



IoT in Action

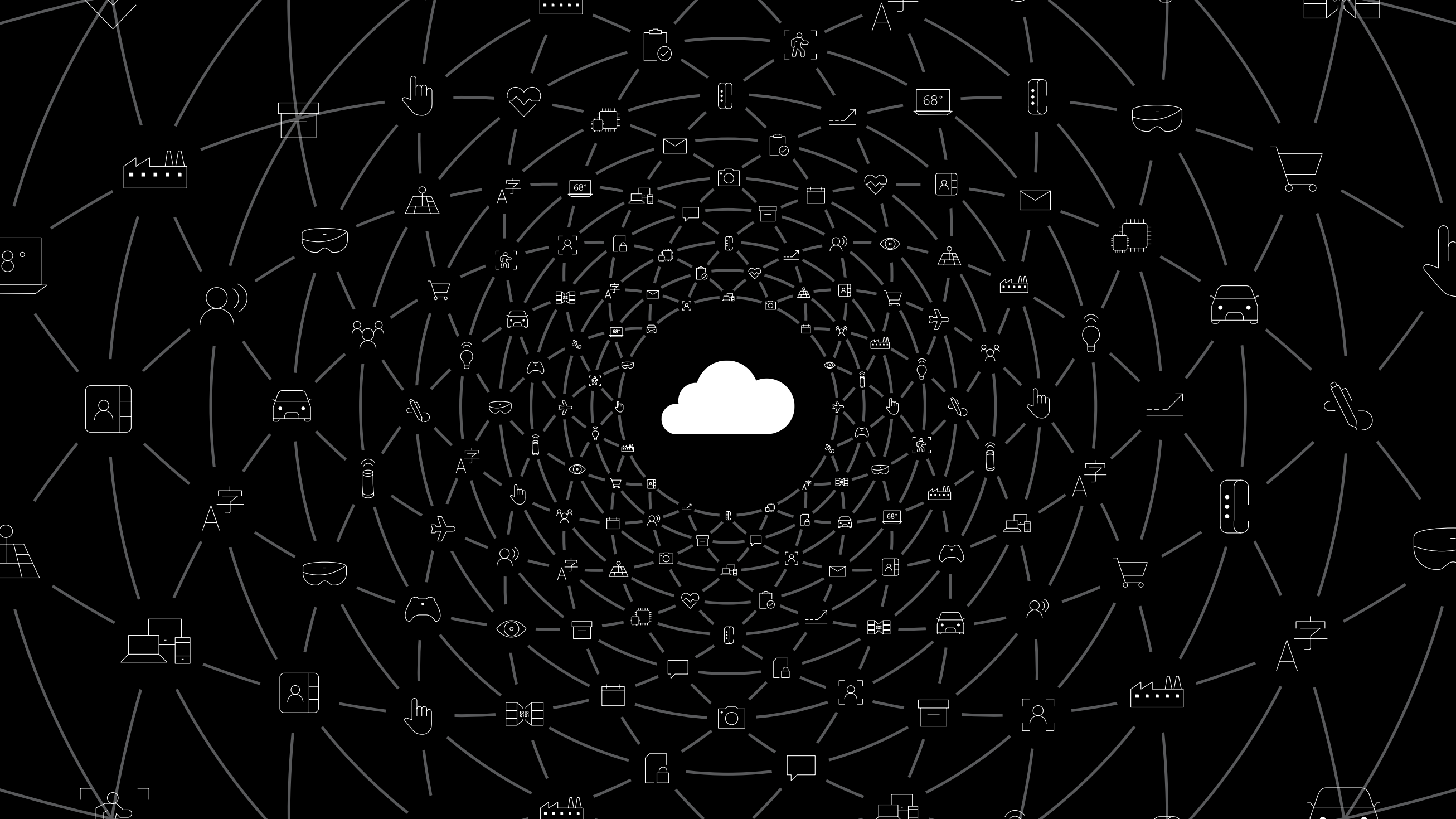
#IoTinActionMS

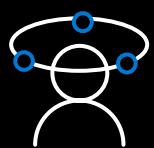


Evolving IoT with AI, Mixed Reality and Automation

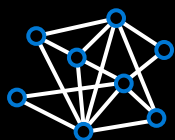
Gary Walshe
Sales Director - IoT & Mixed Reality







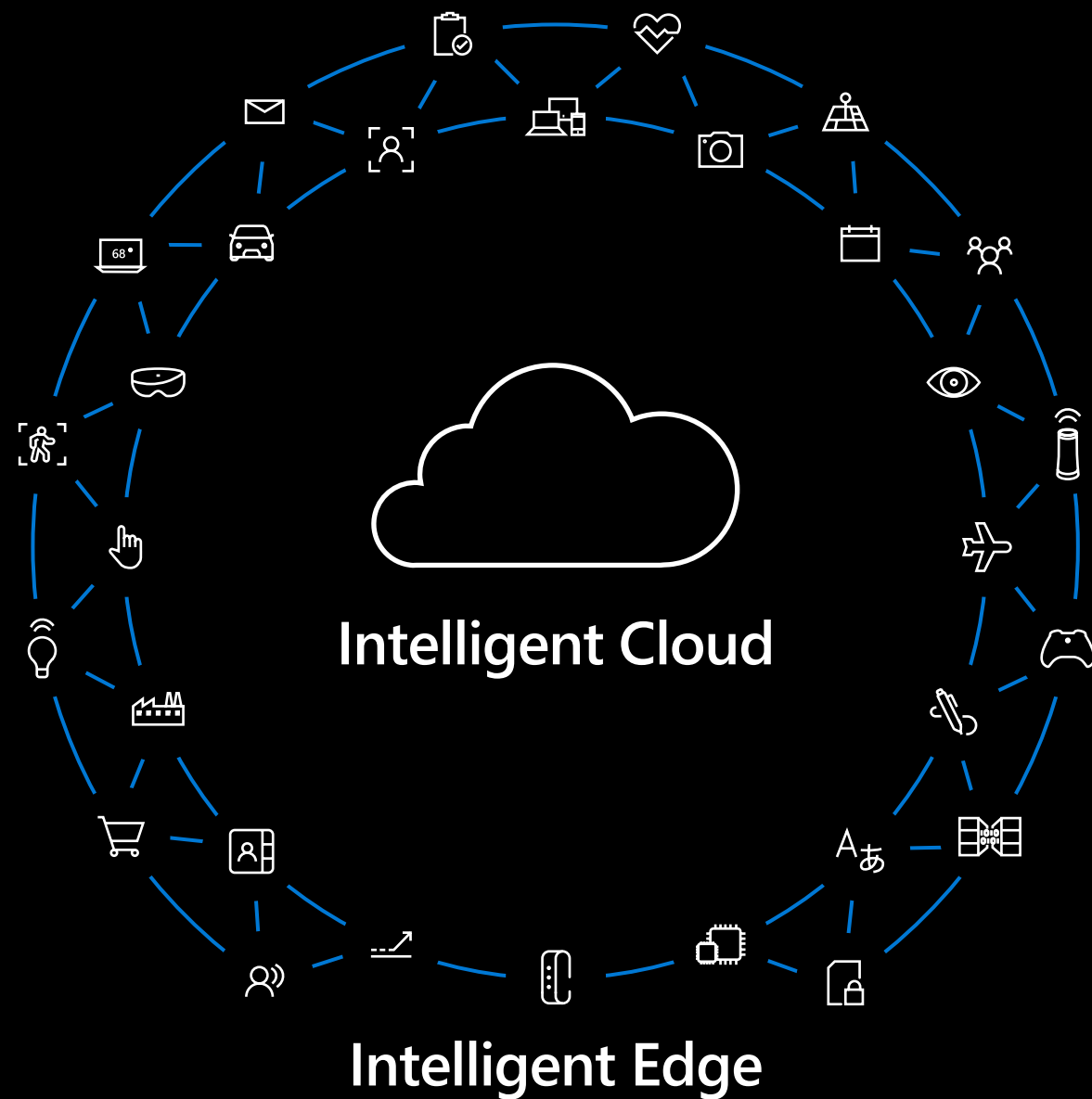
People-centred
experiences



Artificial
Intelligence



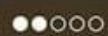
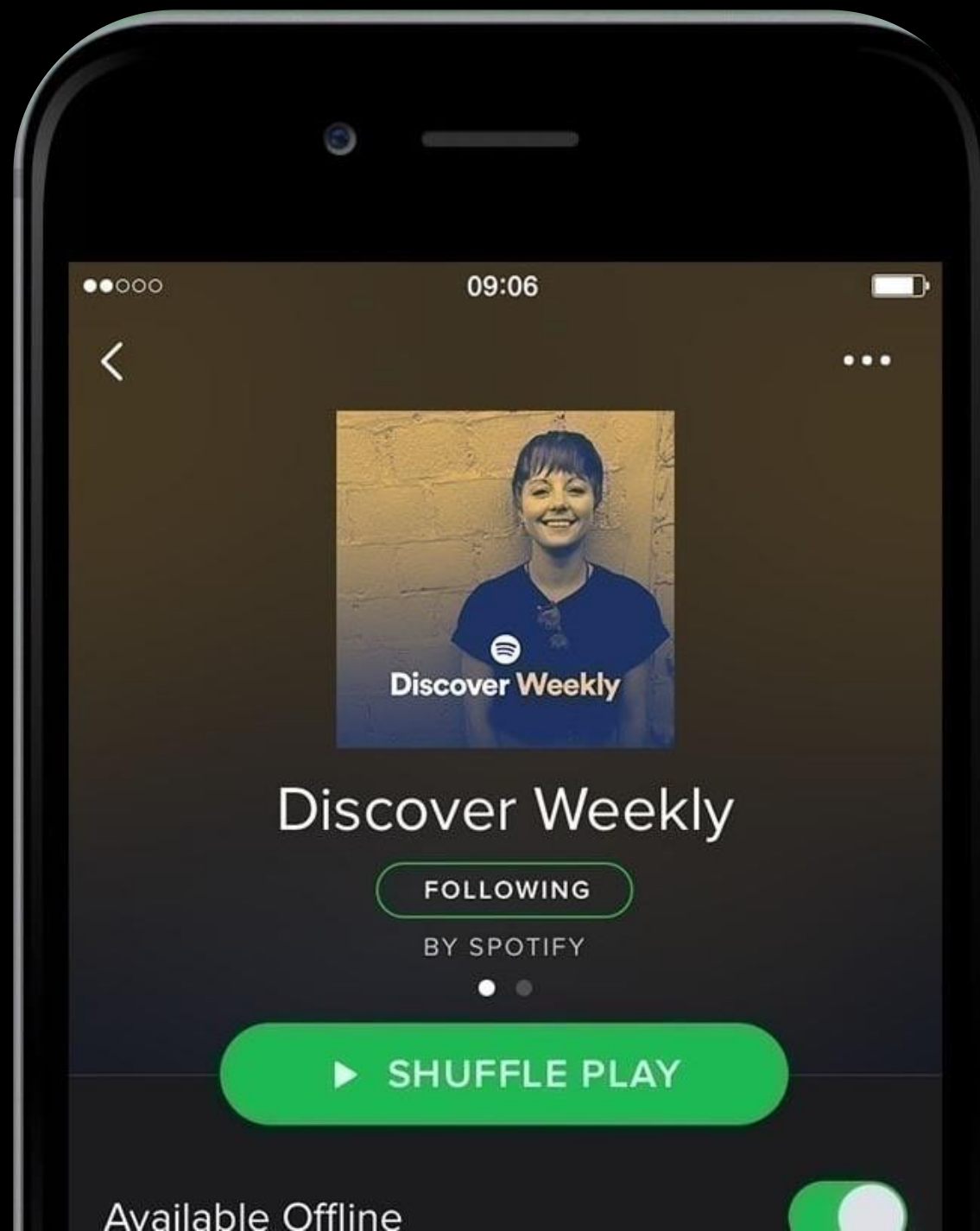
Ubiquitous
computing











09:06



Discover Weekly

FOLLOWING

BY SPOTIFY



▶ SHUFFLE PLAY

Available Offline



Intelligent Edge



We are living in an
automated world



Evolution of industrial systems

Mechanized systems



Powered by **steam or electricity**

Manually operated

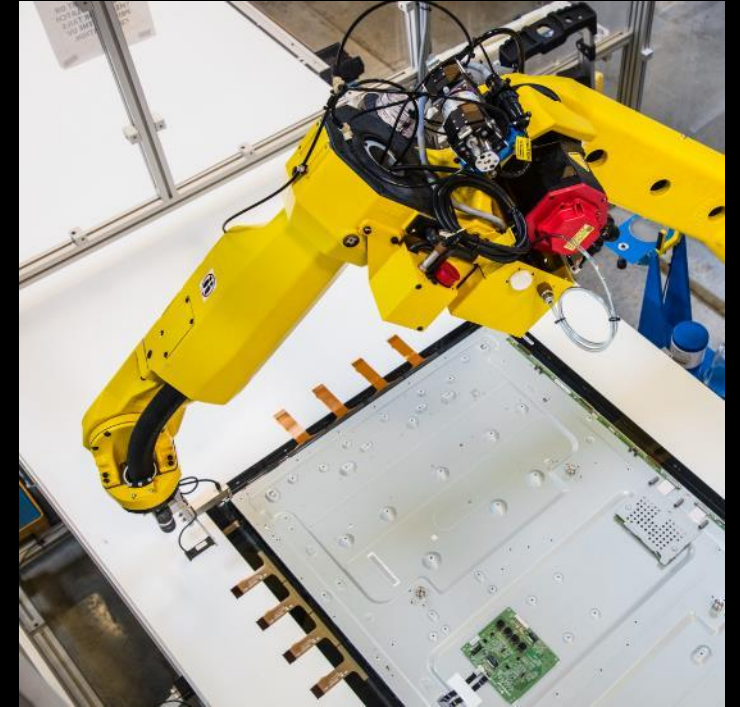
Automated systems



Powered by **software**

Fixed operation

Autonomous systems

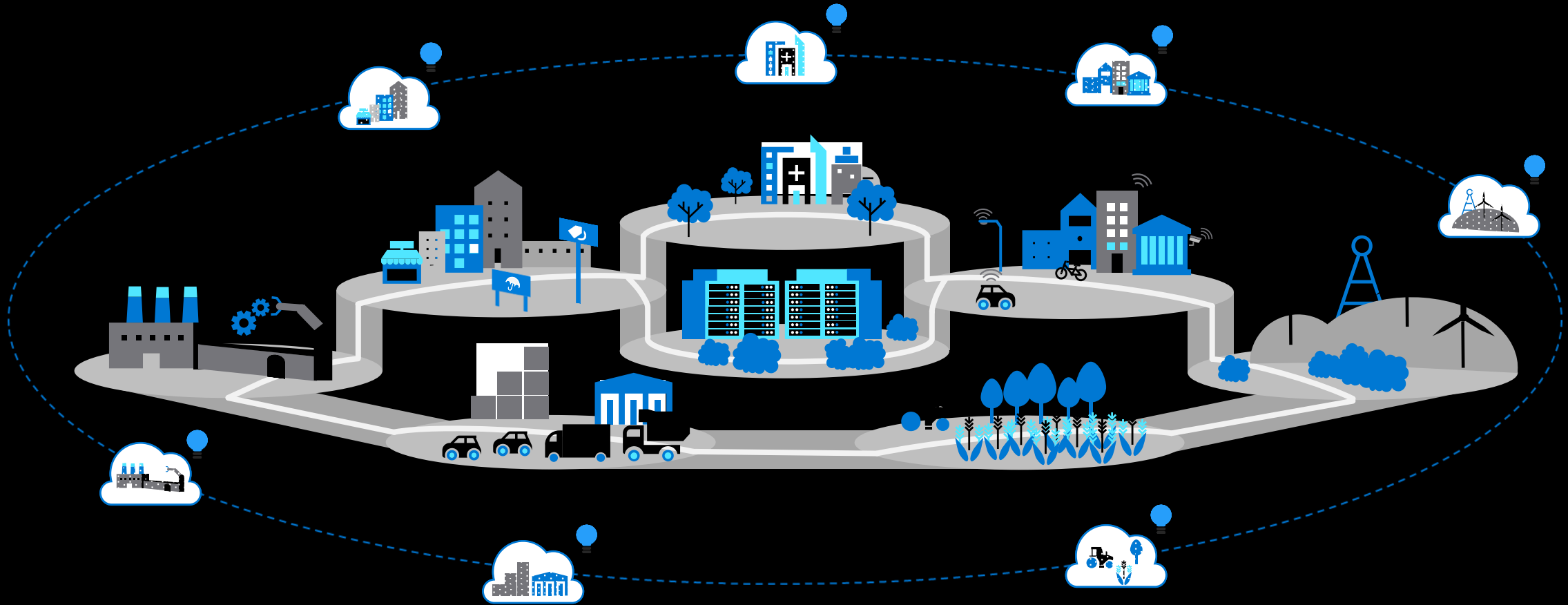


Powered by **AI**

Intelligent operation

Sense – Act – Learn - Adjust

Convergence is driving new opportunities



Cloud

Globally available, unlimited compute resources

IoT

Harnessing signals from sensors and devices, managed centrally by the cloud

Edge

Intelligence offloaded from the cloud to IoT devices

Digital Twins

Create living replicas of any physical environment, track the past and predict the future

AI

Breakthrough intelligence capabilities, in the cloud and on the edge

Microsoft's comprehensive IoT product portfolio



Azure Security
Center for IoT

Azure IoT
Priority Verticals



Manufacturing



Retail



Agriculture



Energy



Smart Cities



Healthcare



Transportation

Azure IoT
Solutions



Azure IoT Central
(SaaS)



Azure IoT Reference
Architecture & Accelerators
(PaaS)



Dynamics Connected
Field Service
(SaaS)

Azure
Services for IoT



Azure IoT Hub
Azure IoT Hub Device
Provisioning Service
Azure Digital Twins
Azure Time Series Insights
Azure Maps

Azure Stream Analytics
Azure Cosmos DB
Azure AI
Azure Cognitive Services
Azure ML
Azure Logic Apps

Azure Active Directory
Azure Monitor
Azure DevOps
Power BI
Azure Data Share
Azure Spatial Anchors

IoT & Edge
Device Support



Azure Sphere
Azure IoT Device SDK
Azure IoT Edge
Data Box Edge

Windows IoT
Azure Certified for IoT—Device
Catalog
Azure Stream Analytics
Azure Storage

Azure ML
Azure SQL
Azure Functions
Azure Cognitive Services



Global Access

1 in 9 people are undernourished (UN)

65% Reduce poverty for 65% of the world's poor who live in rural areas and work in farming

70% more food is needed by 2050



Sustainable Production

70% of global water resources are needed for Agriculture

24% of global greenhouse emission comes from Agriculture

251T liters of water to be saved in 2030 from implementing Smart Agriculture



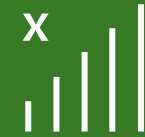
Need for Economic Growth

30% of global workers are employed by Agriculture

10-30% Agriculture contributes 10% of global GDP and up to 30% in low income countries

\$4.8T Global Agriculture revenue

An end-to-end system that enables seamless data collection and insights for agriculture



FarmBeats



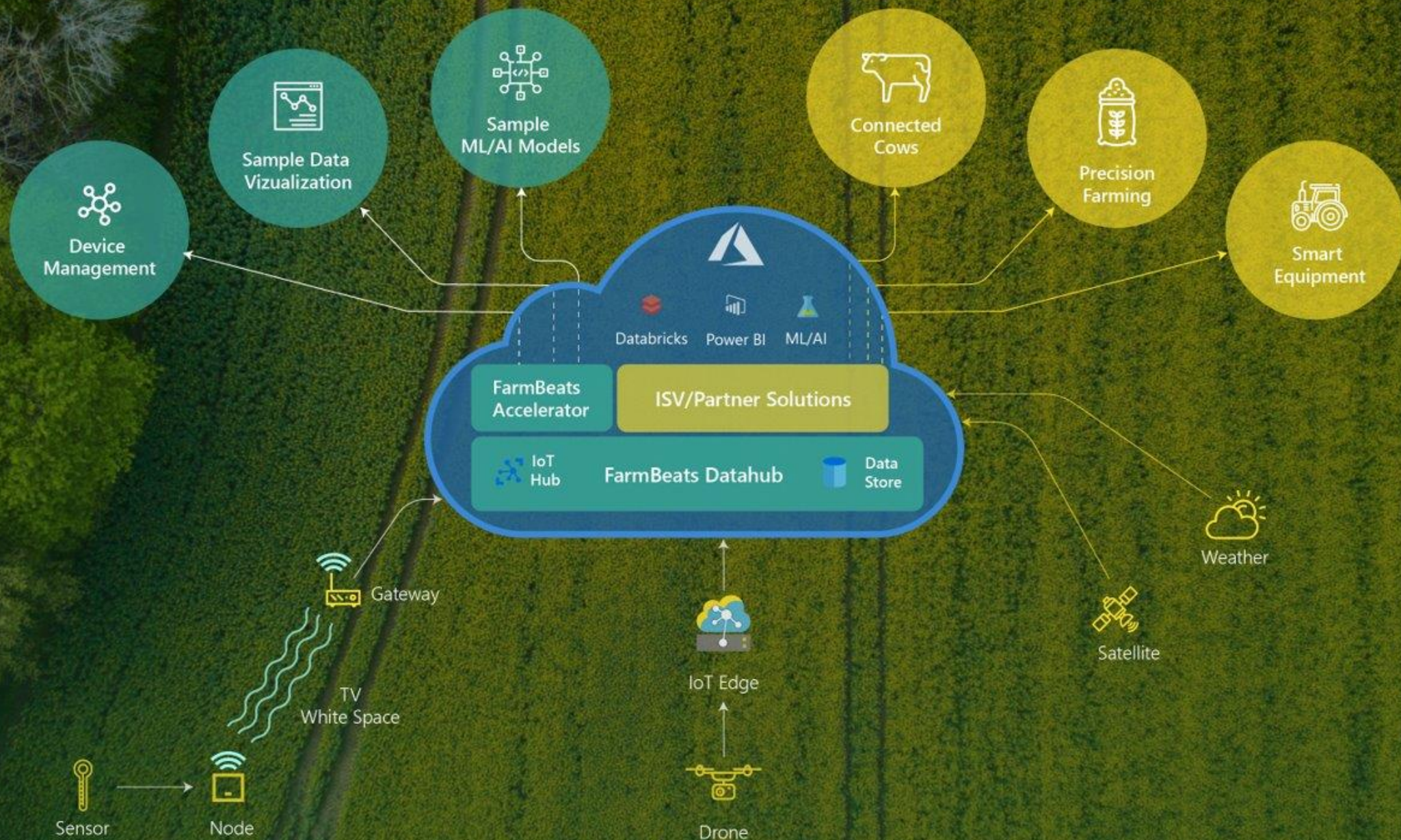
Combine visual data from drones with the sensor data from the farm



Drones are ~1000
dollars and automatic

Can cover large
areas quickly

Can collect
visual data



- ISV/Partner
- FarmBeats
- Azure

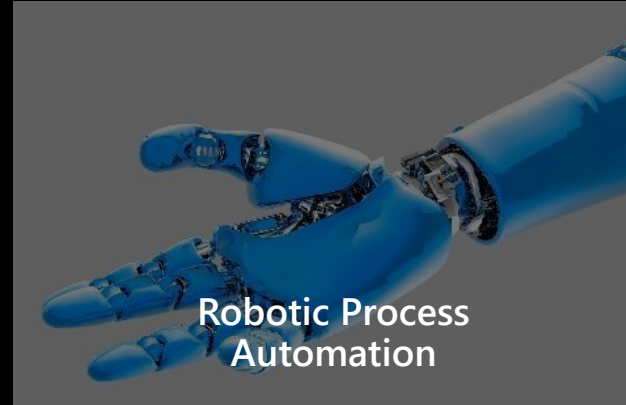




Oil & Gas



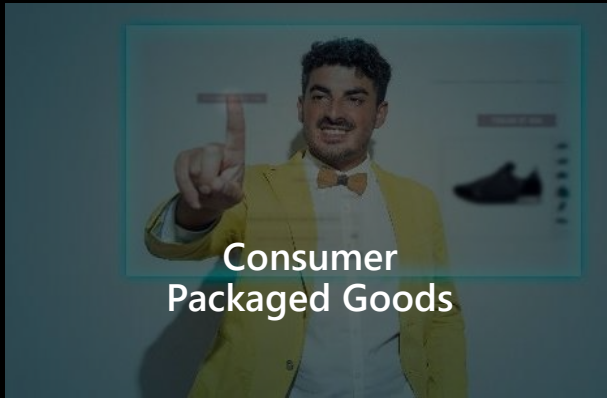
Government &
Smart Cities



Robotic Process
Automation



Healthcare



Consumer
Packaged Goods



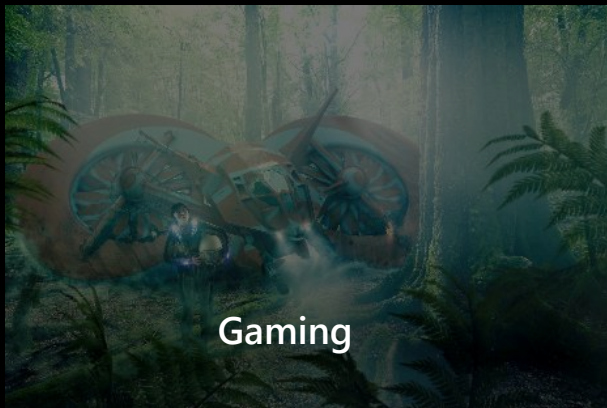
Retail



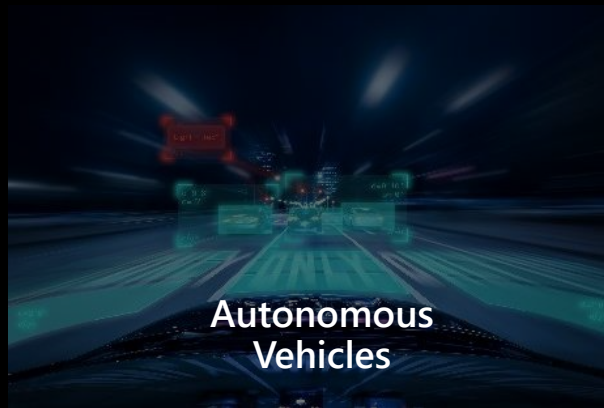
Financial Services



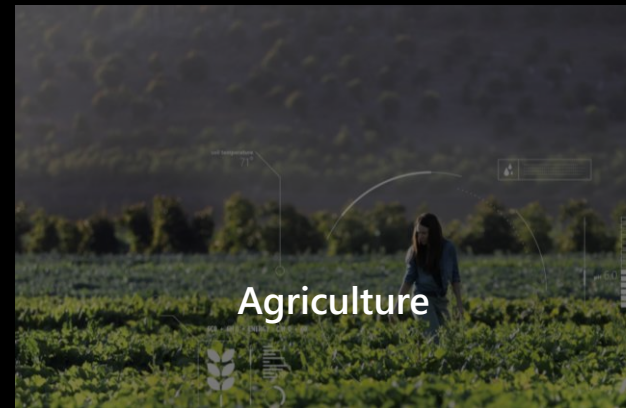
Manufacturing



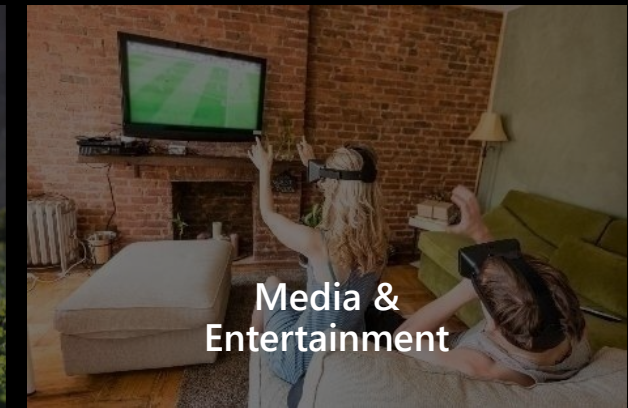
Gaming



Autonomous
Vehicles



Agriculture



Media &
Entertainment

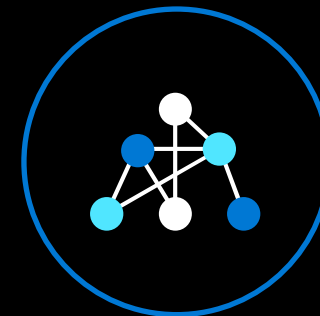
Azure AI



AI apps & agents



Knowledge mining



Machine learning

Deliver breakthrough experiences



AI apps & agents

- Cognitive Services
- Bot Service

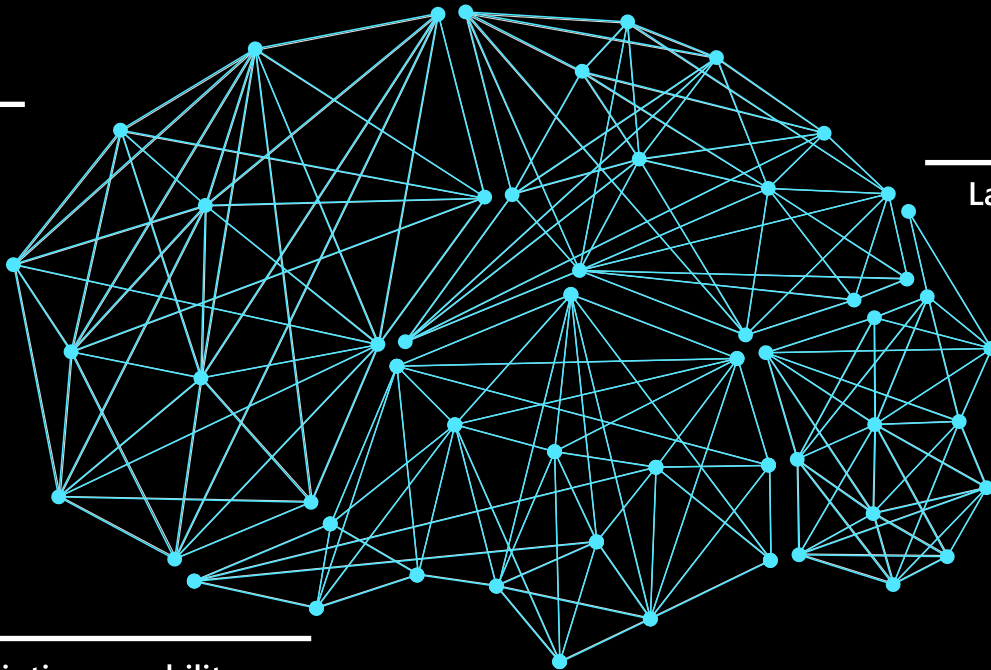
Azure Cognitive Services

Decision

Personalizer
Anomaly Detector

Speech

Conversation transcription capability
Neural Text-to-Speech
Speech Service Device SDK



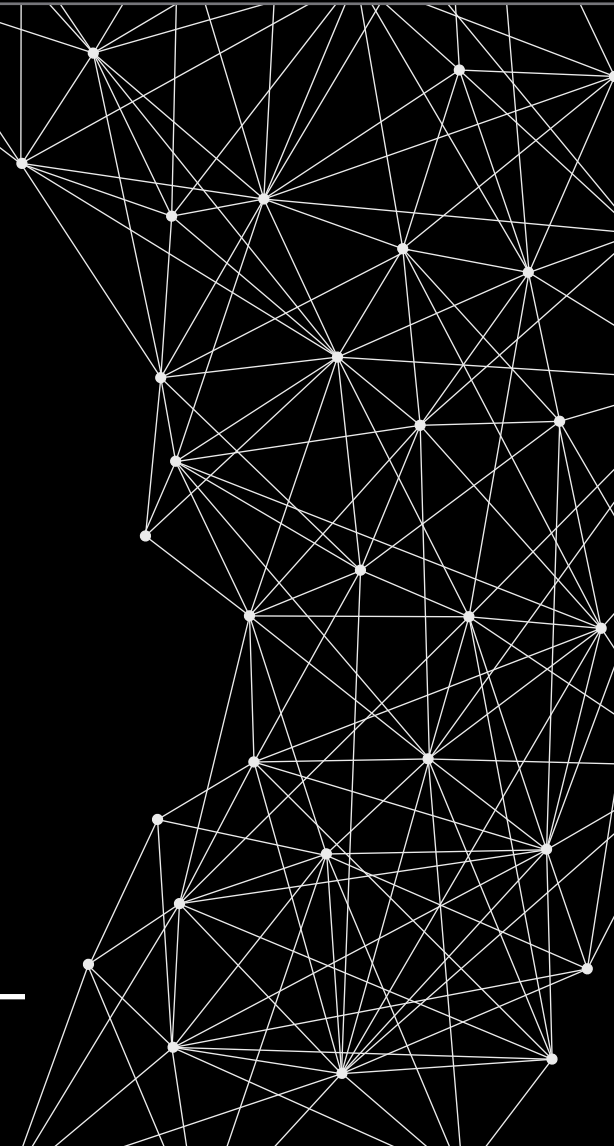
Language

Language Understanding
QnA Maker

Vision

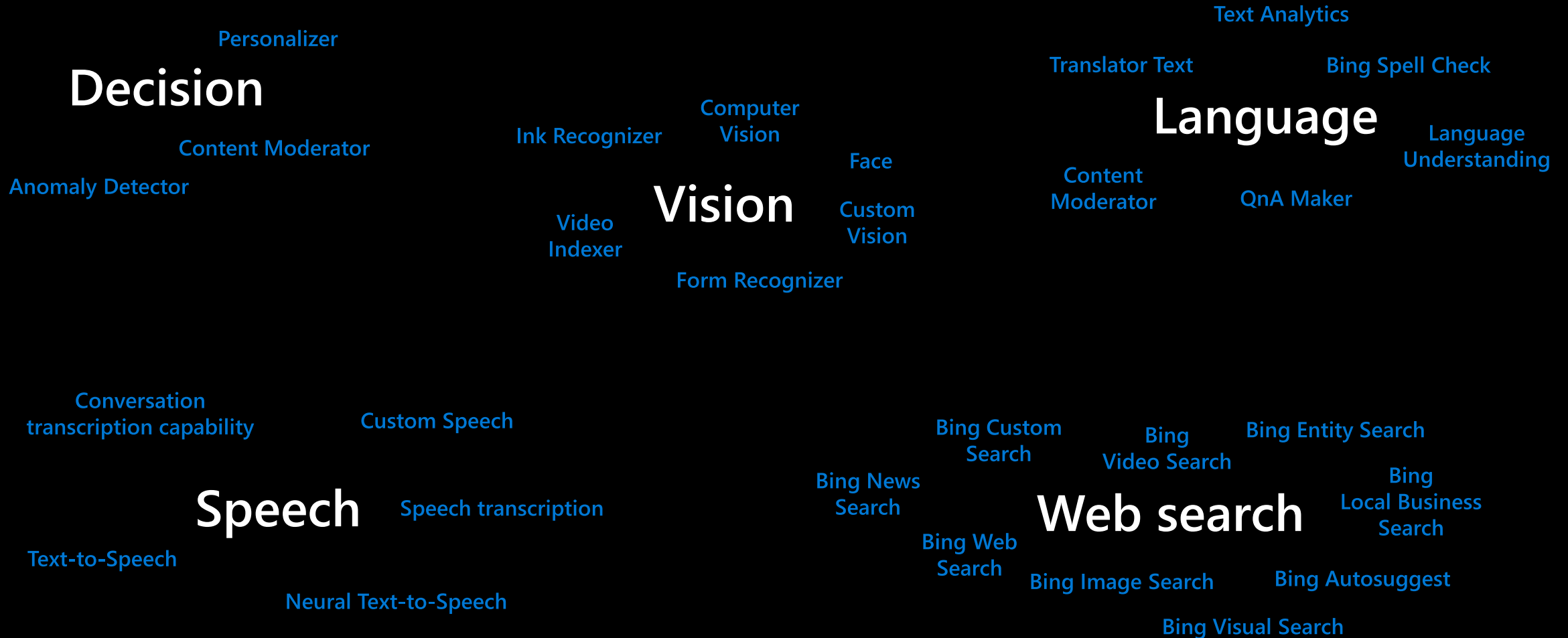
Ink Recognizer
Computer Vision

Web search



Azure Cognitive Services

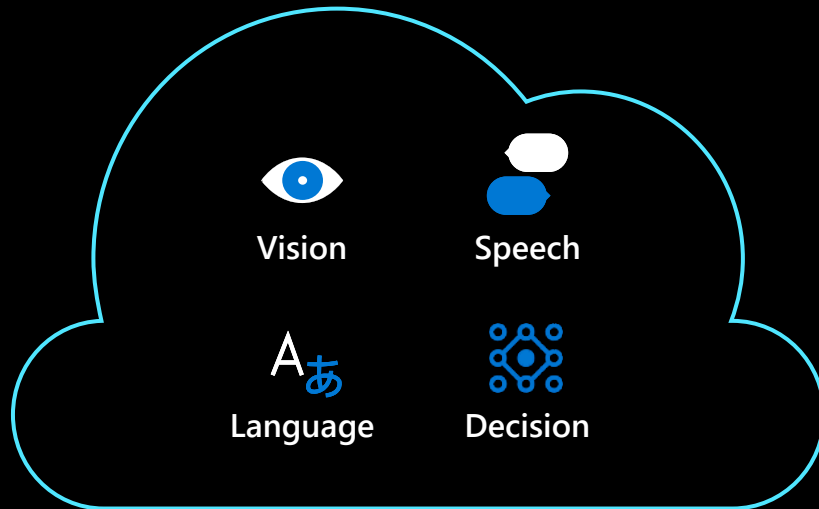
The most comprehensive pre-trained AI



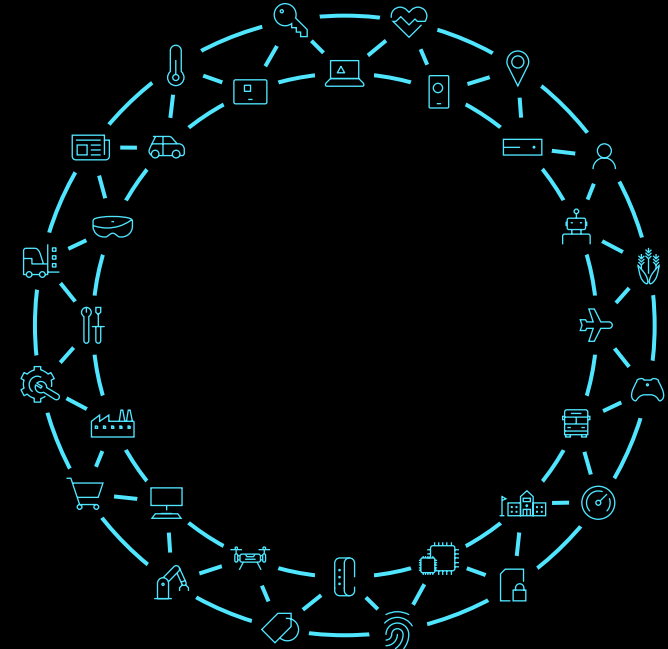
Deploy anywhere using containers

Deploy anywhere using containers

Azure Cognitive Services

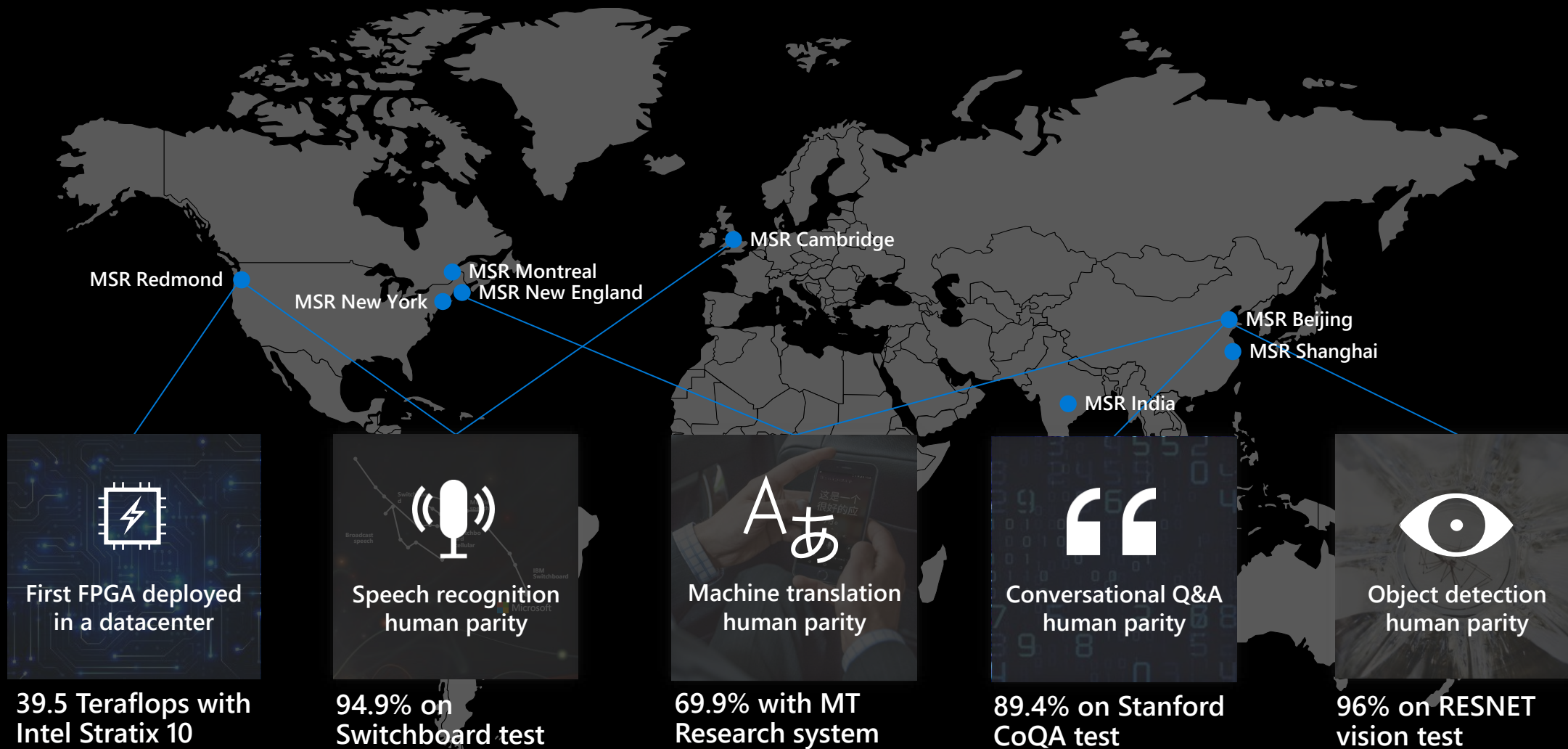


Wherever your data resides



Azure AI

Fueled by Microsoft breakthrough research



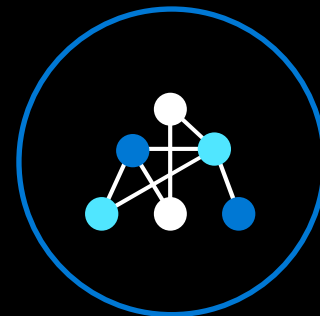
Azure AI



AI apps & agents



Knowledge mining



Machine learning

Machine Learning on Azure

Domain specific pretrained models

To simplify solution development



Vision



Speech



Language



Web search



Decision

Familiar data science tools

To simplify model development



Visual Studio Code



Azure Notebooks



Jupyter



Command line

Popular frameworks

To build advanced deep learning solutions



PyTorch



TensorFlow



Scikit-Learn



ONNX

Productive services

To empower data science and development teams



Azure Machine Learning



Azure Databricks



Machine Learning VMs

Powerful infrastructure

To accelerate deep learning



CPU



GPU



FPGA



From the Intelligent Cloud to the Intelligent Edge



Microsoft platform for autonomous systems



Scale human expertise

Machine Teaching

- Domain experts “teach” the machine
- No data science expertise required
- Expert provides “lesson plans” to help the AI algorithm solve the problem

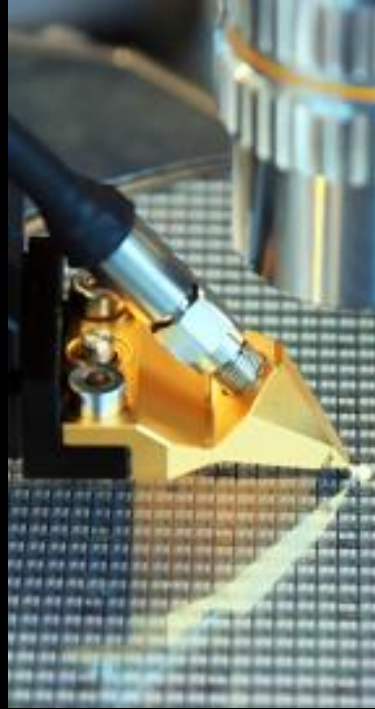
Autonomous systems scenarios



Motion control



Smart buildings



Machine calibration



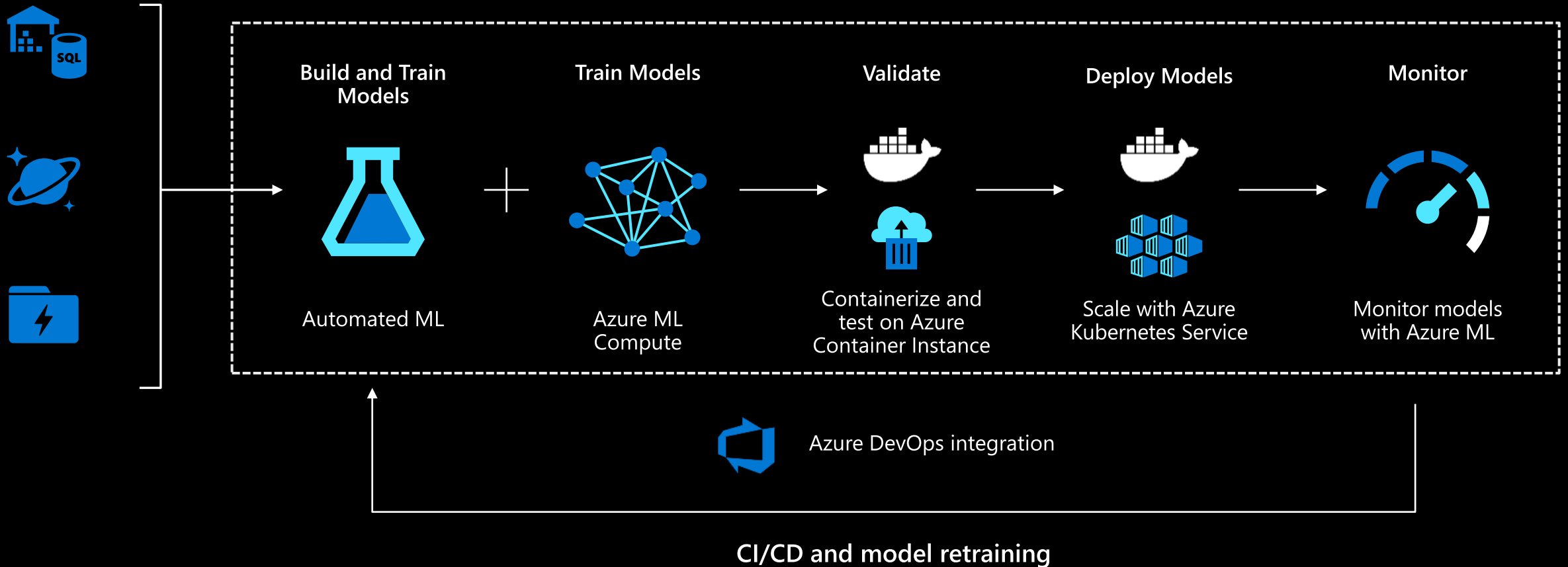
Process control



Industrial robotics

Deploy machine learning models at scale

Azure Machine Learning service



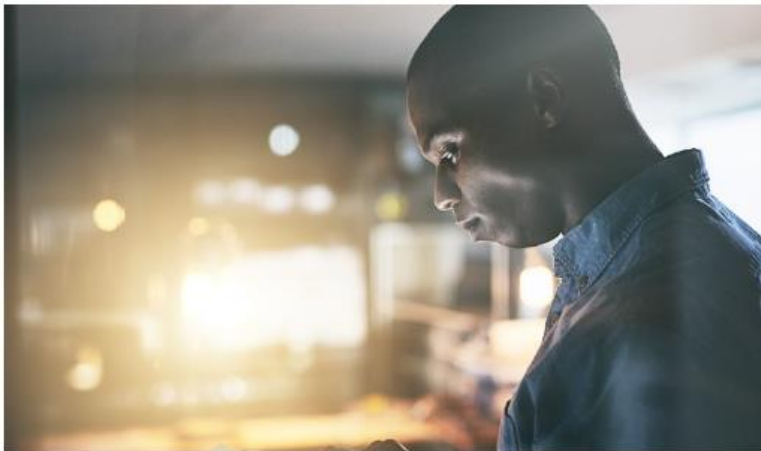
Free AI online training & certification



AI Business School



Business leaders can use AI Business School to gain specific, practical knowledge to define and implement your AI strategy. Hear directly from industry experts on how to foster an “AI-ready” culture and learn how to use AI responsibly and with confidence.



Define an AI strategy to create business value

8 MODULES 4 HR 16 MIN BEGINNER > INTERMEDIATE

[Learn More >](#)



Discover ways to foster an AI-ready culture in your business

6 MODULES 3 HR 10 MIN INTERMEDIATE

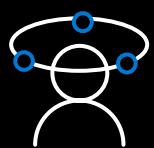
[Learn More >](#)



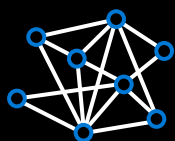
Identify guiding principles for responsible AI in your business

3 MODULES 55 MIN INTERMEDIATE

[Learn More >](#)



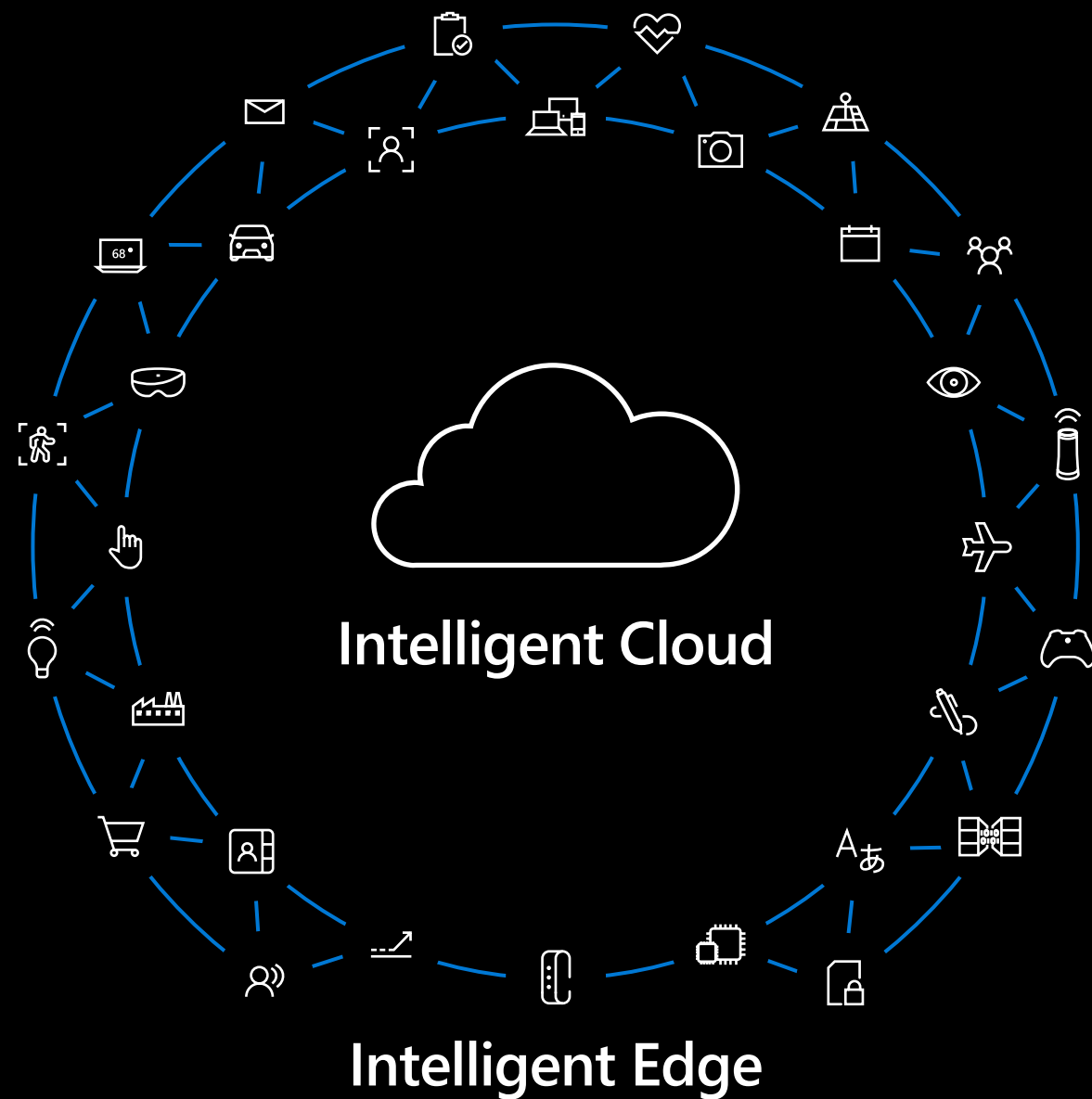
People-centred
experiences



Artificial
Intelligence



Ubiquitous
computing



Mixed reality

A blending of the physical and digital worlds in which users may interact with digital and real-world objects while maintaining presence in the physical world

Physical world

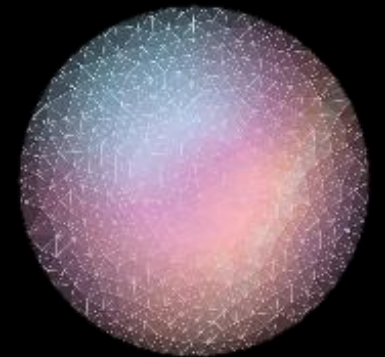


Augmented reality



Virtual reality

Digital world



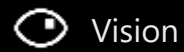
Mixed reality spectrum

■ The Microsoft mixed reality stack

Mixed Reality Applications



Azure Cognitive Services



Vision



Speech



Language



Knowledge



Search

Azure Mixed Reality & IoT Services



Azure Digital Twins

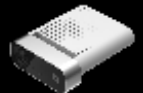


Azure Spatial Anchors



Azure Remote Rendering

Intelligent Edge Devices



■ The 3rd wave of computing





PTC: Evolving IoT with AI and AR

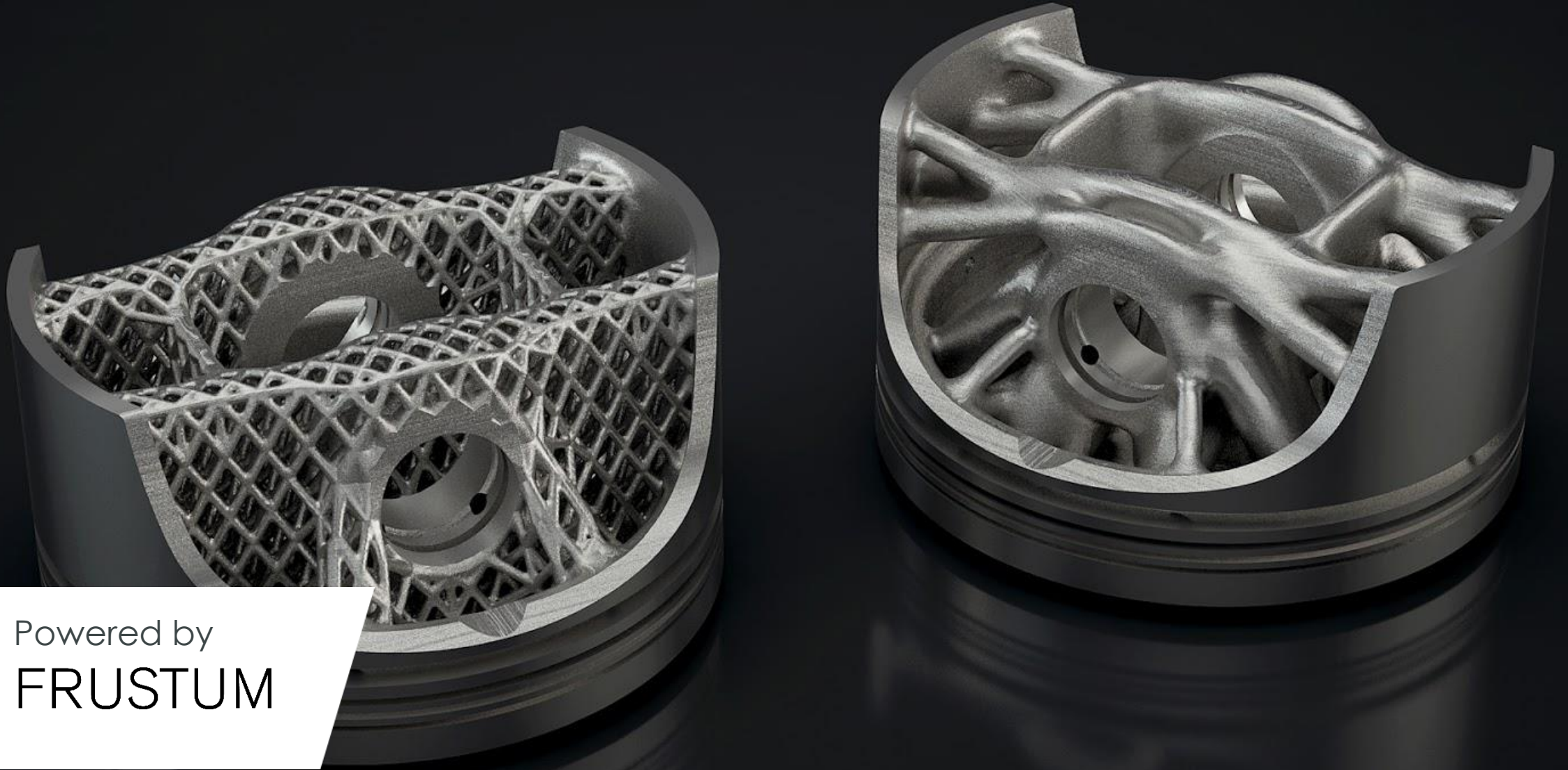
Roman Legat, PTC
IOT/AR Field Engineering



AI AND AR TECHNOLOGY UNLOCK VALUE ACROSS THE VALUE CHAIN

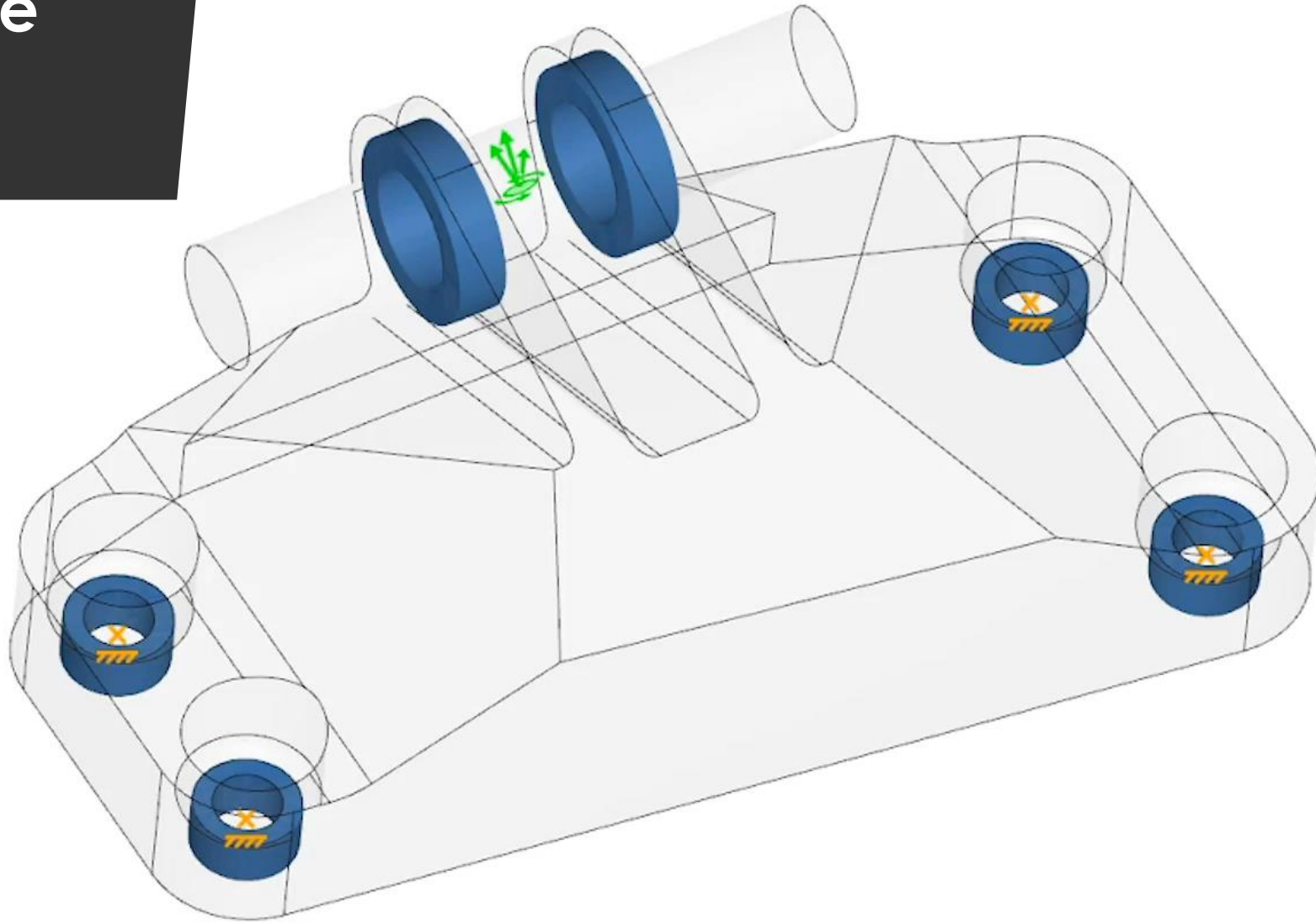


AI DRIVEN GENERATIVE DESIGN



Powered by
FRUSTUM

AI-Driven Generative Design



INDUSTRIAL LEADER DELIVERS DATA-DRIVEN ADVANTAGE



Smart, connected service is only the start. Howden's data-driven strategy is key to changing its customer relationships, from transactional to collaborative, through the power of shared insight.



AI driven AR enabled Product Innovation



AI EMPOWERED AR FOR SERVICE OPTIMIZATION

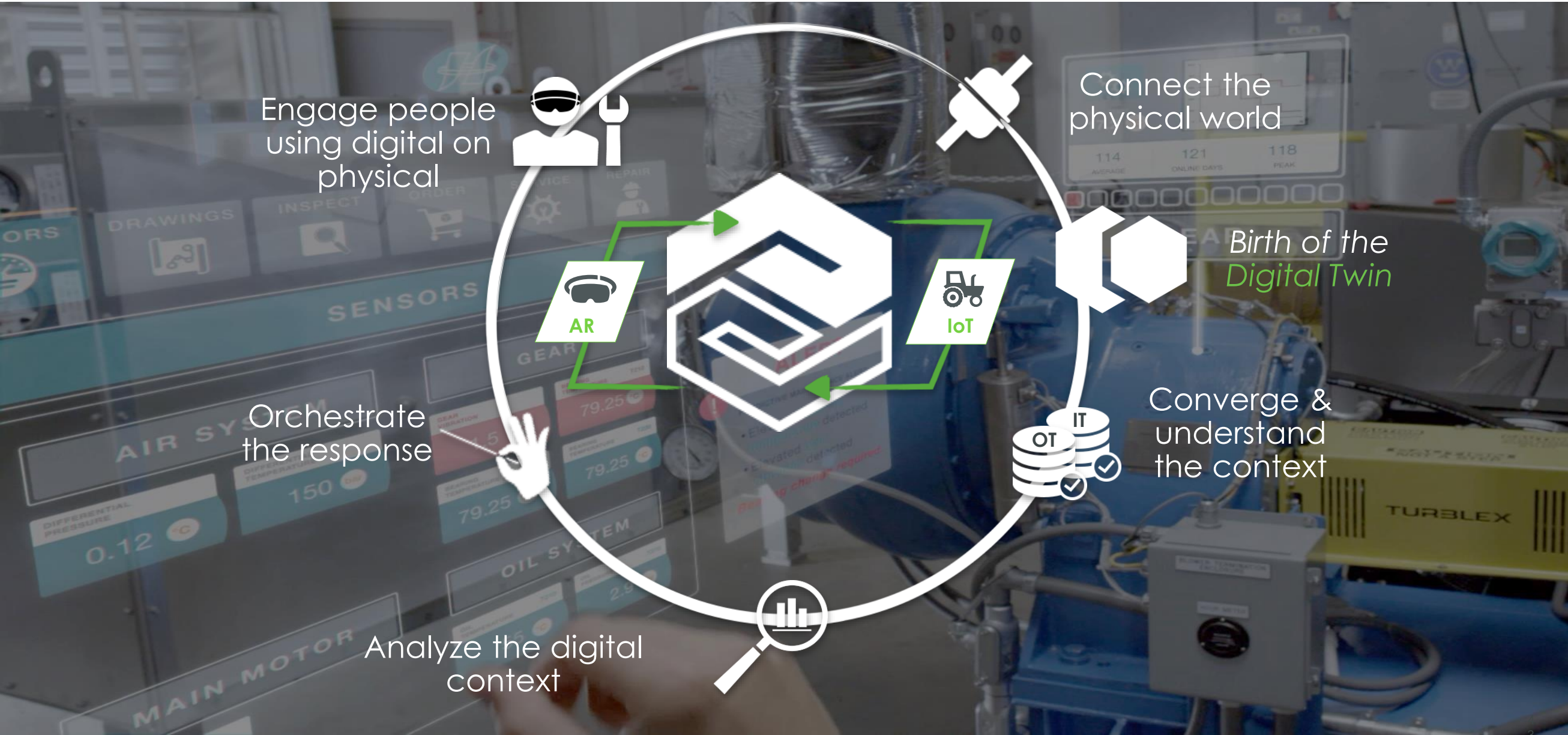
Vuforia's newest capability makes recognizing and augmenting various objects easier and faster

It uses deep learning to enable end-users to see augmented content from any pose, eliminating friction in AR solution usability



ORIENTING DIGITAL CONTEXT

IN A CONVERGED DIGITAL & PHYSICAL WORLD





VISIT US AT
OUR BOOTH



“The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it.”

Mark Weiser | former CTO Xerox Park



ABB

+20%

Increase in
customer satisfaction



kodisoft

+32%


Increase in sales



Rockwell
Automation

\$300K

Cost savings per day



f² FINANCIAL
FABRIC

90%

Reduced time from
documents to insights



TAL

40x

More insurance cases reviewed

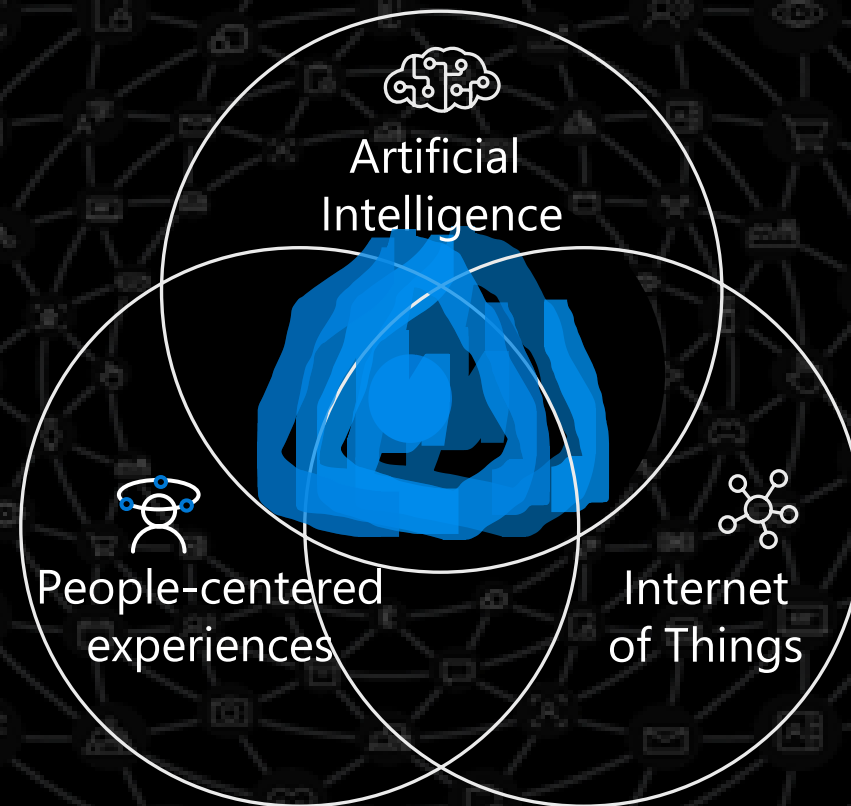


200K

Customers interacting
with chatbots



So... what's stopping
you from making
things happen?



Vielen Dank



Vielen Dank!

 Gareth Walshe

garethw@Microsoft.com

