



The Blue connection: What the F... is Bluetooth Anyway?

An (almost) technical introduction to Bluetooth

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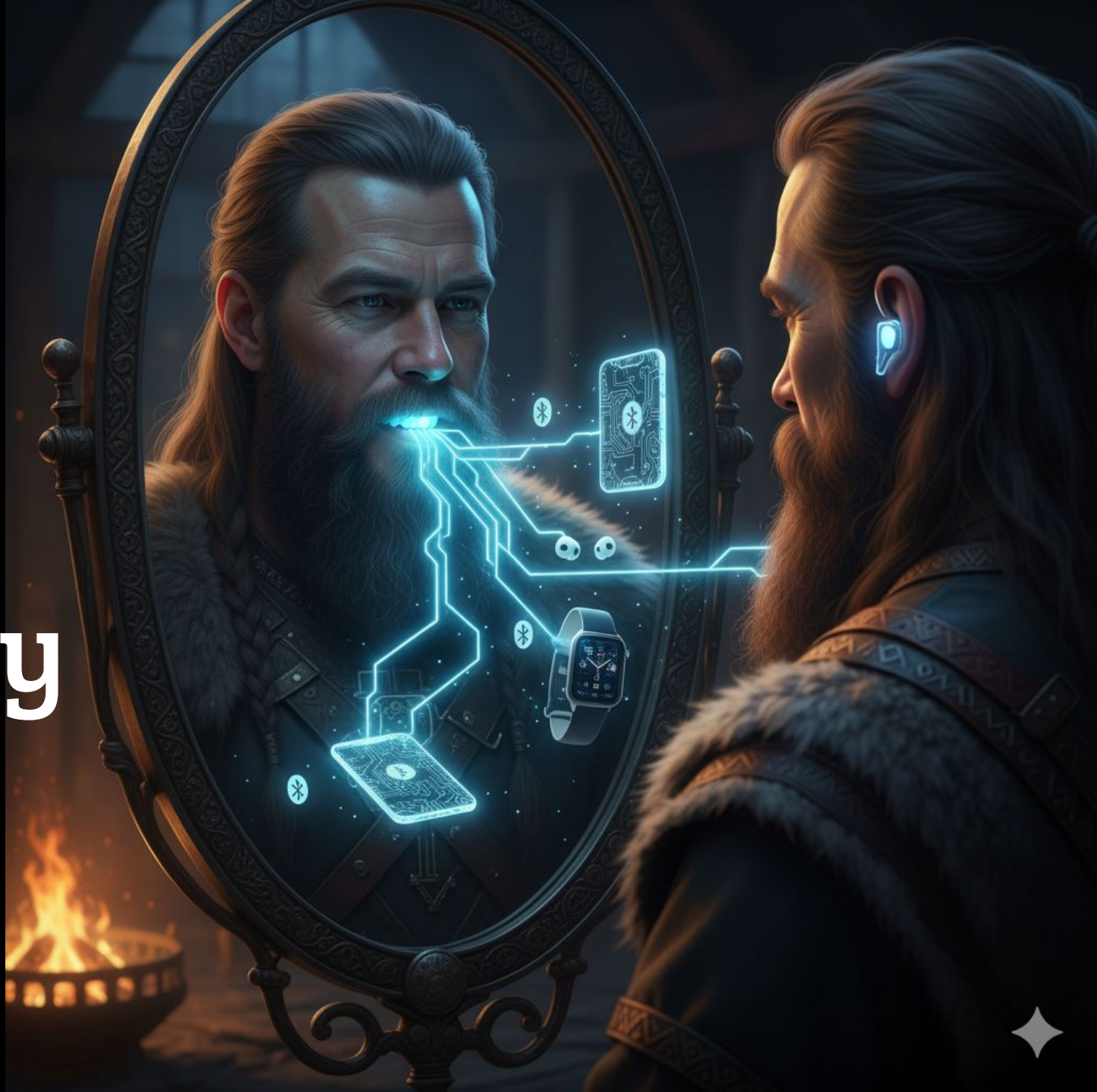


Harald's Legacy

Uniting the Nordic tribes in the
past

+

Uniting the Devices today



What is 3821?

The (real) number of the beast

The Bluetooth Core Specification 6.1 (latest from May 2025) is:

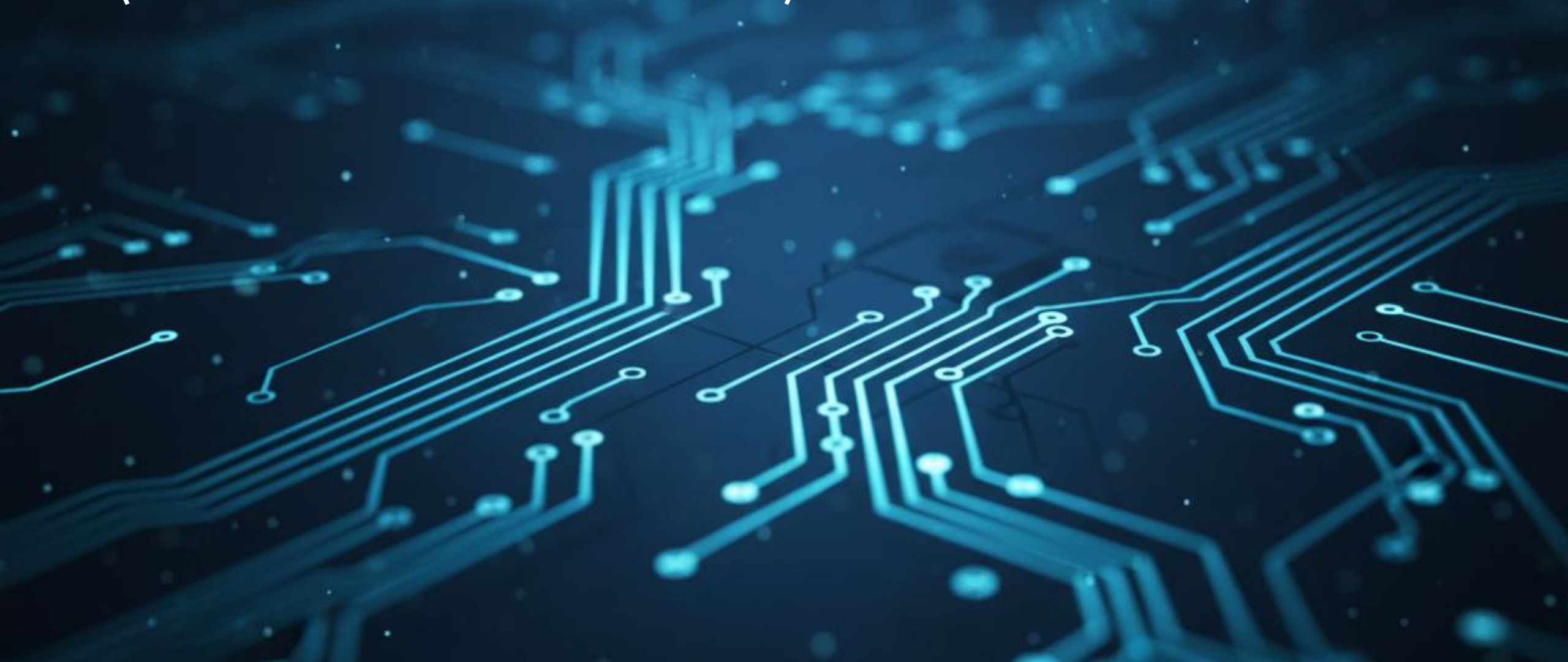
3821 pages long

This does not include the many, many profiles, services, whitepapers...

(around 165 documents in total and 5000+ pages in total)

So what IS this thing anyway?

(The 5-minuter - not so - technical dive)



Bluetooth

- 5.4 Billion bluetooth devices shipped in 2025 (expect 7.7B by 2029)
- Most commonly available radio technology Around
 - WiFi is second with just shy of 3.5 Billion devices annually
- Works in the free 2.4GHz bands
 - Along with Wi-Fi, Zigbee, Zwave, DotDot, your microwave oven and more
- Narrow band Frequency hopping technology
- Originally designed for short ranges <10m
 - Now we can do 1-2km with line of sight and good radio
- Up to 2Mbps data transfer right now
 - Will be 7.5Mbps by the end of next year



Classic or Low Energy – choose your weapon carefully!

Classic or Low Energy (LE)

• Classic Bluetooth

- Often called Legacy Bluetooth or Bluetooth BR/EDR
- The "Original" Bluetooth
- Still in use in many products (less every year)
- Different "modes" for Audio, voice, data, etc.
- Uses 79 Channels for frequency hopping (1MHz width)

• Bluetooth LE

- Around since Bluetooth 4.0 (2009)
- Focus on lowering power consumption
- Called Bluetooth Smart 2011-2016
- Uses 40 channels for frequency hopping (2MHz width)
- Two "modes" – Isochronous & GATT
- Uses "advertising" on channels 37, 38, 39 for info/data/connect



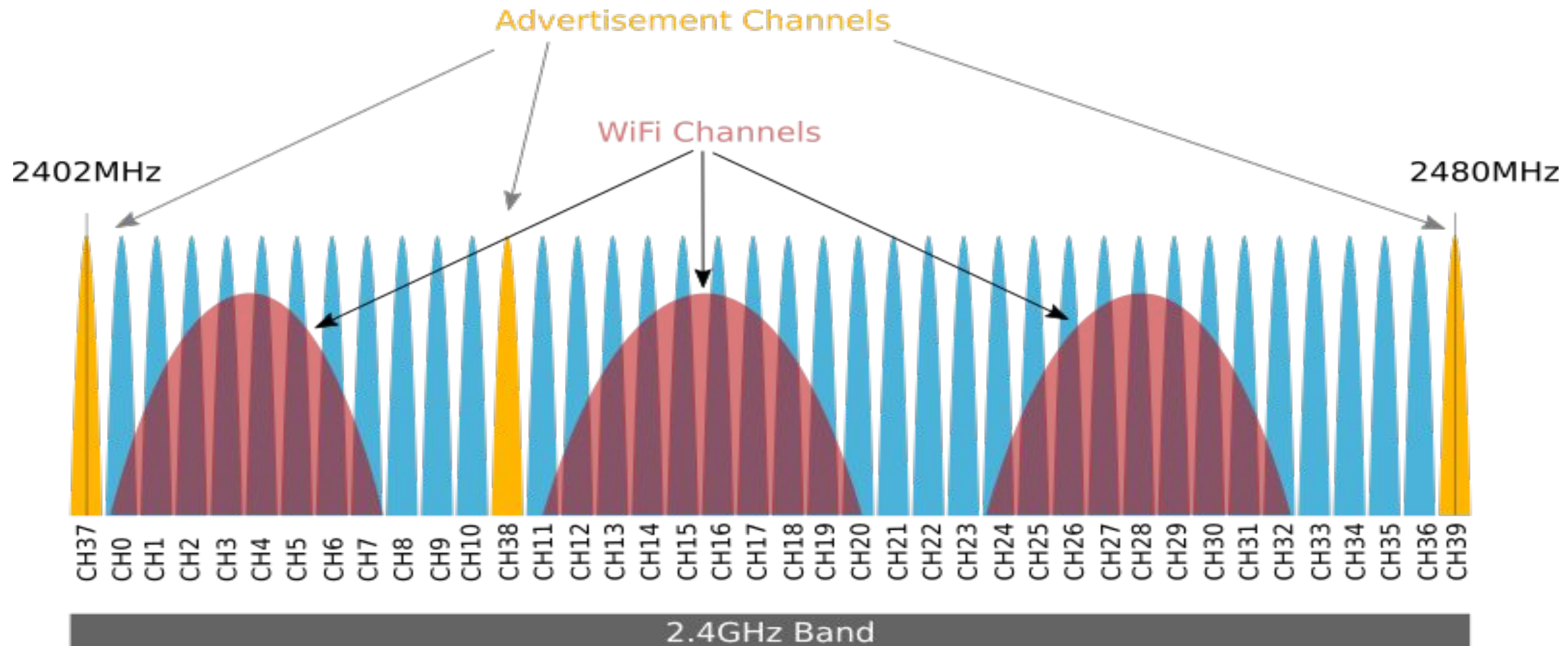
LE
(Low Power/IOT)

The Hackathon holy grail ?

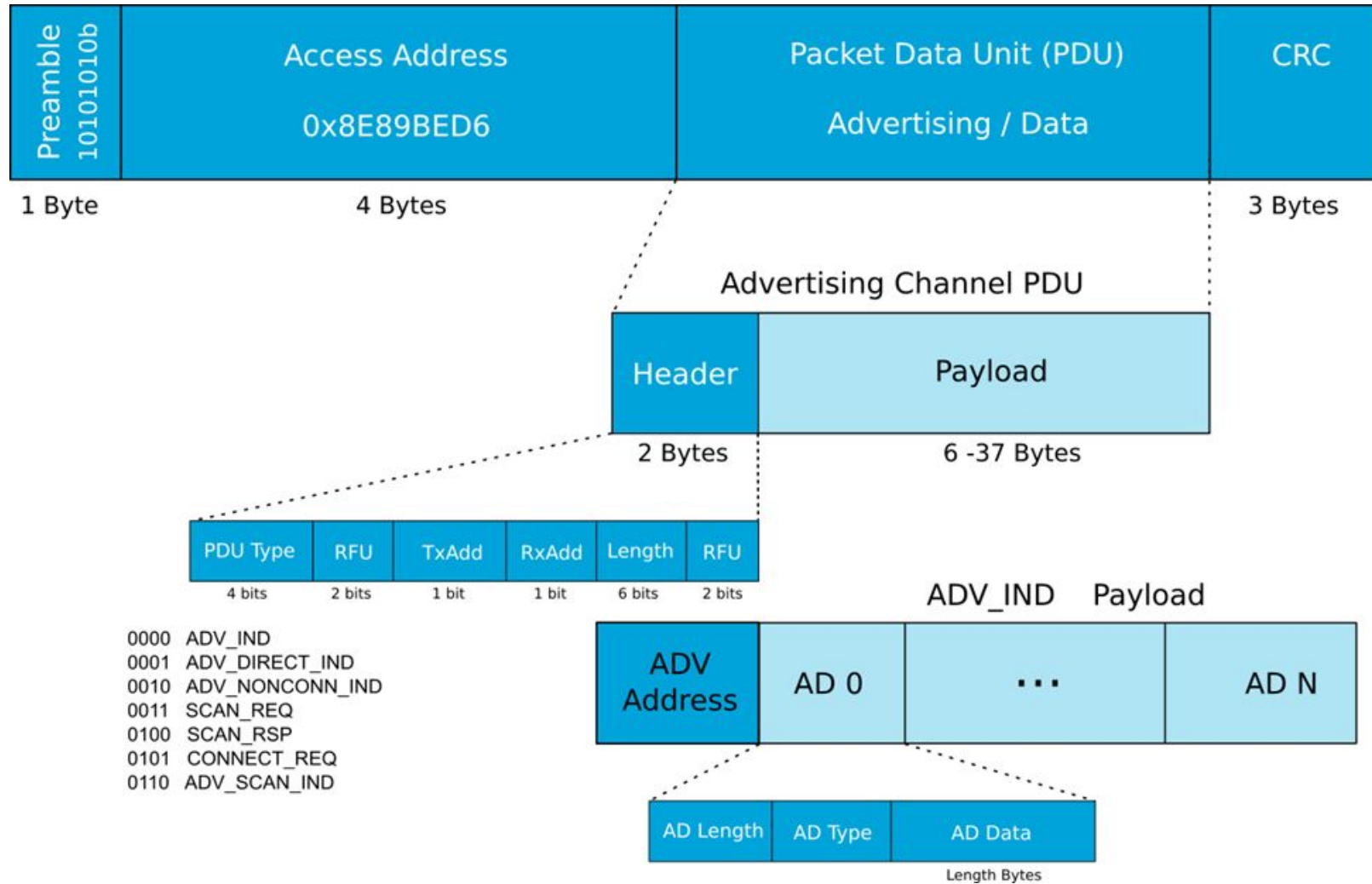
Beacons (and why they are – also – amazing)



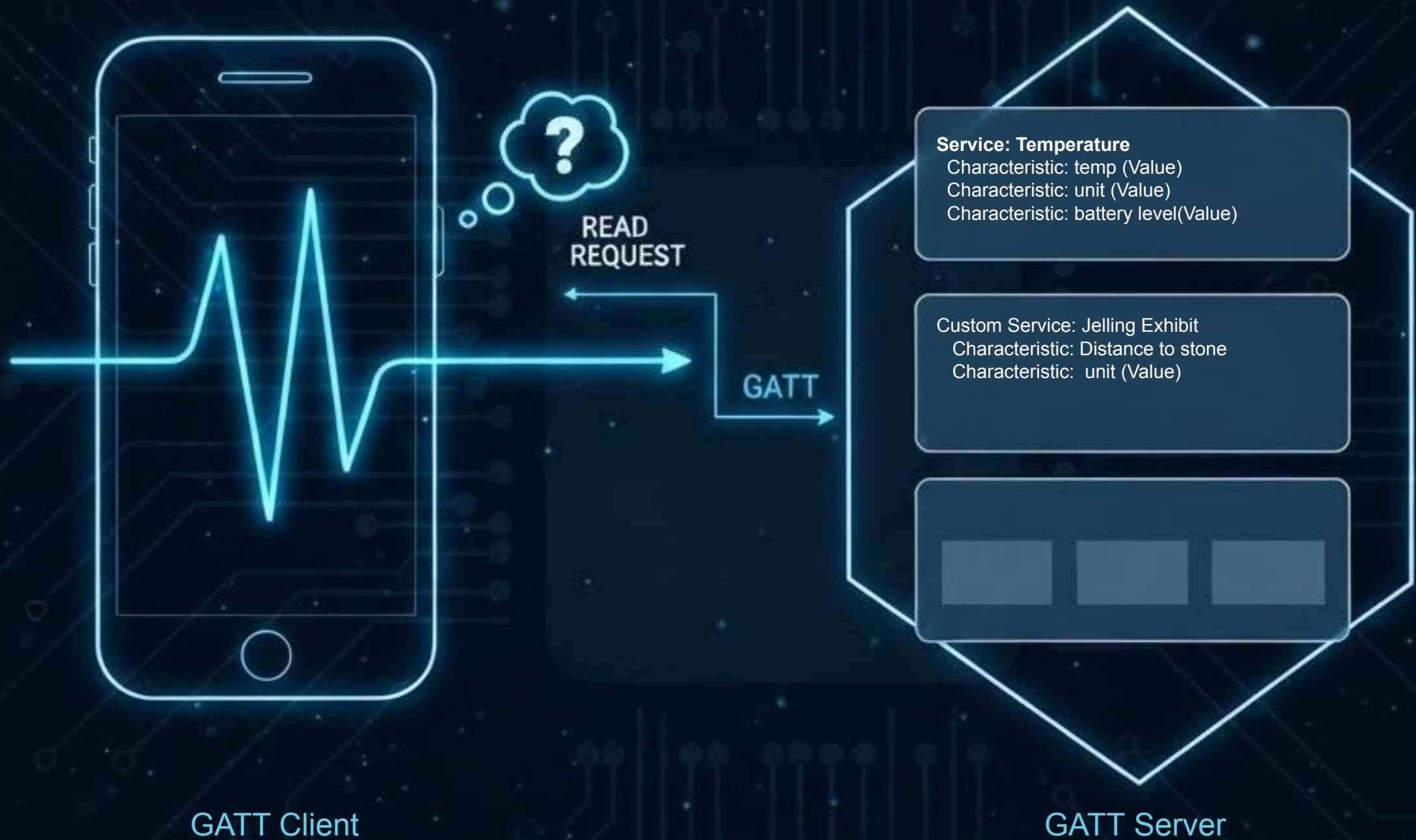
Do you want to advertise?



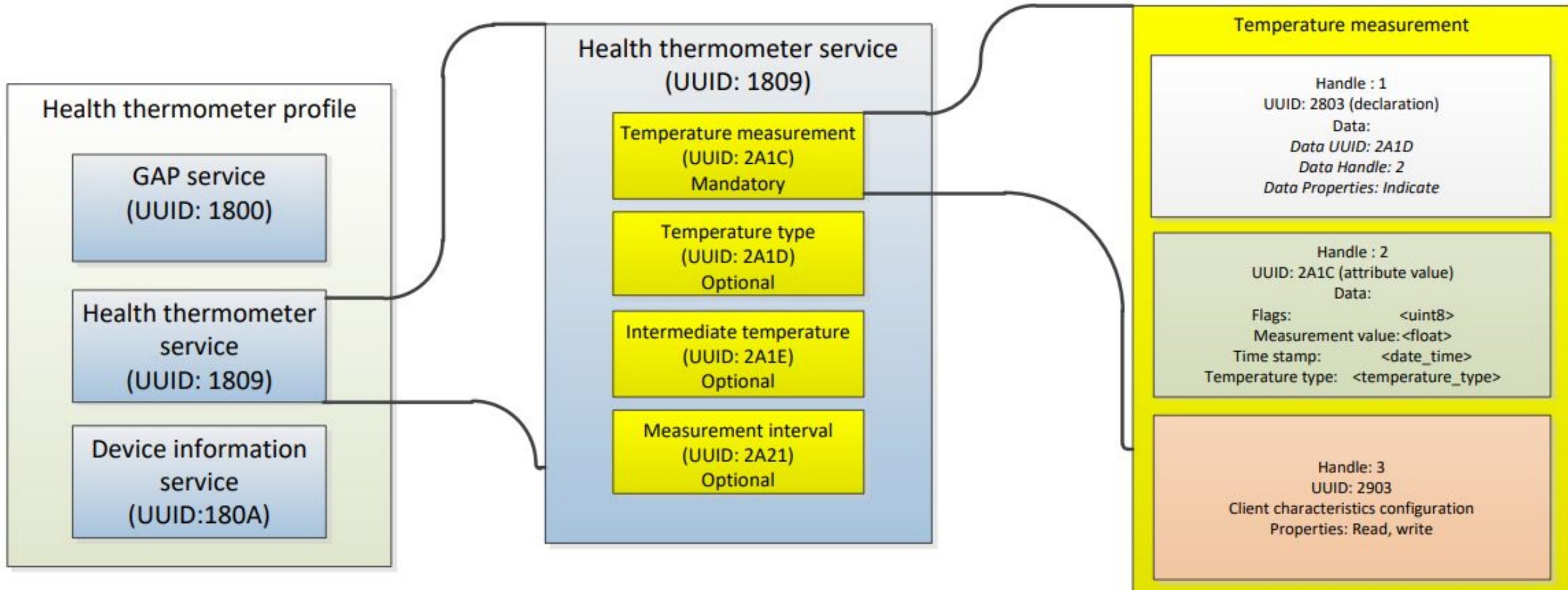
The advertising packet



The master and the servant (The Client-server methodology)



Profiles, Services....





Beyond audio

(yes, BT is more than your headphones or mouse/keyboard)

A close-up image of a hand holding a small, black, curved device, likely a hearing aid or a small sensor.

AURACAST
A BLUETOOTH® TECHNOLOGY

Bluetooth MESH

A diagram illustrating a Bluetooth Mesh network. It shows three light bulbs connected by a dotted line, with Bluetooth symbols at the connection points. A smartphone in the foreground displays a home automation app with sections for "Home lights", "Kitchen", "Living Room", and "Bedroom", each with a toggle switch and a slider control.

My home

Home lights

Kitchen

Living Room

Bedroom

Bluetooth

A person is shown using a Bluetooth device, possibly a smartwatch or a small sensor, which is connected to a smartphone. The phone screen displays a circular gauge and a bar chart. The person is also holding a car's door handle, suggesting the device is used for vehicle access.

Your Turn

Connecting People, Places & Events



Q&A

Want more info? Find me or my colleagues at the venue