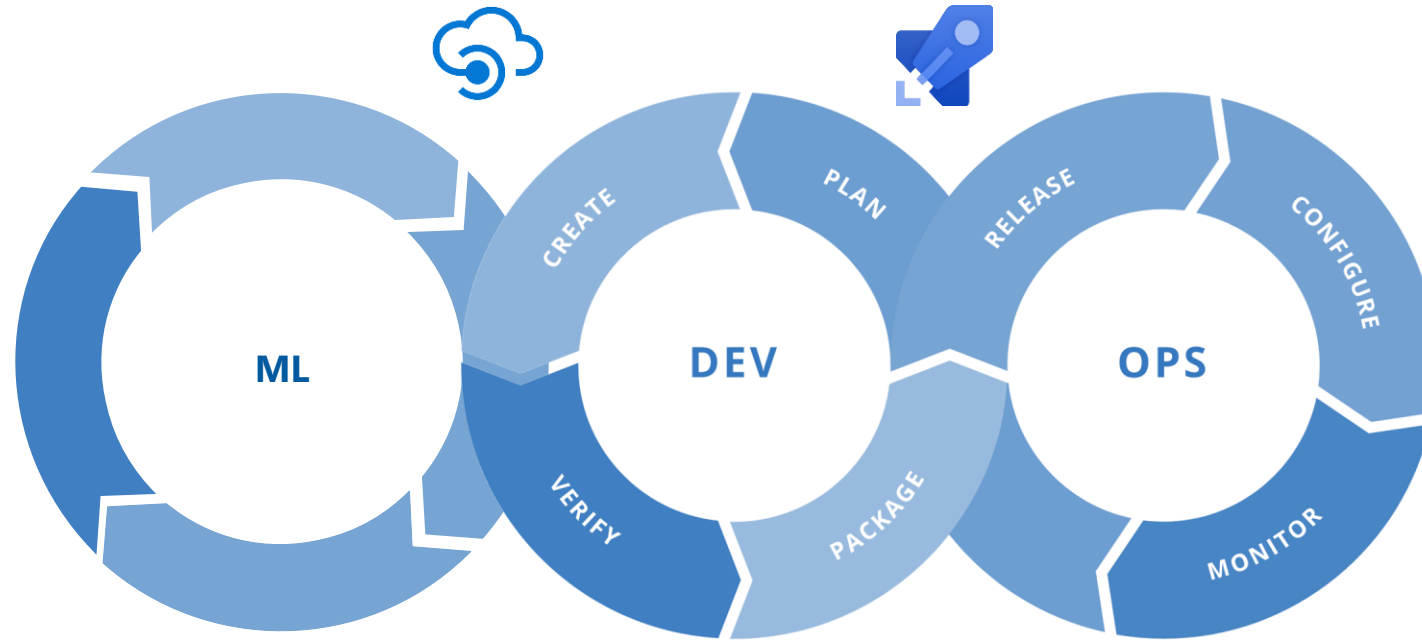
Machine Learning Process



DevOps Process



MLOps = ML + DEV + OPS



Experiment
Data retrieval
Business understanding
Initial modeling





Develop


+ Testing
Continuous Integration
Continuous Deployment


Operate


Continuous Delivery
Data Feedback Loop
System + Model Monitoring

Microsoft Azure Machine Learning








 New

 Home


Author


 Notebooks


 Automated ML


 Visual Interface


Assets

 Datasets


 Experiments


 Pipelines


 Models

 Endpoints

Manage


 Compute


 Environments


 Datastores

aiml50demo > Home

Welcome!




Create new 




Notebooks
Code with Python SDK and run sample experiments.

Start now



Automated ML
Automatically train and tune a model using a target metric.

Start now



Visual Interface
Drag-and-drop interface from prepping data to deploying models.

Start now

My recent resources

Runs


Run number	Experiment	Updated time	Status
21	seer	10/21/2019, 2:47:53 PM	Completed
17	seer	10/21/2019, 9:32:14 AM	Completed
13	seer	10/18/2019, 3:09:31 PM	Completed
9	seer	10/16/2019, 11:18:42 AM	Completed
5	seer	10/16/2019, 10:39:47 AM	Completed

View all experiments →

Compute

Name	Type	Provisioning state	Crea... ↓
twtdcluster	Machine Learning Com...	Succeeded (1 node)	10/15/2...

View all compute →



Introducing Azure DevOps



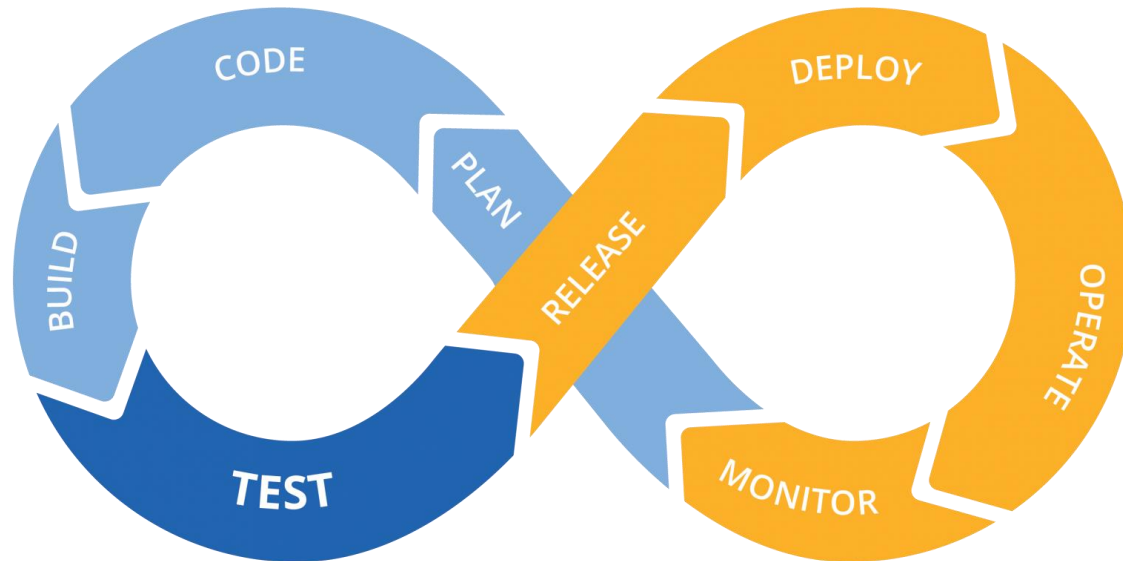
Azure Pipelines

Build, test, and deploy with CI/CD that works with any language, platform, and cloud. Connect to GitHub or any other Git provider and deploy continuously.



Azure Repos

Get unlimited, cloud-hosted private Git repos and collaborate to build better code with pull requests and advanced file management.

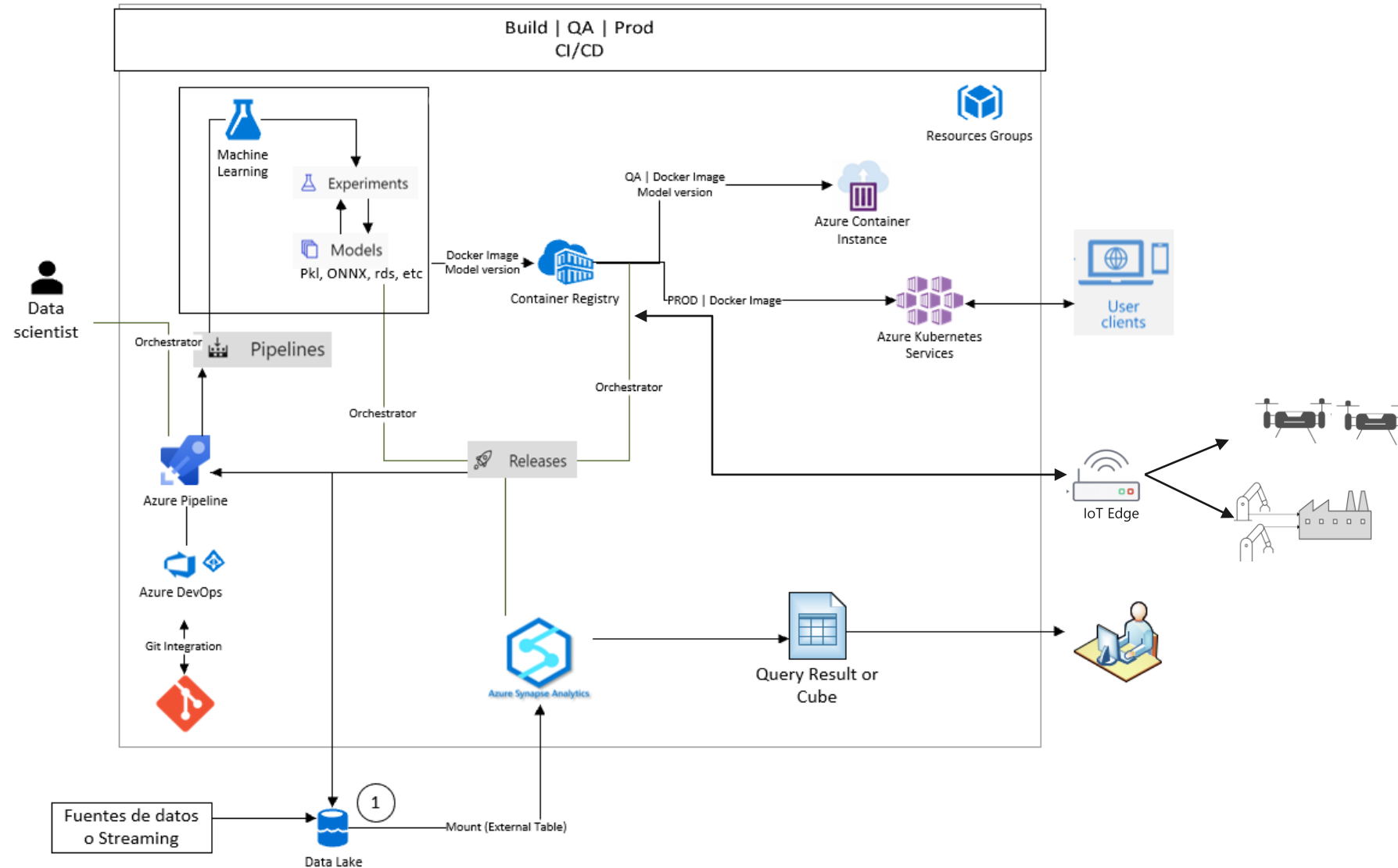


CI/CD

Continuous integration and continuous delivery

1. Segregation for Stakeholder Responsibility
2. Risk Reduction
3. Short Feedback Loop

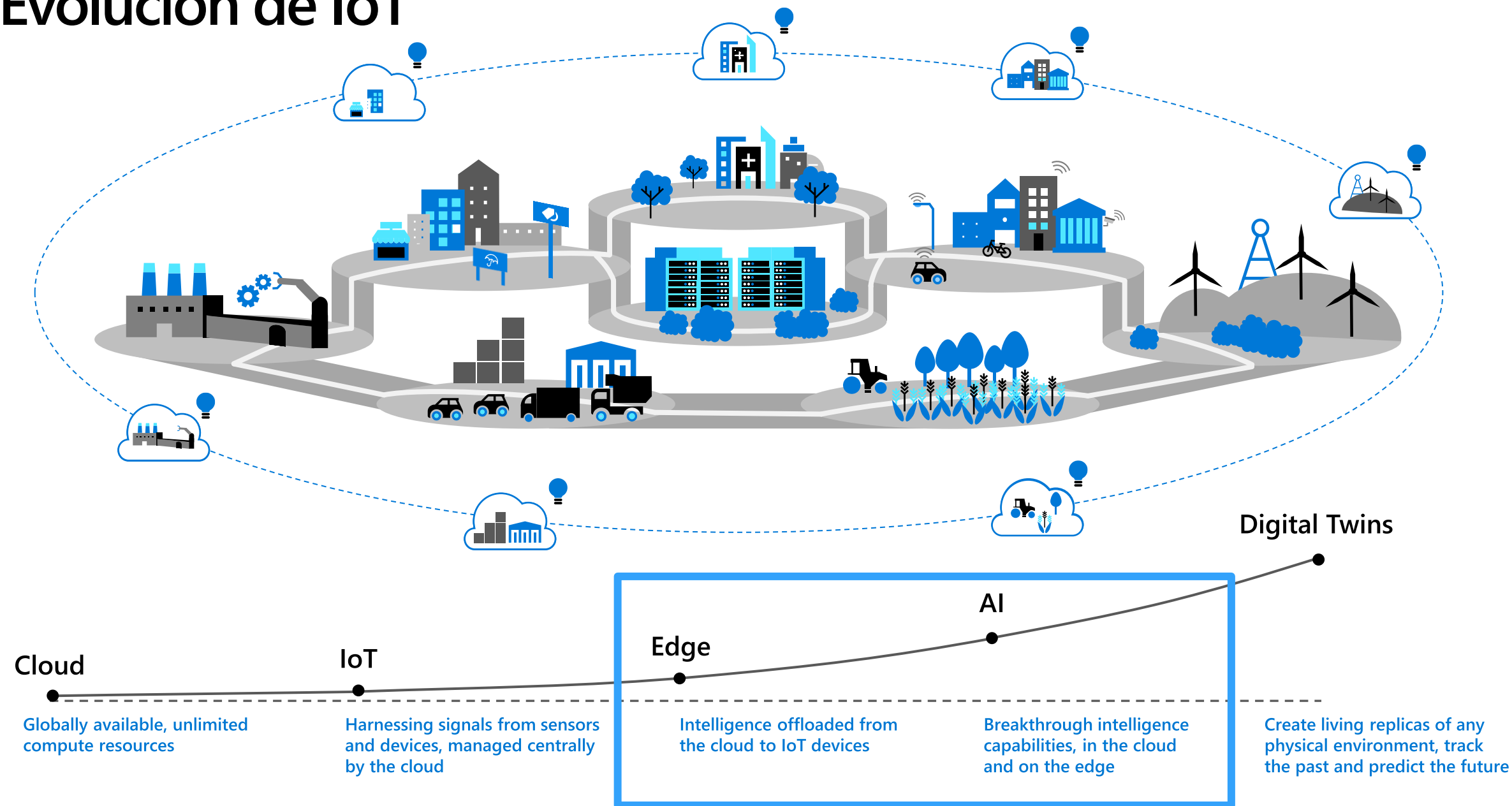
Arquitectura Alto Nivel Machine Learning



Deployment and Delivery to the Edge



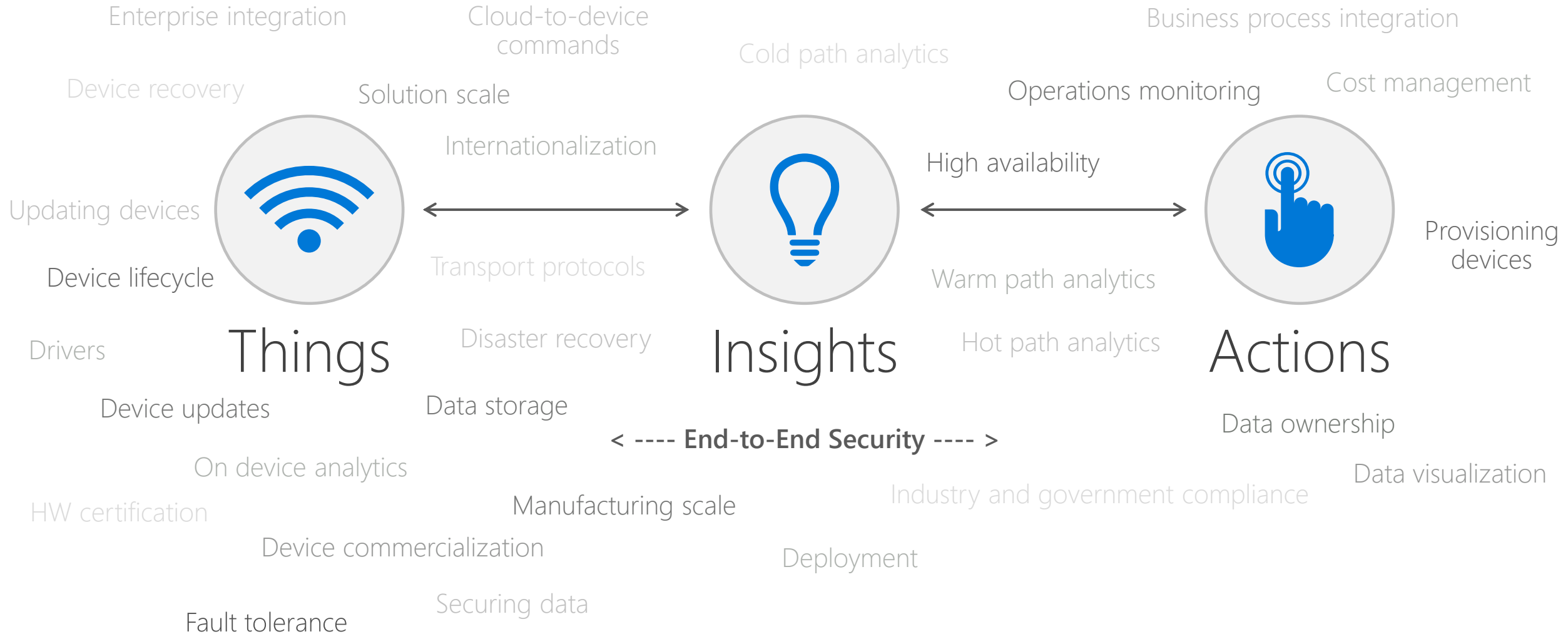
Evolución de IoT



IoT es un concepto fácil de entender



La implementación de IoT es muy compleja



Portafolio completo de IoT

Soluciones (PaaS)

Azure IoT Suite (PaaS)

Soluciones preconfiguradas para escenarios típicos de IoT

Soluciones (SaaS)

Microsoft IoT Central
IoT SaaS

Microsoft Dynamics
Connected Field Service

Tecnologías (PaaS)

Device support

Azure IoT
Device SDK

Azure IoT
certified devices

Security Program for
Azure IoT

Windows 10 IoT /
Linux Sphere

IoT

Azure IoT Hub

IoT Hub Device
Provisioning Service

Edge

Azure IoT Edge

Data and Analytics

Azure Stream
Analytics

Azure HD Insight

Azure Time Series
Insights

Azure Databricks

Azure
Machine Learning

Azure Data Lake
Analytics

Cosmos DB

Azure Data Lake

Visualization and Integration

Azure Maps

Azure Active Directory

Azure Logic Apps

Microsoft
Power BI

Notification Hubs

Azure Monitor

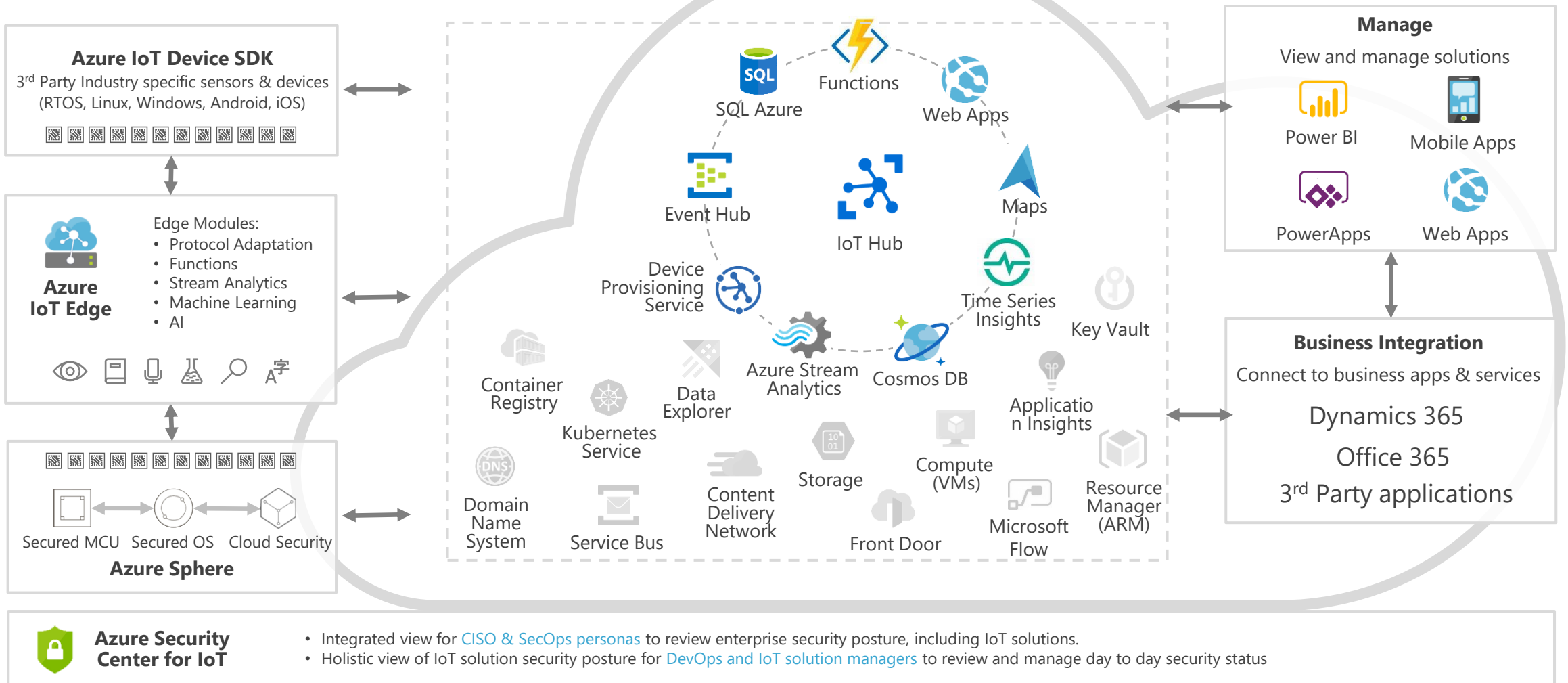
Azure Websites

Azure Functions

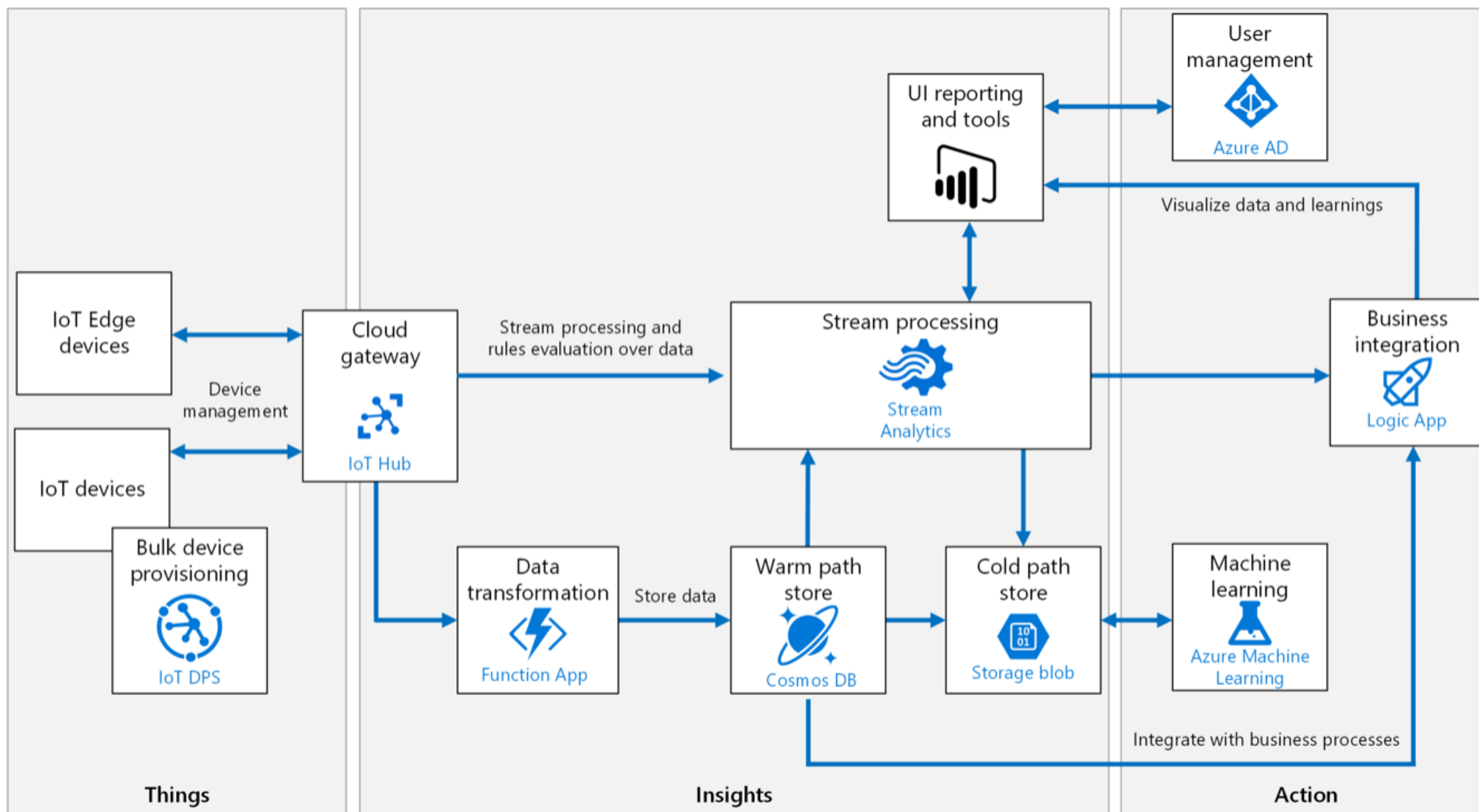
Opciones para construir soluciones IoT

1. Build from the ground up

The issue: Designing, integrating and maintaining dozens of individual services requires extensive expertise, time and financial investment

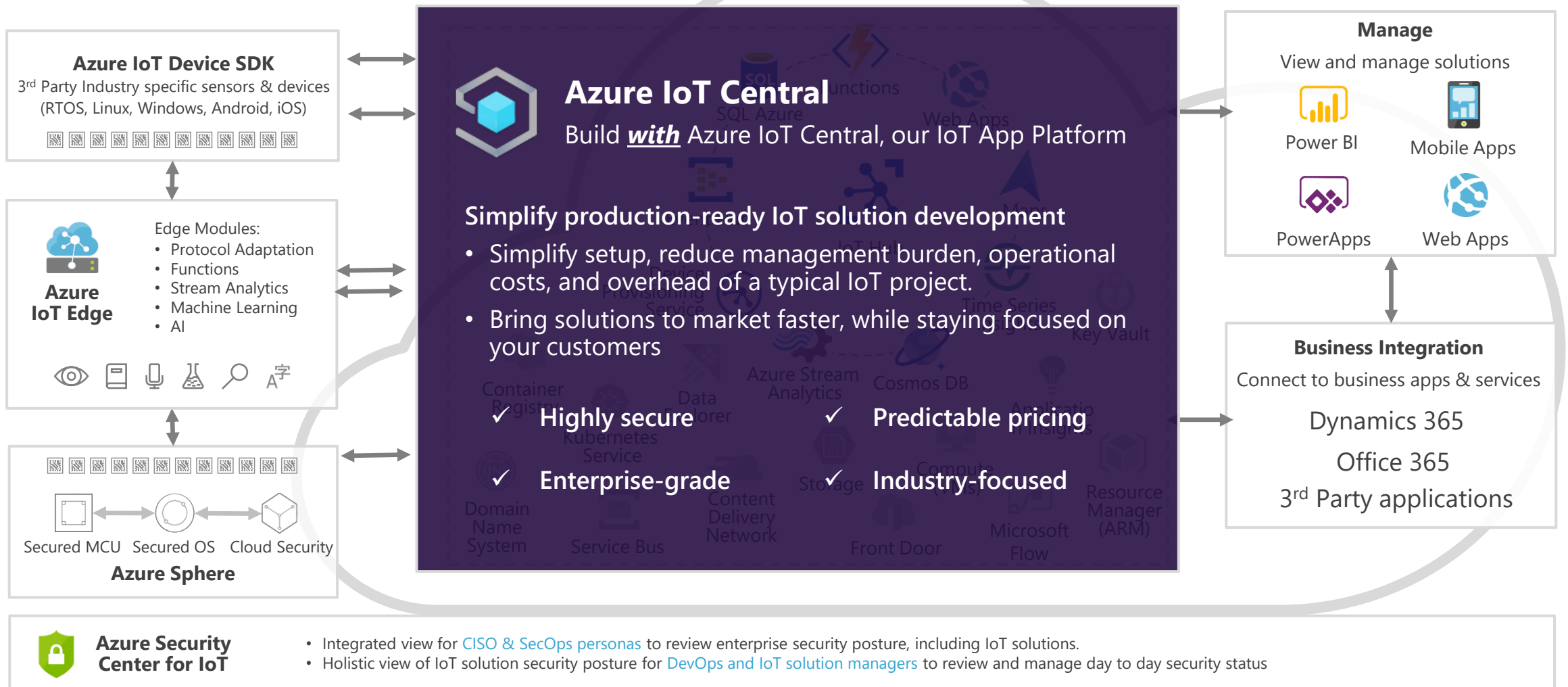


Arquitectura Conceptual

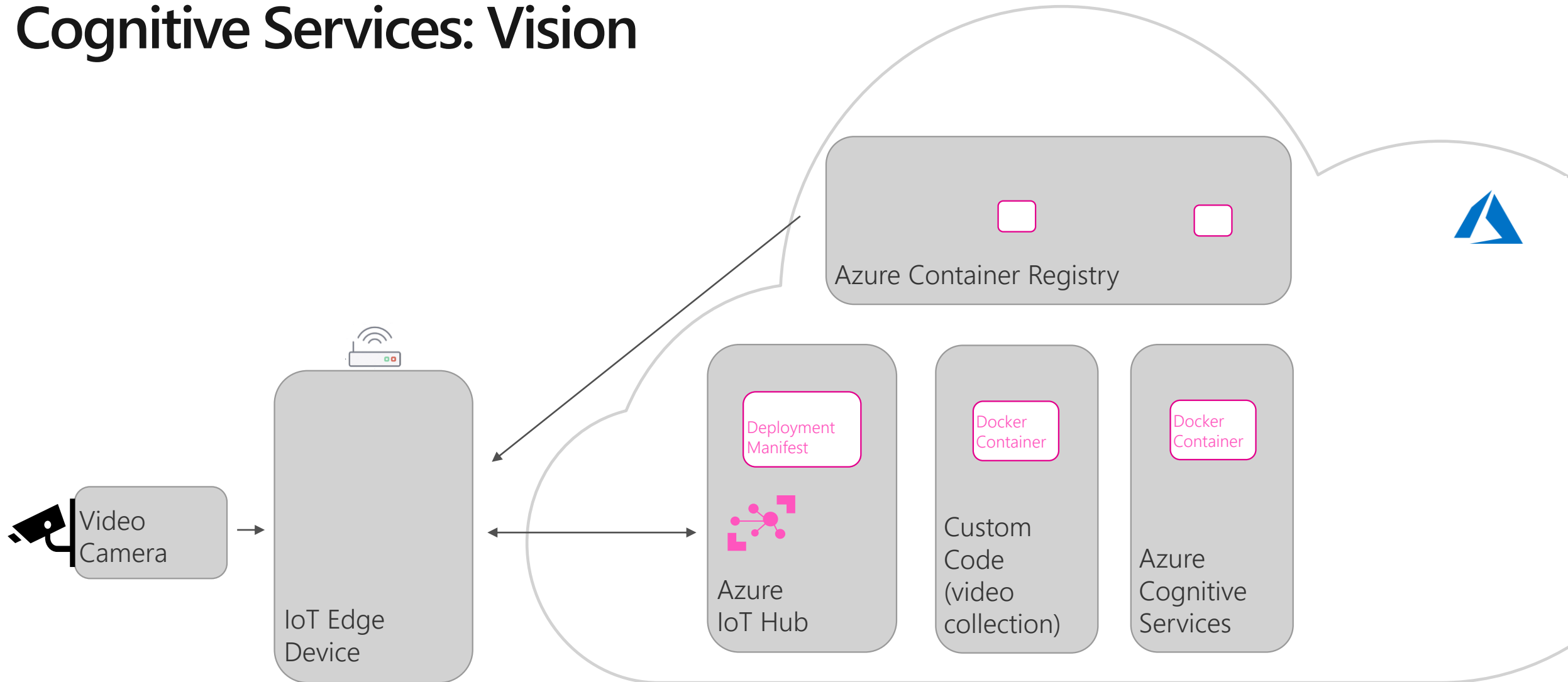


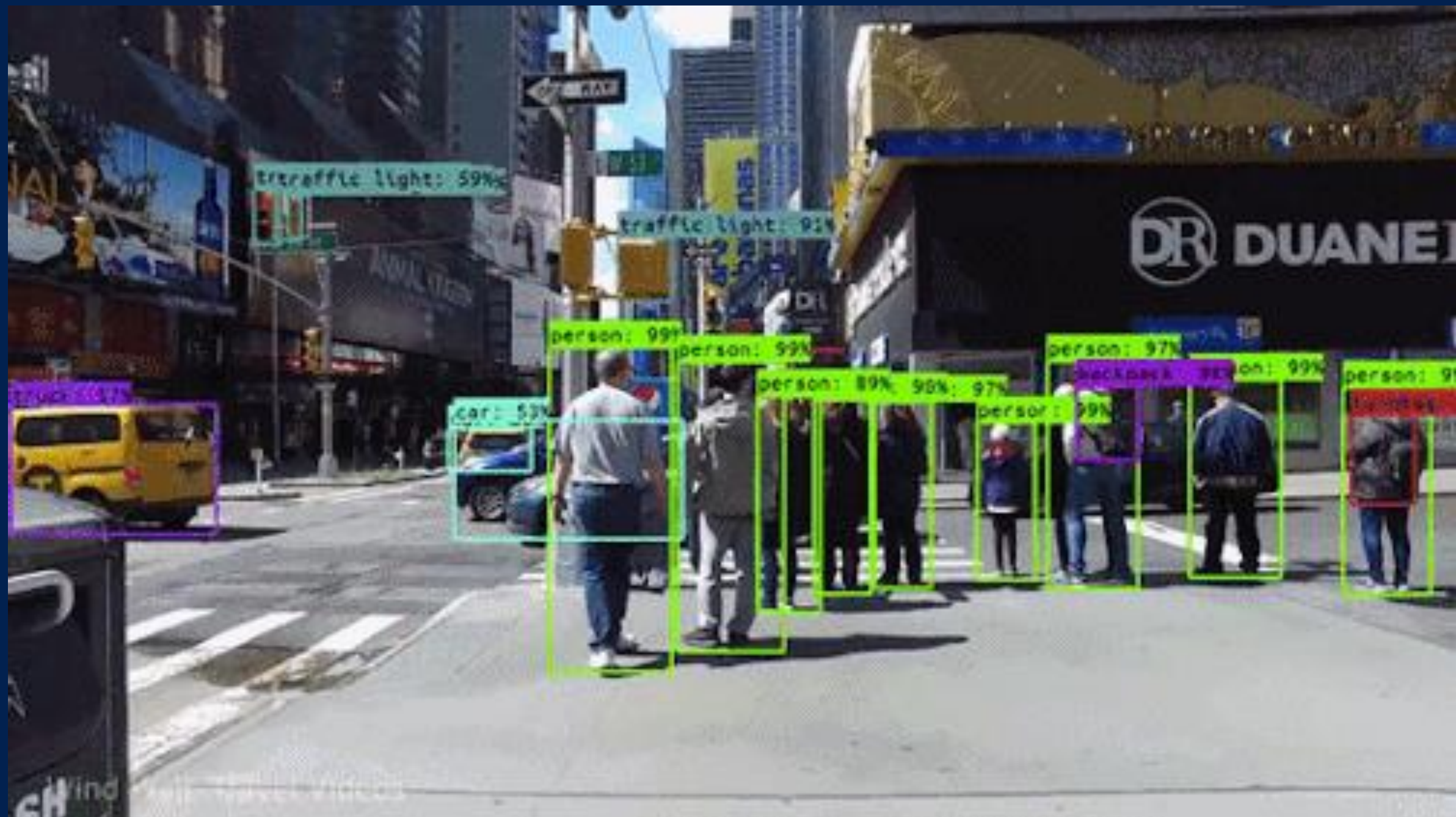
Opciones para construir soluciones IoT

2. Build with a fully managed IoT app platform



Azure IoT Edge Deployment Cognitive Services: Vision





Tipo de alerta en desarrollo: detección de disfraz



iThank you!