



IoT in Action

#IoTinActionMS



Unlocking IoT's Potential

Tony Shakib

General Manager

Azure IoT

Microsoft

IoT in Action

We're in a new era of digitization across industries



Manufacturing

Realize efficiency, automation, customer centricity and tap into new revenue sources



Energy

More efficient, cleaner power, and using less of it across industries



Transportation

People and goods moving reliably, more safely, and using less energy



Agriculture

Better yields and higher quality with fewer resources and less waste



Smart Cities

More sustainable, prosperous, and economically competitive cities



Retail

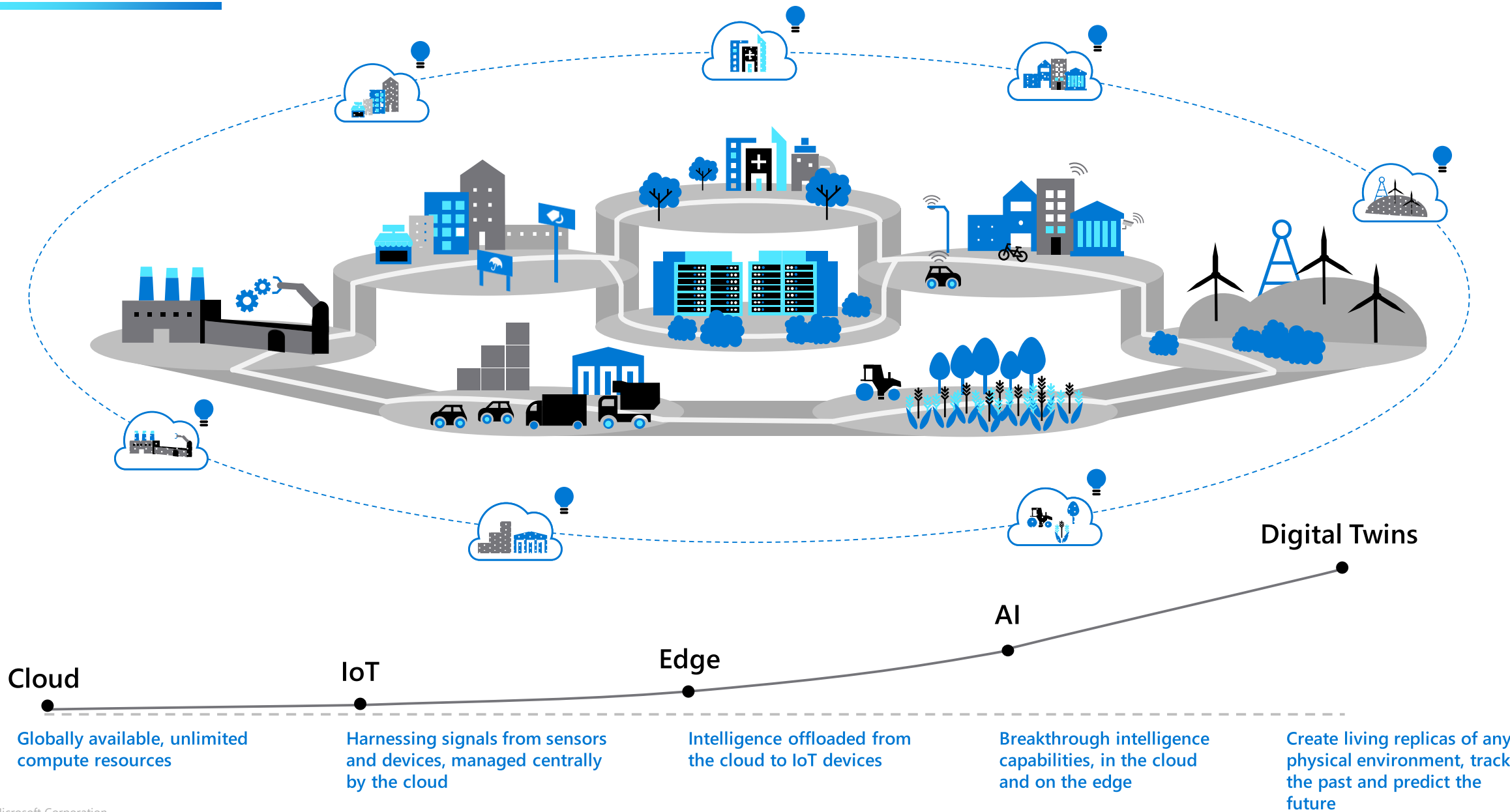
Better customer experiences, new market opportunity



Healthcare

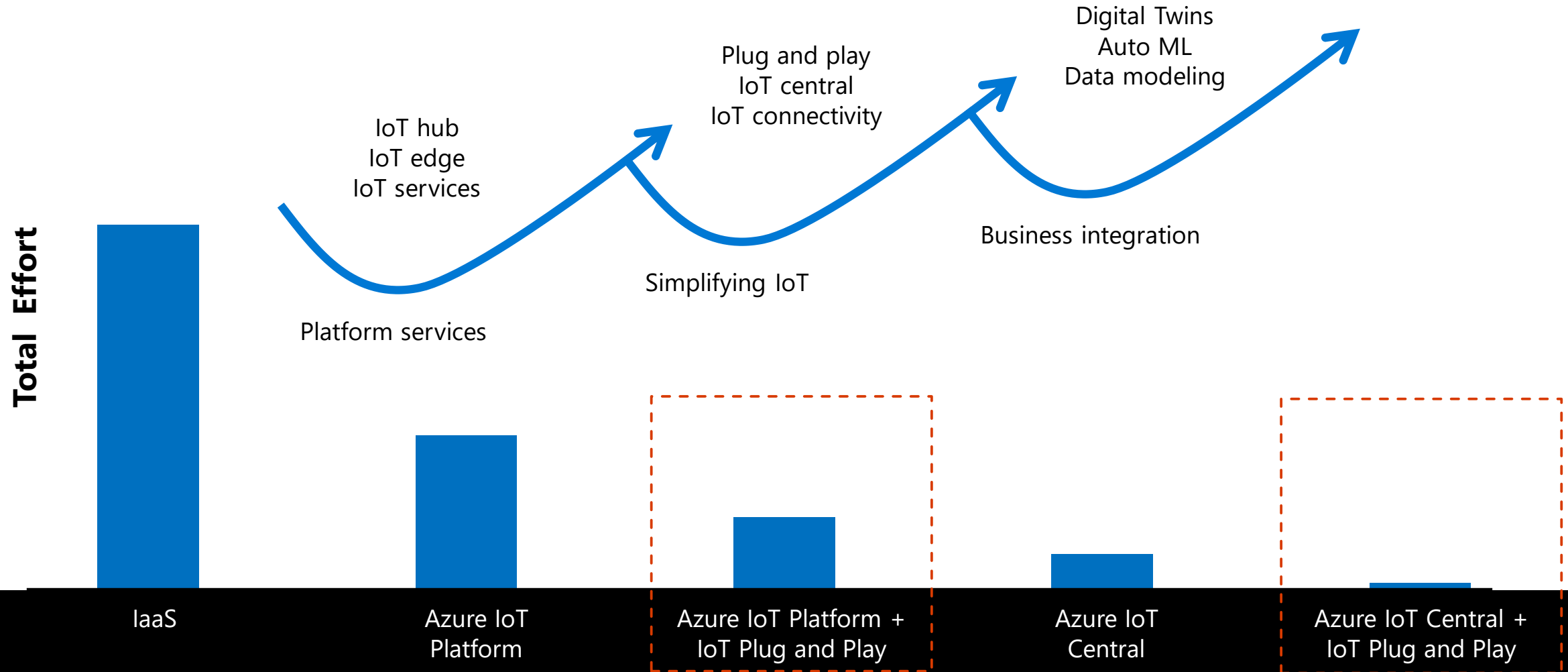
Improved quality and better outcomes for patients, anywhere

Catalytic innovations enabling new opportunities



Accelerating IoT adoption

The total effort to build and operate an IoT Solution is rapidly decreasing



Thousands of Azure IoT customers

Industrial IoT leadership



MindSphere

Ability

PlantWeb

EcoStruxure

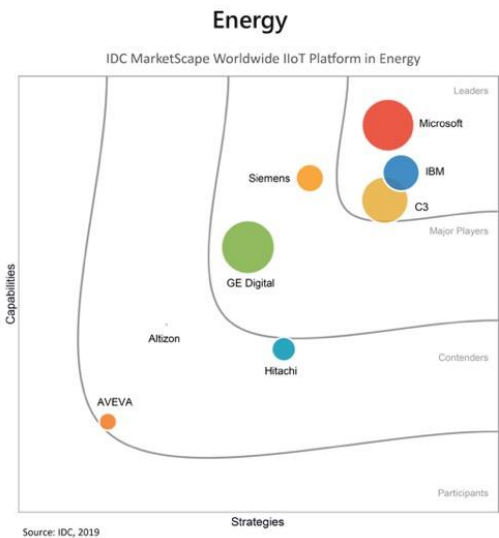
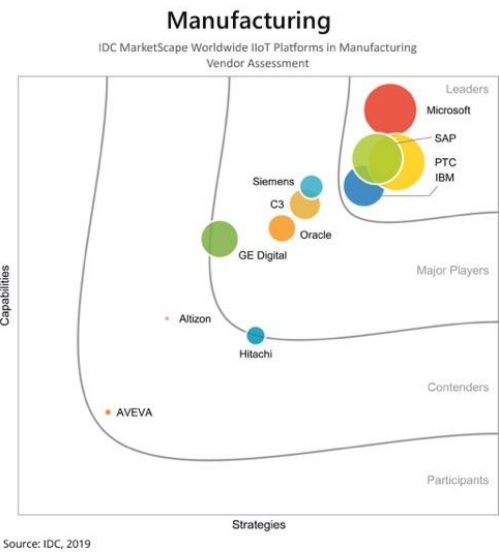
FactoryTalk

Sentience

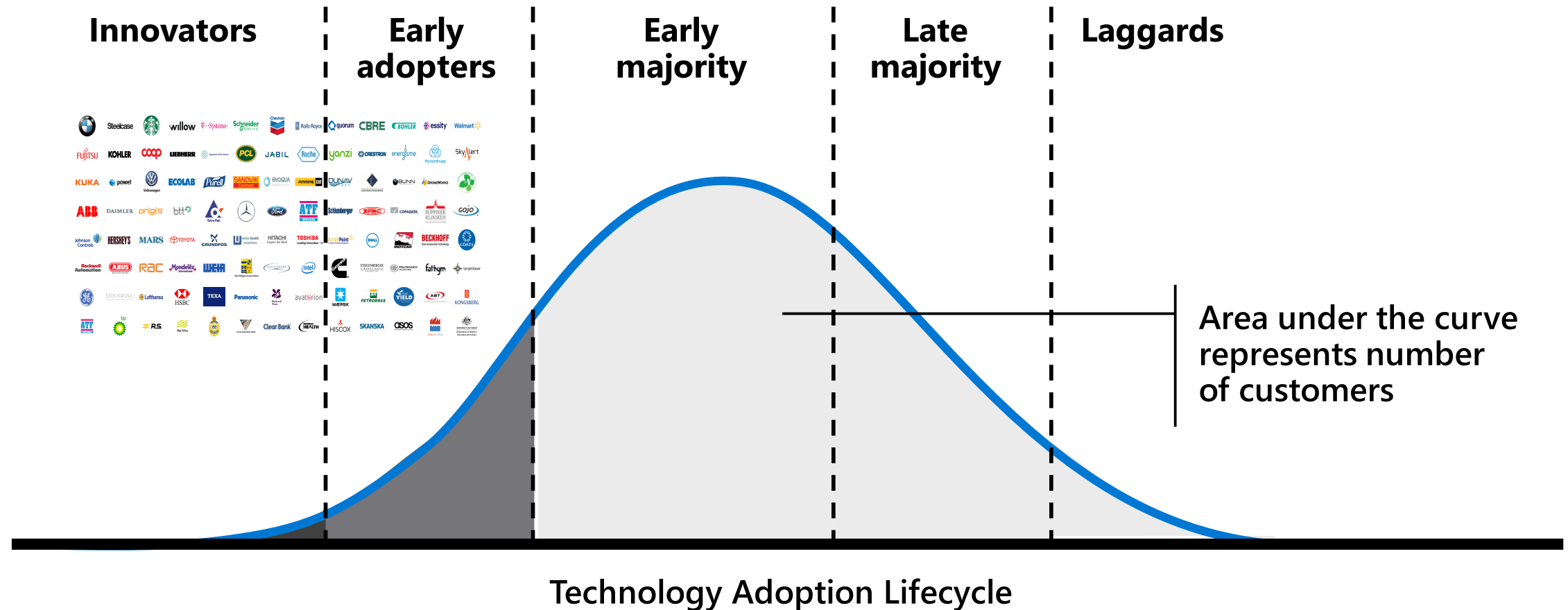
Yokogawa's IIoT Platform

Leonardo

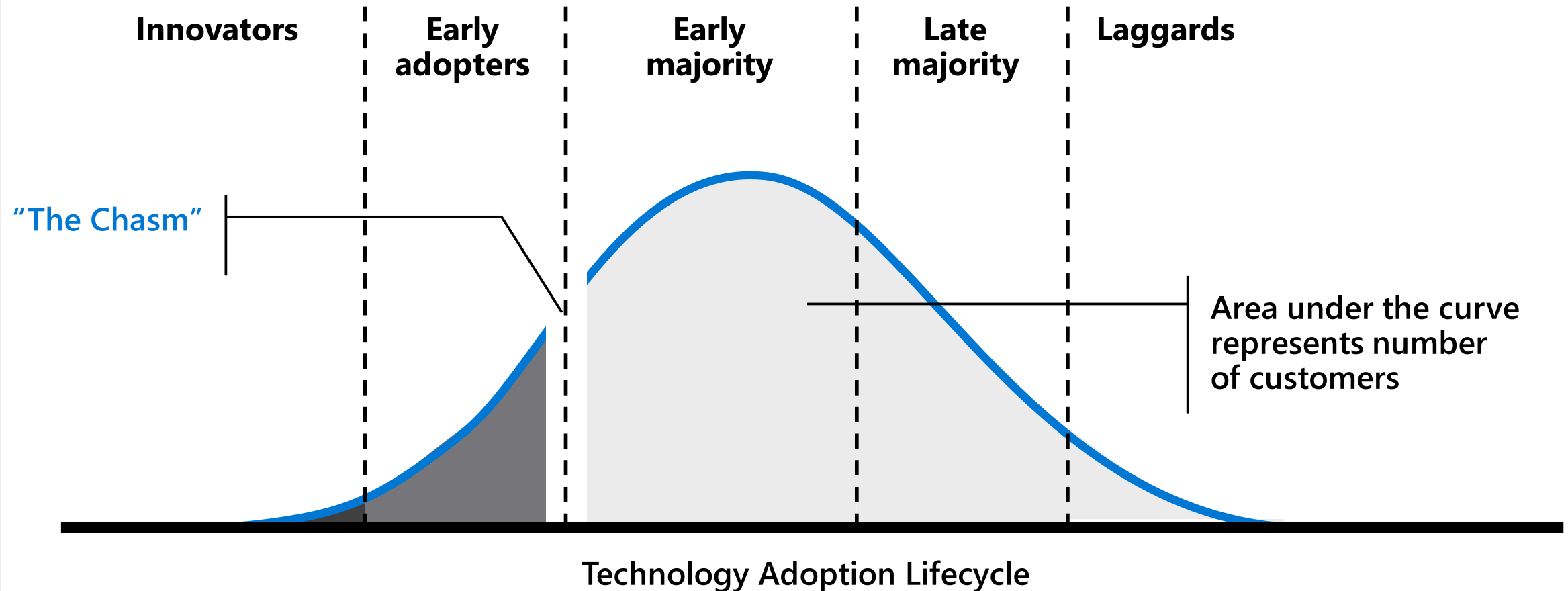
Armstrong



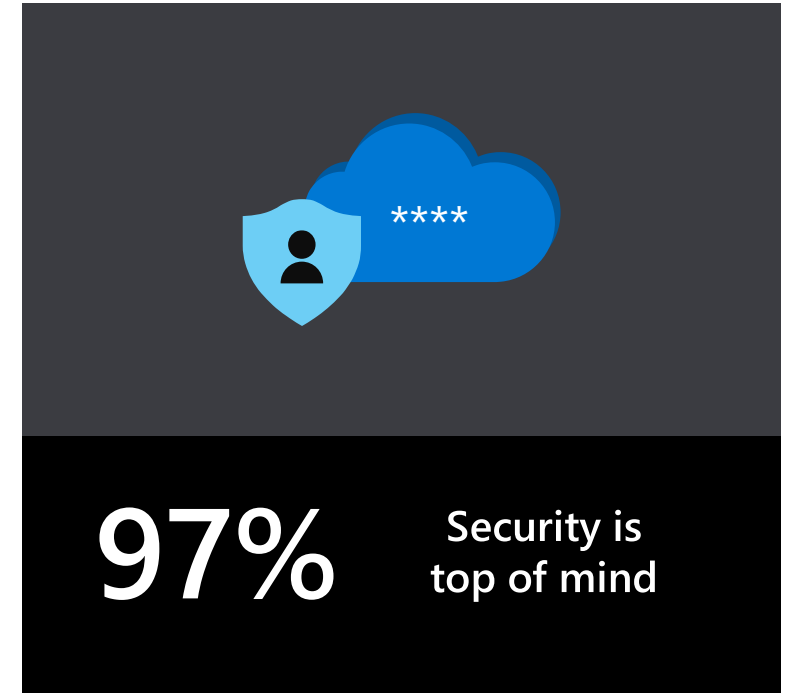
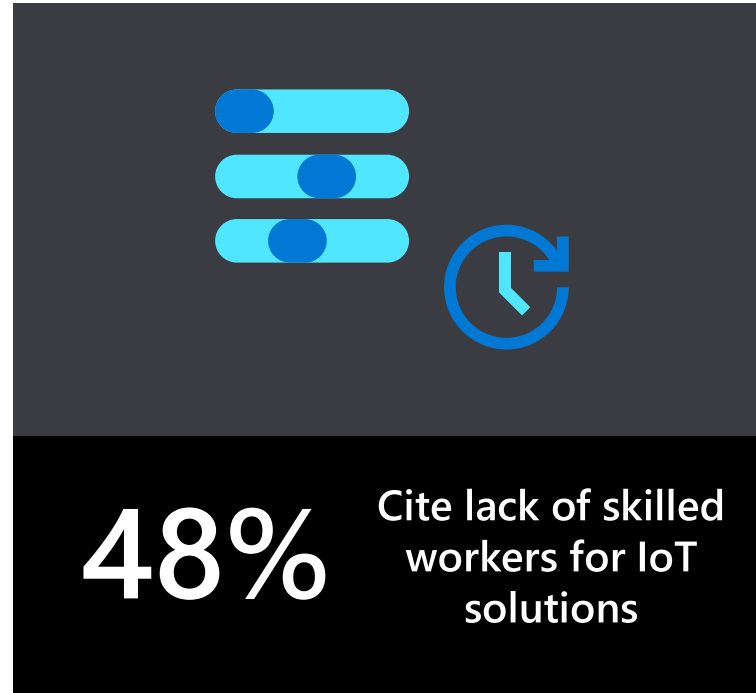
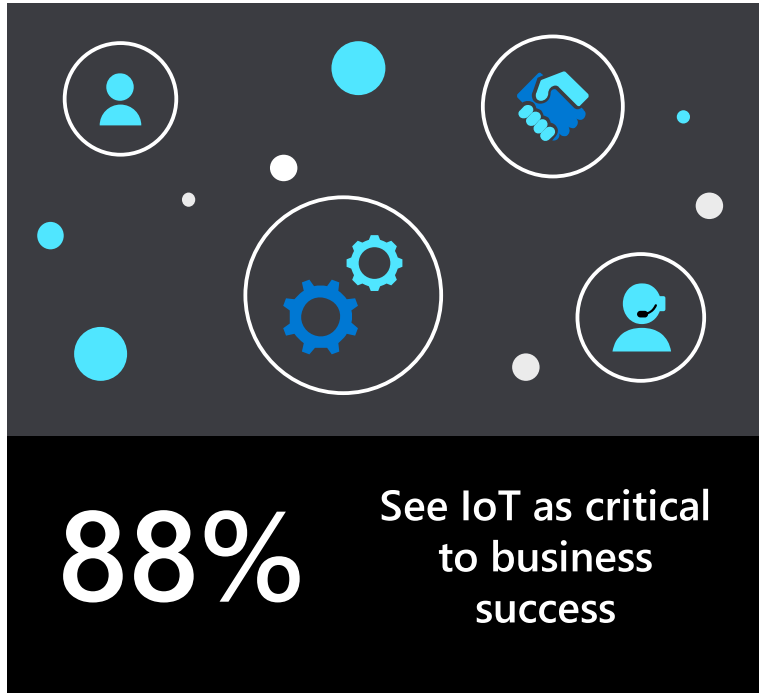
Technology adoption lifecycle



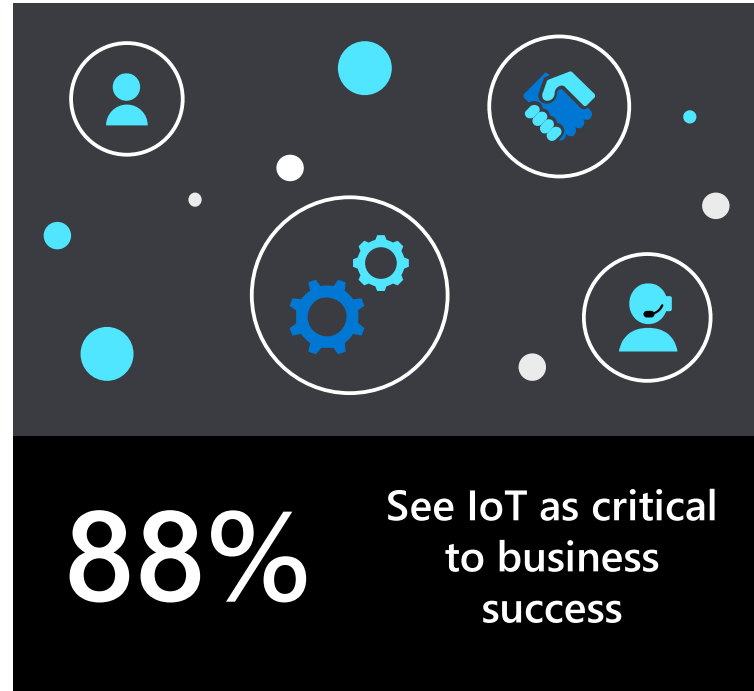
IoT is crossing the chasm and going mainstream



What we learned from customers in our IoT Signals survey















The need for comprehensive IoT services



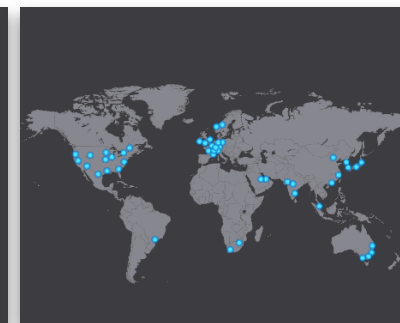
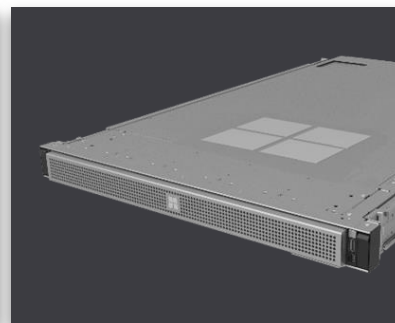
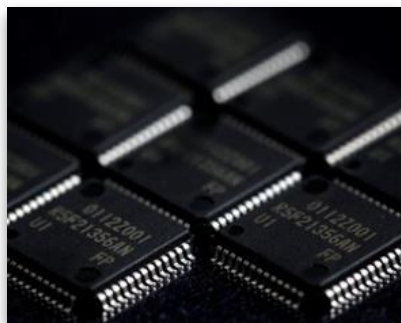
Microsoft's comprehensive IoT product portfolio



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 RTOS 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		

Microsoft's comprehensive IoT & Edge offerings



Sensors + Control

Microcontroller

Azure RTOS & Azure Sphere

Integrated Circuit designed to govern a specific operation in an embedded system

Highly-secured, connected MCU

Azure Sphere Linux OS for modern MCUs

Included Azure IoT Device SDK

IoT Devices

Azure IoT Device SDK

Endpoint devices such as appliances, vehicles, or factory machines that connect, interact and exchange data

1300+ devices, 300+ partners - all certified to work great with Azure IoT Services

Cross-platform and open source: Windows IoT, Linux, Android, iOS, RTOSs and more

Sensors to Interactive

Edge Devices

Azure IoT Edge

Devices that aggregate, process & provide gateway capabilities for IoT endpoints

Deploy and manage Azure Services in containers on any IoT device

AI, AzureML, Azure Stream Analytics and more

Cross-platform and open source: Windows IoT, Linux

Integrated Platform

Edge Appliances

Azure Stack Edge

Integrated appliances that provide a subset of cloud edge roles, such as ML-inferencing

Azure Stack Edge: AI-Enabled, Storage and compute Azure Edge appliance

Edge Stack

Azure Stack Hub

Scalable solutions that provide a full cloud stack, including IaaS and PaaS capabilities

Edge and Disconnected Scenarios

Regulatory Requirements

Cloud app model on-premises

Global scale processing

Hyperscale Cloud

Edge Regions

First-party cloud regions

Full Range Hyperscale Cloud Services

Tiered Service availability: Heroes > Hubs > Satellites

Open Source Based Services & Tools

Most specialization

Fewest services

Full Spectrum of Cloud + Edge Form Factors

Intentional & Appropriate Azure Service Availability

Fewest form factors

Most services

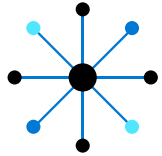
Azure IoT Hub

Azure IoT Hub Device Provisioning Service



IoT Hub

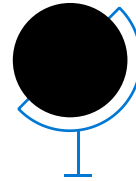
Platform as a Service (PaaS)



Establish bi-directional communication with billions of IoT devices



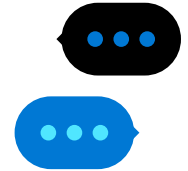
Enhance security with per device authentication



Provision devices at scale with IoT Hub Device Provisioning Service



Manage devices at scale with device management



Multi-language and open source SDKs

Connect, Manage and Monitor millions of devices at scale

Rockwell
Automation



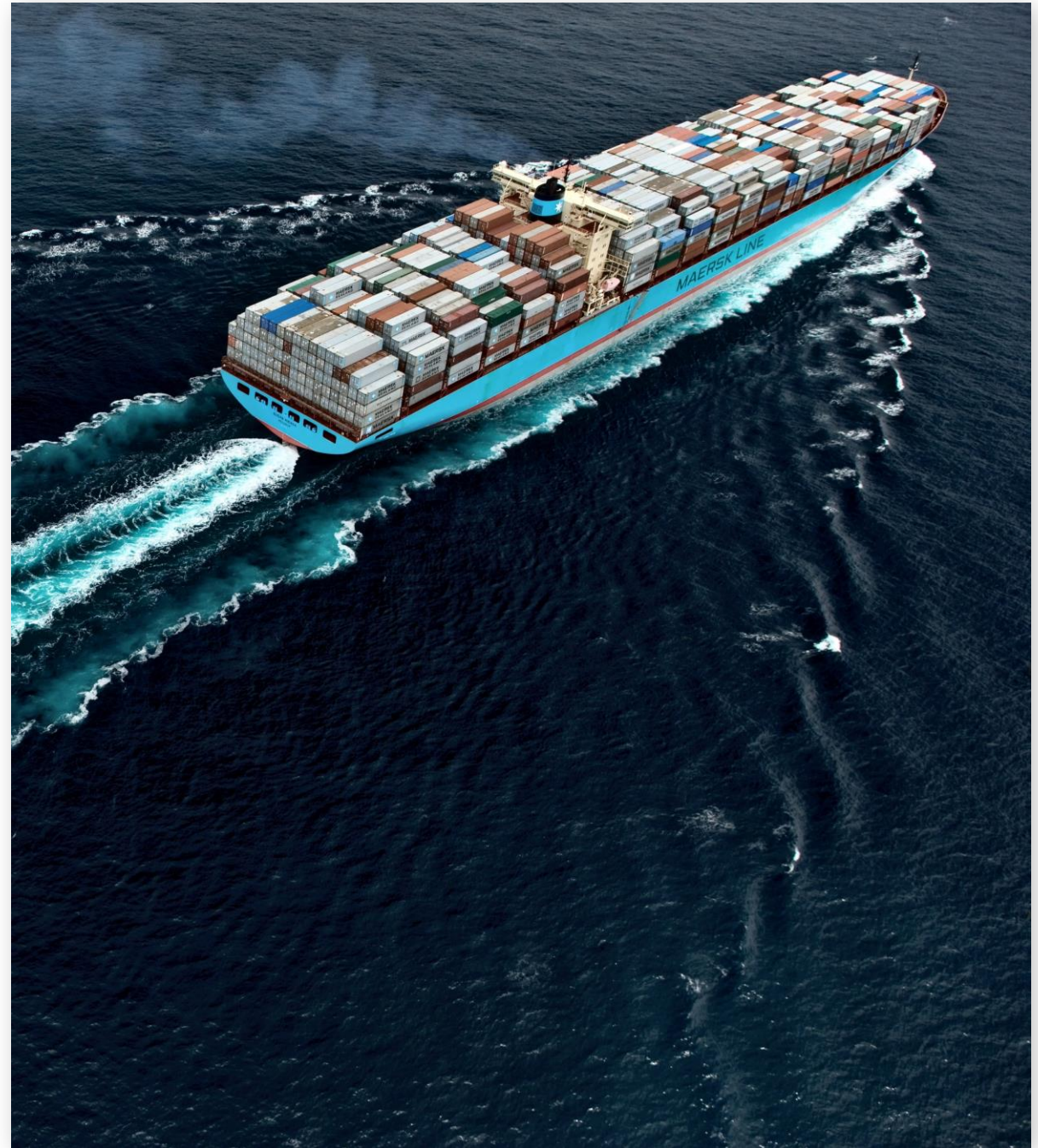
Rolls-Royce

ECOLAB®

Schneider
Electric



Digital transformation of the shipping industry



Azure IoT Edge

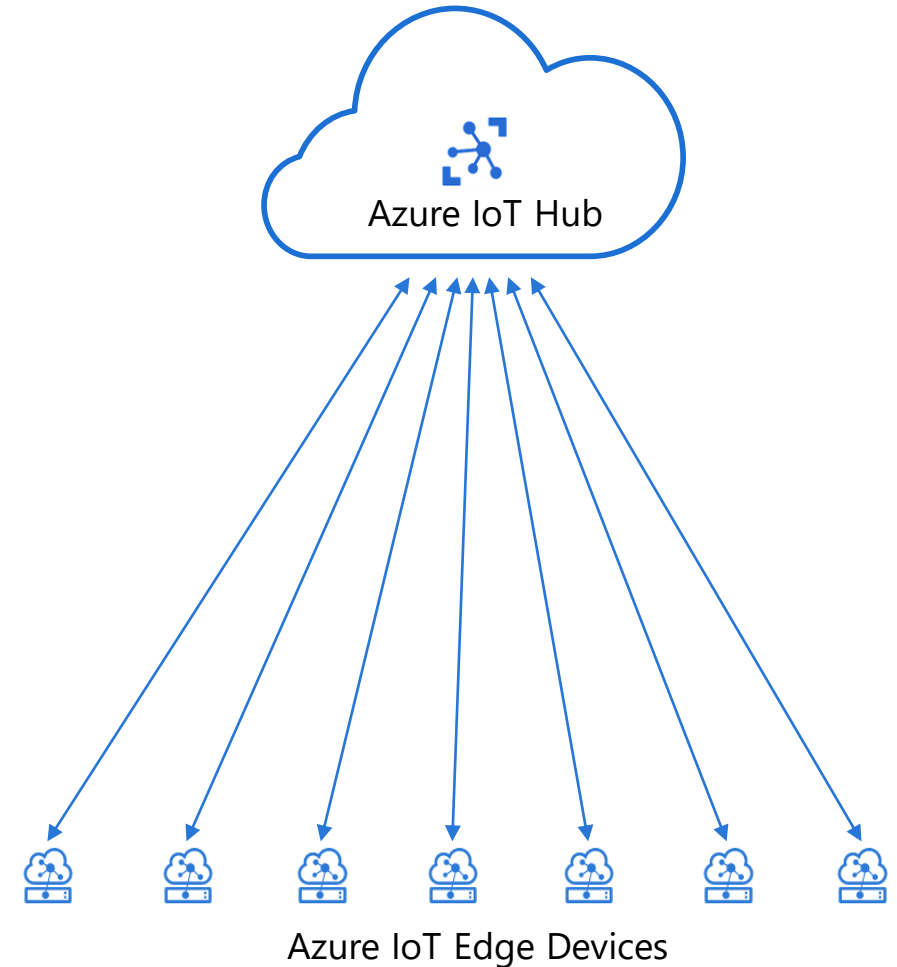
Azure IoT Edge

Run Azure AI, Azure Services & Custom Services directly on IoT devices

Azure IoT Edge

- Open source, cross platform, container-based edge runtime
- Run Azure services & your own code on IoT class and larger devices – fully extensible
- Manage the devices and IoT Edge workloads centrally
- Supports offline operation
- Fully Visual Studio + Visual Studio Code developer support
- Azure DevOps + Jenkins CI/CD support
- **Over 80 Azure Certified for IoT, 3rd party IoT Edge devices**

NEW



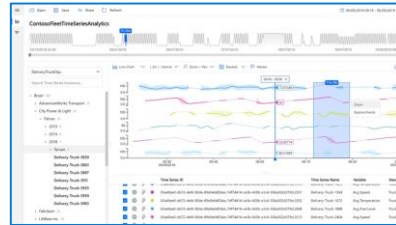
Azure Time Series Insights

Azure Time Series Insights (TSI)

A Serverless, Fully Managed Platform as a Service (PaaS) Solution Built for IoT



Ingest, process, store, and query highly contextualized, time-series-optimized, IoT-scale data



Built in rich User Experience for ad-hoc queries and exploration



Rich analytics APIs for ad-hoc exploration and operational intelligence



JavaScript control library for building custom analytics apps on the TSI platform

Turn data into decisions with actionable real-time IoT insights



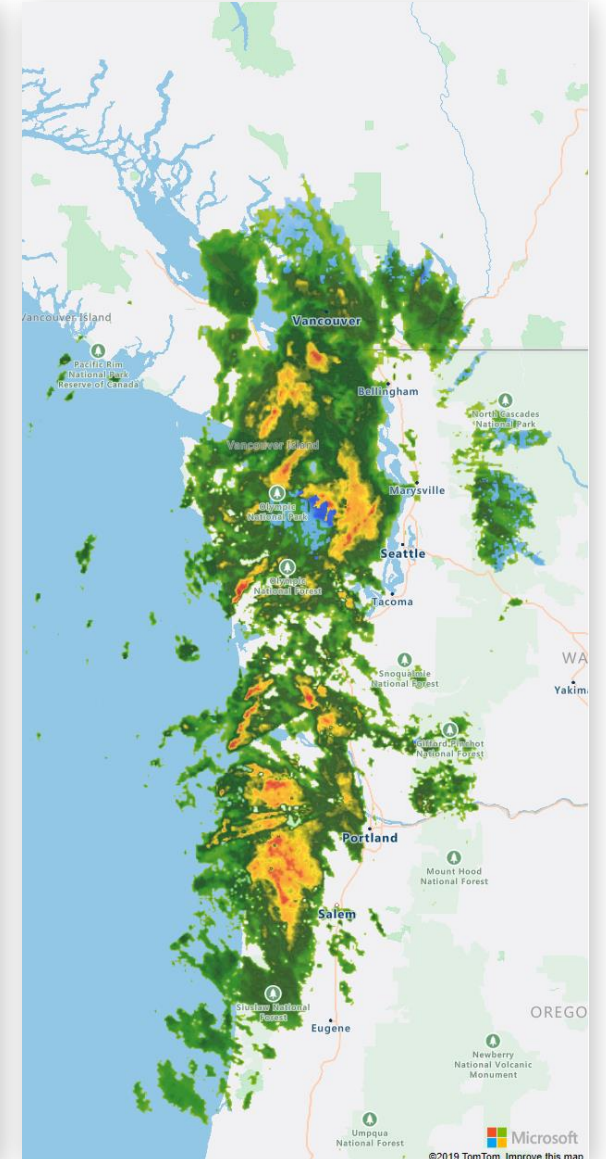
Azure Maps

Azure Maps

Recent updates

Microsoft's recommended mapping service for Azure solutions

- ✓ IoT spatial analytics using Azure Map (also Azure Notebooks integration)
- ✓ Real-Time Public Transit data in partnership with Moovit
- ✓ Best Accessibility rating in the market
- ✓ Azure Maps Spatial Operations (General Availability)
- ✓ New Cartography and styling updates
- ✓ Geopolitical view to see map boundaries based local country views
- ✓ Azure Maps Data feedback tool
- ✓ Batch services and matrix routing (General Availability)



Azure Maps

World class content partnerships create better together value in Azure Maps



Maps
Points of Interest
Routing
Road networks
Traffic



Mobility Services
Public Transit Networks
Real Time Transit Data

Announcing



Current Weather
Forecast Weather
Weather along route

Azure RTOS

ANNOUNCING

Azure RTOS ThreadX

Over 6.2 billion
deployments, making it
one of the most
deployed RTOS in the
world.

NEW

✓ Partnership announcement



- Microsoft & Renesas combine forces to simplify the Device-to-Cloud experience
- Integration of Azure RTOS ThreadX with the Renesas Flexible Software Package
- Seamless and easy out-of-box support for Azure RTOS

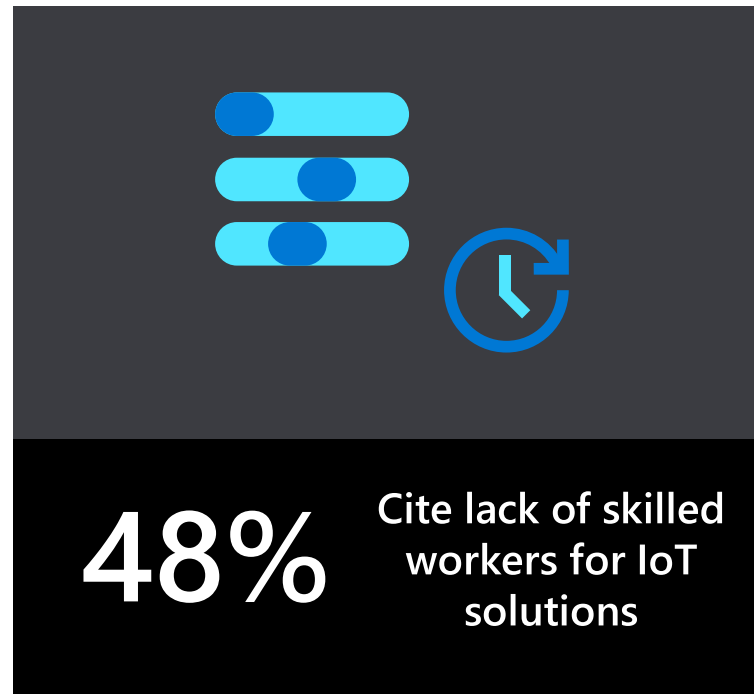
NEW

Partnership Announcement



ANSYS and Microsoft partner to extend Azure Digital Twins with world class simulation using ANSYS "Twin Builder"

The need for solutions that enable rapid application development without cloud development skills



IoT Central

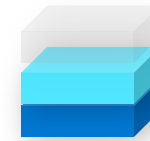
A fully managed IoT app platform

- ✓ Highly secure
- ✓ Enterprise-grade
- ✓ Predictable pricing
- ✓ Industry-focused



Get connected

Connect IoT devices to the cloud faster than any other platform.



Stay connected

Reconfigure and update devices with centralized device management.



Transform

Bridge the gap with connectors and extensibility APIs.

Existing solution builders

MESHSYSTEMS™

cradlepoint
Connect Beyond

sage**greenlife**

flex



C.H. ROBINSON

umec

 **FOOTMARKS**



jda.



BOSCH


QUEST
BORN TO ENGINEER

IoT Central

NEW Preview Capabilities



App templates
for Industry Verticals



White labeling
your SaaS – your brand



Azure IoT Edge
support



Multitenancy
Support



API
Support



IoT Plug and
Play Support



New 2-tiered pricing model
announced, based on
message volume

App templates are **tools** to help
partners & solution builders
kickstart IoT solution development

Use or sell to customers directly
or through **AppSource**

Your brand, your SaaS

App templates consist of:

- Sample operator dashboards
- Sample device templates
- Simulated devices
- Pre-configured rules and jobs
- Rich documentation including tutorials
- Brand templates using white labeling features



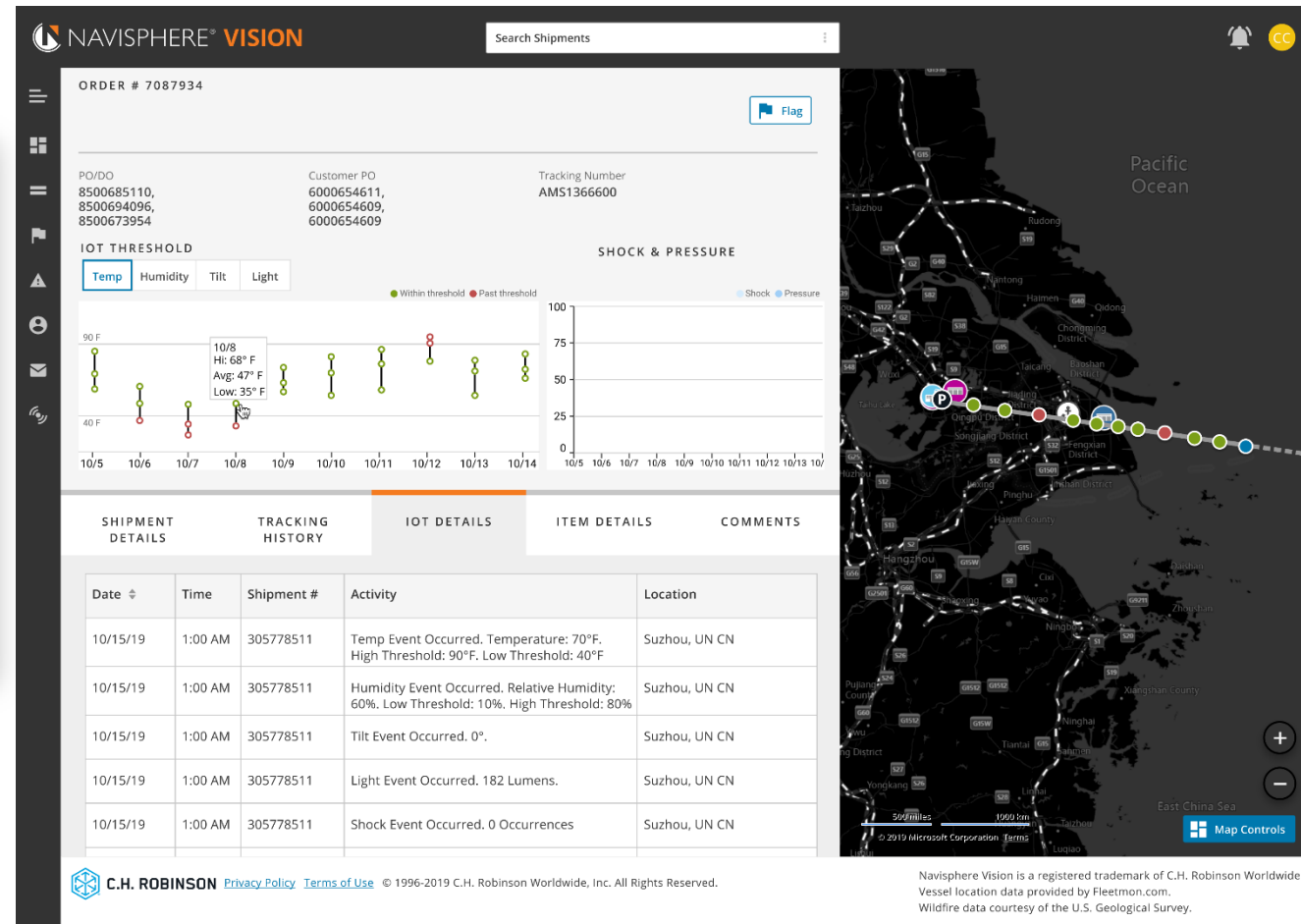
Digital transformation of the logistics industry

Jordan Kass



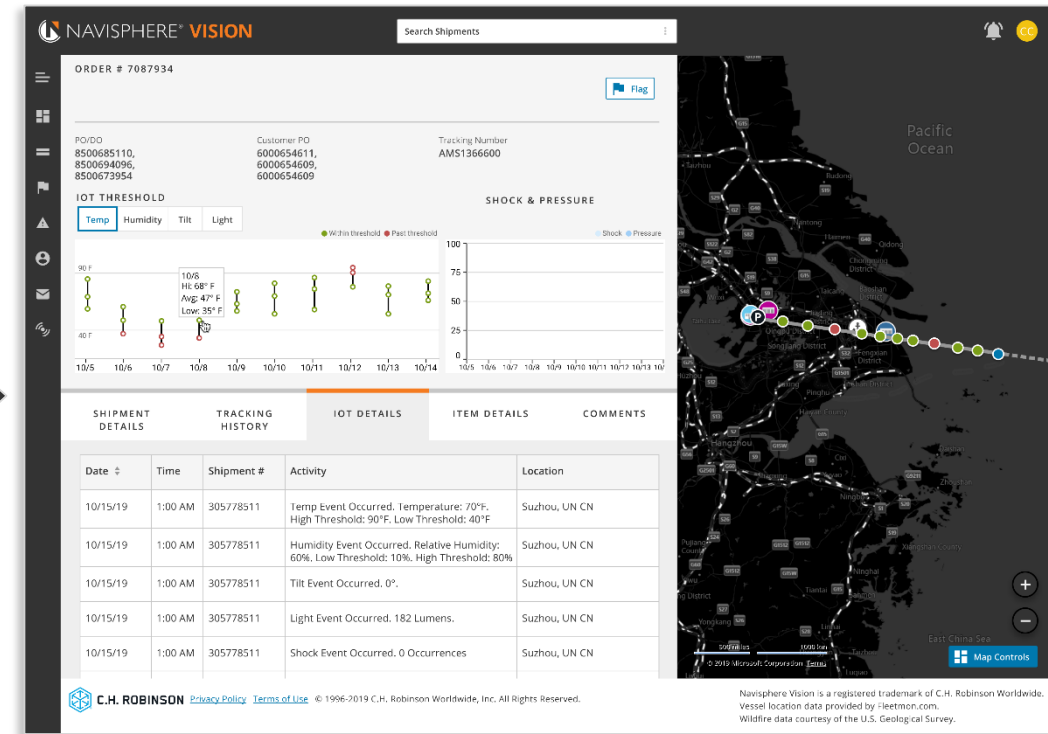
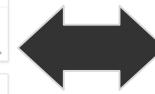
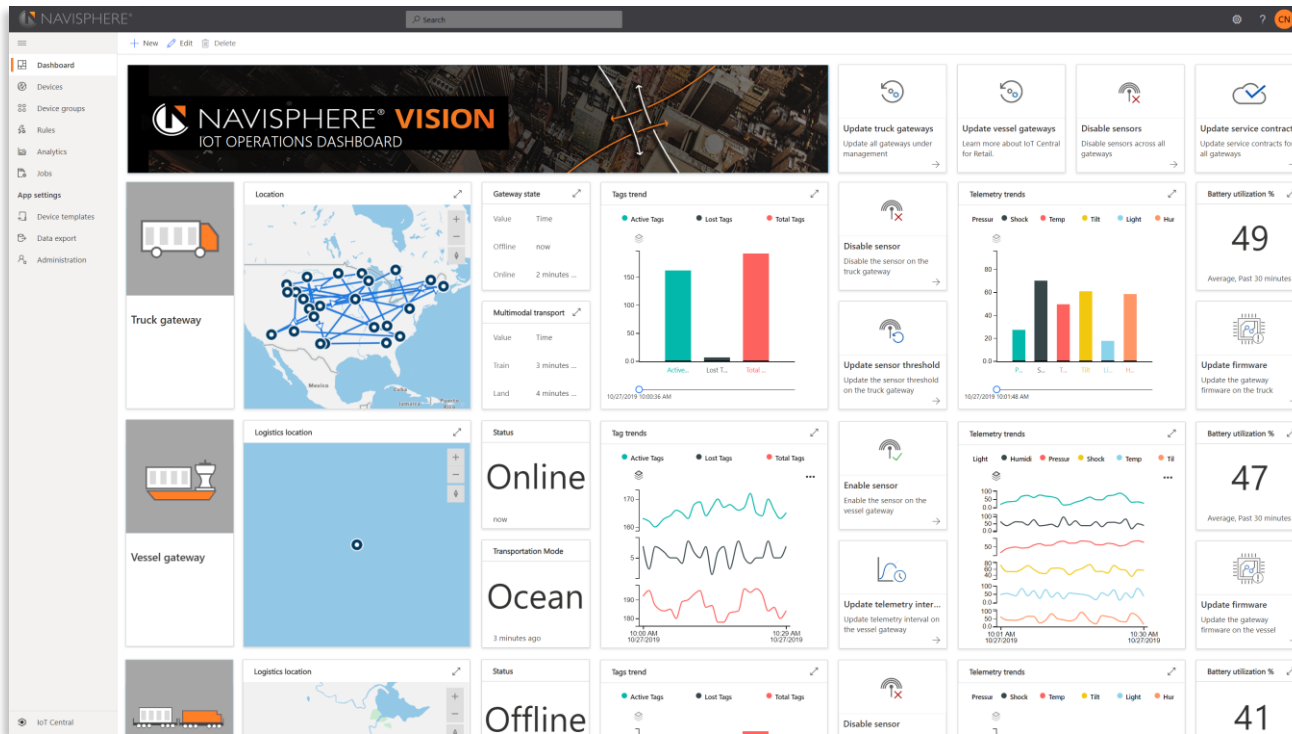
C.H. ROBINSON

Navisphere Vision provides global shippers supply chain visibility and a predictive analytics platform. To speed up deployment, increase capabilities, and evolve for the future, C.H. Robinson is partnering and building new device connections with **Azure IoT Central** to empower one robust agnostic connection that allows for infinite scalability and speed.



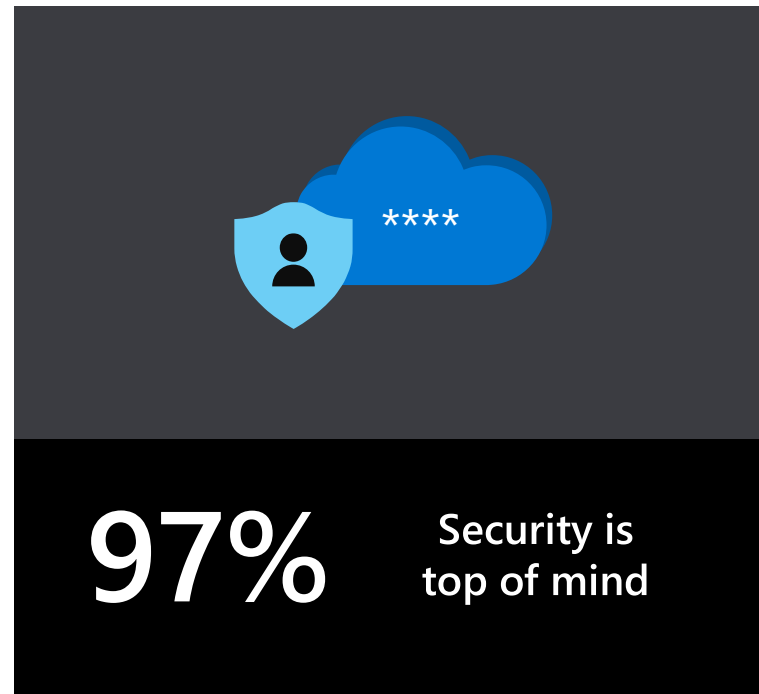


C.H. ROBINSON



Navisphere Vision IoT Operations companion app built with Azure IoT Central

The need for turnkey IoT security solutions





Protect all your IoT assets from threats

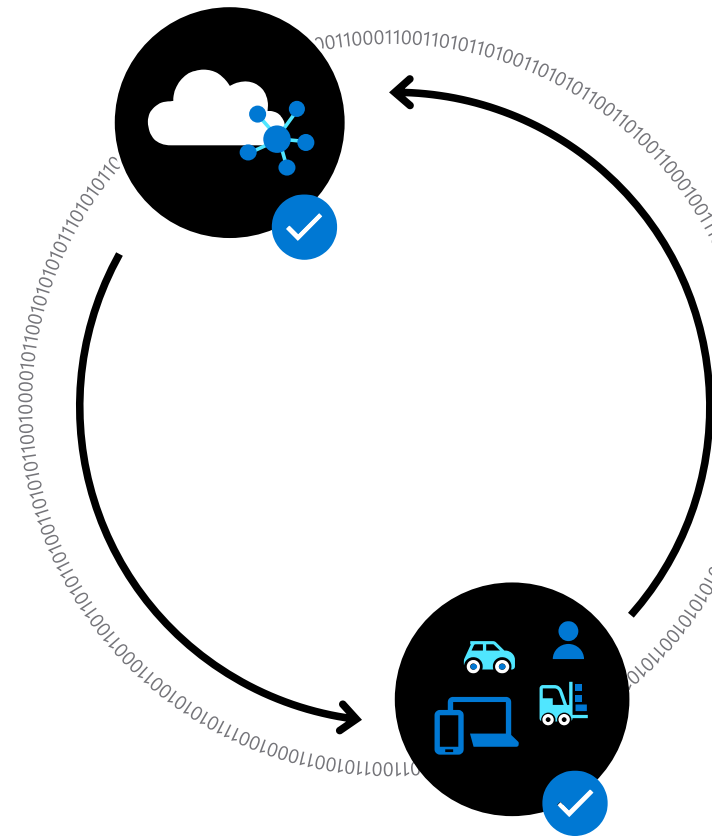


Azure Security Center for IoT:

Security posture and monitoring, alerts, and response

IoT Services

- Security by design in **IoT Hub** and **IoT Central**
- Scalable, policy-based access control
- Standards-based mutual authentication
- Industry-leading reliability and resilience



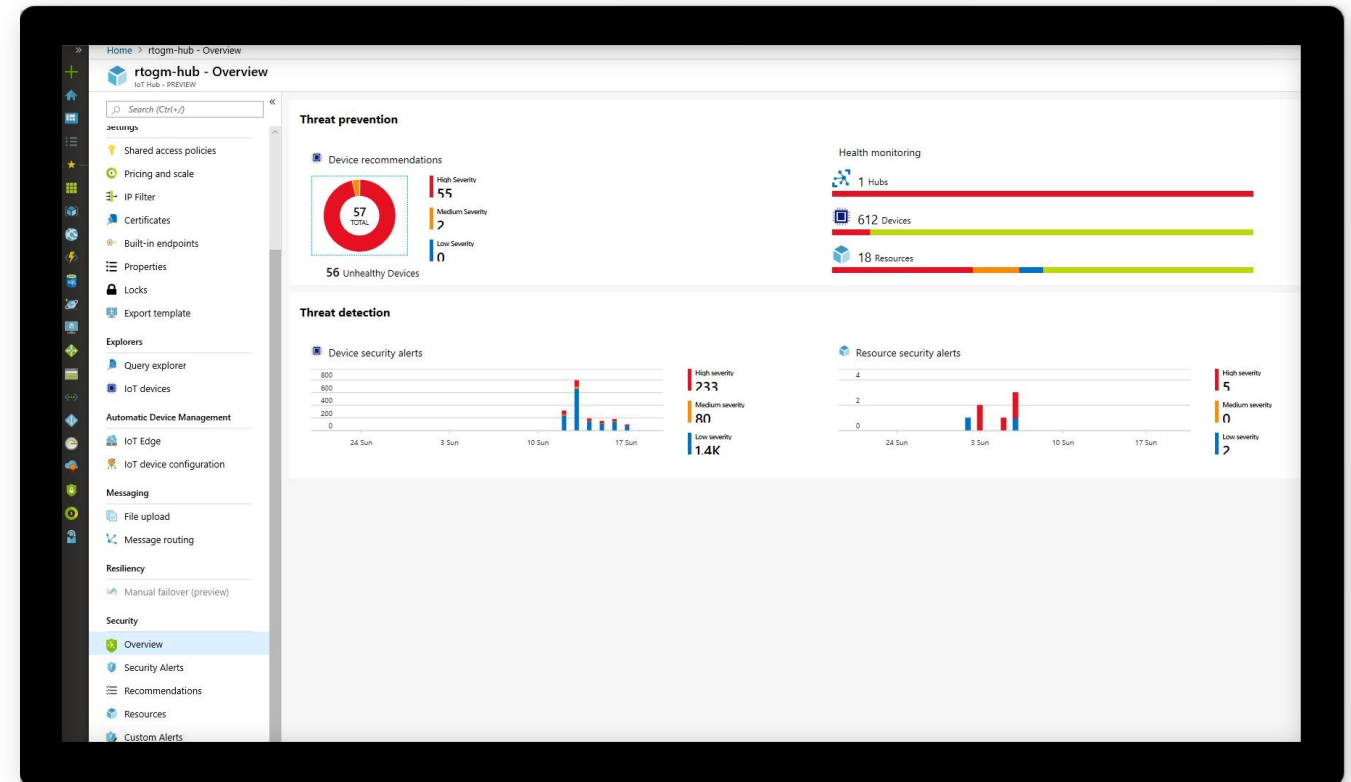
Devices

- Threat monitoring and mitigation across devices
- **IoT Devices**
- **IoT Edge devices and workloads**
- **Azure Sphere**



Azure Security Center for IoT

- ✓ **Visibility into security posture** and state of your **IoT Solution**
- ✓ **Single pane of glass** to manage IoT and hybrid cloud security infrastructure
- ✓ **Actionable, prioritized alerts** to respond to any potential compromises of your IoT solution
- ✓ **Integrate with Azure Sentinel** or other SIEMs to streamline threat mitigation
- ✓ **Define custom alerts** based on advanced queries





Support for national clouds

NEW Since GA

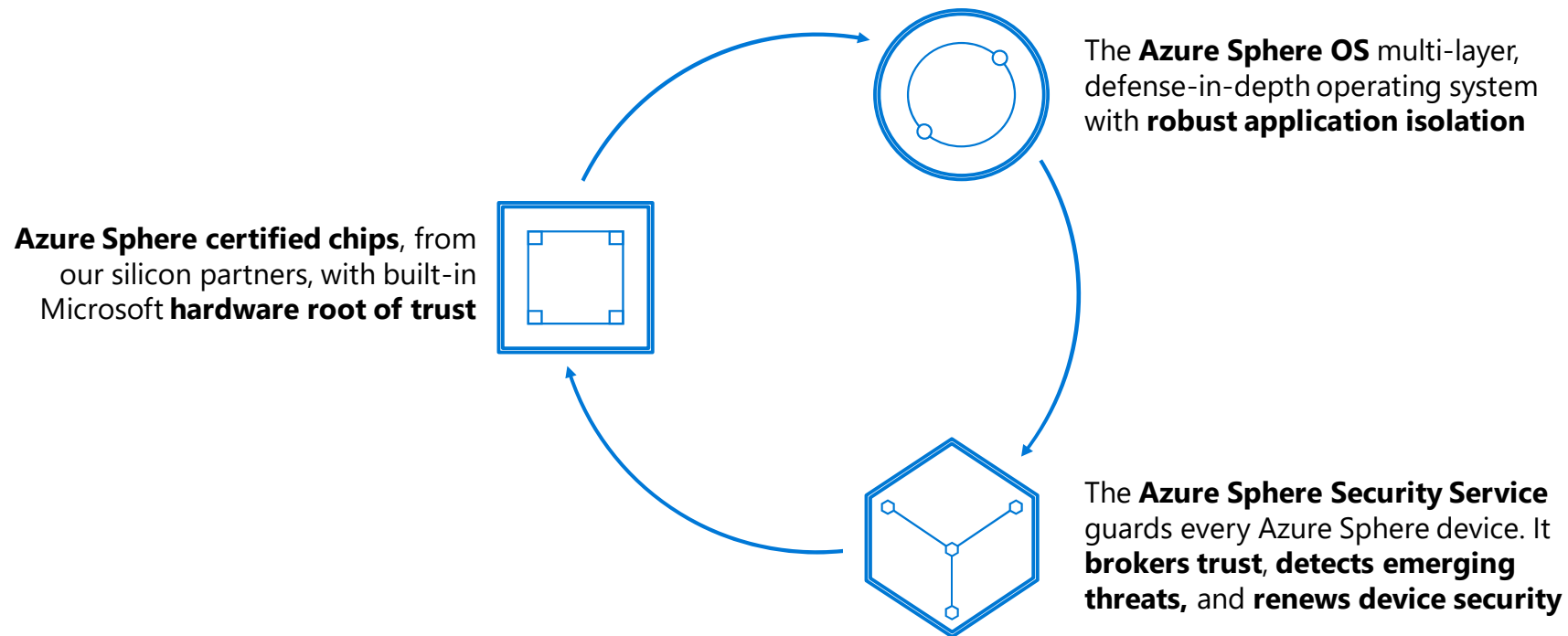


ASC for IoT is available in more regions to support more customers, including customers who need national cloud support



Azure Sphere

An end-to-end solution for securing IoT devices. Integrated hardware, software, and cloud services work seamlessly together and deliver active security by default.



Ongoing servicing with over 10 years of security and OS updates delivered directly to each device by Microsoft

Customers



Giving Starbucks the confidence to connect their mission-critical equipment to streamline operations and to deliver quality customer experiences.



Ensuring Gojo's data integrity while monitoring hygiene compliance in hospitals.

LEONI

Helping Leoni secure their intelligent cable systems that manage energy and data

Vertical focus on co-sell ready GTM solutions (rich IoT services)

IoT Co-Sell Ready Solutions Map

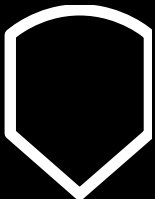


Partner-led solutions

Industry	Vertical Solution Examples
Manufacturing	Condition Monitoring – Equipment Efficiency – Predictive Maintenance Operational Excellence – Grid Asset Management
Retail	Store & Customer Analytics – Distribution & Logistics Personalized Customer Experience – Inventory Optimization
Healthcare	Remote Patient Monitoring – Patient Analysis – Operational Analysis
Government	Urban Mobility & Transportation – Smart Cities – Security & Surveillance
Cross-Industry	Intelligent Supply Chain – Connected Field Service – Connected Products Smart Building Asset Tracking



Microsoft sales force



Top customers by IoT propensity



Why choose Microsoft



Platform

Most comprehensive IoT services—mouse trap to nuclear power stations



Fast

Easy to build solutions



Ecosystem

Thousands of partner solutions across ISVs, advisories, systems integrators and connectivity providers



Powerful GTM channel

Relationships with the largest enterprise customers



Thank you

