

# BLE-IoT-Gwy

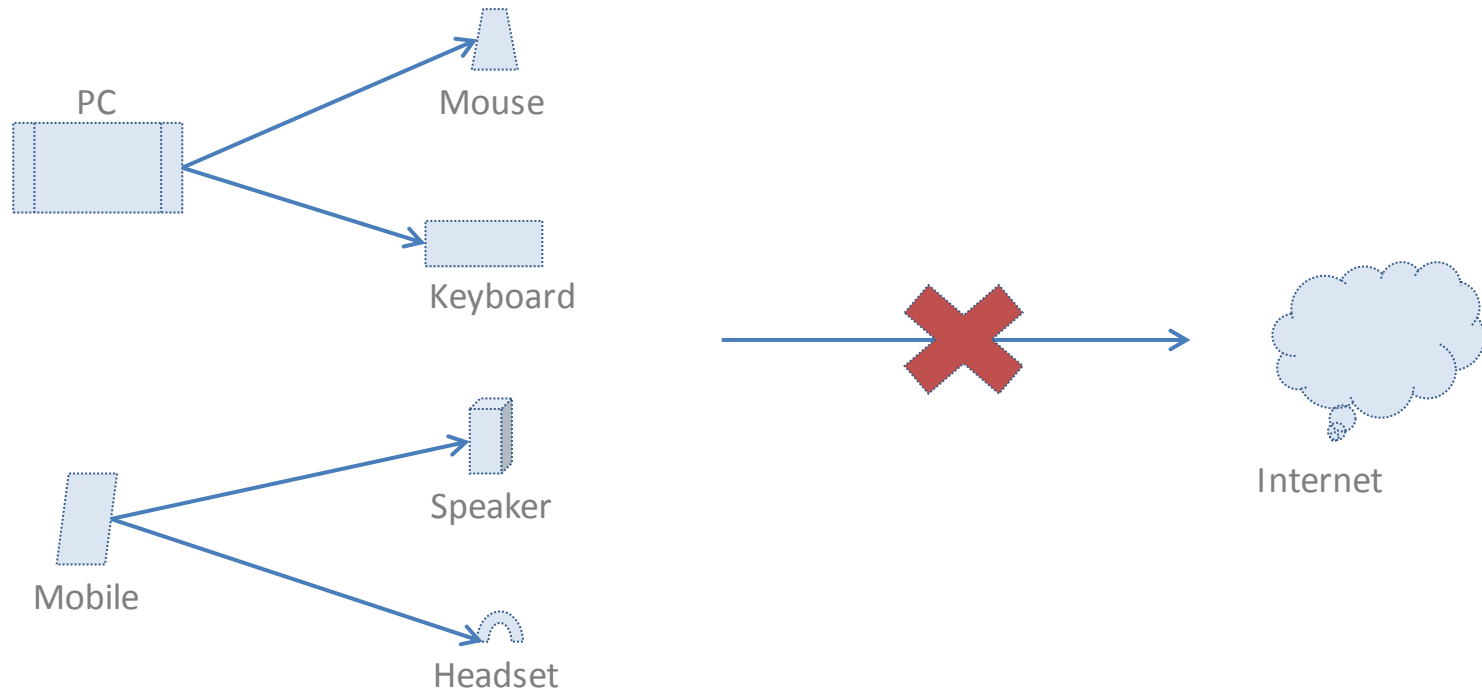
2018/11/23 Written

2019/10/25 Updated

# Introduction

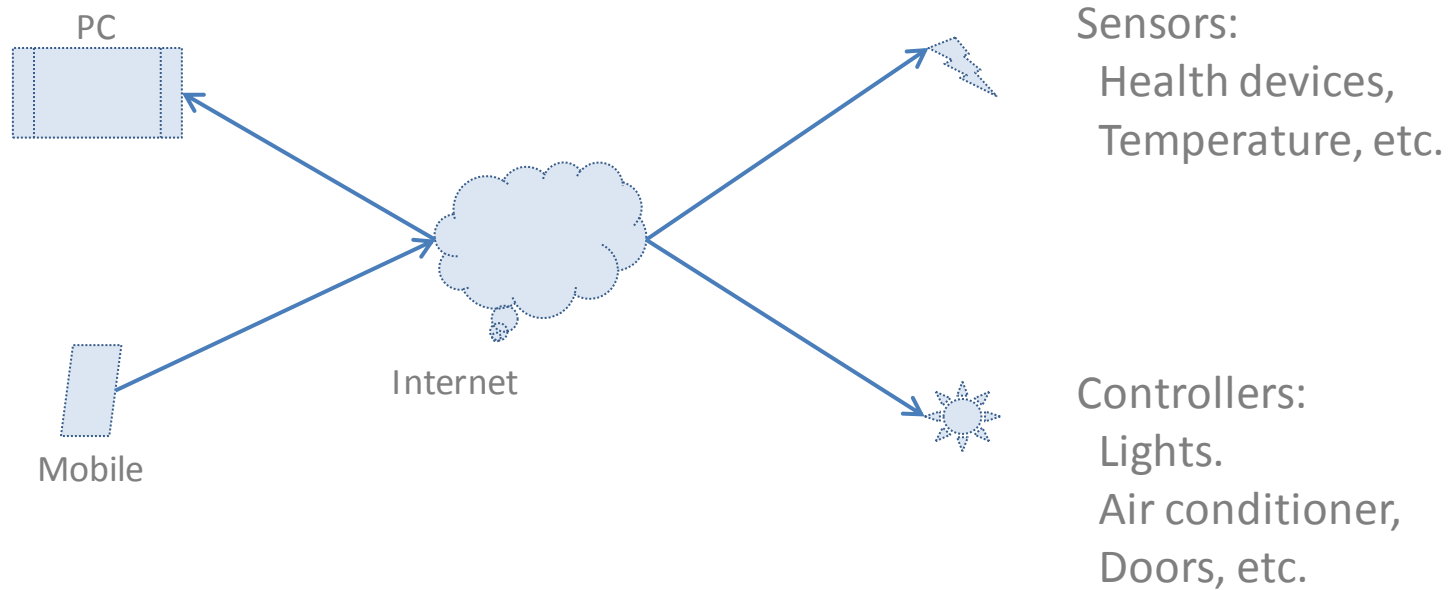
- BLE – Bluetooth Low Energy
  - Radio technology with range of a few meters
  - Bluetooth 4.0+ or once called Bluetooth Smart
- IoT – Internet of Things
  - Devices having Internet connectivity
- This set of slides shows how BLE-capable devices can be part of Internet

# Bluetooth Classic (before 2010)



Closed connection between user and device

# Bluetooth LE (since 2010)

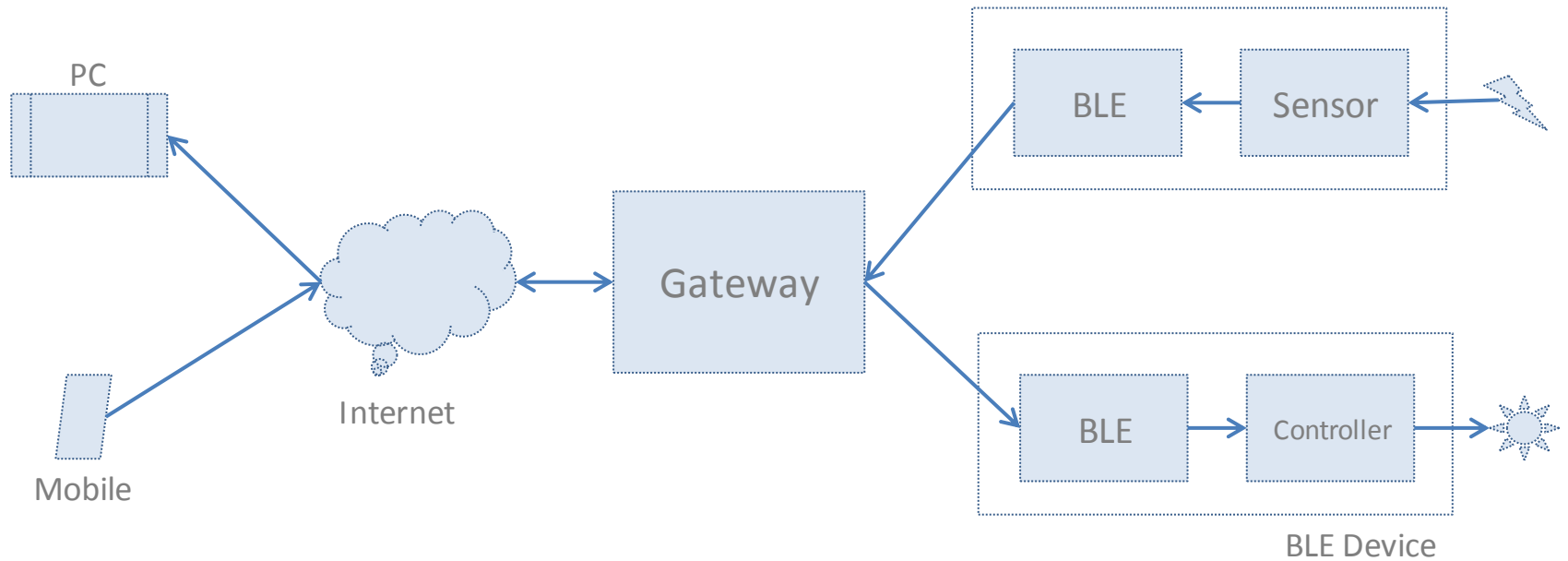


Requires Internet connection to be useful

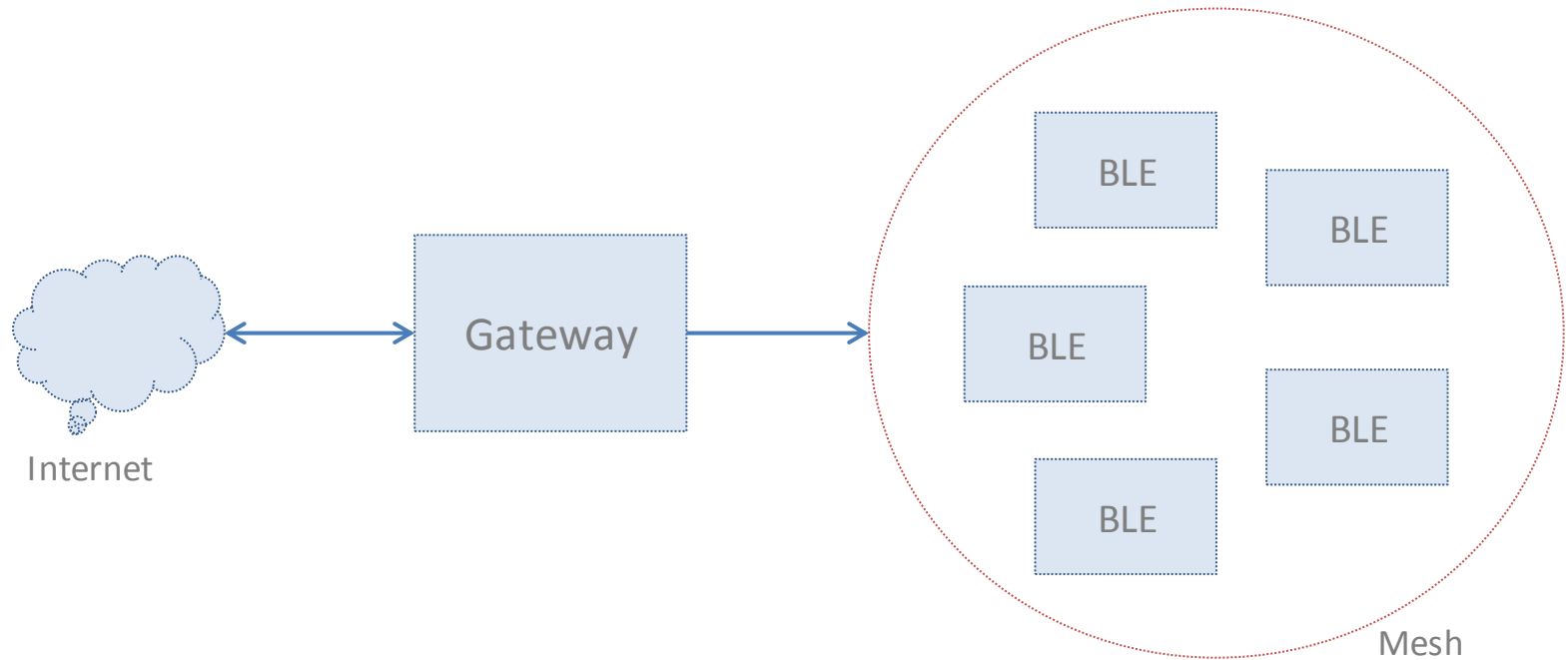
# BLE is designed for IoT

- BLE/Gatt profile:
  - modeled after read/write to I/O ports
  - allows small amount of data exchange in one or two packets
- Access to edge devices is a goal:
  - Sensors
  - Controllers (actuators)

# Gateway plays a Key role



# BLE Mesh



Planned but not implemented

# SIG API

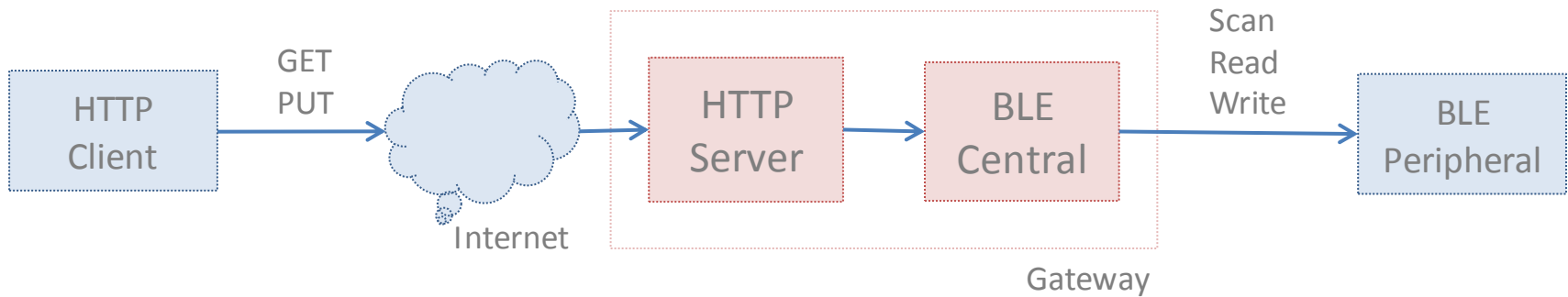
- REST APIs are proposed in Bluetooth SIG white paper:
- GATT REST API  
<https://www.bluetooth.com/bluetooth-resources/gatt-rest-api/>
- One-to-one correspondence to BLE access protocols
- Knowledge of BLE required



# ALT API

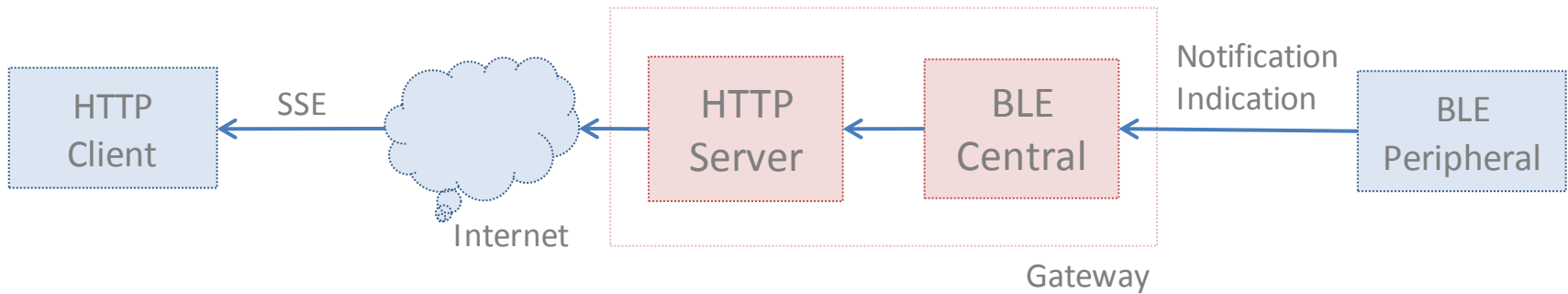
- Alternative API
- Subset of SIG-API functions
- Shorter URL, simple response
- Web friendly
- Enough to support necessary functions to:
  - Discovery
  - Read/Write data
  - Data/Status update report

# Gateway Architecture



Finding device, reading and writing data

# Gateway Architecture



SSE: Server-Sent Events

Data/status update report