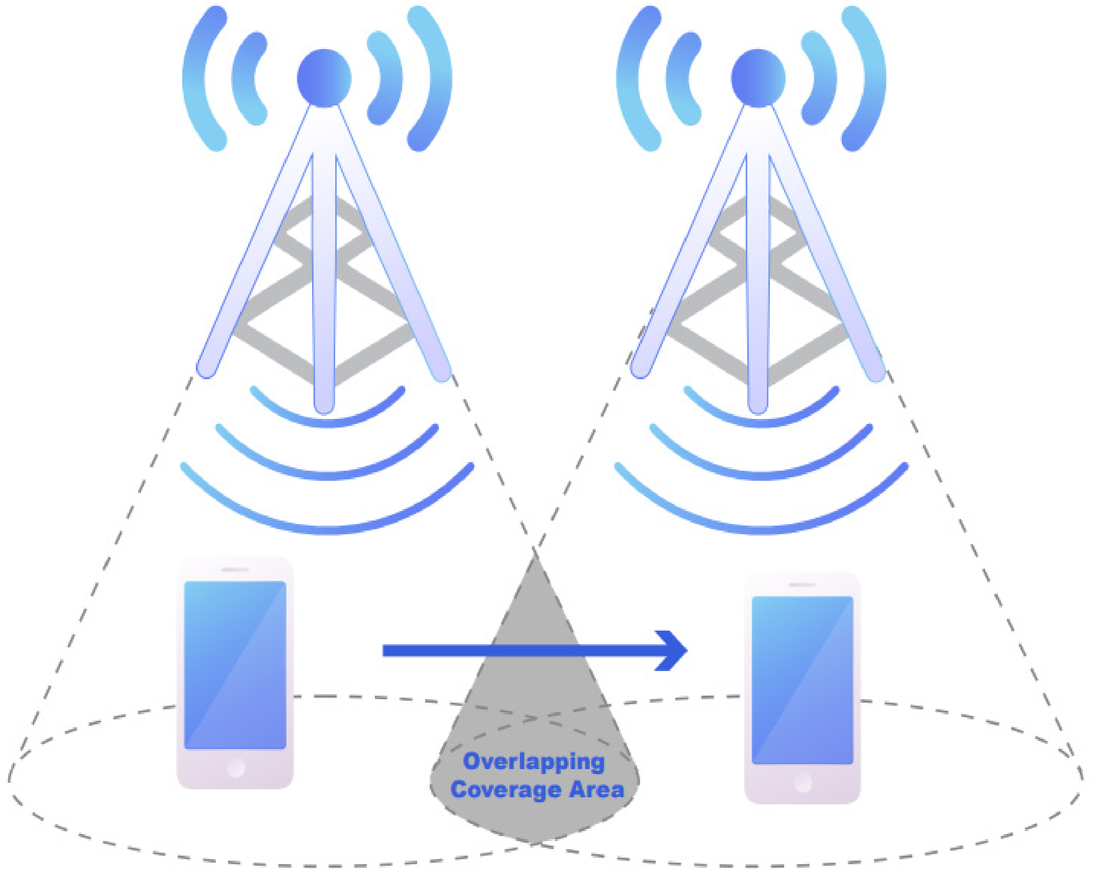
Cassia Networks

Overview of Cassia's Bluetooth Roaming Technology

What is Roaming?

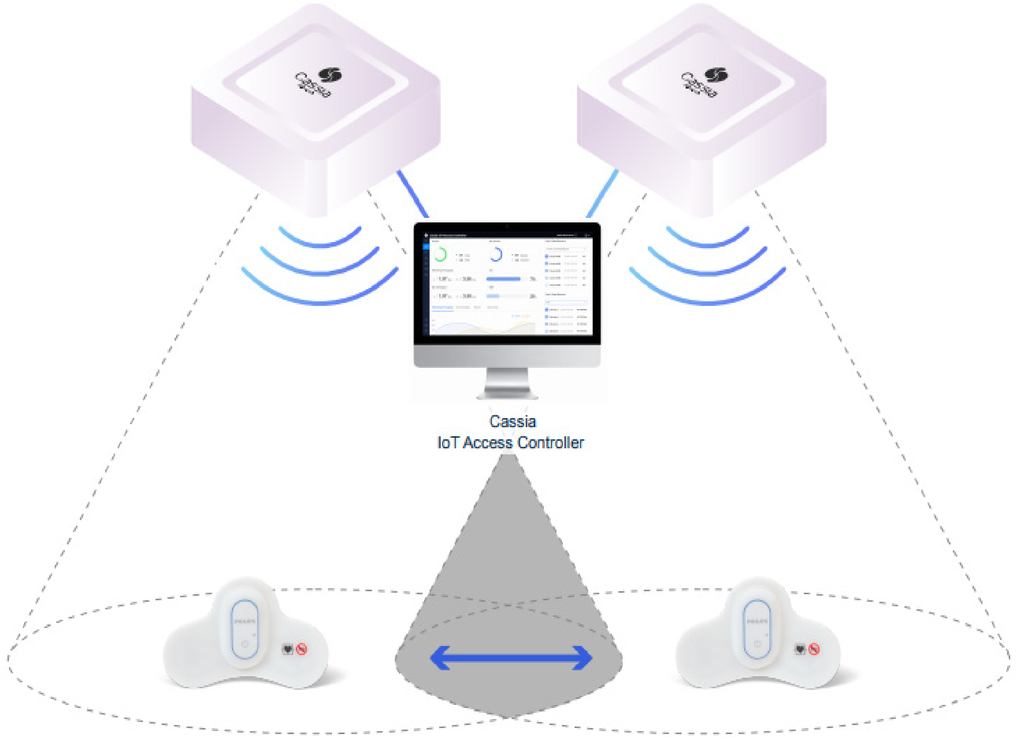
- For cellular and Wi-Fi, roaming occurs when a mobile device switches its association to the wireless base station with a stronger RF signal when moving from the coverage area of one base station to the next

- A successful roaming is one that doesn't interrupt the user data communication during the roaming handoff



What is Bluetooth Roaming?

- Bluetooth roaming occurs when a Bluetooth device switches its association to the Bluetooth gateway with a stronger RF signal when moving from the coverage area of one Bluetooth gateway to the next



Why is Bluetooth Roaming Unique?

- Unlike Cellular and Wi-Fi, Bluetooth protocol has no inherent roaming support
- Unlike Cellular and Wi-Fi, Bluetooth end devices can’t initiate a roaming handoff
- As a result, Bluetooth roaming has to be initiated and coordinated by Cassia’s IoT Access Controller (AC) and Cassia’s Bluetooth gateways
- Cassia Networks invented fast and secure Bluetooth roaming technology to solve this problem without requiring any changes to the Bluetooth protocol and/or end devices

How is Bluetooth Roaming Accomplished?

- All Bluetooth gateways under the Cassia IoT Access Controller (AC) function as a single gateway from the mobile device perspective

- No security renegotiation (e.g. re-pairing etc.) is needed, and the user data connection remains continuous during roaming handoff

- This ensures seamless, fast, and secure Bluetooth roaming without human intervention and without requiring any changes to the Bluetooth protocol and/or end devices

How to Enable Bluetooth Roaming

Hardware & Software Requirements:

AC: Software should be version v2.1.0 or higher

AC and Bluetooth gateways must be on the same local network

Compatible Gateways: Cassia's E1000 or S2000 with firmware v2.1.0 or higher

Please use Router Auto-Selection API
and **set parameter random=1** to enable Bluetooth roaming.
No configuration on the AC or gateway console is needed.

github.com/CassiaNetworks/CassiaSDKGuide/blob/master/node_examples/roaming.js

```
127 function connectWithAutoSelection(token, devices) {
128   return req({
129     url: `${AC_HOST}/aps/connections/connect?access_token=${token}`,
130     method: 'POST',
131     headers: {'Content-Type': 'application/json'},
132     body: JSON.stringify({
133       /*
134       * you can define a Router range to connect to devices, or '*' means all online Routers
135       */
136       aps: '*',
137       devices: devices,
138       /*
139       * (Mandatory) use the roaming feature, Router use random address to connect devices,
140         AC will reconnect devices among Routers,
141       * you can listen to connection-state changes in combination SSE
142       */
143       random: 1,
144       /*
145       * (Optional): in ms, the connection request will timeout if it can't be finished within this time.
146       * The default timeout is 10,000ms. The range of value is 1000ms – 20000ms.
147       */
148       timeout: 20000
149     })
150   });
151 }
```

Sample codes: https://github.com/CassiaNetworks/CassiaSDKGuide/blob/master/node_examples/roaming.js

Benefits of Bluetooth Roaming

- Ensures continuous user data connection during roaming handoff
- Ensures seamless and fast Bluetooth roaming without any human intervention
- No changes are required to the Bluetooth protocol and/or end devices
- Highly secure at all times
- Bluetooth roaming can be applied for any mobile Bluetooth IoT applications

Medtronic

Large scale continuous glucose monitoring in hospital.
The first commercial Bluetooth roaming deployment in the world.

Cassia Networks

MAKING BLUETOOTH IOT EASY. SCALABLE. SECURE.

IMAGINE THE POSSIBILITIES

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