Every first thursday of the month

http://azure.thursday.cloud

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Azure Thursday - December 2018

Building a (simple) Azure IoT solution

Rick van den Bosch

Agenda

What is Azure IoT?

The main parts

An IoT example

IoT Services

The IoT Button

DEMO!

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What is Azure IoT?

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What is Azure IoT?

Collection of cloud services

Connect, monitor and control billions of IoT assets

An IoT solution is made up of one or more IoT devices and one or more back-end services running in the cloud that communicate with each other.

The main parts

The main parts

- Devices
- Back-end services
- Communication

IoT devices

Circuit board

Sensors

Internet connection

MX Chip IoT Devkit

Raspberry PI

Communication

Two-way communication

Secure and reliable connection often biggest challenge

- Embedded (no human operator)
- Remote locations (expensive physical access)

May

- only be reachable through back-end
- have limited power/processing resources
- have intermittent/slow/expensive network
- need proprietary/custom/industry-specific protocols

Back-end services

Receive, process and store telemetry data

Analyze data to provide insights

Send commands to devices

Provision and control devices

Control state of devices and monitor activities

An IoT example

An IoT example

Cattle ranch (hundreds of thousands of cows)

Management requires a lot of driving around

A device for each cow (location, temperature, ...)

Analytical service scans and analyzes data

- Running a temperature?
- For how long?
- > 1 day, get location treat with antibiotics

- Same location > 1 day?
- Get location
- Fell of a cliff? Injured? Need help?

IoT Services

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IoT Services

IoT Central

IoT solution accelerators

IoT Hub

IoT Hub Device Provisioning Service

IoT Edge

Azure Digital Twins

Time Series Insight

Azure Maps

Azure IoT Technologies and Solutions

(PaaS) Solutions

Azure IoT solution accelerators (PaaS)

Preconfigured solutions for common IoT scenarios

(SaaS) Solutions

Azure IoT Central (SaaS)

Microsoft Dynamics Connected Field Service (SaaS)

(PaaS) Technologies

Device support

- Azure IoT Device SDK
- Azure IoT certified devices
- Security Program for Azure IoT
- Windows 10 IoT

IoT

- Azure IoT Hub
- Azure IoT Edge
- Azure Time Series Insights
- Azure Sphere
- Azure Digital Twins
- Azure Maps
- IoT Hub Device Provisioning Service
- Azure Functions
- Azure Machine Learning

Data and Analytics

- Azure HD Insight
- Azure Data Lake
- Azure Cosmos DB

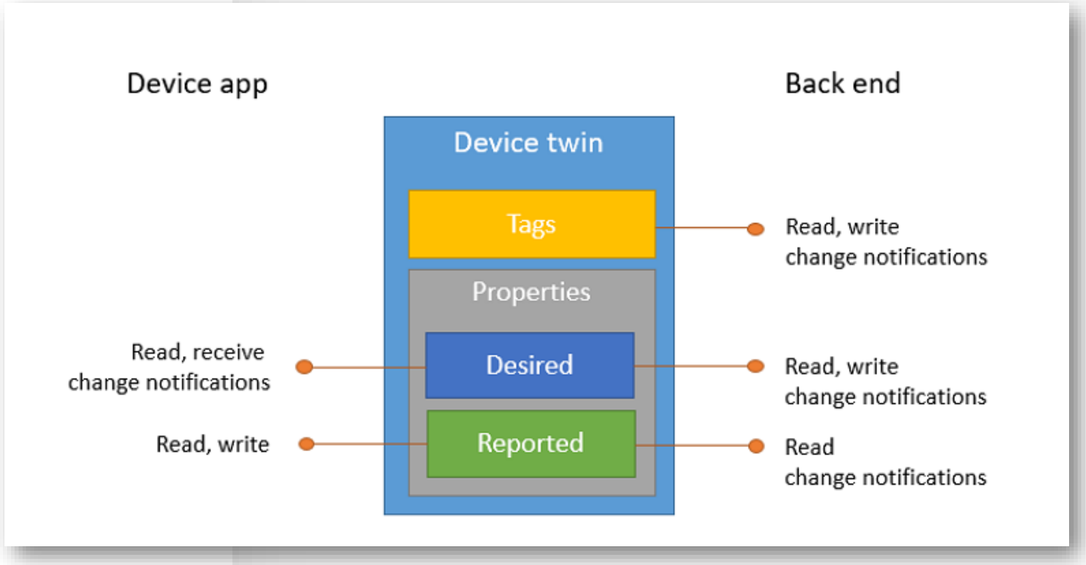
Visualization and Integration

- Microsoft Flow
- Azure Active Directory
- Azure Logic Apps
- Microsoft Power BI
- Azure Web App
- Azure Monitor
- Notification Hubs

Azure Device Twin

JSON Documents

- Store device-specific metadata in the cloud
- Report current state information
- Synchronize the state of long-running
- Query your device metadata, configuration, or state



This logic is already implemented in the [Azure IoT device SDKs](#).

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The IoT Button

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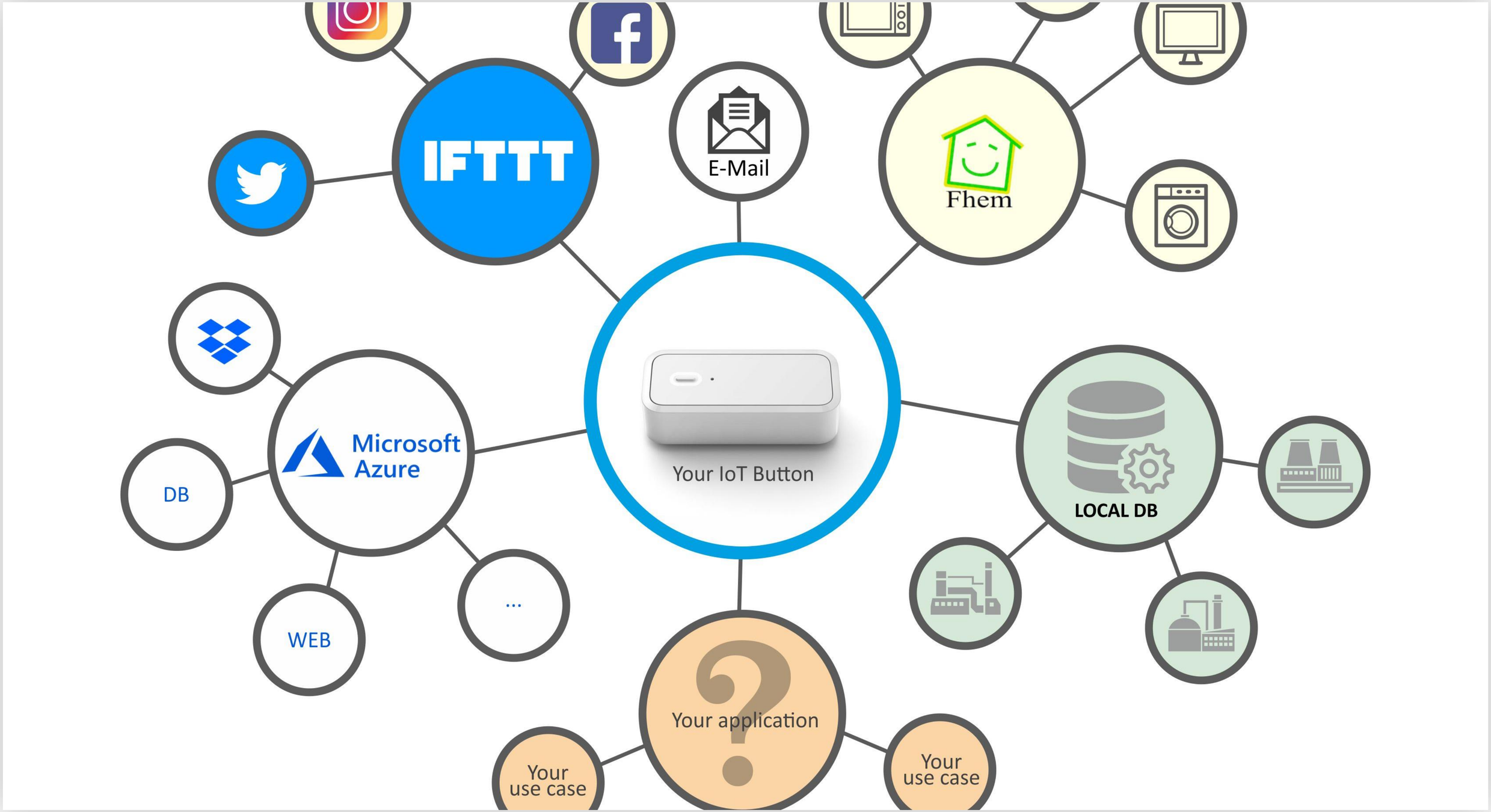
The IoT Button

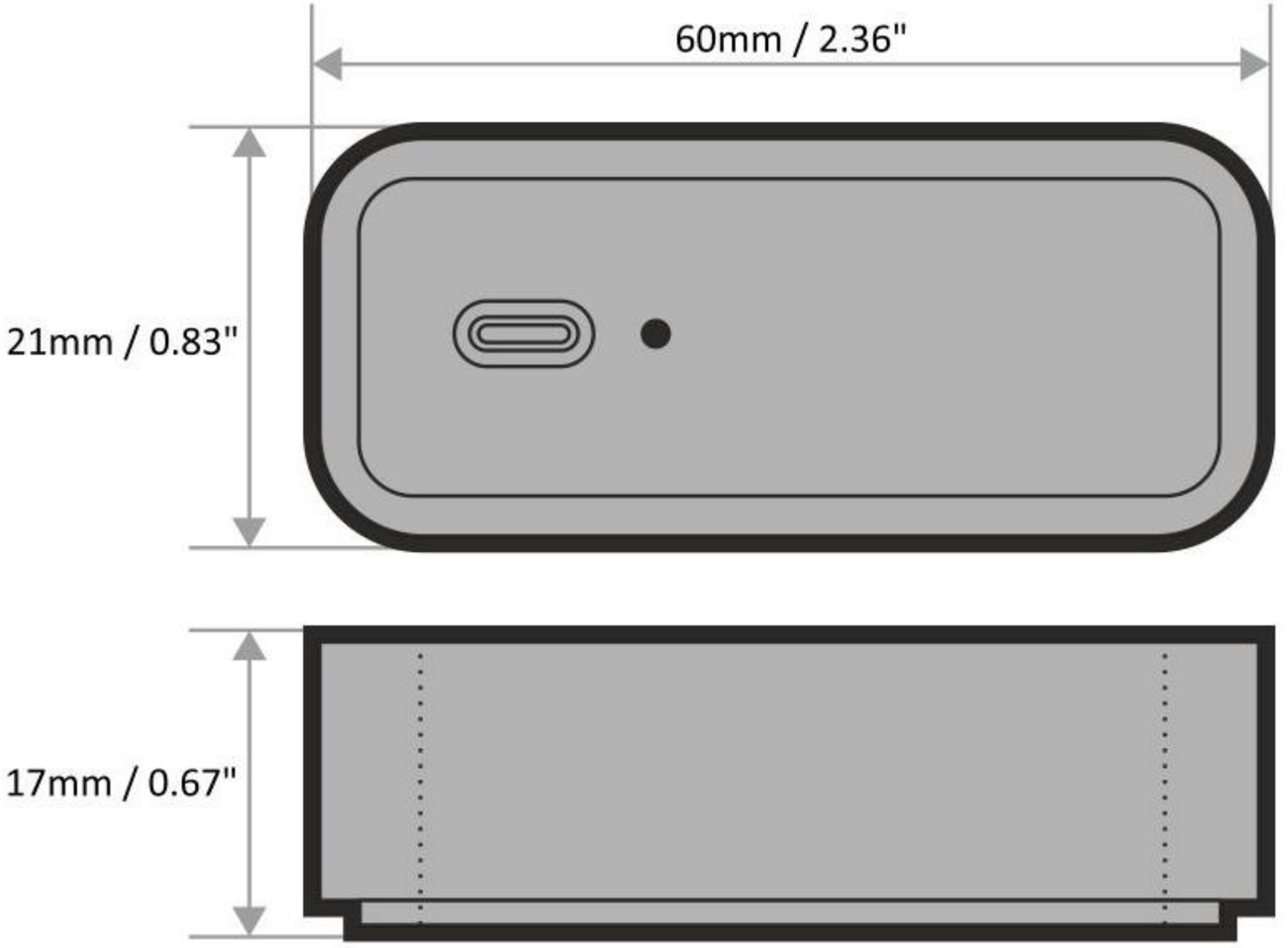
Simple device

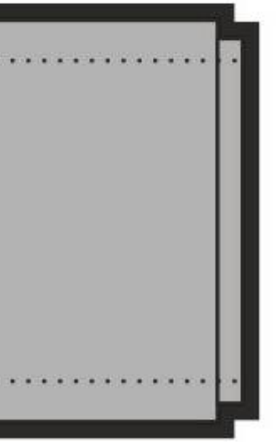
Runs MicroPython

One action

TheButtonProject


IFTTT
E-Mail
Fhem
Your IoT Button
Microsoft Azure
DB
WEB
...
LOCAL DB
Your application
Your use case
Your use case



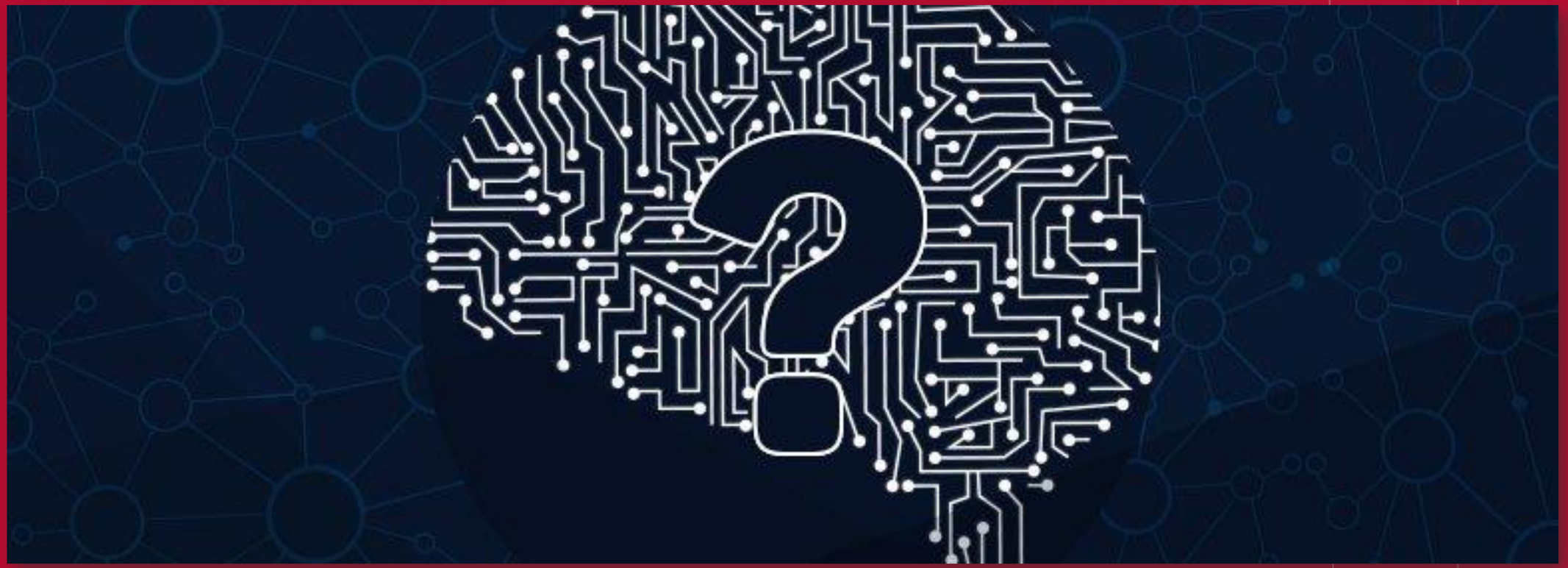


size comparison

Power: 2x 1.5V AAA Alcaline Batteries. Replaceable.
Connectigity: Single Band W-Fi (2-4GHz; 802.11 b/g/n)>
Weight: 36 Gramm / 1,27 oz

DEMO

Questions?



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Resources

The IoT Button

The Button Project

What is Azure Internet of Things (IoT)?

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Bedankt voor je aandacht