

The IoT Developer Opportunity with Azure IoT Hub

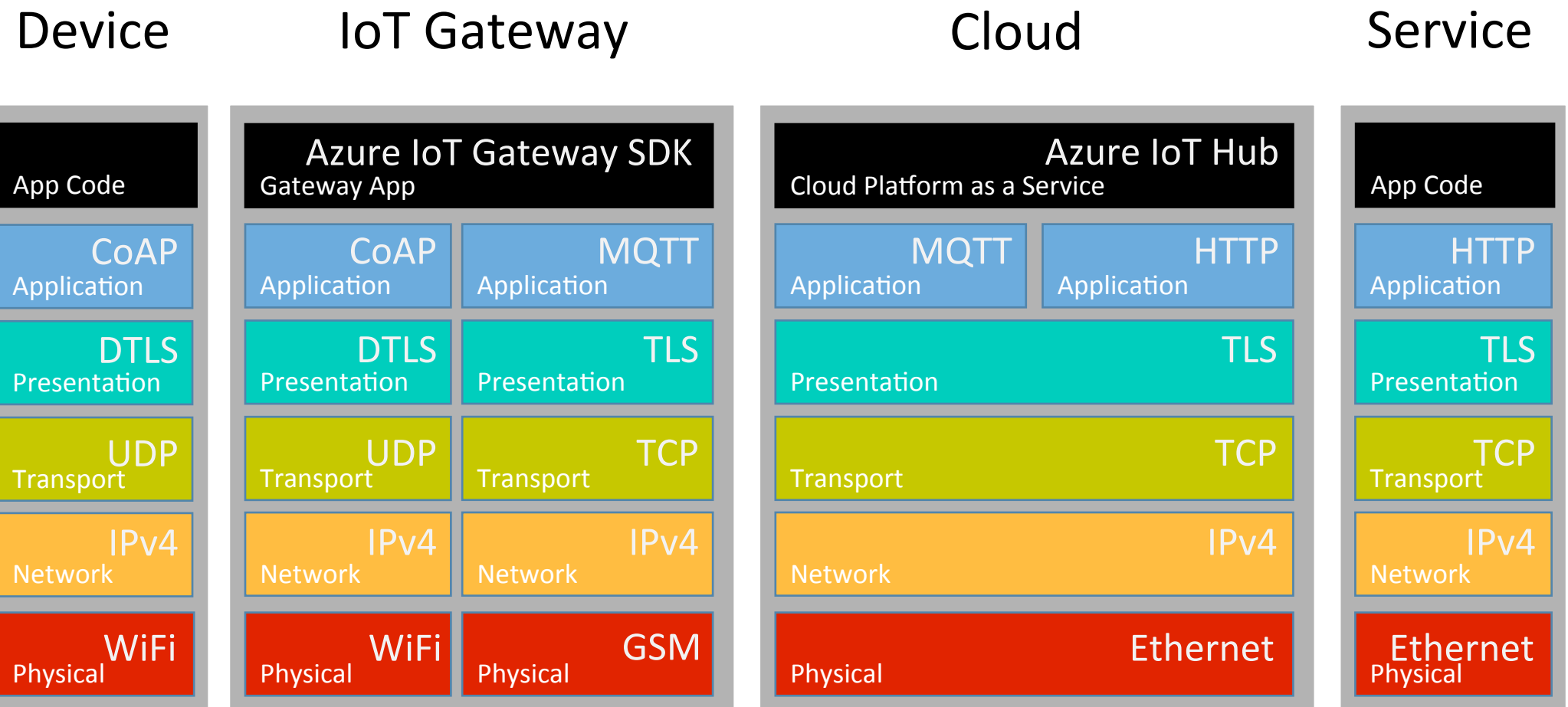
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Principal Program Manager

Azure IoT

Microsoft Azure

IoT solutions are very diverse and multi-dimensional
Vertical (stack) and Horizontal (flow and translation)



Different profiles of IoT developers

Edge Developer

Embedded/sensors
Hardware aware
OS aware
Radio and protocol

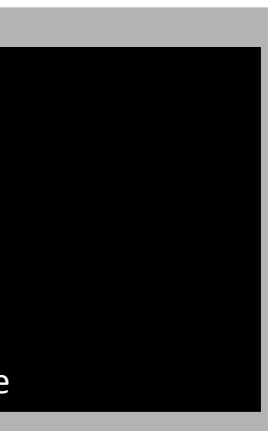
Gateway/Device Developer

- Messaging aware
- Radio and protocol translation aware
- OS aware
- Embedded/Sensors
- Hardware aware

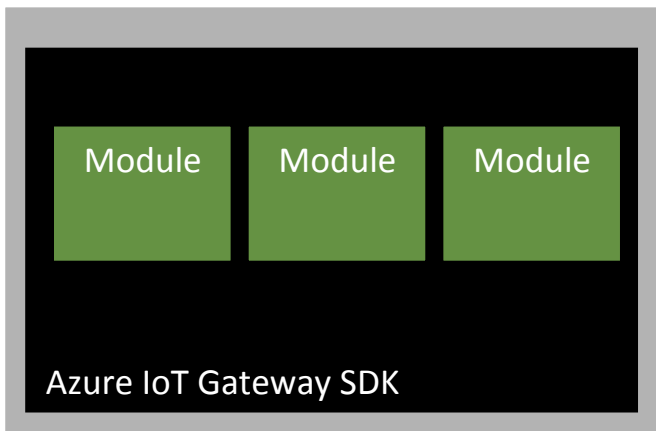
Cloud Service Application Developer

- Cloud/web/mobile aware
- Messaging aware
- Stream processing and machine learning aware
- Line of business aware

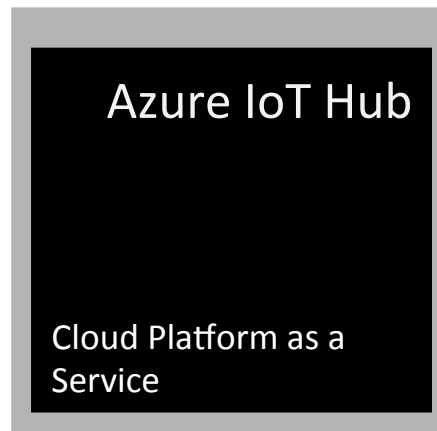
Device



IoT Gateway



Cloud



Service



How does Azure IoT Hub help?

Given **1 million devices deployed world-wide**, how do you **find the 10 that you're looking for?**

- Device twin properties
- Query based on device resources in device twin
- `SELECT * from devices where '/3/0/1' == 'Acme Manufacturing Inc.'`

How do you **read or execute on 10, 20k, or 1 million devices?**

- Schedule the request for the right time
- Do the request
- Wait for response
- Track results
- Deal with failures

Azure IoT Hub Device Management

Device Twin

enables synchronization of (desired and reported) properties between cloud and device

Methods

enables interactive device actions

Jobs

enables the broadcast and scheduling of twin changes and methods at scale

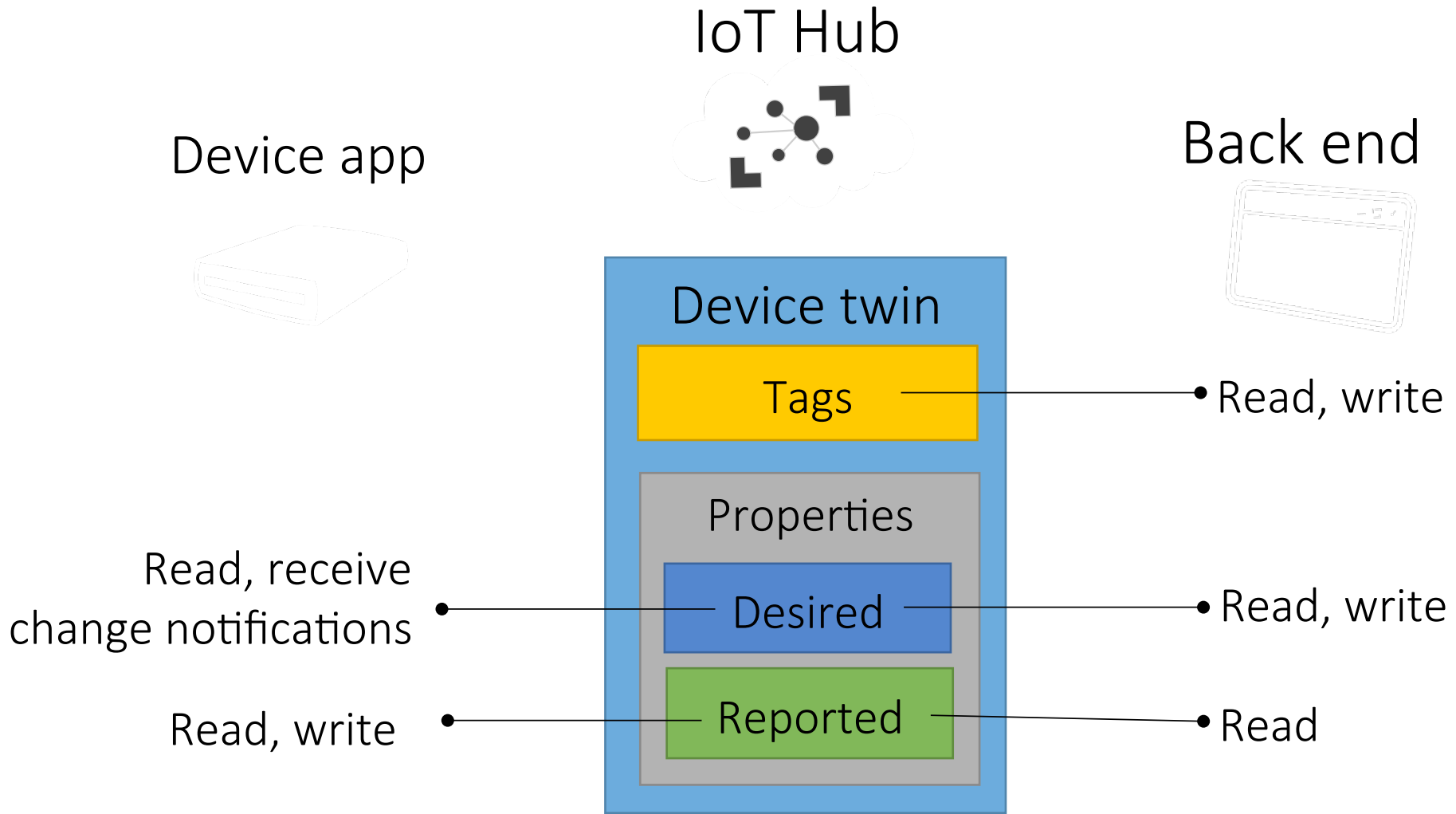
Queries

enables dynamic reporting to attest device status and health

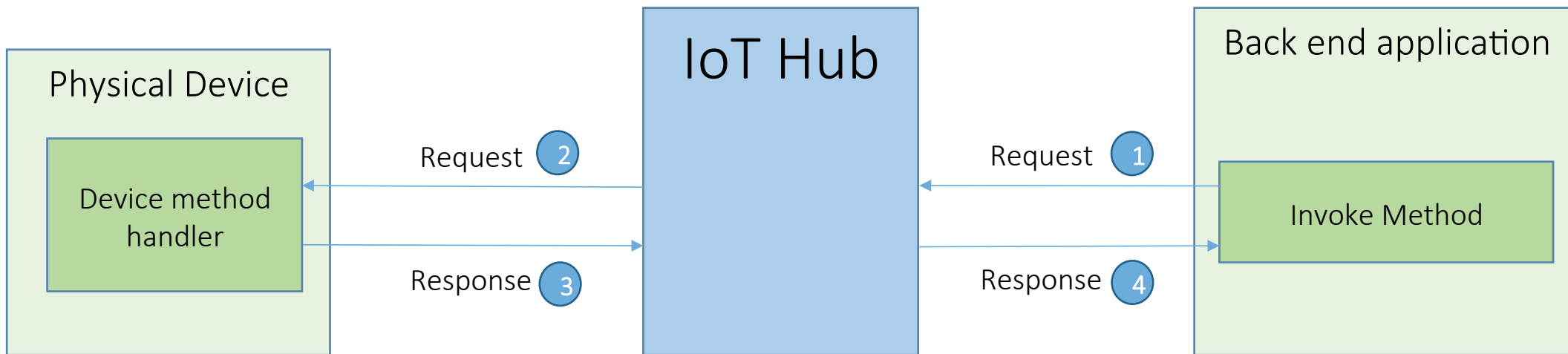
Patterns & Libraries

enables management on a diverse set of device platforms and connectivity models

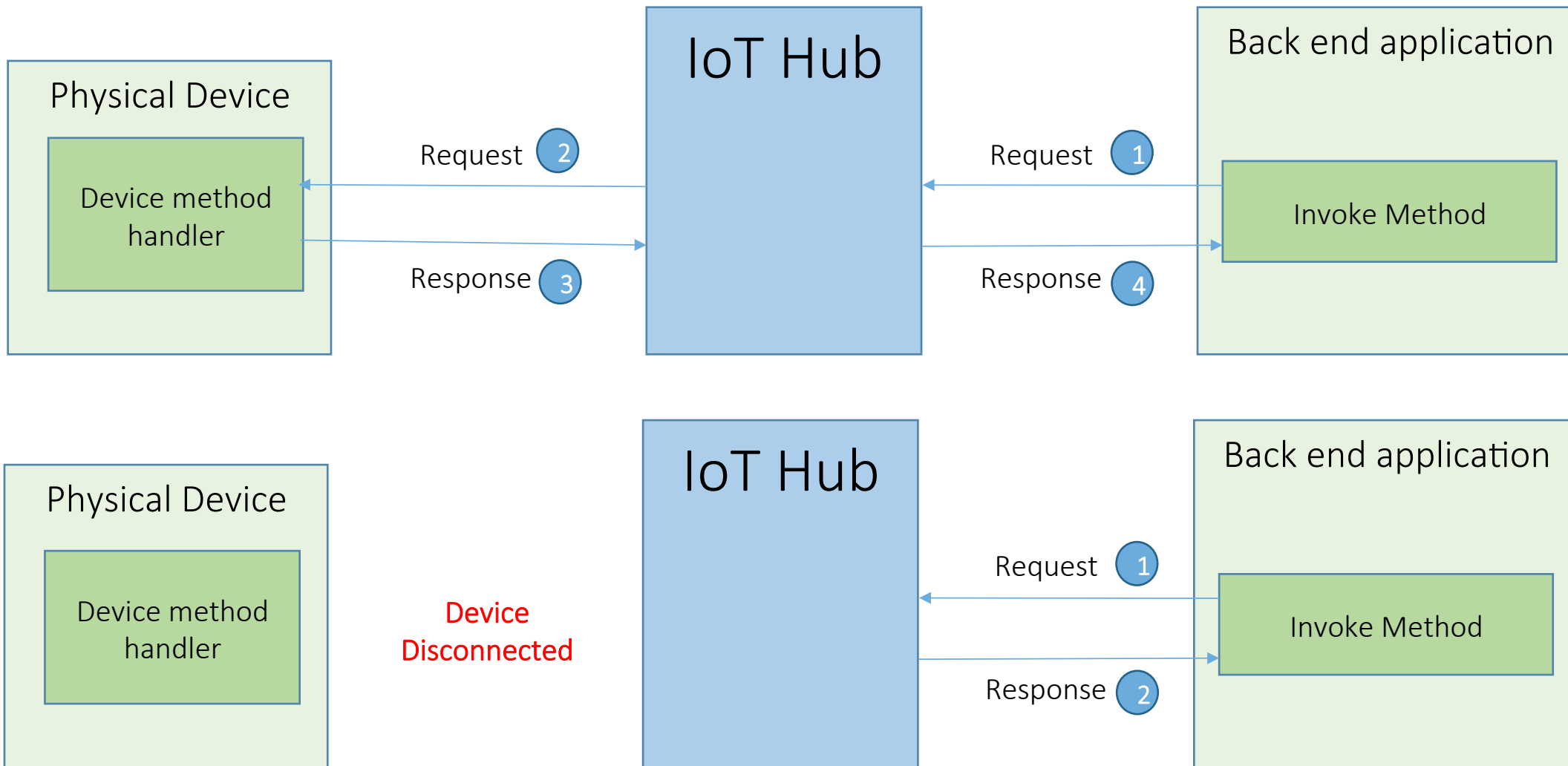
Secure IoT Device Twin



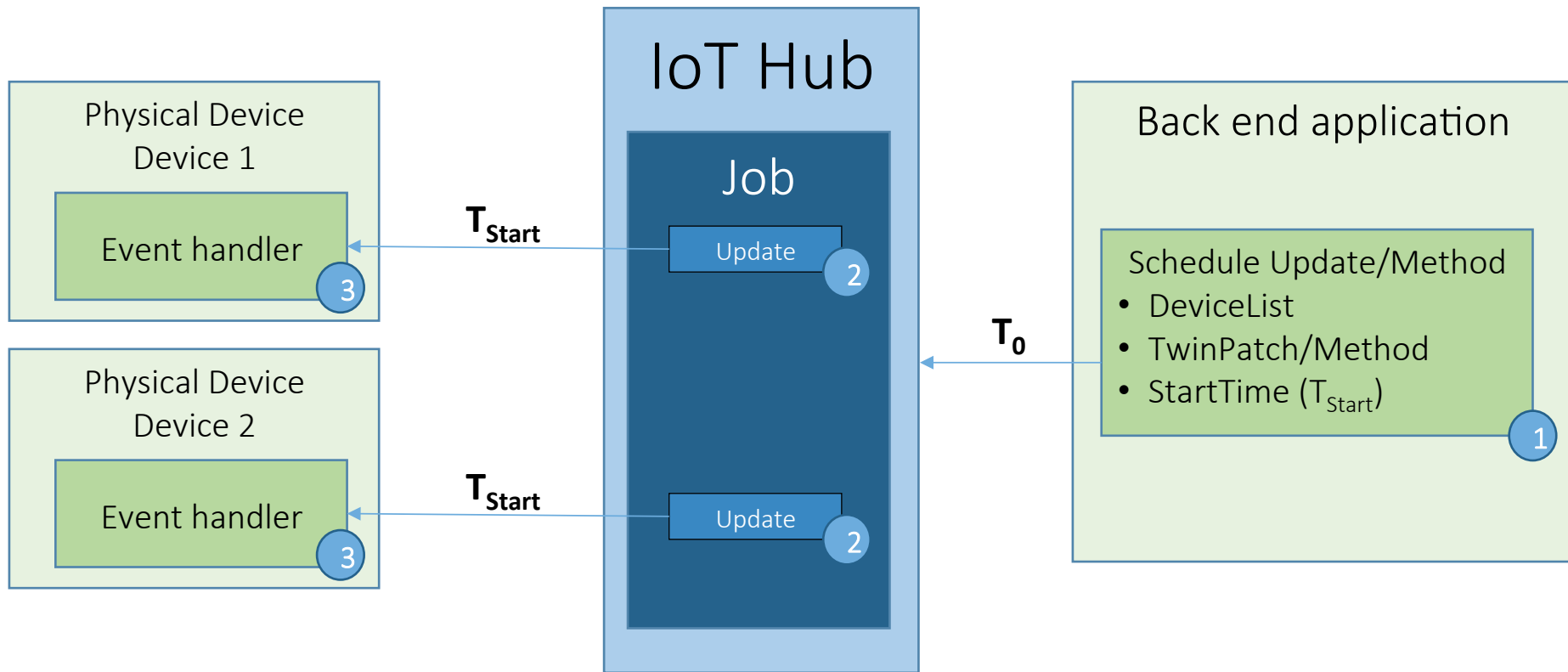
IoT Hub Device Method



IoT Hub Device Method (disconnected device)

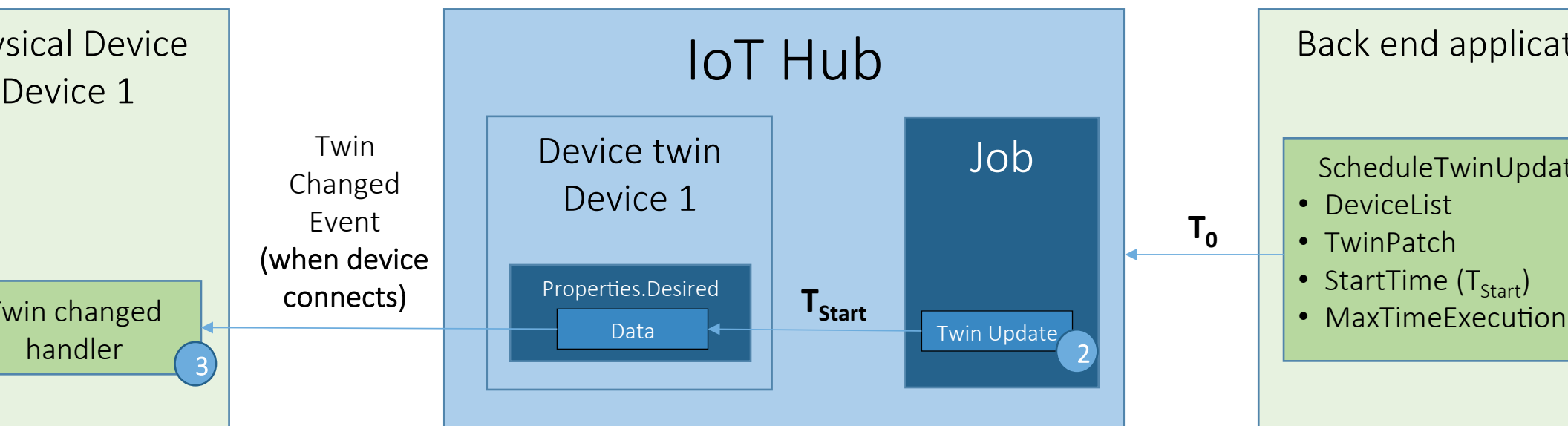


obs for scheduling device updates

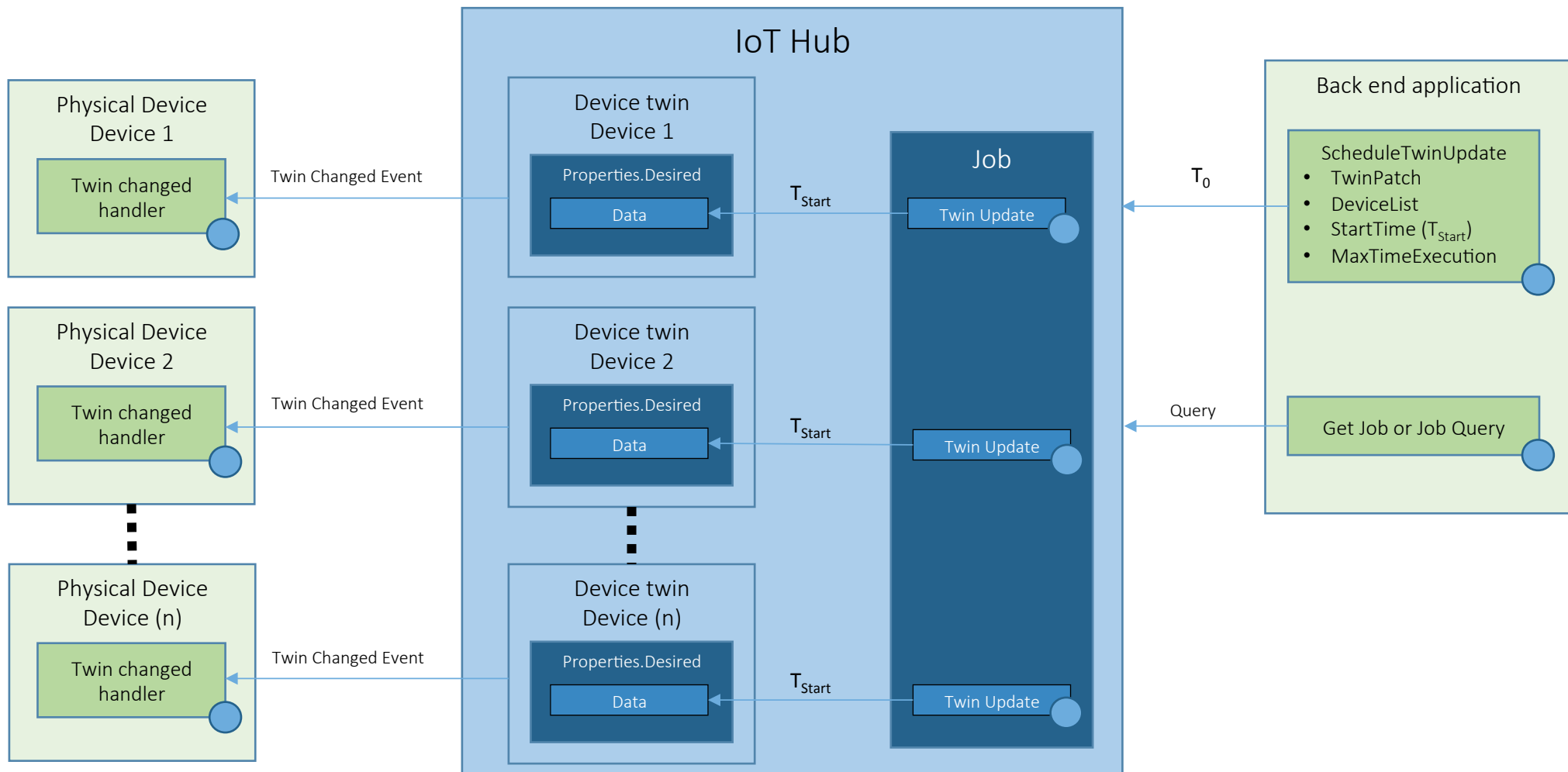


Scheduling and tracking updates against a large set of device is a non-trivial problem.

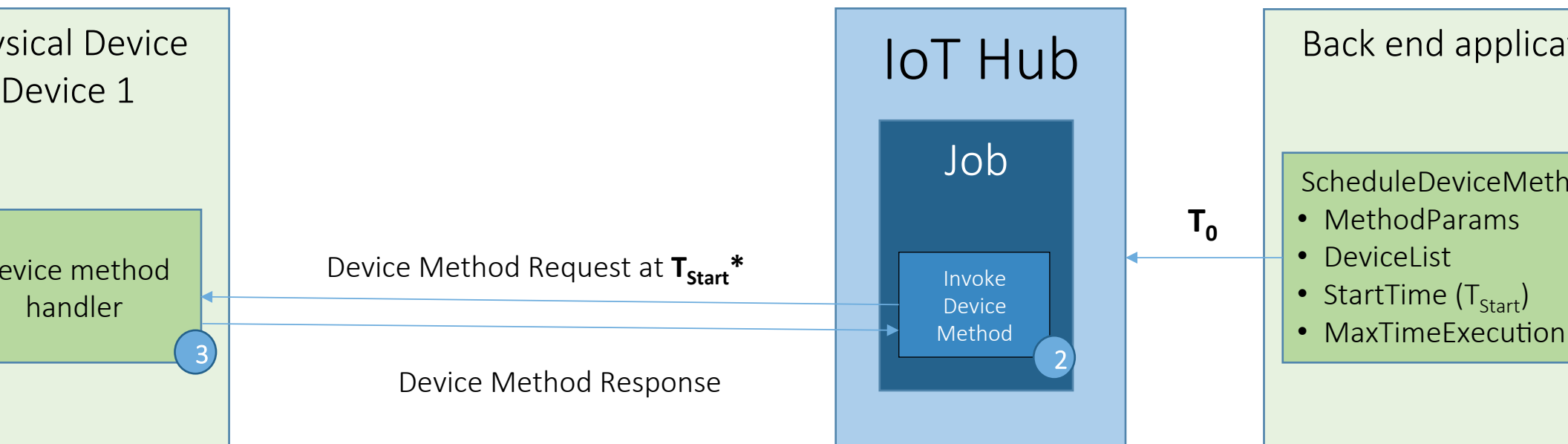
obs for scheduling device twin updates



Twin update jobs for many devices

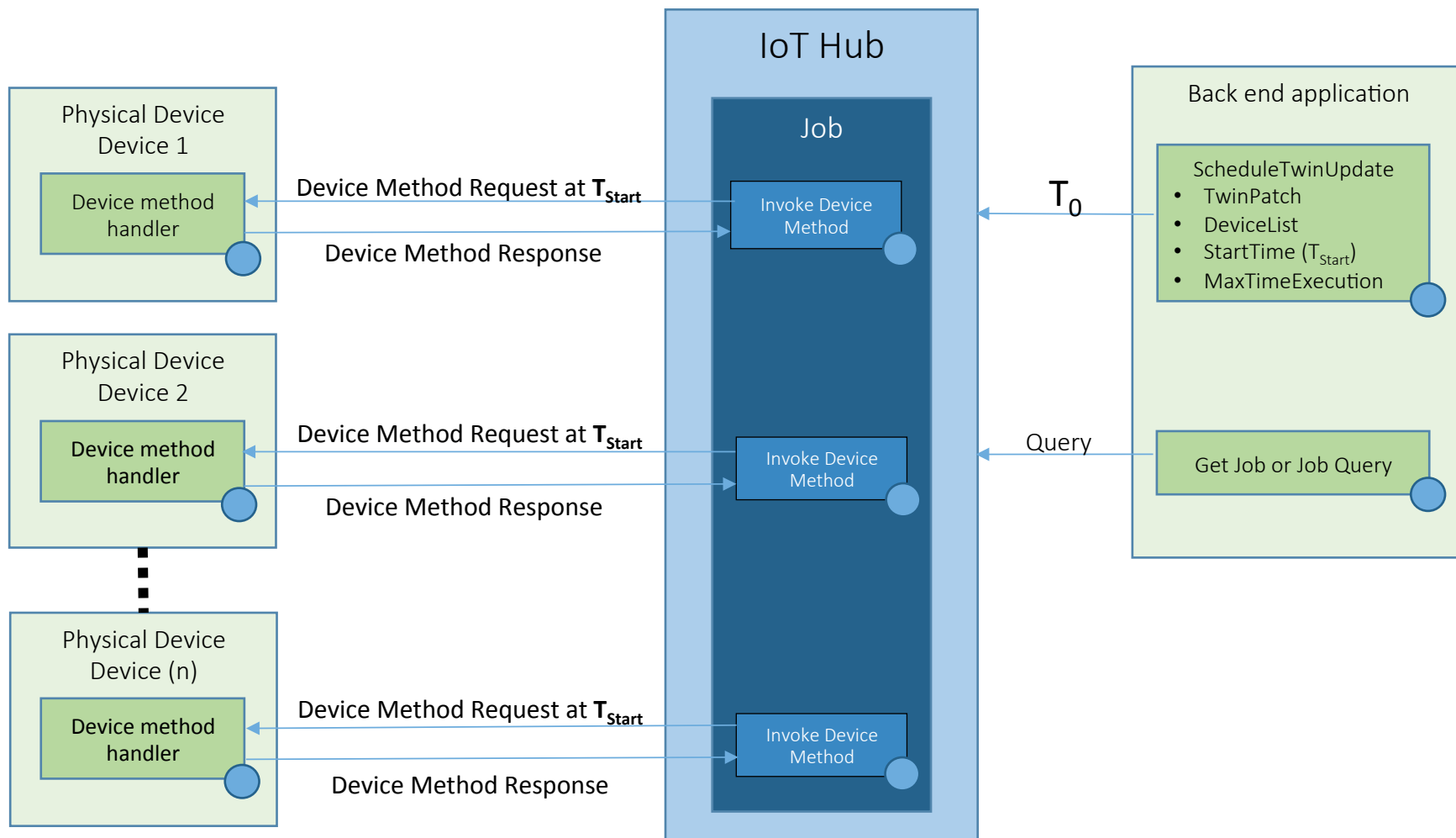


Jobs for invoking device methods



* Requires device to be connected. IoT Hub responds immediately with error for disconnected device.

Device method jobs for many devices



LWM2M and Azure IoT

