Microsoft

Sydney Python Meetup

Building an End to End Secure, Scalable IoT Serverless Solution

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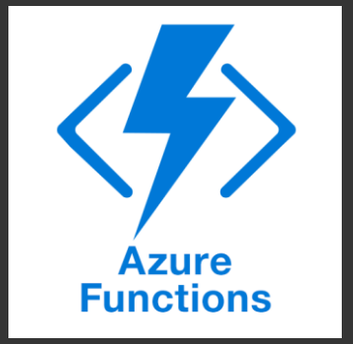
https://github.com/gloveboxes/Integrate-IoT-Edge-Classifier-with-Python-Azure-Functions-and-Azure-SignalR

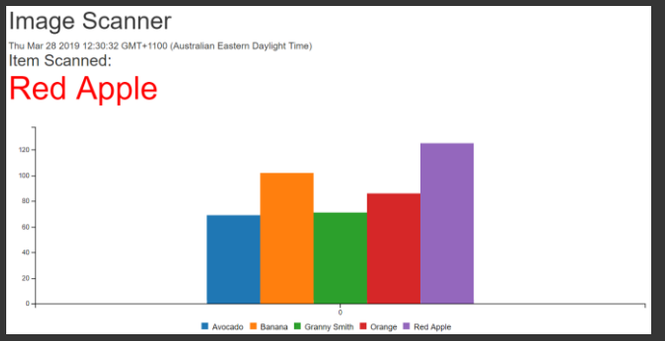
What we will cover

Python Image Recognition
(Azure IoT Edge)

Serverless & Azure Functions

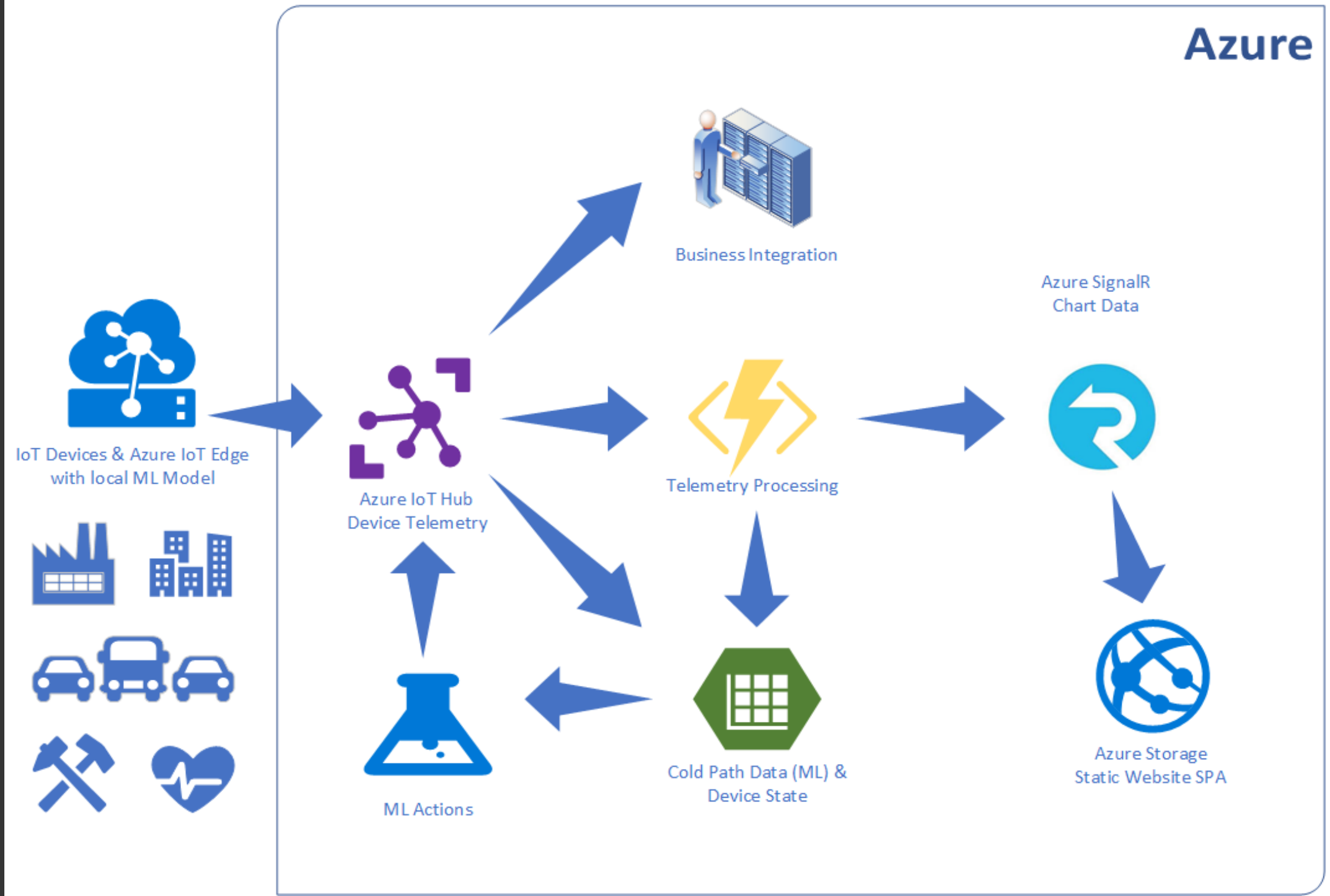


Serverless Websites
(Azure Storage Static Websites)



Python & Custom Vision AI and Azure IoT Edge

Integration IoT and Business



Python Image Recognition

- Azure Custom Vision AI
  - Exported Python Container
  - https://www.customvision.ai/
  - Free Tier

- Azure IoT Edge
  - Manages Deployment, Health, Updates
  - Container Based
  - Open Source
  - Free Tier

Serverless with Azure Functions

What is Serverless?

No infrastructure **headaches**

Scales on demand

Very **cheap** to run

Functions as a Service (FaaS)

- Functions as a Service
  - Single Responsibility, Short Lived, Stateless, Event Driven & Scalable
- Azure Functions (Implementation of FaaS)
  - Great Local Developer Experience
  - Hosting Flexible
    - Consumption Plan, App Service Plan, Premium, and Container
  - Consumption plan
    - Free grant of 1 million requests and 400,000 GBs per month
  - Open Source https://github.com/Azure/Azure-Functions

Serverless Web Pages & Azure SignalR

SignalR in Action

Azure IoT Hub

Azure Function

Telemetry Processor

Azure SignalR Service

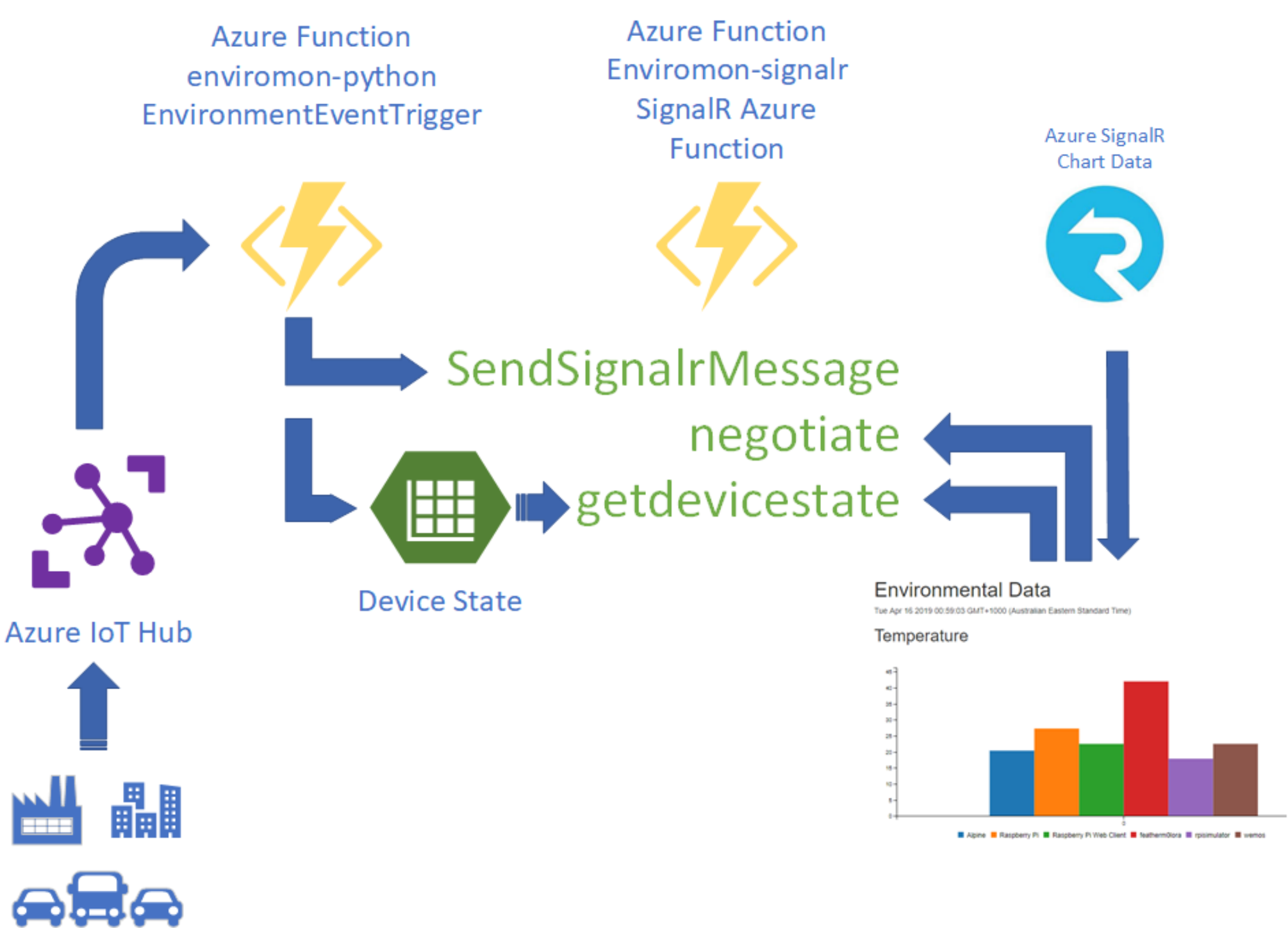
Browser
Desktop
Mobile
Game

Event Hub Trigger

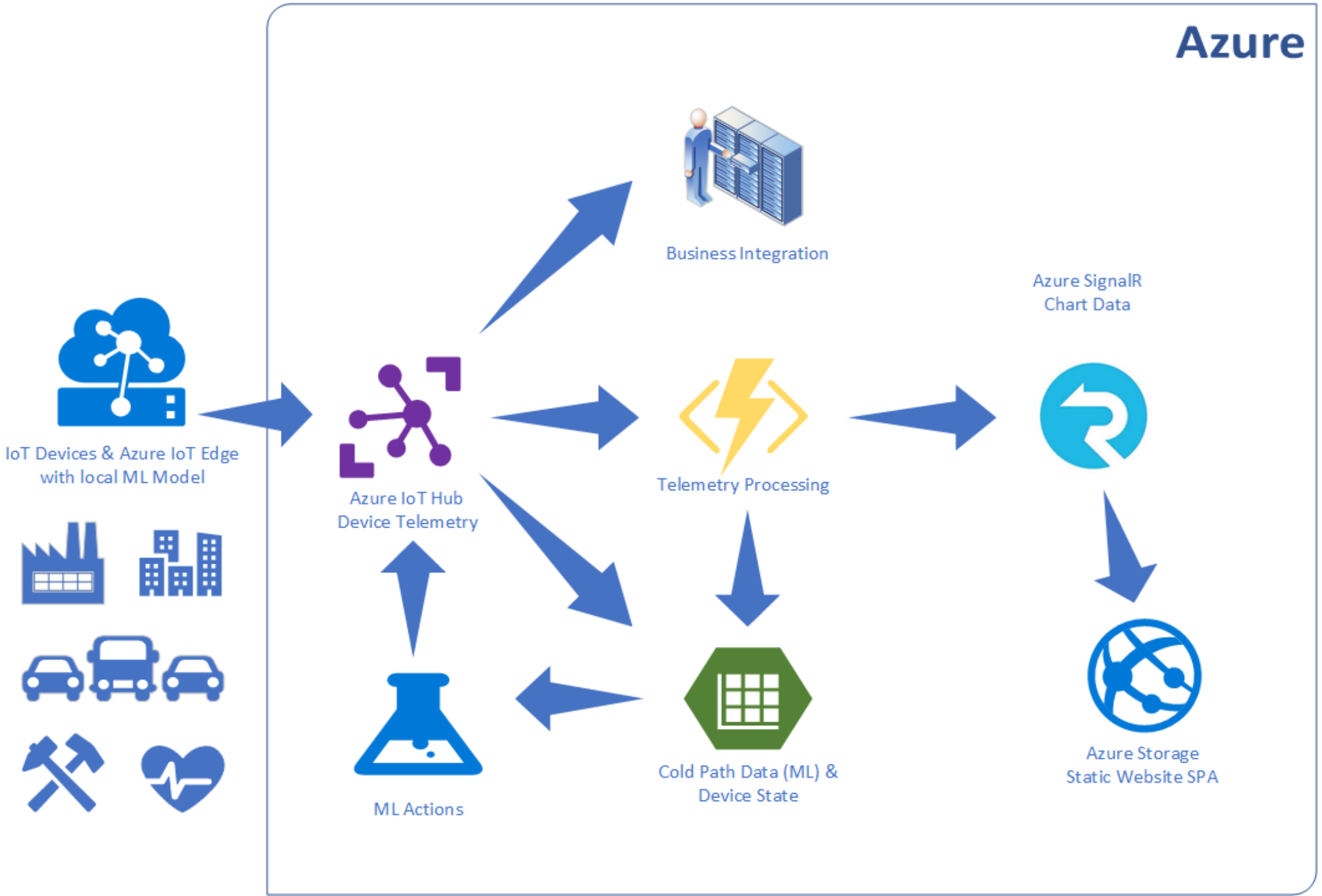
SignalR Output Binding

WebSocket, Server Sent Events, and Long Polling

SignalR in Actions



Session Summary



Resources

- Create your first Python function in Azure
- Azure Custom Vision AI
- Azure SignalR Service Documentation
- Static website hosting in Azure Storage
- Demoed Solution on GitHub (gloveboxes)
- Azure Functions Python Worker

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