



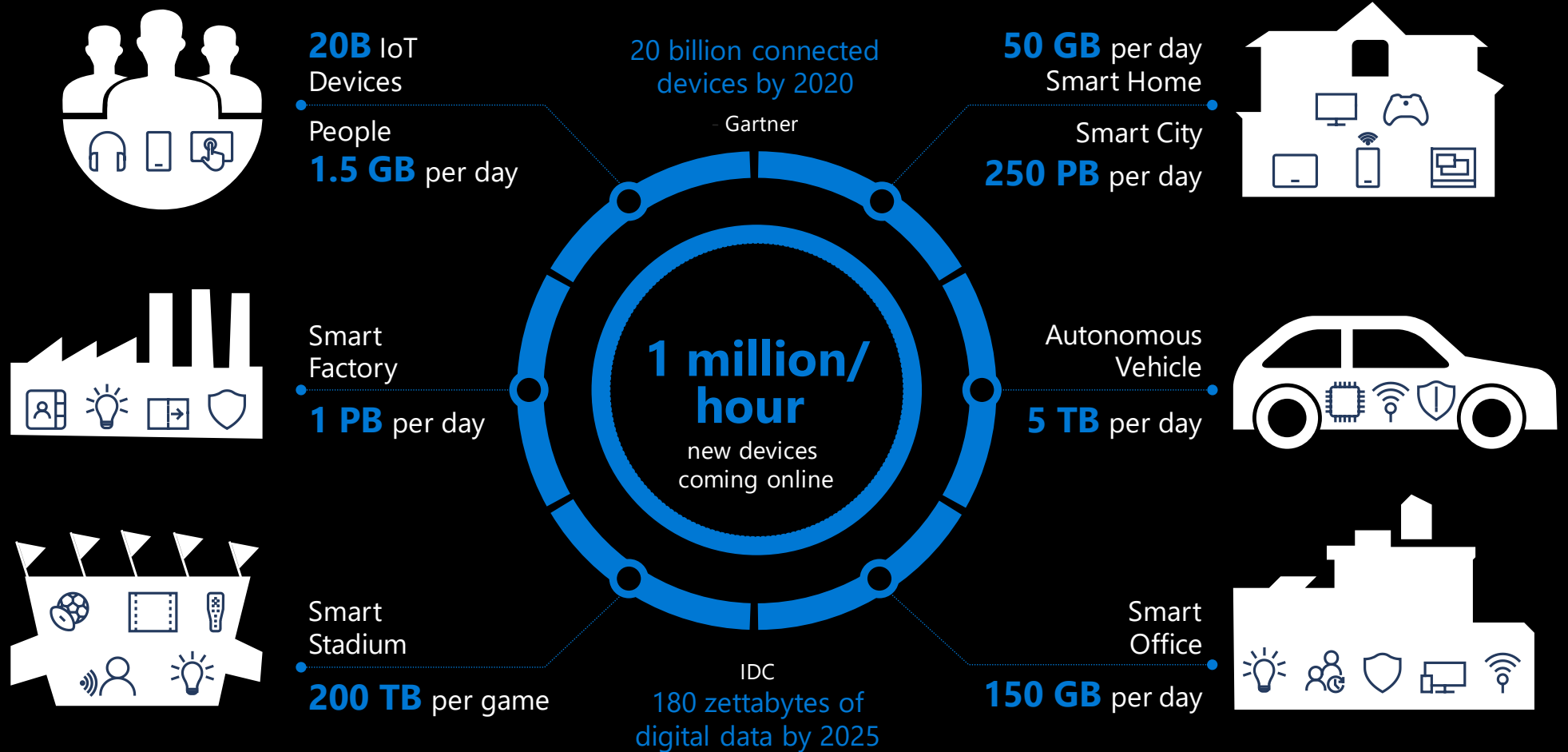
Unlocking IoT's Potential

Jenna Lee

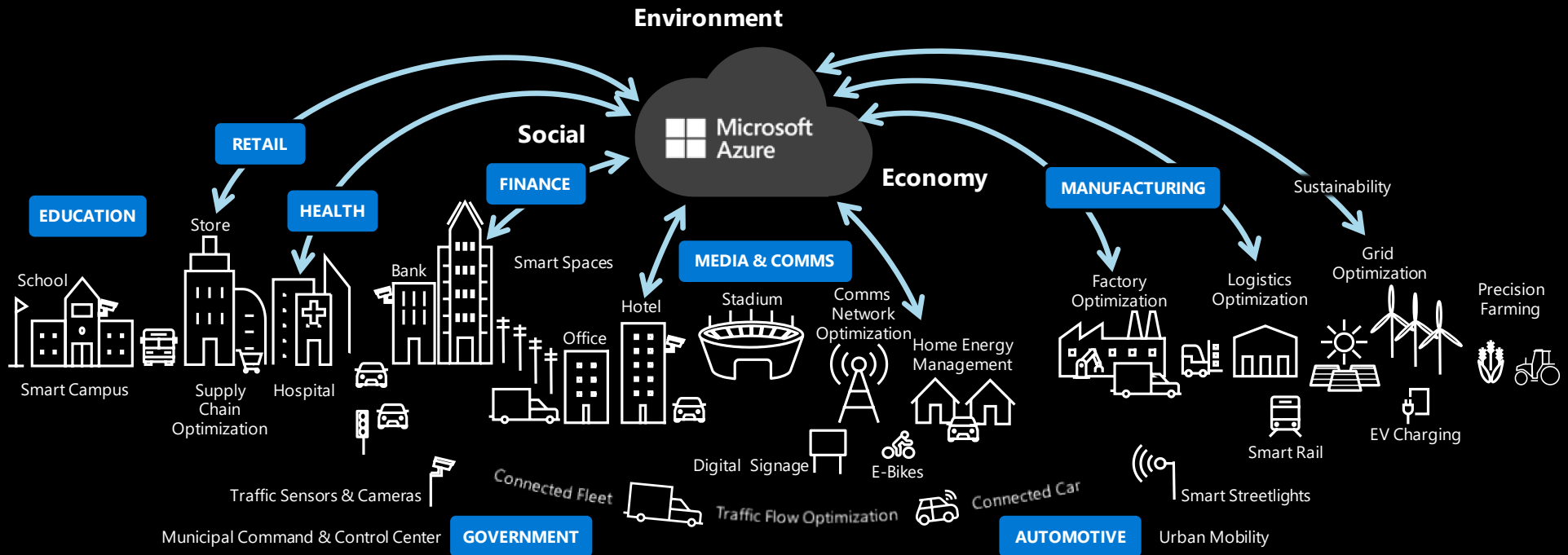
Head of APAC and Japan
IoT Solutions Tech Sales
Microsoft

IoT in Action

IoT fuels digital transformation

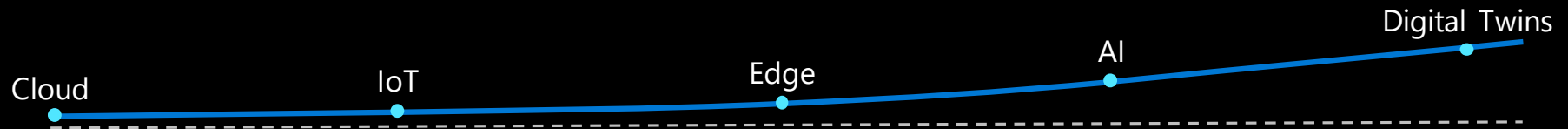



Microsoft invests \$5 billion in IoT



Our goal is to give every customer the ability to **transform their businesses,** and the world at large, **with connected solutions**


Microsoft's comprehensive IoT 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

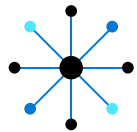
Windows IoT
Azure Certified for IoT—Device Catalog
Azure Stream Analytics
Azure Storage

Azure ML
Azure SQL
Azure Functions
Azure Cognitive Services

Intelligent cloud



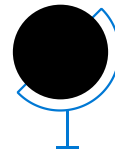
IoT Hub – Most Mature, Scalable, Secure Cloud Platform



Establish bi-directional communication with billions of IoT devices



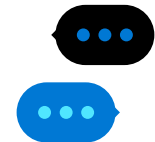
Enhance security with per device authentication



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

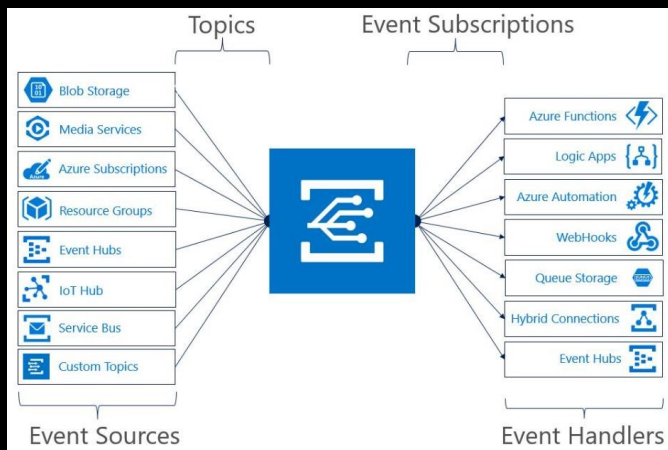
ECOLAB[®]

Schneider
Electric

IoT Hub

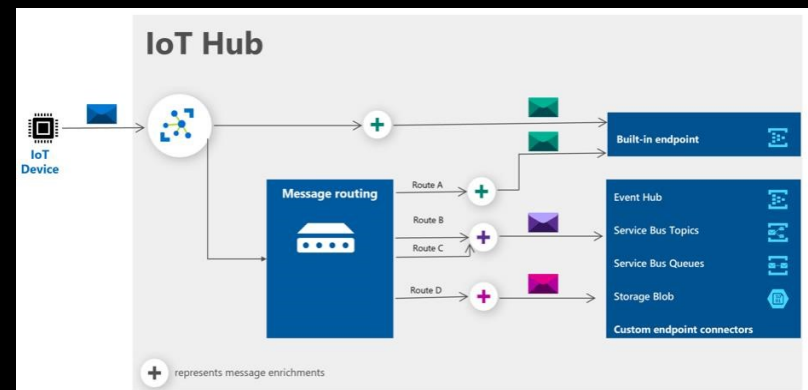
NEW Capabilities

Telemetry events on Event Grid



Easily integrate IoT device telemetry messages into serverless application via Event Grid

IoT Hub message enrichments



Add intelligence by enriching messages from IoT devices and simplify process to send them to different Azure services

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

sagegreenlife

flex

C.H. ROBINSON

imec

FOOTMARKS



jda.



BOSCH

QUEST
BORN TO ENGINEER

IoT Central

NEW Capabilities



White labeling
your SaaS – your brand



App templates
for Industry Verticals



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
for
Industries



Retail

- Digital distribution center
- In-store analytics
- Checkout, Condition monitoring
- Connected logistics
- Smart inventory management



Healthcare

- Continuous patient monitoring



Energy

- Smart meter analytics
- Solar power monitoring



Government

- Water quality monitoring
- Water consumption monitoring
- Connected waste management

Benefits and outcomes

- 11 Industry-focused app templates across retail, healthcare, energy, and smart city for kickstarting solution builders
- Seamless device connectivity: Introducing Edge device management within IoT Central
- Extensibility to business applications to bring IoT insights to where decisions are made
- Scale: Connect millions of devices and manage ingress/egress of data from IoT Central

My apps | Azure IoT Central

https://apps.azureiotcentral.com/build/retail

Azure IoT Central

- Home
- Build**
- My apps

Build your IoT application

Test drive with a 7 day trial (limited to one per account), or build your own app that scales and grows with you.

Featured

- Custom app

Retail | Energy | Government | Healthcare

Preview

Connected logistics

Track your shipment in real-time across air, water and land with location and condition monitoring.

[Create app](#)

[Learn more](#)

Preview

Digital distribution center

Improve warehouse output efficiency by digitalizing key assets and actions.

[Create app](#)

[Learn more](#)

Preview

In-store analytics – conditio...

Digitally connect and monitor your store environment to reduce operating costs and create experiences that customers love.

[Create app](#)

[Learn more](#)

Preview

In-store analytics – checkout

Monitor and manage the checkout flow inside your store to improve efficiency and reduce wait times.

[Create app](#)

[Learn more](#)

Bringing Plug and Play to IoT

Benefits

DEVELOPERS

Dramatically reduces the effort needed to build software on devices

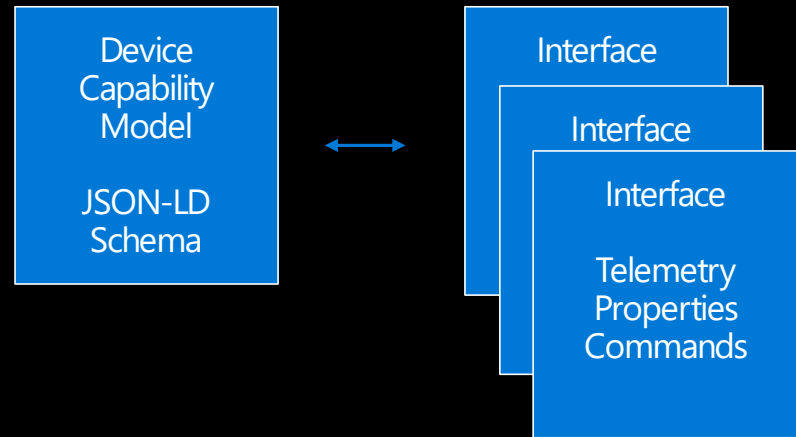
CUSTOMERS & PARTNERS

Large ecosystem of devices that just work with Azure IoT solutions, without any development required

DEVICE PROVIDERS

Certify your device for IoT Plug and Play and it can be used with any Azure IoT solutions

Open source and using open standards



- Dashboard
- Devices
- Device groups
- Rules
- Analytics
- Jobs
- App settings
 - Device templates
 - Data export
 - Administration

Device templates > Create new

- Select template type
- Customize
- Review

Select template type

Templates define capabilities and determine how you view data about real devices.

Create a custom device template

IoT device
Start with a JSON file or build out your capabilities from scratch.

Select

Azure IoT Edge
Define template with Azure IoT Edge and gateway scenarios.

Select

Or choose a preconfigured device template

IoT Plug and Play

VIA Mobile360 D700 Drive Recorder



IoT Plug and Play

VIA Mobile360 D700 Drive Recorder



IoT Plug and Play

VIA Mobile360 D700 Drive Recorder

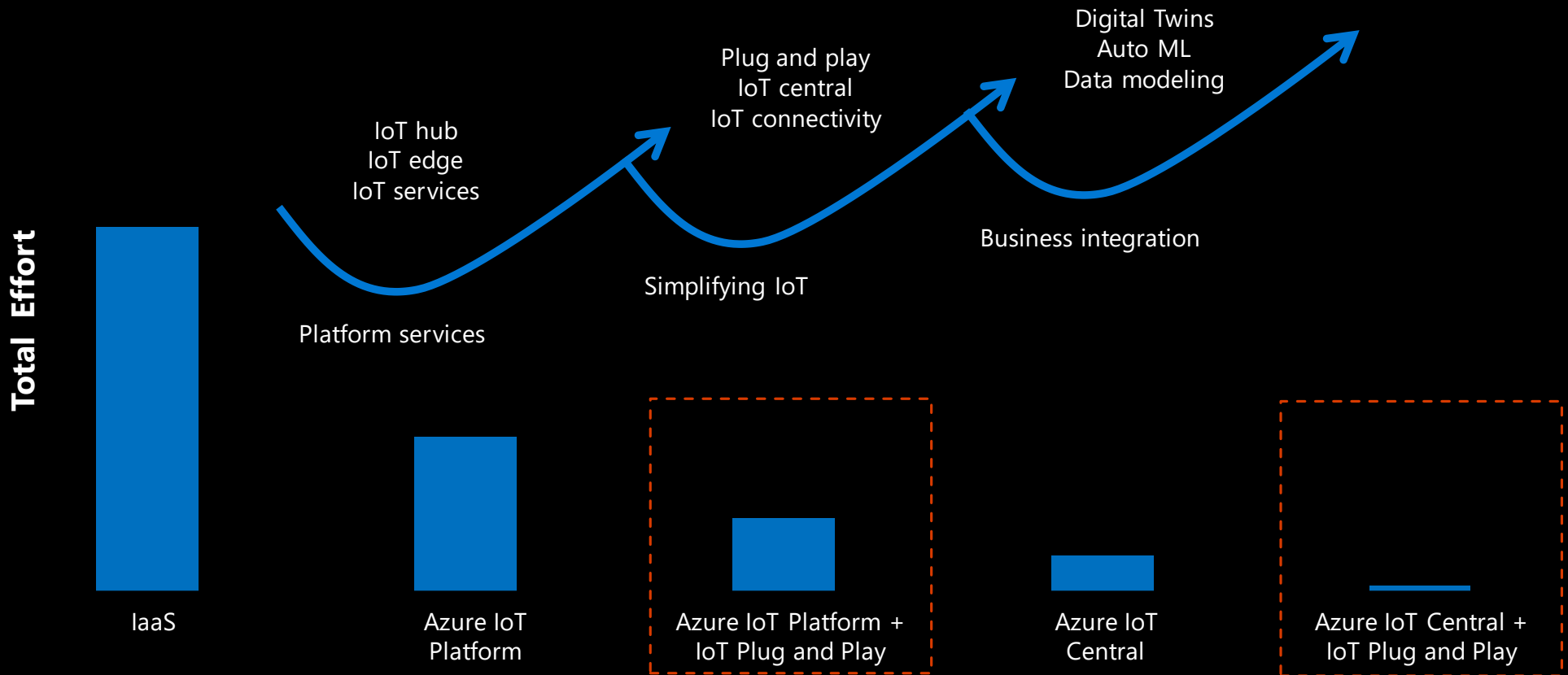


Next: Customize

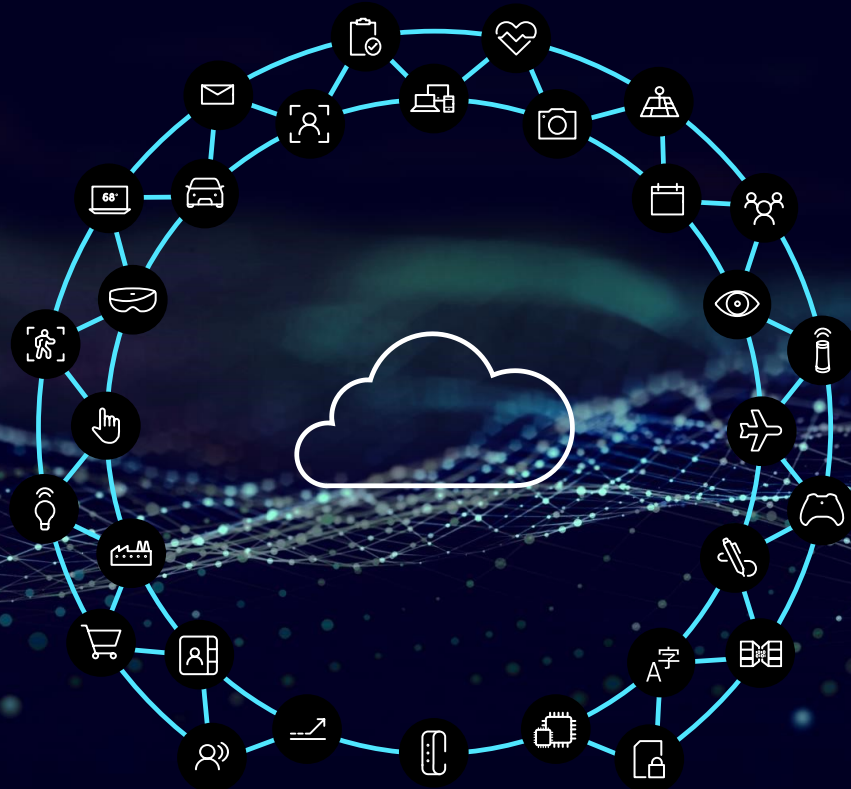
Cancel

Accelerating IoT adoption

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

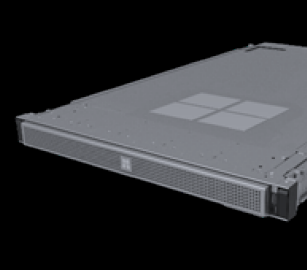
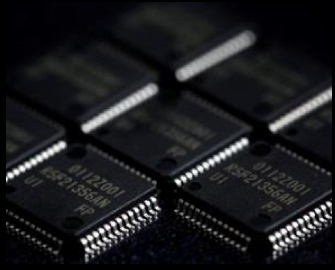


Intelligent Edge



Intelligent Edge

The most comprehensive IoT and Edge offerings in the market



Devices + Sensors

Sensors to interactive

Integrated platform

Global scale processing

IoT devices

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

1,300+ devices, 300+ partners—all certified to work great with Azure IoT Services

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

Device security

Azure Sphere
Integrated hardware, software, and cloud services work seamlessly together to deliver security by default

Deployment options to securely connect existing equipment and build security into new edge devices

Over 10 Years of security and OS updates delivered directly to each device by Microsoft

Edge devices

Azure IoT Edge
Devices that aggregate, process, and provide gateway capabilities for IoT endpoints

Deploy and manage Azure Services in containers on any IoT device

AI, Azure ML, Azure Stream Analytics, and more

Cross-platform and open source: Windows IoT, Linux

Edge appliances

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

Data Box Edge: AI-enabled, storage, and compute Azure Edge appliance

Data Box: Offline, ruggedized data transport, 100 TB–1 PB

On-premises platform

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

Edge and disconnected scenarios

Regulatory requirements

Cloud app model on-premises

Hyperscale cloud Edge Regions

First-party cloud regions

Full range hyperscale cloud services

Tiered service availability: Heroes > Hubs > Satellites

Open source-based services and tools

Most specialization

Fewest services

Full spectrum of Cloud + Edge form factors

Intentional and appropriate Azure service availability

Fewest form factors

Most services

Azure RTOS

ANNOUNCING

Azure RTOS ThreadX

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

Partnership announcement



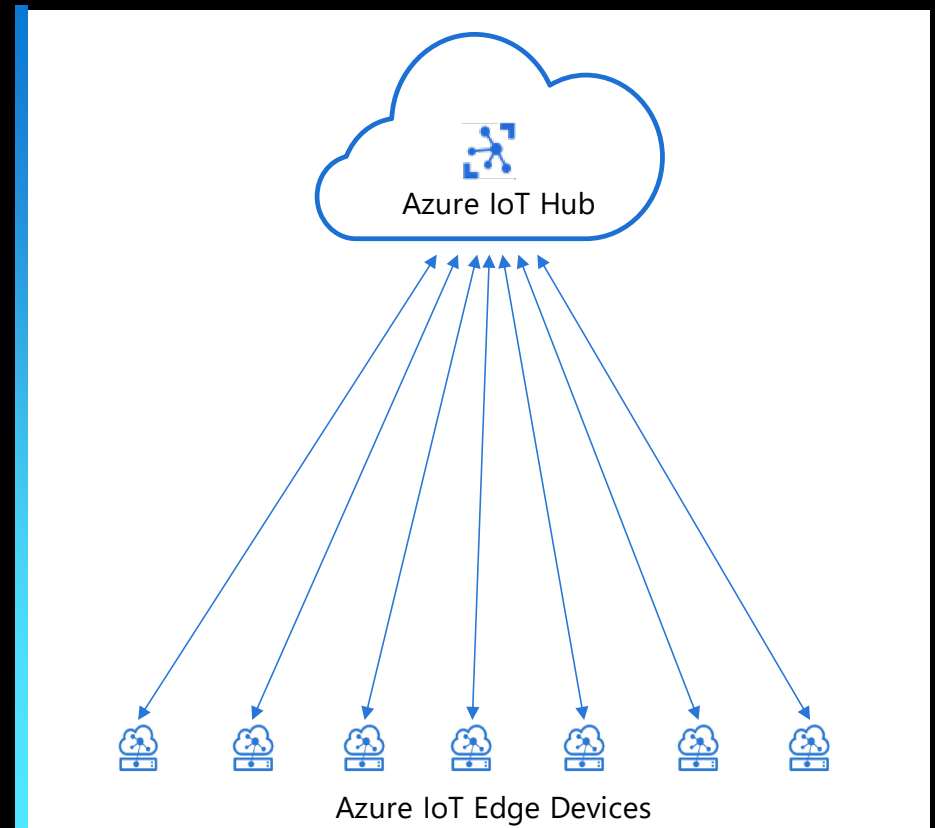
- Microsoft & Renesas combine forces to simplify the Device-to-Cloud experience
- Integration of Azure RTOS ThreadX with the Renesas Flexible Software Package
- Seamless and easy out-of-box support for Azure RTOS

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**



IoT Edge Certified Devices: 83 devices from 31 OEMs



SIMATIC IPC277E - By Siemens



SIMATIC IPC647E - By Siemens



IPC847E - By Siemens



SIMATIC IPC627E - By Siemens



SIMATIC IPC327E - By Siemens



SIMATIC IPC127E - By Siemens



Karbon 300 - By Logic Supply



Cincize DX-1100 - By Logic Supply



CL200 - By Logic Supply



MCS50 - By Logic Supply



ML500 - By Logic Supply



ML 100 - By Logic Supply



VIA ARTIGO A1250 - By VIA



AMOS-820 - By VIA



ARTIGO A820 - By VIA



AMOS-3005 - By VIA



Kingfisher2 Series Vision Controller - By Roseek



Cheetah1 Series Smart Camera - By Roseek



WSP-Pad7 EdgePad K5RP CS5-L7602884 - By Advantech



UTX-3117 - By Advantech



Advantech-EIS-D210 - By Advantech



SYS-E50-9AP-WIFI - By SuperMicro



SYS-E100-9AP-1A - By SuperMicro



SYS-E102-9AP-L - By SuperMicro



SYS-E100-9S - By SuperMicro



Alderamin-I7-32GB-edge-HighPerformance - By Welotec



Arachni-ARM-10T - By Welotec



RSAPC - By Welotec



HPE Edgeline EL300 Converged Edge System - By Hewlett Packard Enterprise



HPE Edgeline EL4000 with HPE ProLiant m710x - By Hewlett Packard Enterprise



HPE Edgeline EL4000 with HPE ProLiant m510 - By Hewlett Packard Enterprise



HPE Edgeline EL1000 with HPE ProLiant m510 - By Hewlett Packard Enterprise



HPE Edgeline EL1000 with HPE ProLiant m710x - By Hewlett Packard Enterprise



RIO-N - By Siskon



ESRP-CS5-LNO1372 - By Advantech



Siskon RIO-D - By Siskon



EPC 300 - By Lenevo



ThinkCentre M90n-1 - By Lenevo



Inland Edge Computing Gateway IG502-11 - By Inland



Inland Edge Computing Gateway IG902-11 - By Inland



ulBX-230-BT - By IEI



Vision AI DevKit Camera - By Altek



Azure Data Box Edge - By Microsoft



AISIA-AD with Avalue-EPC-SKLU - By System Integrator



APC3710 - By Geniatech



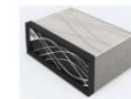
Asset Tracker - By Covia



Armadillo-IoT Gateway G3 M3 model - By Atmark Techno



EAC120 - By Winmate



BullSequana Edge Server - By ATOS



Cascade-500 IoT Gateway - By Rigado



ASUS Tinker Board S Azure IoT Edge Kit - By Asus



OpenBlocks IoT VK2 - By Platomo



TS-2538 - By QNAP



NDIS B537 - By Nexcom



KBox A-203 - By Kontron



UC-8112-ME-T with Azure IoT Edge - By Moxa



Cloudian AI Box - By Cloudian



Siskon RIO-D - By Siskon



AMOS-825 - By VIA



SIMATIC IPC427E - By Siemens



ML300 - By Logic Supply

Intelligent edge devices require a new approach



Time

Many IoT solutions
require months
to set up



Security & trust

IoT poses unique
security, privacy
and, compliance
challenges



Modernization

Newer technologies
like ML/AI require
new skill sets

Windows IoT family—fast, safe, smart

Windows 10 IoT Core

For small-footprint, smart devices

Enabling lower cost devices

Windows 10 IoT Enterprise

For fixed-function, smart devices

Locked down, full edition of Windows 10

Windows Server IoT 2019

Advanced data analysis and storage

Enhanced security capabilities



10 years of OS Support, security & manageability

Windows IoT

Smart, Secure, Fast



NEW

✓ Availability of NXP SOC

- General Availability of NXP i.MX SOC
- Increased silicon choice for device and solution builders
- Industrial grade silicon

NEW

✓ Windows ML Container

- Public Preview of new Windows ML Container
- Fast and agile platform to build enterprise-grade IoT solutions
- Hardware acceleration can take advantage of any DirectX 12 compliant GPU

NEW

✓ SQL Server IoT 2019

- Addresses latency and connectivity requirements
- Maintains data on-premises
- Securely stores and analyzes large amounts of data

End to End Security

Securely connect millions of devices...

...over a secure internet connection...

...to Microsoft Azure – built with security from the ground up



Device Security

X.509 Certificate Based Identity and Attestation
Device Provisioning, Authorization & Management
Support for Diverse Hardware Secure Modules

1010101011010101101000
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Connection Security

X.509/TLS-Based Handshake and Encryption



Cloud Security

Azure Security Center | Azure Active Directory
Key Vault | Policy-Based Access Control

IoT attacks put businesses at risk



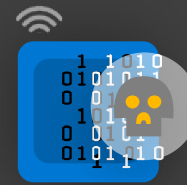
Devices bricked or held for ransom



Devices are used for malicious purposes



Data and IP theft



Data polluted and compromised



Devices used to attack networks



The cost of IoT attacks

Stolen IP and other highly valuable data

Compromised regulatory status or certifications

Brand impact (loss of trust)

Recovery costs

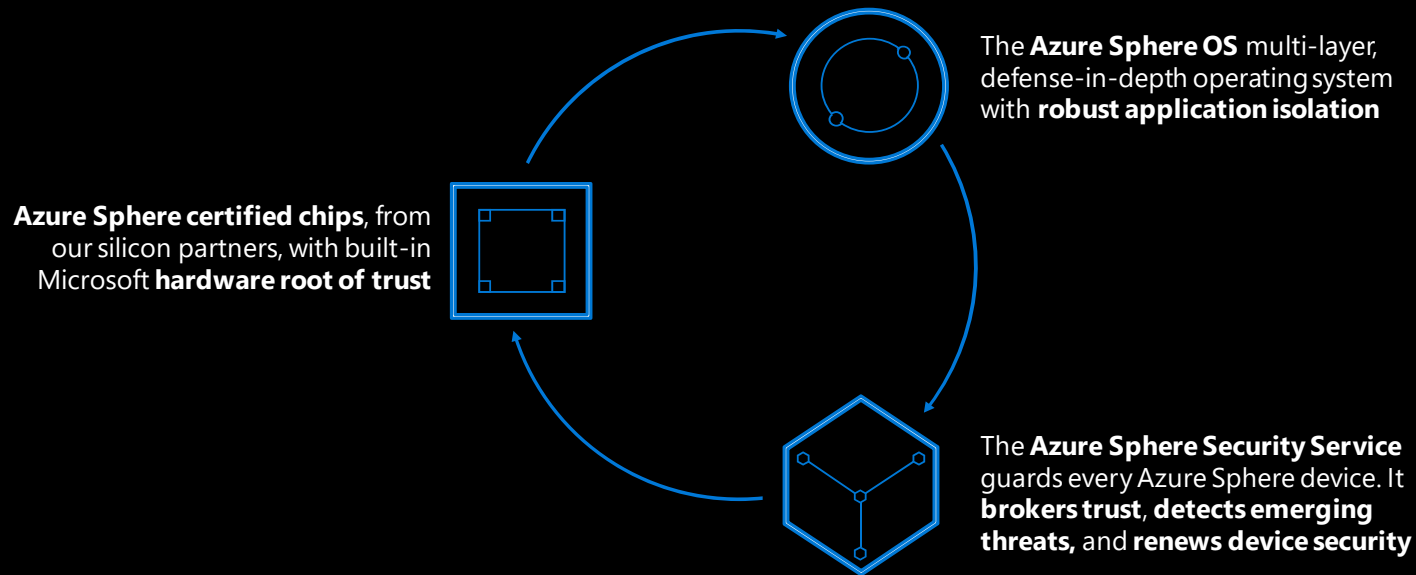
Financial and legal responsibility

Downtime

Security forensics

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

Azure Sphere

Silicon partners

MEDIATEK

Secured, WiFi-enabled MCU,
available in volume today

NXP

Secured crossover application
processor; samples available
Q4 2020

NEW

QUALCOMM[®]

First cellular-enabled Azure Sphere chip,
samples available Q4 2020

Ecosystem partners

AVNET[®]
Reach Further™

Wi-Fi Module
MT3620 Starter Kit
Guardian Module

USI[®]

Dual Band Wi-Fi +
Bluetooth Module

AI-Link

Wi-Fi module
Guardian device

seeed
The IoT Hardware Enabler

MT3630 Dev Board
MT3630 Mini Dev Board

ADVANTECH

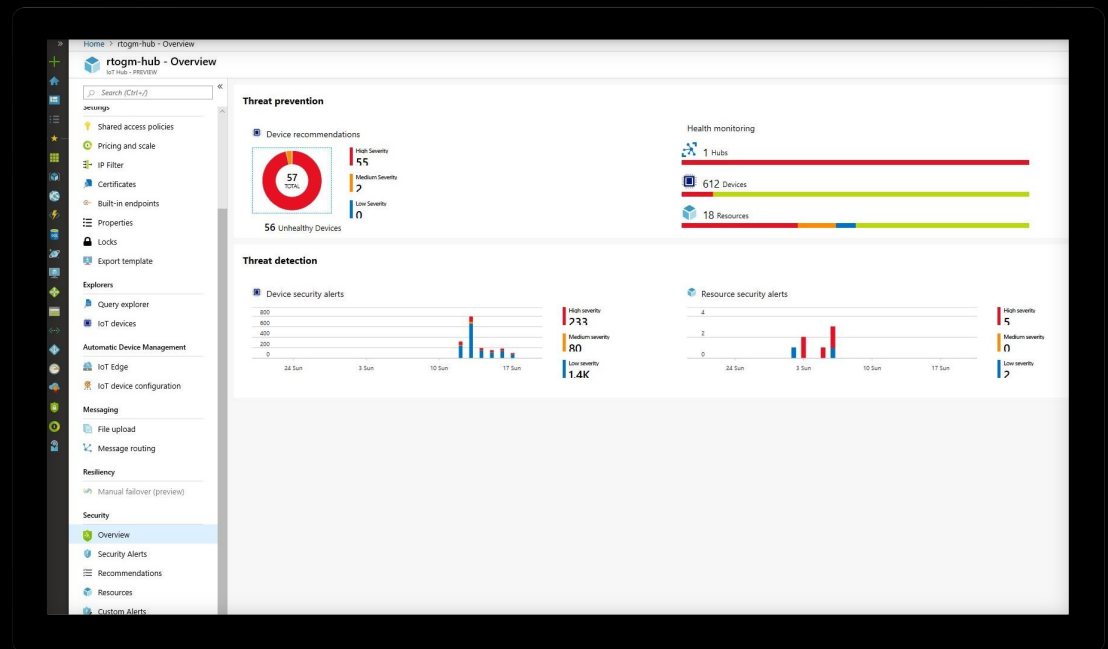
Wireless I/O Module

Innovation that delivers durable value

- Growing silicon choice to support customers in the diversity of their use cases
- Enable unlocking value from existing/legacy equipment with guardian modules
- Rich hardware ecosystem with development kits & modules to streamline prototyping and implementation
- Developer tools and integration with Visual Studio to accelerate time to market

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



Security Center - Recommendations

Showing subscription 'IoT_SubscriptionContainer_17'

Search (Ctrl+)

- Overview
- Getting started
- Pricing & settings
- POLICY & COMPLIANCE**
- Coverage
- Secure score
- Security policy
- Regulatory compliance
- RESOURCE SECURITY HYGIENE**
- Recommendations**
- Compute & apps
- Networking
- IoT Hubs & resources
- Data & storage
- Identity & access
- Security solutions
- ADVANCED CLOUD DEFENSE**

Feedback

Recommendations



Resource health by severity



Review and improve your secure score

Review and resolve security vulnerabilities your secure score and secure your worklo...

[Learn more >](#)

Try our 1-click remediation option! Look for the "1-click fix" label next to the recommendation. [Send us feedback](#)

Search recommendations

recommendation	Secure Score Imp...	Failed Resources	Severity
MFA should be enabled on accounts with owner permissions on your subscription	+50	1 of 1 subscriptions	High
Vulnerabilities in container security configurations should be remediated	+30	1 of 1 Container hosts	High
Subnets should be associated with a Network Security Group	+30	1 of 1 subnets	High
Install the Azure Security Center for IoT agent	+30	1 of 1 repositories	High
Vulnerability assessment solution should be installed on your virtual machines	+30	1 of 1 virtual machines	Medium



Panel Discussion

Chris Dick | Pauline Hsiao | Keon Lee | Patrick Quesnel
Microsoft Corporation



Panel Discussion

Chris Dick | Pauline Hsiao | Keon Lee | Patrick Quesnel
Microsoft Corporation



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Microsoft Corporation



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Microsoft Corporation

IoT Ecosystem momentum



<p>Developer community</p> <ul style="list-style-type: none"> Visual Studio GitHub hadoop docker php nodeJS Powershell eclipse python ARM mbed MySQL Ruby Java mongoDB Chef + Puppet 	<p>Partner ecosystem</p> <p>System integrators & advisors</p>	
<p>Solution providers</p>		
<p>Solution aggregators</p>		
<p>Devices</p>		

Vertical focus on IoT solutions

Prioritizing the most relevant customer solutions

1. 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



2. IoT Co-Sell Ready Solutions Map



3. Microsoft Sales Force



4. Top customers by IoT propensity



Why choose Microsoft



Platform

Most comprehensive IoT services—mouse trap to nuclear power stations



Fast, Easy, Secure

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



Lunch Break