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Opinion Piece

Apple iBeacon technology briefing

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Abstract

A new generation of low-cost devices is allowing marketers to track the exact location of consumers via their mobile devices. This article explains how the technology works and proposes a number of ways in which marketers might leverage the proximity and triggers that beacons will make possible.

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From Near Field Communication (NFC) to Bluetooth Low Energy (BLE)

Delivering on the promised revolution

When it came to NFC, Apple felt it had something better up its sleeve. A technology called BLE is set to revolutionize industries across the board, from retail to transport to health care, in ways that NFC technology has often promised to, but has so far failed to deliver upon.

The industry buzz around BLE beacons began in September 2013 when a company called Estimote announced its first product, the Estimote Beacon or 'mote'. So what are BLE beacons and what is an Apple iBeacon?

What are BLE beacons?

Triggering distance-based events

BLE beacons are typically nothing more than super-small computers with Bluetooth radios that cost under US$20. However, more complex devices such as smartphones and tablets can become BLE beacons too. BLE beacons emit a signal that can be picked up by a BLE-enabled device within a close range. Apps can be built to cause events to be triggered within an instant of a device coming within the detectable range of the beacon.

Moreover, the device is able to calculate how near or far away it is from the beacon, meaning that different events can be triggered depending on whether a device is within, say, 5, 25 or 100 metre of a BLE beacon. A device can identify numerous beacons simultaneously and, by calculating its relative distance from each of the beacons, the device can gain an element of location awareness.

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What is iBeacon?

iBeacon is a term Apple is using to describe its own implementation of BLE beacon technology within iOS7. The term iBeacon is quickly becoming synonymous with the general term BLE beacon (which is

Apple launches its version

good for Apple), but the technology is also supported by Android and BlackBerry devices, with Windows Phone support likely to arrive soon. (This article uses the generic term BLE beacons, rather than iBeacons).

Why are BLE beacons important?

Solving mobile marketing challenges

BLE beacons are important because they address a number of challenges that marketers have been trying to solve for many years:

- *Secure, proximity-based communication* — Giving two devices the ability to securely communicate with each other when they are in close proximity is the business challenge that NFC technology has been attempting to solve. BLE beacons can also solve this challenge, but with the added benefit that the device does not need to be physically held against a sensor as it can stay in your pocket or purse the whole time.
- *Indoor geo-location* — GPS technology is great for outdoor use, but satellite signals are significantly less effective inside a building. BLE beacons offer a cost-effective solution to in-building location services, with the added benefit of being cheap to deploy and being significantly less of a drain on a smartphone's battery than GPS technology.
- *Wide-reaching distribution* — The vast majority of smartphones produced in the past 2 years support BLE technology, meaning that the critical mass of users that is required to make a success of a new technology is already in place.

Uses and benefits

Value-added services for retail

BLE beacons have the potential to transform many industries, both for consumers and for employees. The most immediate impact to be seen by marketers will be in the retail sector, where the benefit of gaining new customer insights from deploying a fleet of BLE beacons in-store is likely to far outweigh the cost.

By installing BLE beacons across a store and combining them with shopping apps built for customers, retailers can identify exactly where in the store customers are located and serve them relevant contextual information. Deployed across an entire shopping mall, beacons can offer shoppers indoor mapping to help them find their way around and footfall data to retailers as a value-added service to the retailers.

Getting Bluetooth enabled is critical

However, it is important to consider that, at this early stage, consumers are not completely aware of BLE beacon capabilities. To gain real benefits from customer insight and targeted messaging from beacons, customers must have installed an app and have Bluetooth turned on. Getting users to open their app onsite and turn on Bluetooth might be a challenge for some companies — especially as Bluetooth is still largely associated with battery-draining headsets.

Consumers may also take time to change their behaviour to meet these advances in technology. While the beacons allow people to check in to pay without the need to reach for their mobile, many people will

feel uncomfortable without a physical transaction and question when and where their money has gone and how much organizations can do with their data.

Once you overcome these issues, then BLE beacon uses will generally fall into one of the following four categories:

- Static point of interest
- Indoor mapping
- Two-way proximity
- Analytics

Static point of interest (POI)

A first for mobile technology

This feature refers to triggering an action or event once a user comes within a certain distance of a particular physical location. The location of the POI could map to the front door of the building, the front reception desk, the lifts or anywhere else.

Once a person is inside a particular space, being able to pinpoint where they are and the direction they are facing is a first for mobile technology. Marketers will need to think about what app features enhance the overall user experience. For example, you may want to communicate information about whatever product a customer is currently looking at, or you may want to trigger a discount offer to display as the user approaches the check-out.

A hotel could deploy BLE beacons and build apps for customers that offer the ability to unlock room doors by simply being close enough to the door. Transport companies could enable customers' mobile devices to automatically tap in and tap out for their journeys, without the need to actually tap anything against a reader.

Indoor mapping

Making navigation easier

Companies across all industries have been trying to solve the indoor geo-location challenge for some time, and BLE beacons may be the technology that provides a solution. By developing apps and installing BLE beacons throughout increasingly large shopping malls such as Bluewater or The Bull Ring in Birmingham, shoppers can navigate retail centres more easily, saving time and ensuring that they reach the stores they plan to spend money in. This added value to customers will encourage them to keep the app open and Bluetooth on.

Two-way proximity

Automating customer handling

This feature introduces the idea of the user's device becoming the beacon. An action or event can be triggered on one device that transmits the user's ID and micro-location to a friend, peer or administrator application, opening up the capability of locating friends, colleagues, store staff and customers.

Some businesses may find it more cost-efficient to build the app to behave like a beacon rather than install beacons throughout, so that the staff can

locate the users. The way customers queue or interact with customer service staff has just been automated and customized — the teller at the bank is able to know who their next customer is and why they are there as they are walking up to the cashier. Two-way proximity can enhance interactions and offer a more personalized experience and better service.

Analytics

Personalization is important

The opportunity for marketers (across sectors) to collect valuable insights from BLE beacons is massive: knowing things such as who entered what area, at what time and for how long, or even who did not enter but was close by, can open up a whole new world of insight. It is important that marketers use this data to continuously personalize offerings in order to instill trust and offer valued utility.

Consumer privacy

Need to reassure consumers

BLE beacons do not collect consumers' data — the apps they are connected to collect it. The users' app detects the beacons and tracks when and where the user has been. However, the amount and type of personal data collected is dependent on the type of app. If the customer has provided lots of personal information and already given permission to use that data (ie, a retail banking app, members of a retail store loyalty scheme), then the data collected can be analysed at a deeper level. If the app requires no personal information to be inputted, the data collected will be anonymous and analysis of the data will be more limited to showing footfall.

As with all consumer data, the real insight will depend on the quality of the analysis. If you think privacy might be a concern for your users, you might want to assure them that their information is not collected or, as a minimum, mandate a policy that, whenever personal data is collected, you ensure users provide explicit permission. From a consumer's perspective, if they are to opt in to having their data collected by an organization, the value exchange to the user in doing so should be greater in terms of the content and offers they will get back. It is important for security that you ensure that the data is encrypted at the source.

Summary

First-mover advantage is there for the taking

It is always important for marketers to stay up to date with the latest uses of technology. BLE beacons have the potential to improve the way smartphones are used by consumers and by businesses. First-mover advantage is there for the taking and, with near-ubiquitous device support already in the market, the only challenge to overcome is the privacy debate with the consumer.

Marketers should consider how they can compliment and add to a physical space to make it more enjoyable or stress-free, rather than assume that pushing location-based content will be successful. This is a whole new dimension of customer experience.