Explore opportunities for your IoT devices with Azure IoT solutions

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Session Introduction

We will talk about Azure IoT vision, our SaaS and PaaS offerings with demos. We will also talk about the opportunities and benefits for device manufacturers.

Session Agenda:

Microsoft’s IoT Vision
Azure IoT solution offerings
Azure Certified for IoT device program
Opportunities and benefits
Calls to action
Why Enterprise IT Should Care About IoT

IoT is going mainstream

*If it’s not in your enterprise already, it will be soon...*

- IoT leverages your experience & skills
- Many of the same challenges in IoT reflect those affecting earlier BYOD trend...
- Need for strong & consistent enterprise-grade security
- Data ownership & privacy from devices
- Manageability and tracking of devices
- Patching, repairing, updating of devices
- Application deployment – building, testing & certification of apps must be seamless

**80 billion**
connected “things” by 2025 - IDC

**180 zettabytes**
digital data by 2025 - IDC

**$457 billion**
global IoT market by 2020 - Gartner
Microsoft is a trusted partner that helps customers & partners benefit from IoT.

Microsoft is investing 5 billion dollars in IoT over the next 4 years.
Microsoft is simplifying IoT

• Easier to build secure, scalable solutions from device to cloud

• Easier to provision devices at scale

• Easier to secure devices at scale

• Easier to manage devices at scale

• Easier to find insights from your IoT devices

• Easier to run cloud services on devices

• Easier to benefit from IoT
Microsoft IoT

**Intelligent Cloud**

- Azure IoT Central
- Azure IoT Solution Accelerators
- Azure IoT Platform Services

WinHEC 2018
**Azure IoT Central**
Fully managed IoT SaaS
No cloud solution expertise required

**Azure IoT Solution Accelerators**
Solution accelerators for customers with cloud solution expertise and the need to fully customize

Built on the same Azure IoT Platform Services

Rich extensibility points in IoT Central
Continuum of support for IoT solution needs
Microsoft IoT

Intelligent Cloud

Azure IoT Central
Azure IoT Solution Accelerators
Azure IoT Platform Services
Azure IoT Central

- Fully managed SaaS solution
- No cloud expertise required
- Built in security best practices
- New extensibility features
- Transparent and predictable per device pricing

Try today: http://azureiotcentral.com
Azure IoT Central

- Fully hosted and managed by Microsoft
- No cloud development expertise required
- Device connectivity and management
- Monitoring rules and triggered actions
- Extensibilities (Flow, Dynamics, Webhooks, etc.)
- Analytics, dashboards and visualization
- Risk-free trial with simplified pricing

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Microsoft IoT

Intelligent Cloud

Azure IoT Central

**Azure IoT Solution Accelerators**

Azure IoT Platform Services
Azure IoT Solution Accelerators

Ready to use
• Solution accelerators work out of the box for demo or production environments

Open
• Use our code as the foundation for an open-source solution that you design

Reliable
• Leverage proven architecture and a fully tested code base to maximize uptime

Customizable
• Tailor a solution to your unique business needs

https://azureioticsolutions.com
Azure IoT Solution Accelerators

Azure IoT Solutions.com
Showcase 1st party solution accelerators

Ability to instantiate device simulation

Expanding to 3rd party Solution Accelerators (Announced at Ignite)

Opportunity for device manufacturer to be showcased
Azure IoT Reference Architecture

Custom IoT solutions design guidance
  • Address challenges in designing IoT solutions

Foundational
  • Make your subsystems independently scalable, maintainable and deployable

Comprehensive
  • Provides component descriptions and tech recommendations

Reliable
  • Helps you start from patterns that have worked with other patterns

https://aka.ms/iotrefarchitecture
Intel Connected Logistics Platform

• Cost-Effective Solution for End-to-End Supply Chain Visibility
• Package of low-cost sensor tags, gateways, and cloud components
• Designed based on Azure IoT Reference Architecture
• Excellent example of devices + solution package
Microsoft IoT

*Intelligent Cloud*

Azure IoT Central
Azure IoT Solution Accelerators
**Azure IoT Platform Services**
Azure IoT Hub

**Bi-directional communication**
- Millions of Devices
- Multi-language, open source SDKs
- HTTPS/AMQPS/MQTT
- Send Telemetry
- Receive Commands
- Device Management
- Device Twins
- Queries & Jobs

**Enterprise scale & integration**
- Billions of messages
- Scale up and down
- Declarative Message Routes
- File Upload
- WebSockets & Multiplexing
- Azure Monitor
- Azure Resource Health
- Configuration Management

**End-to-end security**
- Per Device Certificates
- Per Device Enable/Disable
- TLS Security
- X.509 Support
- IP Whitelisting/Blacklisting
- Shared Access Polices
- Firmware/Software Updates
- Azure Security Center
- Support

**IoT-scale automated provisioning**
- Zero-touch provisioning
- Centralize your provisioning workflow
- Load balance across multiple IoT Hubs
- Re-provisioning support
- Supports TPM + X.509
Solution accelerators demo

Prasanna Padmanabhan
Principal Software Eng Manager
Microsoft IoT

Intelligent Cloud

- Azure IoT Central
- Azure IoT Solution Accelerators
- Azure IoT Platform Services

Opportunities for device manufacturers to expand addressable market
GOAL: To make it easy for customers (solution builders) to pick the right devices(s) for a given business problem

4 Key Principles:

- Business scenario focused
- Supports spectrum of IoT devices
- Discovery IoT devices in the device catalog
- Minimize OEM engineering burdens
- Match make
Azure IoT device certification program

Quantity
1,000+ certified IoT devices

Quality
Featured high quality IoT Edge devices in main page

Flexibility
Ability to certify against individual hardware capabilities: Device management, Security etc

Simplification
Pre-install Azure IoT Edge components to use IoT Edge functionality out-of-the-box
Three classes of IoT devices to certify

IoT Device

- Basic device certification implemented in 2016
- Requirement: Partner pick the OS and programming language, and relevant SDK are shared to the partner based on that partner runs the test cases and share the results.
- Certifying Criteria: Device is certify based on the screenshots, log files and the get started document shared by the partners.

IoT Starter Kit

- Introduced in 2017
- Requirement: The kit must include all items that are required for the kit to be functional:
  - Partner should have a device that is Azure Certified for IoT along with Sensors/Actuators/Cables/Breadboard connected to the device
  - Certifying Criteria: Kit is certify based on the screenshots, log files and the get started document shared by the partners.

IoT Edge device

- New in July 2018.
- Requirement: Partner pick the OS and instruction set is shared to the partner, partner needs to run the test cases for Edge Runtime and Device Management and share the screenshots of result at first and then ship the device to Microsoft
- Pre-Requisite: Device should have the Edge Runtime and Client components pre-installed when device is shipped to Microsoft
- Certifying Criteria: Device is certified based on the screenshots, log files shared, and results are validated on actual physical device. Partner need to send the hardware and the software manuals and get started document for the device.
New certification framework

New capability based certification framework

- Every capability is a block with 1-N number of levels
- IoT Edge certification adopts this framework
- Existing certification (IoT devices, Starter Kit) for IoT devices remains intact
- The framework allow us to do better match making – pick & choose the right capabilities and level to offer the right IoT device(s)
- Allow us to define a device category/classifications based on the capabilities
- Extensible to support additional capabilities: OPC-UA, Storage, AI etc

Source: https://www.forbes.com/sites/janakirammsv/2018/07/01/5-reasons-why-azure-iot-edge-is-industrys-most-promising-edge-computing-platform/#b7e34d93249d
Introducing Azure IoT Certification Service (AICS)

Streamline processes
Web based workflow to automate certification tests for IoT devices

Expansion of tests
Additional tests for IoT Hub primitives to bi-directional messages

Customization support
Validation against the software code w/o SDK usage

Navigation flow
Navigate through seamless UI to build and deploy. Easier troubleshooting with detail log files
What will we test for?

Based on your business model...

You either fabricate only IoT hardware (no firmware) or:

You fabricate IoT hardware plus custom firmware (solution specific).

You will be required to run our “Azure IoT certification code” (uses device SDK) on GitHub, does D>C | C>D.

Pick your tests:

If your firmware doesn’t use device SDK (e.g.: MCUs) or contains fit-for-purpose firmware, they pick their tests.
Azure IoT Certification Service (AICS) demo

Darren Chuang
Senior Software Engineer
Certified IoT device(s) + Azure IoT

- Certified your IoT devices and showcased in the device catalog
- OEM develops solutions using Azure IoT Solution accelerators
  - Customize the Solution accelerator templates OR
  - Build your own by following Reference architecture
- Completes end to end solution

Hardware business

Solution business

OEM builds IoT devices
- Certified your IoT devices and showcased in the device catalog
- Identify your verticals or business use case to attach solution

OEM builds solutions using Solution accelerators
- OEM develops solutions using Azure IoT Solution accelerators
- Customize the Solution accelerator templates OR
- Build your own by following Reference architecture

System integrators provides finishing touch
- Completes end to end solution

You can expand your addressable market
Call to action

Get your IoT devices certified
Read and familiarize yourself of IoT device certification [https://aka.ms/certfaq](https://aka.ms/certfaq)
Help us match make by providing quality device descriptions during device registration
Provide feedbacks on AICS (available at [https://aka.ms/azure-iot-aics](https://aka.ms/azure-iot-aics)) by December
*All new submissions will require to submit the test results by AICS
Provide feedbacks on certification requirements by sending an email to [iotcertdisc@microsoft.com](mailto:iotcertdisc@microsoft.com)

Expand your addressable market with certified IoT device and solution accelerators
Build your solution(s) using Solution accelerators [https://azureiotolutions.com](https://azureiotolutions.com)
Familiarize yourself with Azure IoT reference architecture [https://aka.ms/iotrefarchitecture](https://aka.ms/iotrefarchitecture)
Share your plan and vision by sending an email to [aziotsaoem@microsoft.com](mailto:aziotsaoem@microsoft.com)
Thank You!