Microsoft

winhec

Taipei 2015

Microsoft

Microsoft Azure IoT Suite

Tony Lin
Software Engineer

Partner Enablement Team

$1.7 trillion

Market for IoT by 2020

IDC

25 billion

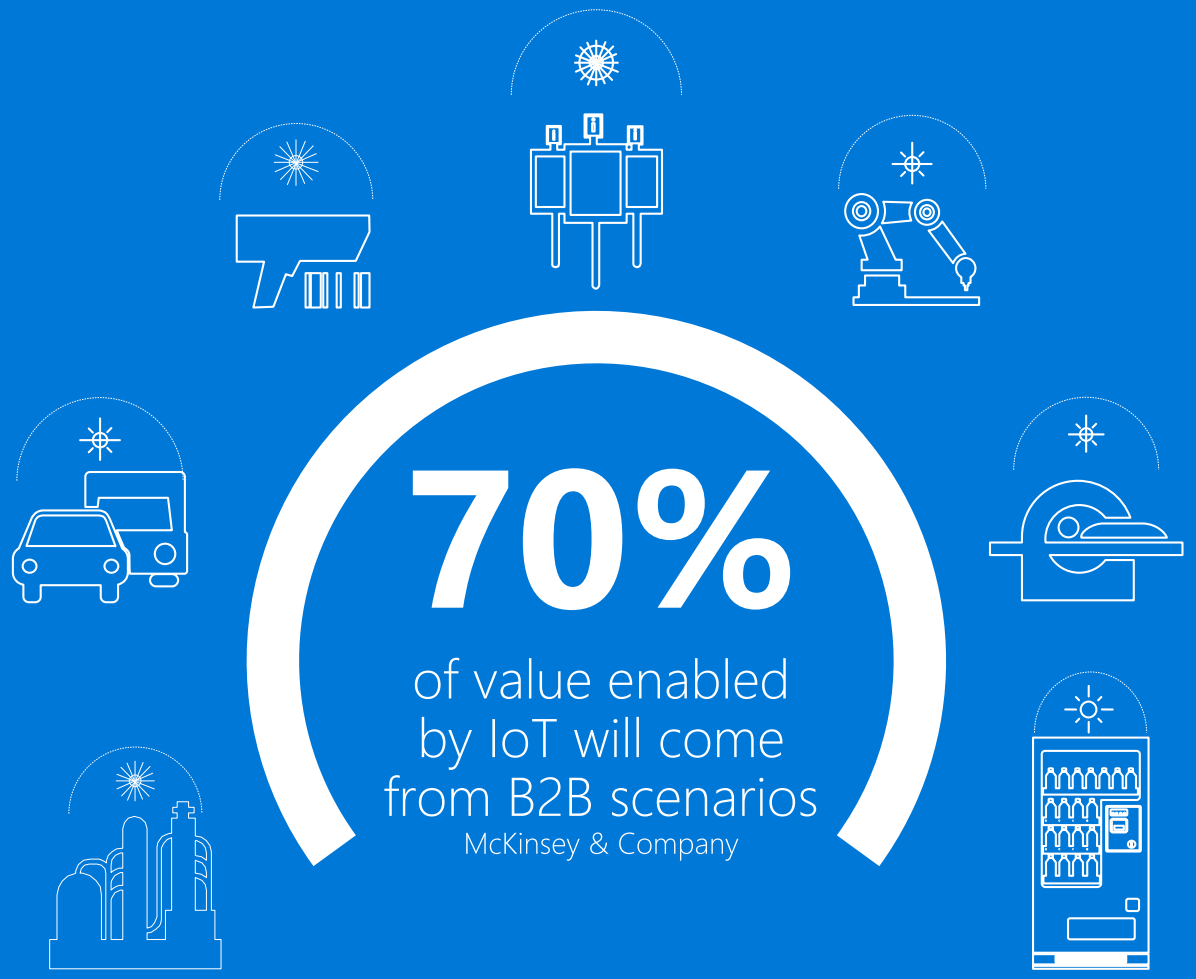
Connected “things” by 2020

Gartner

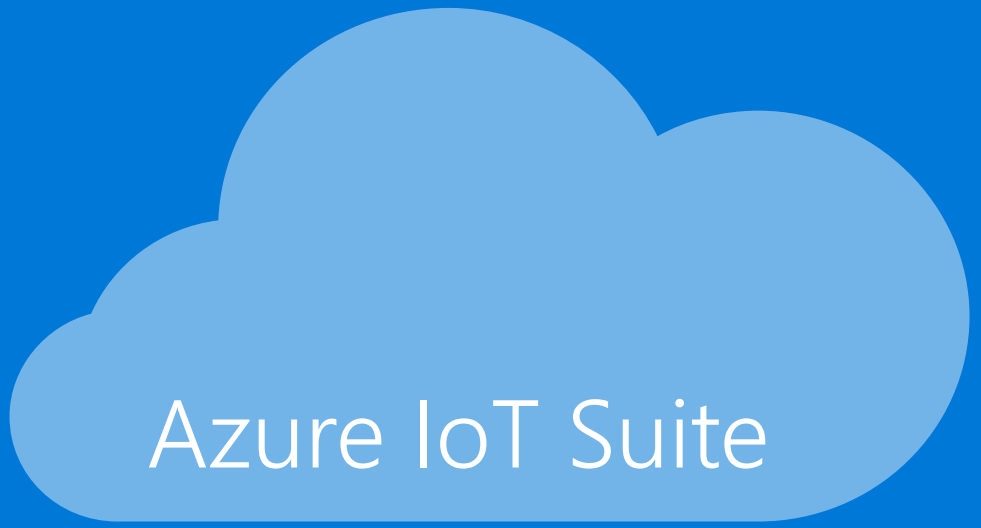
Microsoft's view on IoT

The Internet of Things starts with your things

- Build on the infrastructure you already have
- Add more devices to the ones you already own
- Get more from the data that already exists



Introducing Azure IoT Suite



Comprehensive solution

Connect millions of devices and integrate your business systems with new insights to transform your business.

Accelerate time to value

Get started quickly with preconfigured solutions for common IoT scenarios.

Rich partner network

Leverage a worldwide ecosystem of experienced IoT partners to tailor IoT solutions to your needs.

Benefit from a comprehensive solution

Connect and scale with efficiency

Analyze and act on new data

Integrate and transform business processes

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10101001110100101

Real-time operating systems

And more

Analytics

Device Registry

Rules and Actions

Dashboards & Visualization

SAP

Microsoft Dynamics

ORACLE

salesforce

IBM DB2

WebSphere.

Informix. software

Office 365

Microsoft Azure IoT Suite

Connect and scale with efficiency	Analyze and act on new data	Integrate and transform business processes
Preconfigured solutions	Event processing	Workflow integration
Heterogeneous agents	Predictive analytics	Push and broadcast notifications
Connect and control	Data visualization	ID and access management

Microsoft Azure IoT Suite

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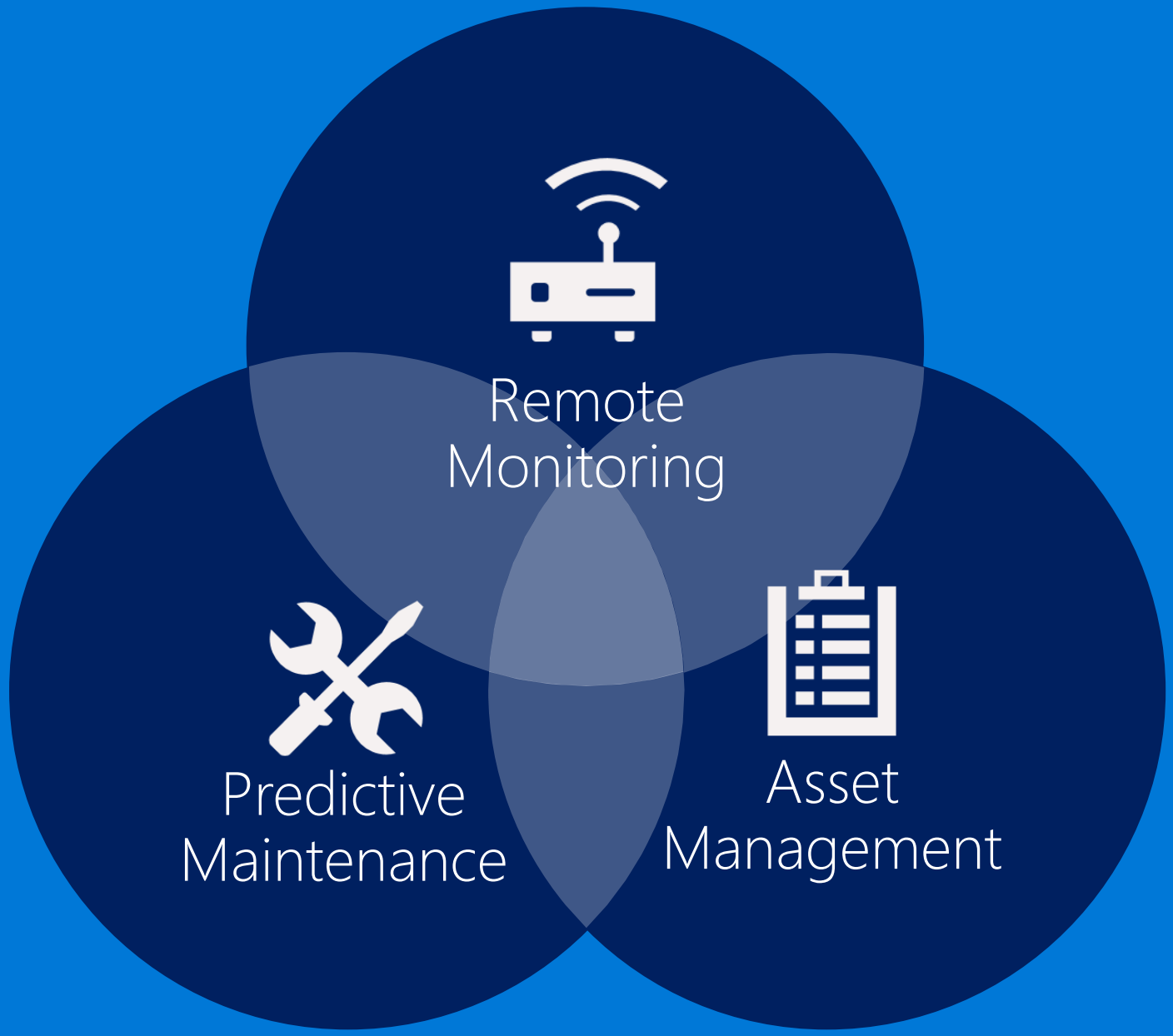
Preconfigured Solutions:

Remote Monitoring



Demo:

Remote Monitoring

Microsoft Azure IoT Suite ⓘ | RMsolution

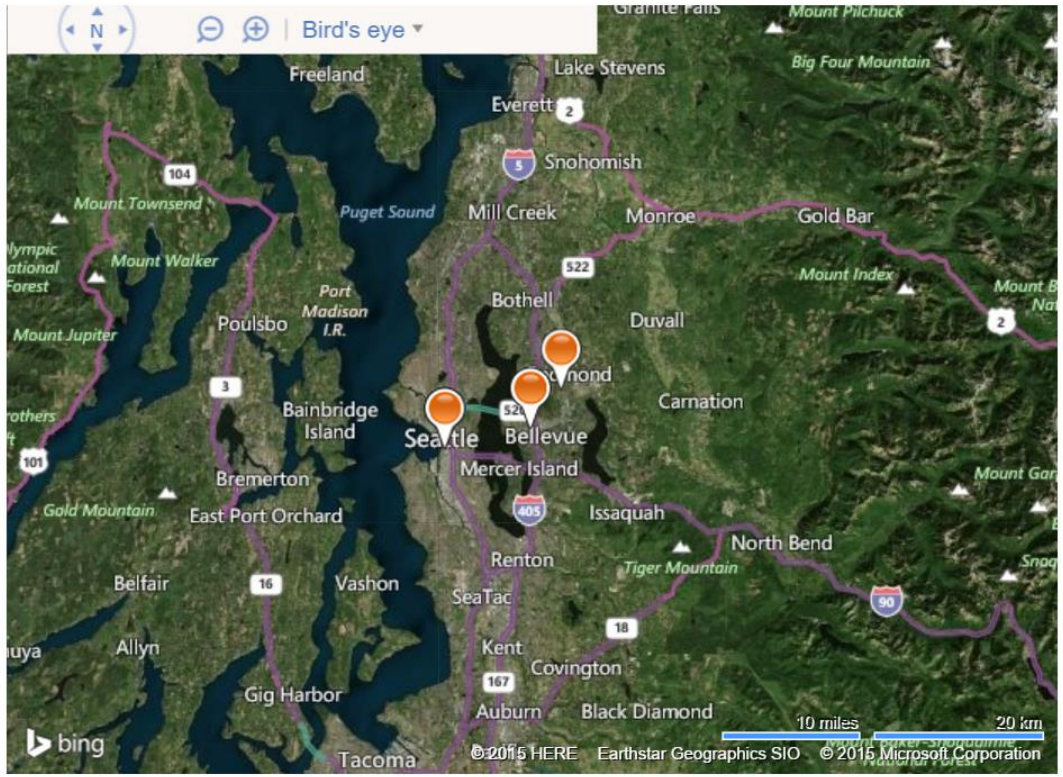
DASHBOARD

DEVICES

RULES

ACTIONS

ADD A DEVICE



Alarm History

TIME	DEVICE ID	RULE OUTPUT	VALUE
09/29/2015 9:22:25 AM	SampleDevice001_363	AlarmTemp	43.817
09/29/2015 9:22:25 AM	SampleDevice001_363	AlarmHumidity	22.588
09/29/2015 9:22:23 AM	SampleDevice001_363	AlarmTemp	42.933
09/29/2015 9:22:23 AM	SampleDevice001_363	AlarmHumidity	25.135

Microsoft Azure IoT Suite

Provisioned solutions

Create a new solution
Create your own fully integrated provisioning solution

Provisioning...

RMsolution
Monitor events and conditions from your devices in the field.

Details

RMsolution

Provisioning

Provisioning your **Remote monitoring** solution, in **East US** region.

Microsoft Azure IoT Suite

Provisioned solutions

Create a new solution
Create your own fully integrated provisioning solution

Starting...

RMsolution
Monitor events and conditions from your devices in the field.

Launch

RMsolution

Starting

See your pre-configured solution running here:

Solution dashboard

Modify your solution

Guidance on editing your solution and managing network resources can be found in the Resource group in the Azure portal.

Azure Management Portal:
https://portal.azure.com/

RMsolution
GitHub repository

Resources

Azure IoT Suite pricing & details

Developer documentation

Instructional videos

Actions

Delete Solution

Microsoft Azure IoT Suite ⓘ RMsolution

ADMINISTRATOR Sign Out

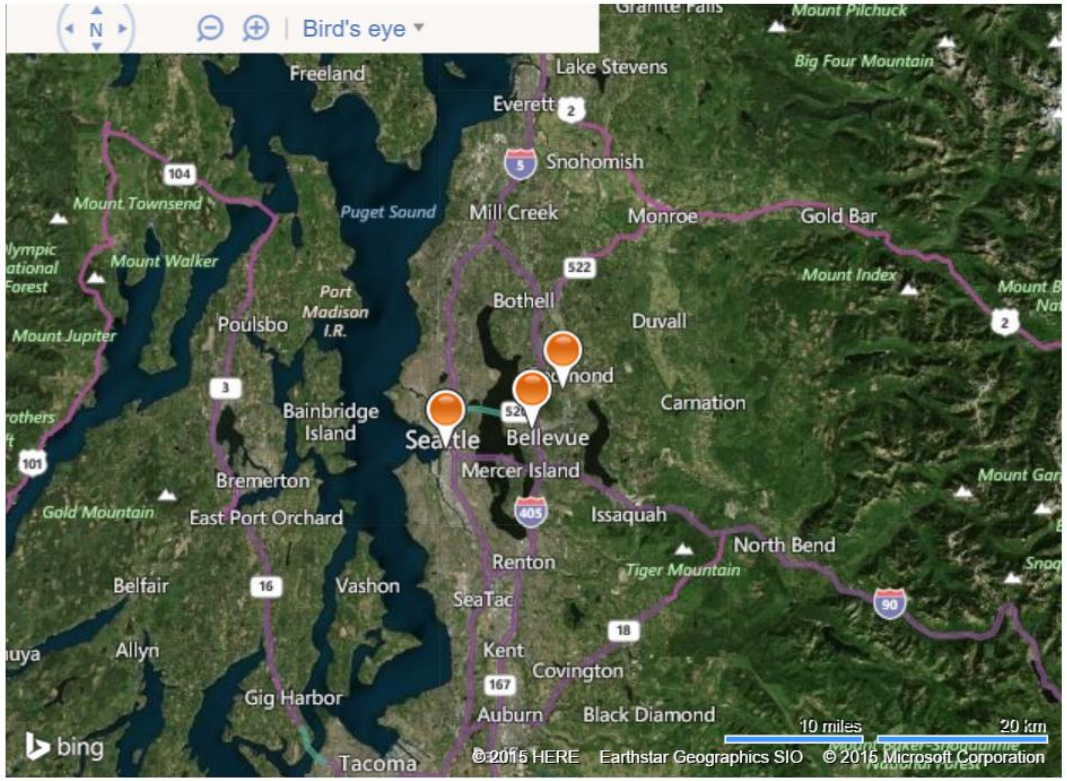
DASHBOARD

DEVICES

RULES

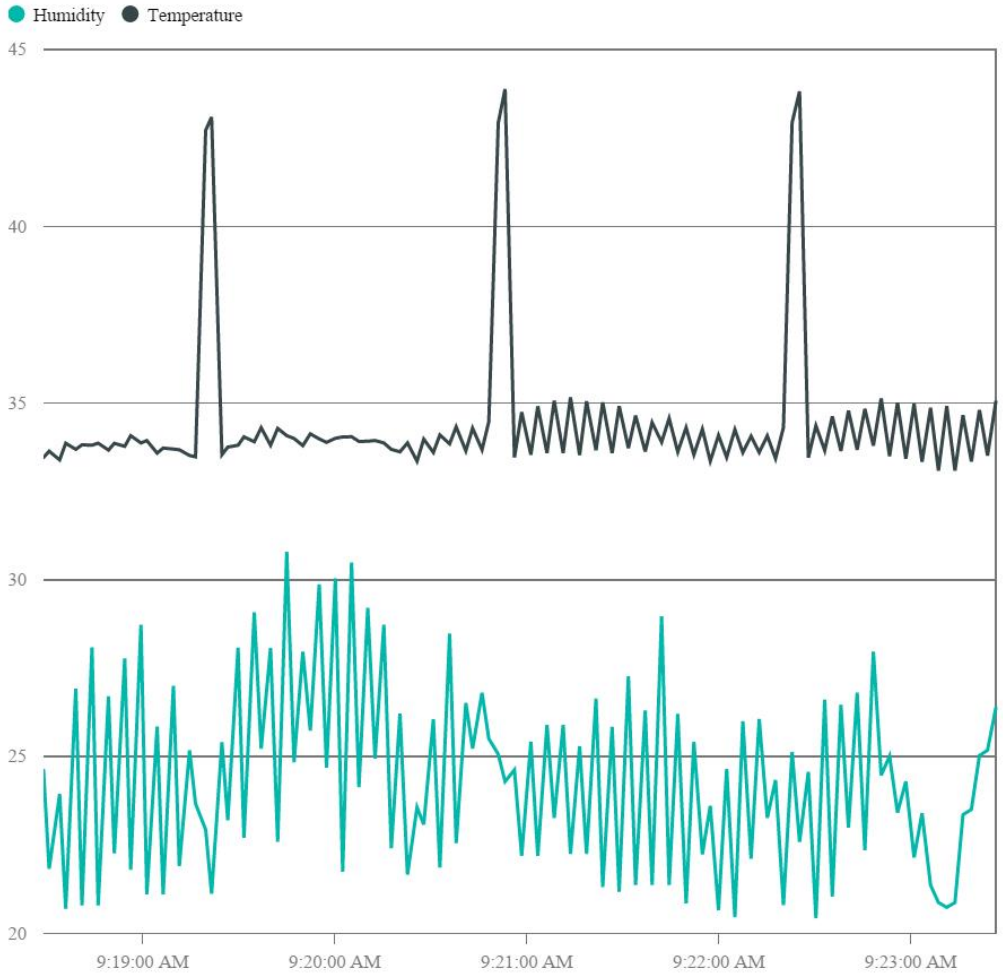
ACTIONS

ADD A DEVICE



Device to View: SampleDevice001_363

Telemetry History



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Max of device humidity

Min of device humidity

Average of device humidity

Microsoft Azure IoT Suite ⓘ RMsolution

ADMINISTRATOR Sign Out

DASHBOARD

DEVICES

RULES

ACTIONS

ADD A DEVICE

> FIND DEVICES

Devices List (4)

STATUS	DEVICE ID	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FIRMWARE	PLATFORM	PROC
Running	SampleDevice001_363	Contoso Inc.	MD-183	SER5094	1.43	Plat-9	i3-938
Running	SampleDevice002_363	Contoso Inc.	MD-762	SER7925	1.0	Plat-30	i3-2457
Running	SampleDevice003_363	Contoso Inc.	MD-161	SER4940	1.1	Plat-59	i3-3716
Running	SampleDevice004_363	Contoso Inc.	MD-192	SER4277	1.54	Plat-48	i3-7923

> DEVICE DETAILS

Actions

Disable Device

Add Rule...

Commands

Device Properties Edit

DEVICEID
SampleDevice001_363

HOSTNAME
RMsolution.azure-devices.net

HUBENABLEDSTATE
True

CREATEDTIME
09/29/2015, 9:14:38 AM

DEVICESTATE
normal

UPDATEDTIME
09/29/2015, 9:16:19 AM

MANUFACTURER
Contoso Inc.

MODELNUMBER
MD-183

SERIALNUMBER
SER5094

Azure IoT Suite | IoT Device Portal - Add | Dashboard - Microsoft Azure

rmdemorg.azurewebsites.net/Device/AddDevice

Microsoft Azure IoT Suite | RMDemoRG

Demo1@iots01.onmicrosoft.com
ADMINISTRATOR
Sign Out

DASHBOARD
DEVICES
RULES
ACTIONS

ADD A DEVICE
STEP 1 of 3

Simulated Device

Software to simulate a device. Easily extensible for arbitrary events and commands; can run in a Windows Azure worker role. To create a simulated device, please follow the cooler sample instructions.

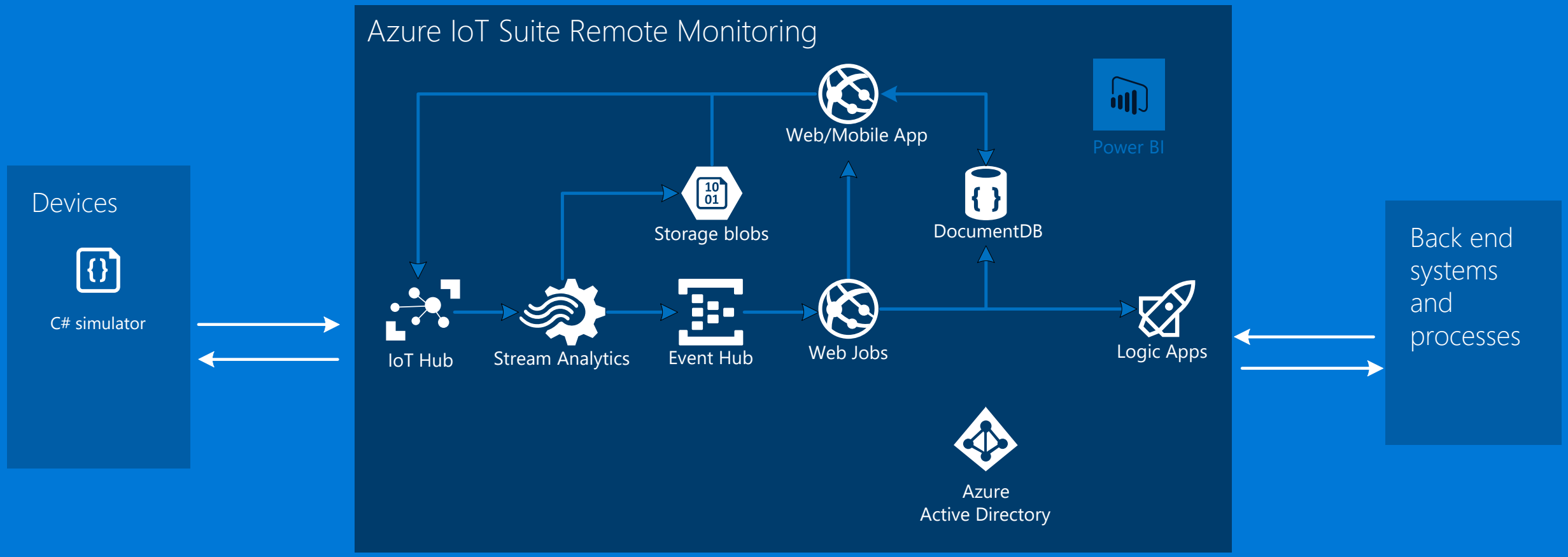
Add New

Custom Device

A physical hardware device.

Add New

What you get with remote monitoring preconfigured solution



Microsoft Azure | All resources

Search resources

DEFAULT DIRECTORY

New

Resource groups

All resources

Recent

Web Apps

SQL databases

Virtual machines (classic)

Virtual machines

Cloud services

Subscriptions

Browse

All resources

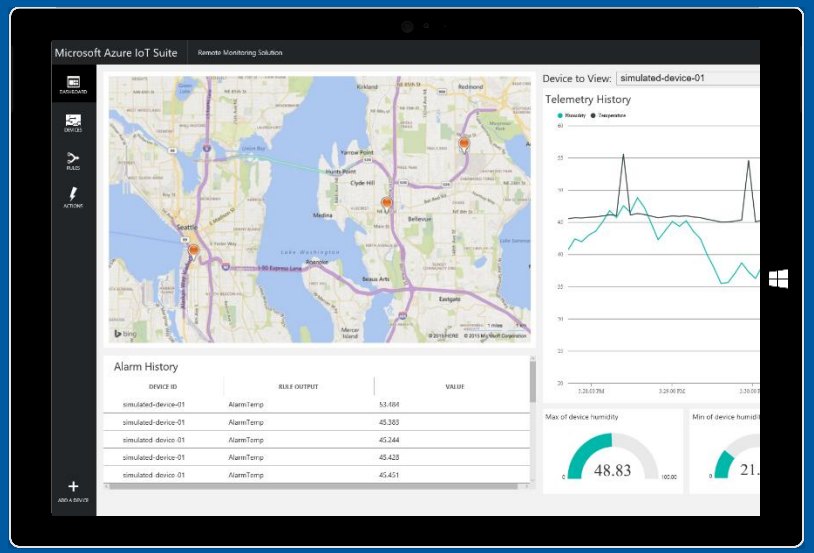
Add | Columns | Refresh

Filter items ...

NAME	RESOURCE GROUP	LOCATION	SUBSCRIPTION
SolutionRM	SolutionRM	East US	Visual Studio Enterprise wi...
SolutionRM	SolutionRM	East US	Visual Studio Enterprise wi...
SolutionRM-DeviceInfo	SolutionRM	East US	Visual Studio Enterprise wi...
solutionrm-iotsuite	SolutionRM	East US	Visual Studio Enterprise wi...
SolutionRM-map	SolutionRM	West US	Visual Studio Enterprise wi...
SolutionRM-plan	SolutionRM	East US	Visual Studio Enterprise wi...
SolutionRM-Rules	SolutionRM	East US	Visual Studio Enterprise wi...
solutionrmstore	SolutionRM	East US	Visual Studio Enterprise wi...
SolutionRM-Telemetry	SolutionRM	East US	Visual Studio Enterprise wi...

Tailor Azure IoT Suite to your needs using preconfigured solutions

Start quickly with preconfigured solutions



- Get started in minutes
- Modify existing rules and alerts
- Add your devices and begin tailor to your needs

Finish with your Internet of Things application

- Fine-tuned to specific assets and processes
- Highly visual for your real-time operational data
- Integrate with back-end systems

Connect & Control

Azure IoT Hub

Azure IoT Hub

Designed for IoT

Connect up to 10 million devices

Service assisted communications

Secure bi-directional communication

Command and control

Cloud-scale messaging

Device-to-cloud and Cloud-to-device

Durable messages (at least once semantics)

Cloud-facing telemetry ingestion

Delivery receipts, expired messages

Device communication errors

Per-device authentication

Individual device identities and credentials

Connection multiplexing

Single device-cloud connection for all communications (C2D, D2C)

Multi-protocol support

Natively supports AMQP, HTTP

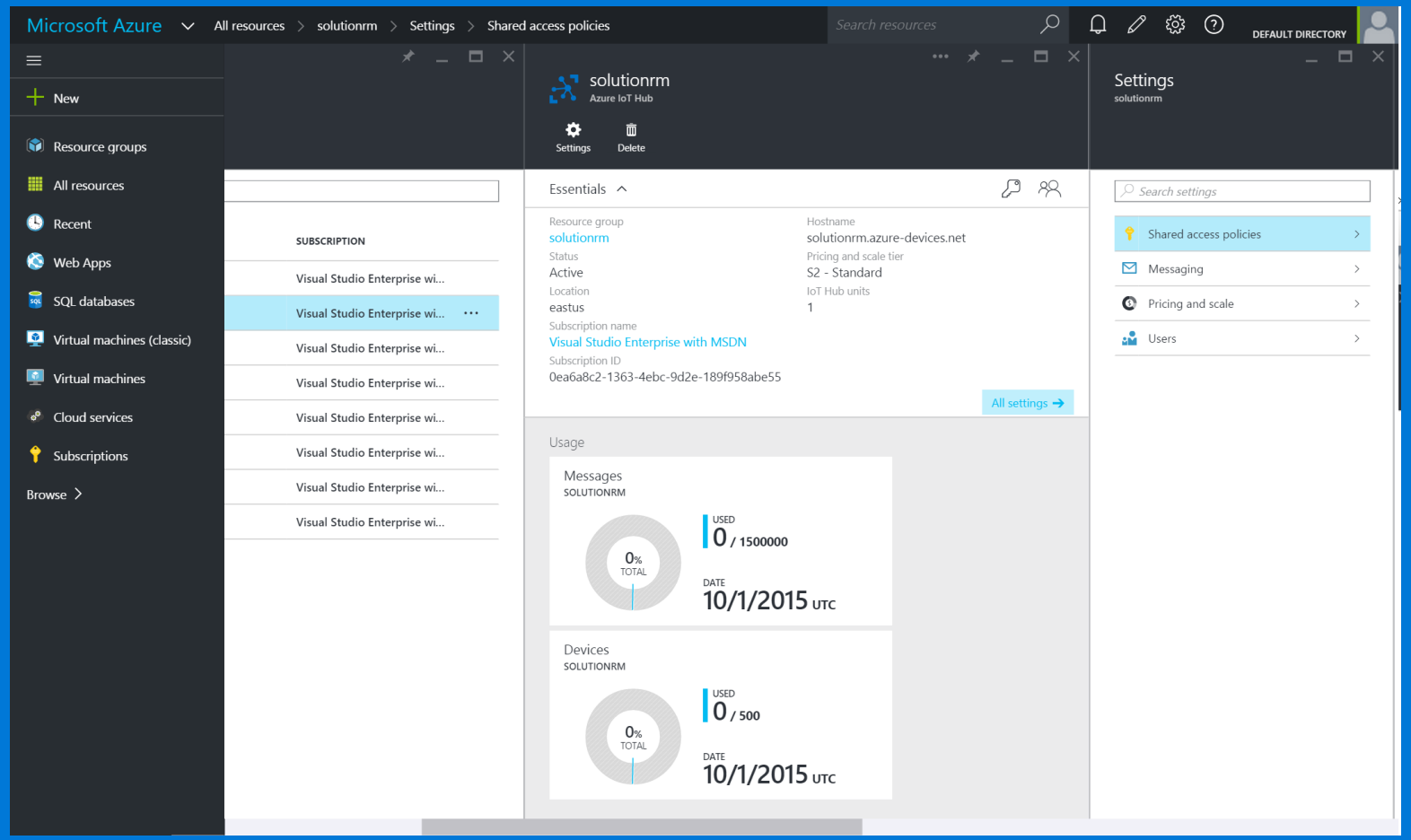
Designed for extensibility to custom protocols

Multi-platform

Device SDKs available for multiple platforms (e.g. RTOS, Linux, Windows)

Multi-platform Service SDK.

Manage IoT Hub in Azure portal



Simple navigation

Management of devices, volume and scaling made easy through the IoT Hub settings in the Azure Management Portal

Heterogeneous Agents

SDKs and Libraries

SDKs and Libraries

SDK, agent libraries

Easily accessible libraries in GitHub

Cross platform support

Choose real time OS, platform and language

Device support

IP and access control capabilities

Connect IP, and non-IP devices

Support for direct connection devices and resource strained or non-IP devices via gateway and field protocols

Open source framework

Develop custom agents for your devices

Secure communication

Simple and secure D2C and C2D connectivity for messaging, device management and command and control.

OS support

RTOS, Linux, Windows, Android, iOS etc.

Platforms support

Operating systems supported:

Debian Linux (v 7.5)
Fedora Linux (v 20)
mbed OS (v 2.0)
Raspbian Linux (v 3.18)
Ubantu Linux (v 14.04)
Windows Desktop (7, 8, 10)
Windows IoT Core (v 10)
Windows Server (v 2012 R2)
Yocto Linux (v 2.1)

C Libraries supported:

Debian Linux (v 7.5) HTTPS, AMQP, MQTT

Fedora Linux (v 20) HTTPS, AMQP, MQTT

mbed OS (v 2.0) HTTPS, AMQP

Ubuntu Linux (v 14.04) HTTPS, AMQP, MQTT

Windows Desktop (7,8,10) HTTPS, AMQP, MQTT

Yocto Linux (v 2.1) HTTPS, AMQP

Languages support

Node.js library:

Node.js (v 4.1.0) HTTPS

Java library:

Java (v 1.7) HTTPS, AMQP

Java (v 1.8) HTTPS, AMQP

C# libraries supported:

Windows Desktop (7,8,10) HTTPS, AMQP

Windows IoT Core (10) HTTPS

Managed agent code requires .NET framework 4.5

Device Developers

Azure IoT Dev center:

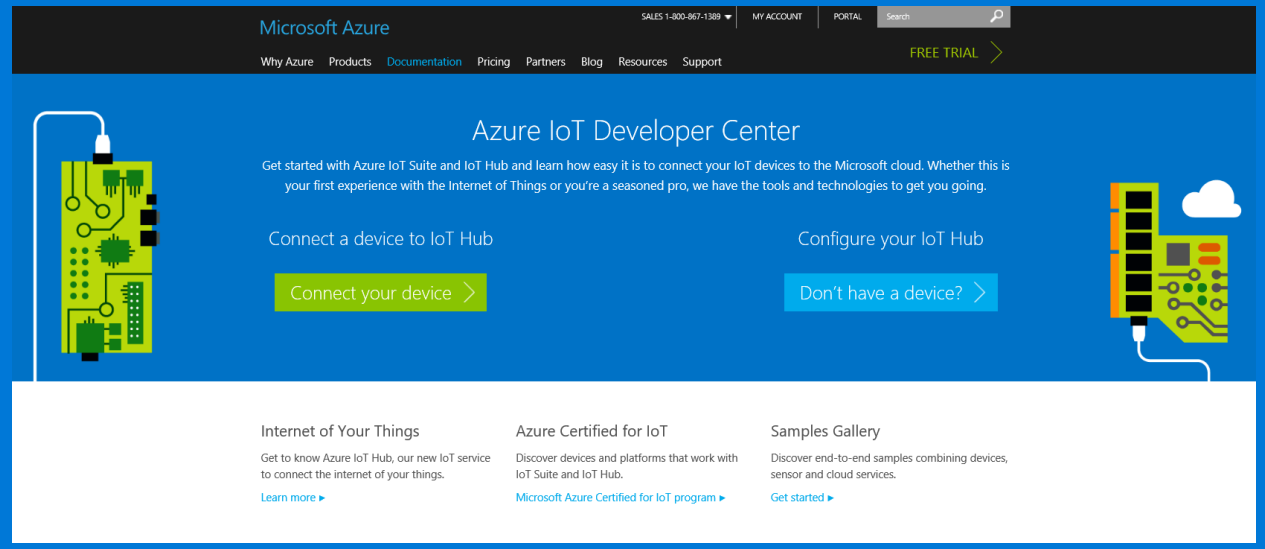
www.azure.com/iotdev

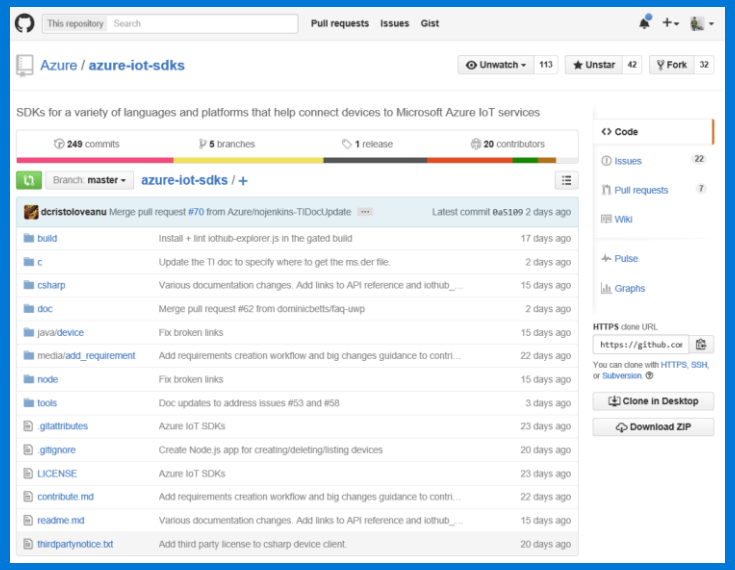
All SDKs and libraries are open source:

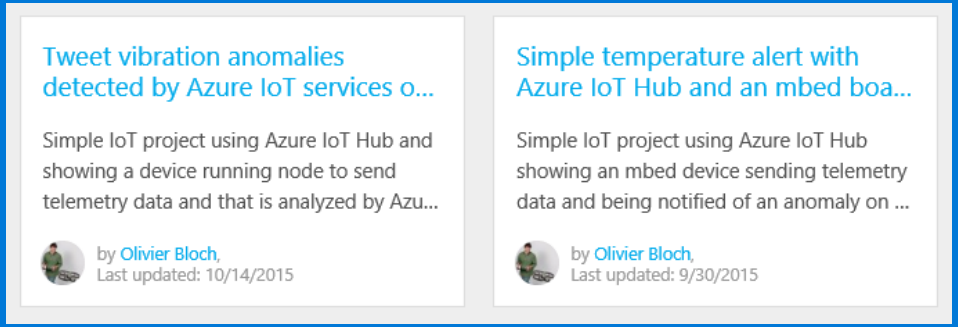
www.github.com/azure/azure-iot-sdks

Check out our samples:

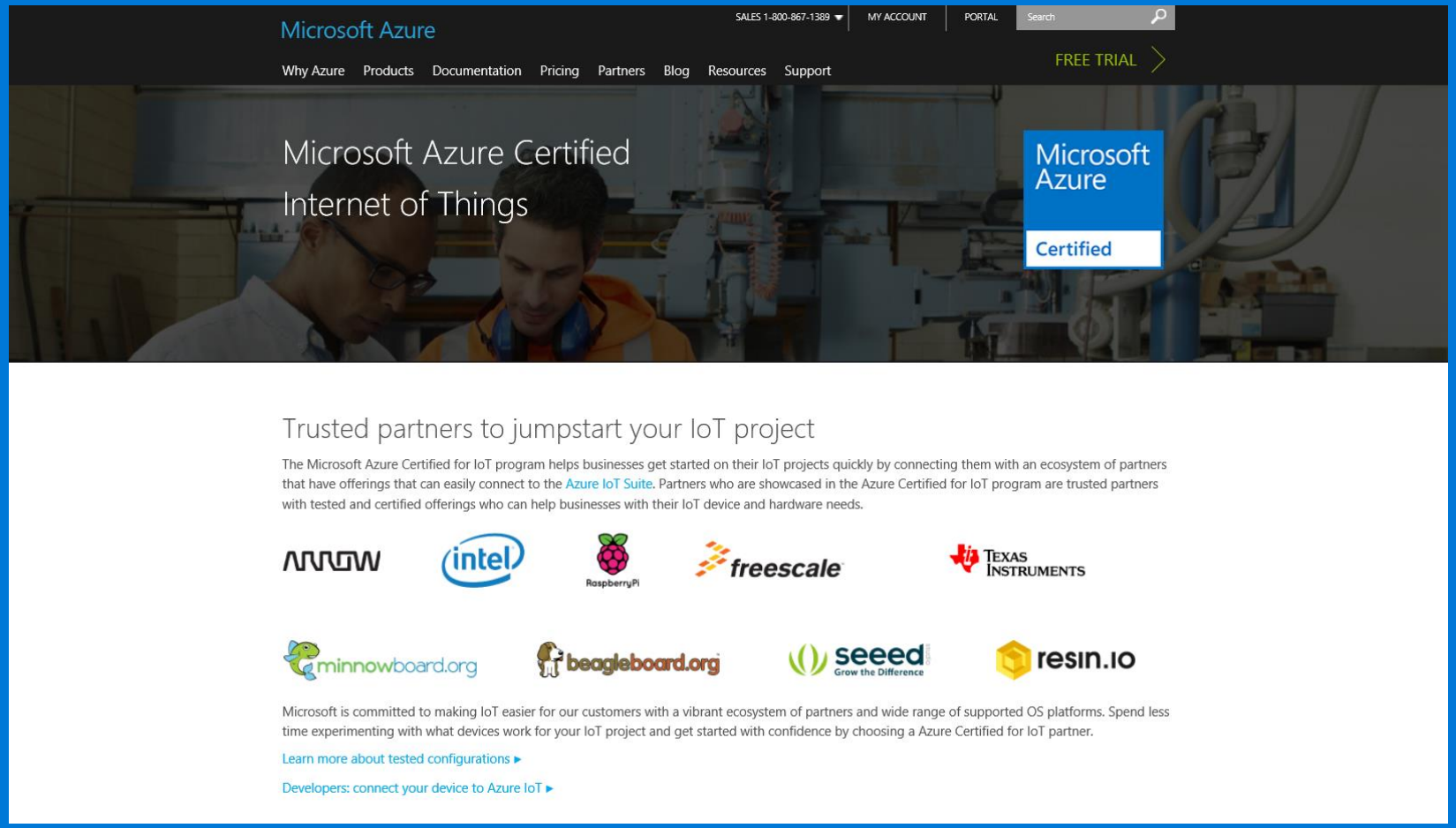
aka.ms/azureiotsamples







Azure Certified for IoT



http://aka.ms/azureiotcertified

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Event Processing

Azure Stream Analytics

Real time event processing

High volume

Analyze millions of data points per second

Highly scalable

Enterprise grade, predictable solution.

Uncover real time insights

Perform real time analytics across multiple streams

Rapid Deployment

Use simple SQL syntax, auto distributed for scale

Mission critical reliability

Fully managed, low latency, high throughput

Create real time alerts

Flag alerts and alarms for attention

Predictive Analytics

Azure Machine Learning

Cloud based predictive analytics

ML API service

Models available as URL, call from any endpoint

Use ML studio to create

Access and prepare data,

Create, test and train models

Rapid deployment

Single click deploy to production via API service

Drag and drop algorithms

Simple UI for straightforward algorithm creation

Algorithm libraries

Utilize library of preconfigured algorithm solutions

Data Visualization

Power BI

Data visualization with PowerBI

Real time capabilities

Ingest, analyze and display data as it happens

Secure access

Secure, live communication with data source

Query data

Intuitive, natural language query tool

Integrated systems

Integrate with other business systems and enrich device data with intelligence from other business systems, eg: CRM, ERP

Highly accessible analytics

Cloud based dashboard and analytics tool,

360º view of business KPI's

Customize dashboards to address concerns and performance metrics.

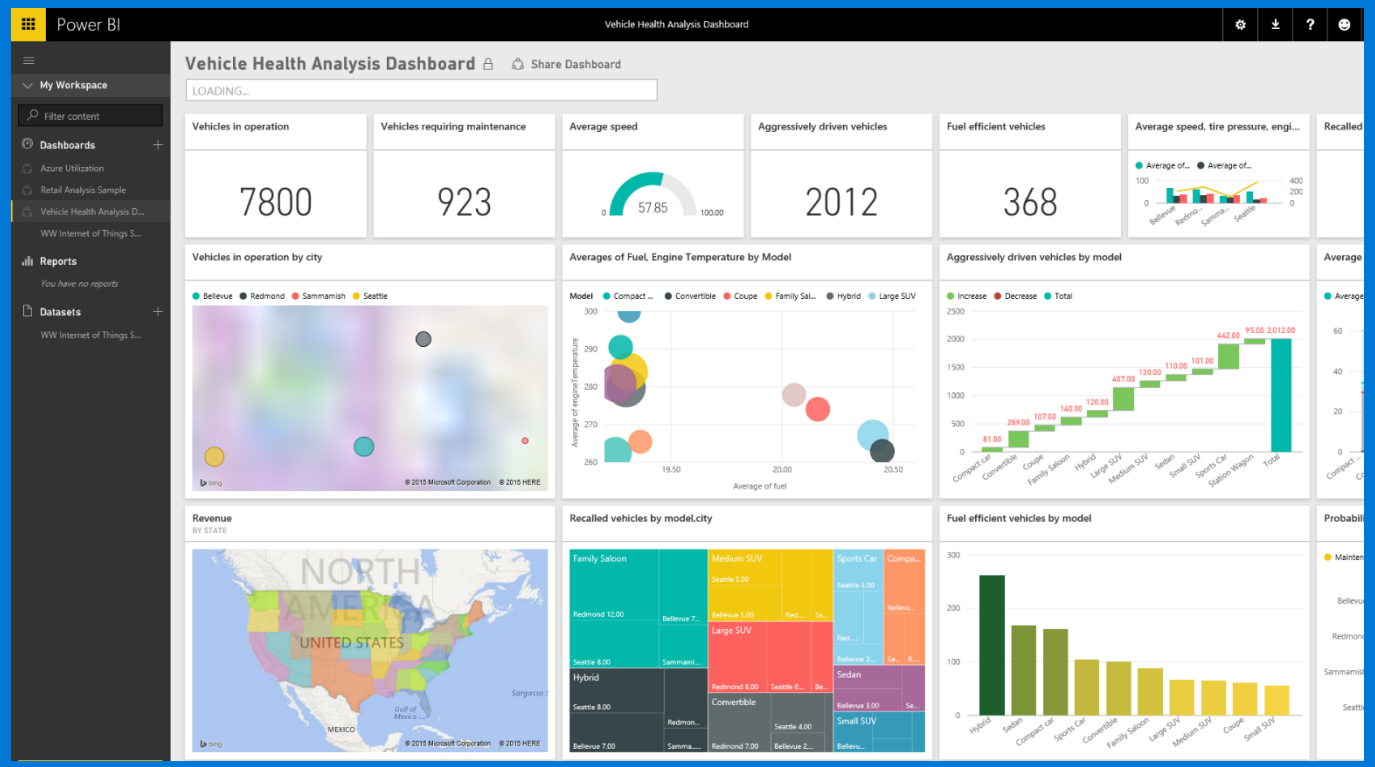
Cross platform support

View data via web platform, on any device

Pre-built dashboards

Utilize standard dashboards for rapid deployment, based on popular solution demands.

Data visualization with PowerBI



Rich visuals

Standard and custom graphing options

Custom dashboards

Build heat maps and visually track data

External data

Integrate external data feeds to add value to device data, or pull in external information such as weather or market information.

Microsoft Azure IoT Suite

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Workflow Integration

Logic Apps

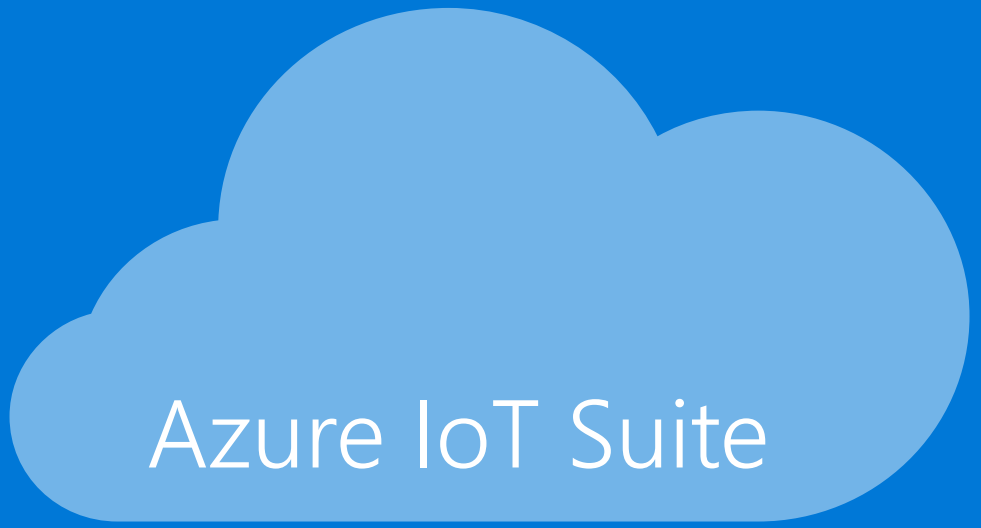
Push & Broadcast Notifications

Notification Hubs

ID & Access Management

Azure Active Directory

Summary



Connect & Scale

Analyze & Act

Integrate & Transform

Visit

www.InternetofYourThings.com
to get started

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