

iBeacons

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Workshop Demo Code

<https://github.com/johnnyclem/iBeacons-Workshop>

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What we'll cover

What iBeacons is

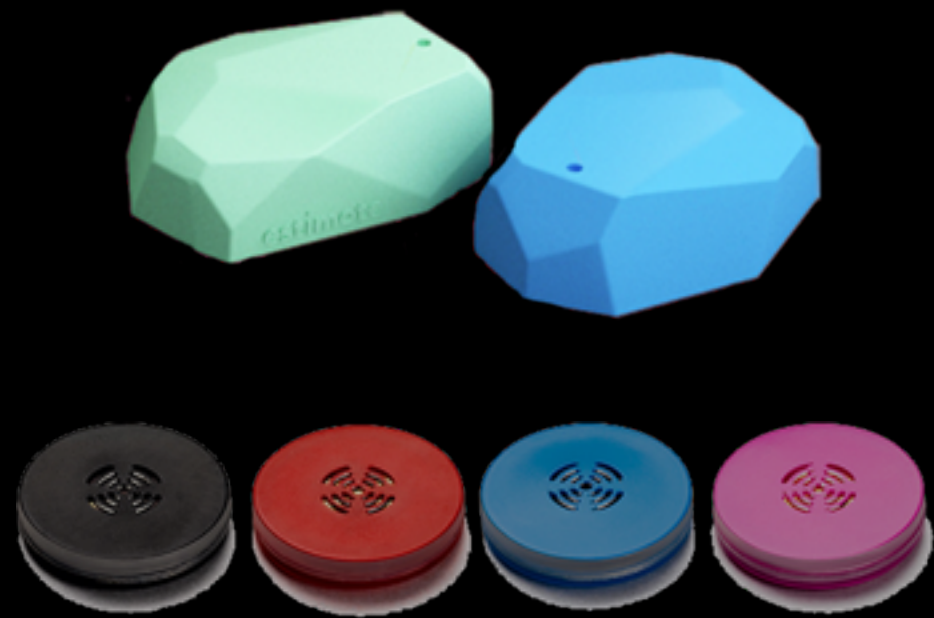
What iBeacons isn't

Example uses of iBeacons

Current real-world usage of iBeacons

Potential uses for iBeacons

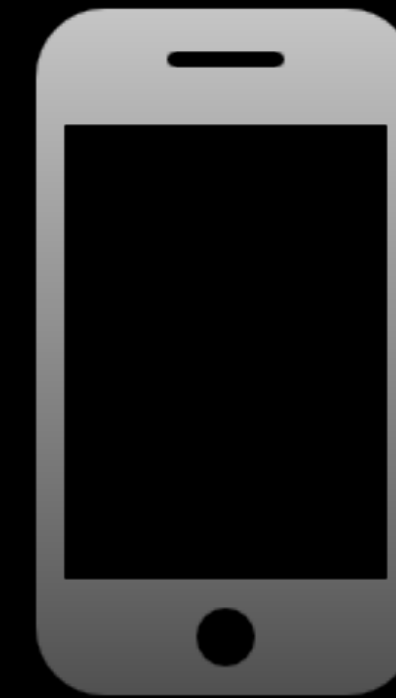
iBeacons Devices



stand-alone device
estimote
stickNfind



Mac/Win/Linux
with Bluetooth LE



iPhone (4s or later)
iPad (3rd gen or later)
iPad mini
iPod Touch (5th gen or later)



Android w/BLE
Windows Phone w/BLE
XYZ Platform w/BLE

iBeacons is not

Indoor GPS

Apple-Only Technology

A specific device

A specific piece of software

iBeacons is

Distance ranging and region monitoring

An open-source specification

Compatible with any Bluetooth LE device

Available on nearly every platform

What can you do with iBeacons

Beacon ranging / broadcasting

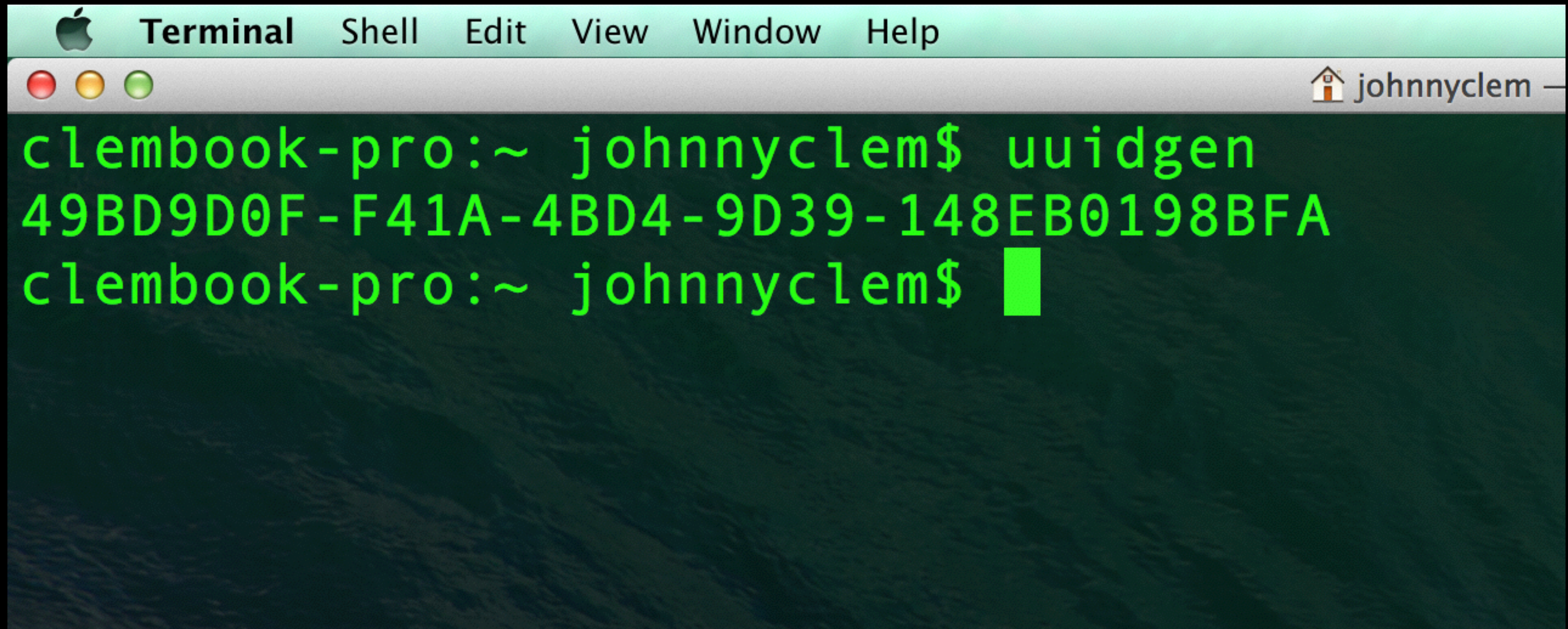
Region monitoring

Proximity-Based Positioning

Store and Retrieve a small amount of data

Be The Beacon

Generate a UUID for your app

A screenshot of a macOS Terminal window. The title bar at the top is light blue and contains the Apple logo, the word "Terminal", and menu items "Shell", "Edit", "View", "Window", and "Help". Below the title bar is a grey bar with three colored window control buttons (red, yellow, green) on the left and a home icon followed by the text "johnnyclem" on the right. The main area of the terminal has a dark green background with light green text. It shows the command "uuidgen" being executed, which outputs a long alphanumeric string representing a UUID. The prompt "clembook-pro:~ johnnyclem\$" is visible before and after the command.

```
clembook-pro:~ johnnyclem$ uuidgen
49BD9D0F-F41A-4BD4-9D39-148EB0198BFA
clembook-pro:~ johnnyclem$
```


Be The Beacon

Use your UUID to create an NSUUID

```
NSString *uuidString = @"49BD9D0F-F41A-4BD4-9D39-148EB0198BFA";  
NSUUID *myUUID = [[NSUUID alloc] initWithUUIDString:uuidString];
```

Be The Beacon

Use your NSUUID to create a CLBeaconRegion

[illegible]

Be The Beacon

Start broadcasting your iBeacon using CBPeripheralManager

[illegible]

Be The Beacon

DEMO

Beacon Ranging

Range all nearby beacons

Range all beacons with a given UUID

Range beacons with a given UUID, Major (integer) & Minor (integer)

Region Monitoring

Inside/Outside the region

Notify on entry/exit

Notify entry display

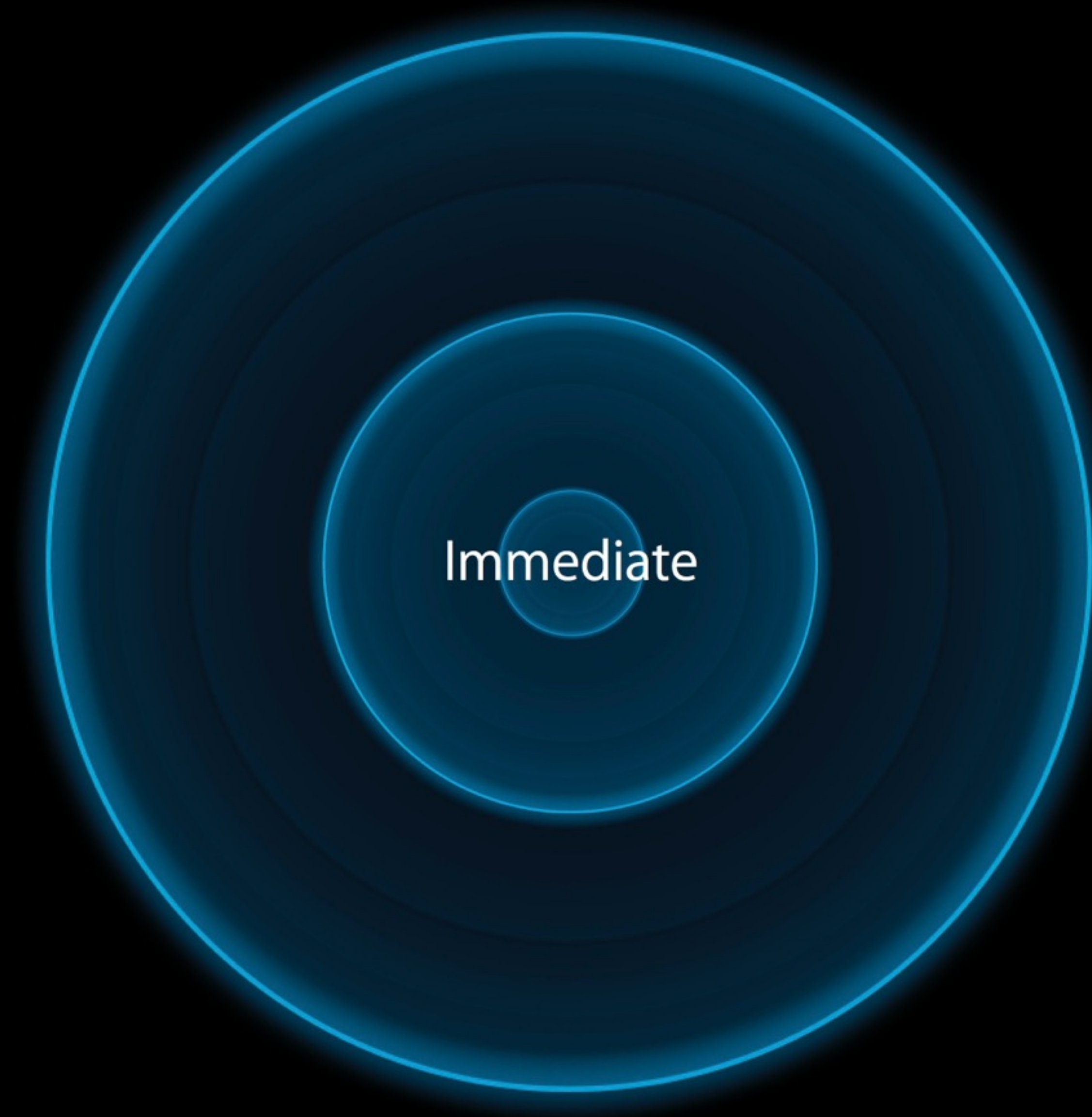
iBeacons

Ranging



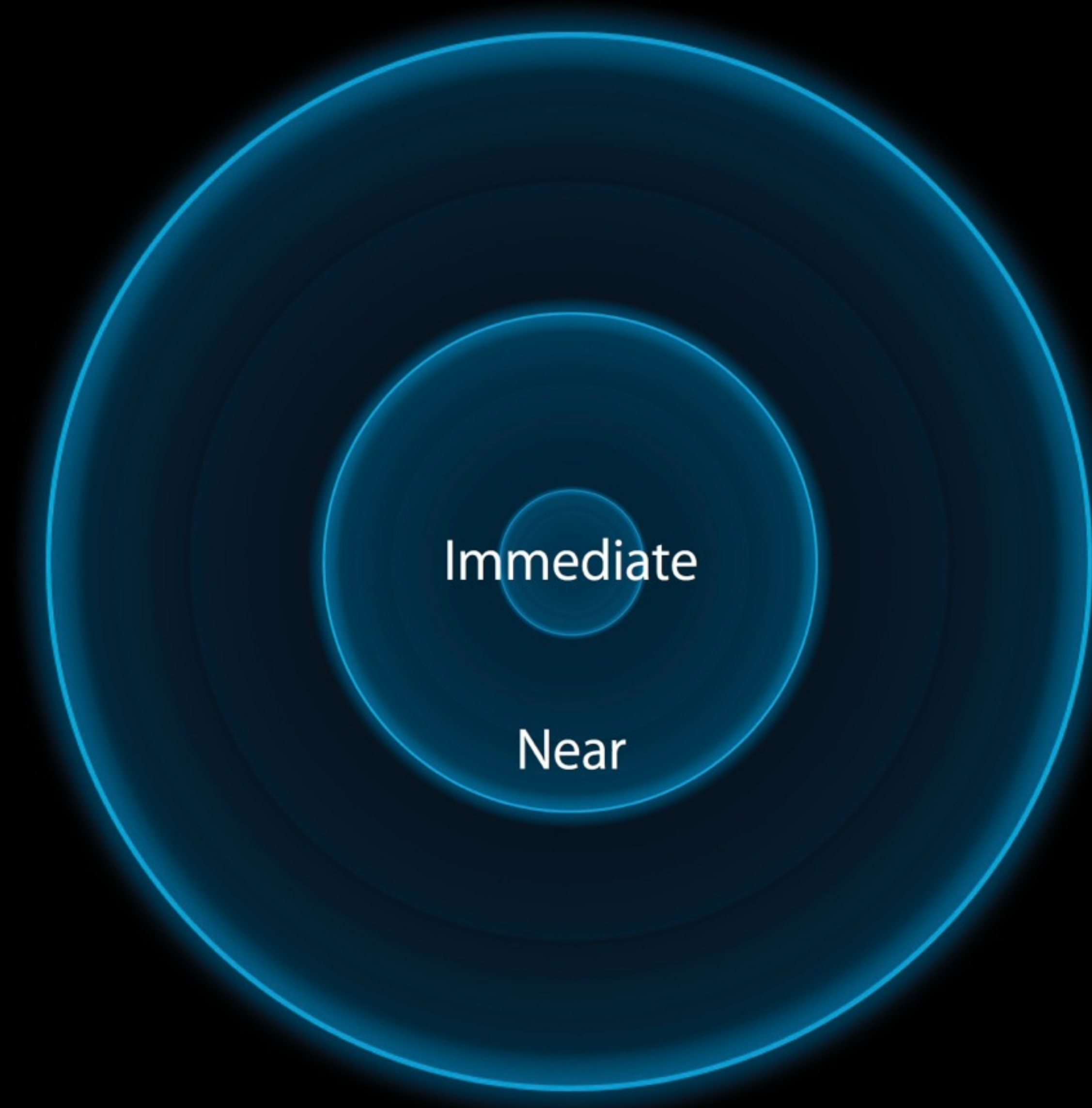
iBeacons

Ranging



iBeacons

Ranging



iBeacons

Ranging



iBeacons

Ranging

Unknown



Immediate

Near

Far

Art Gallery

DEMO

Store and Retrieve Data

UUID / Major / Minor

RSSI / Accuracy / Proximity

Ambient Air Temperature (estimote, stickNfind, etc.)

Choose your own sensor (Arduino, Beaglebone, Raspberry Pi)

Proximity-Based Positioning

RSSI - Received Signal Strength Indicator

Proximity / Accuracy

Immediate - Near - Far - Unknown

Power levels vary from device to device

iBeacons Jukebox

DEMO