Bluetooth Low Energy

***NFC** - Contactless*

DIRECT PAY

Streamlining in-app payment and rewards.

Overview: Starbucks Success

Back in 2010 Starbucks launched Mobile Payment on iOS and Android devices. In 2015 Starbucks added a feature that allows the user to place, order and pay for coffee in advance, and then pick it up at nearest Starbucks location. Mobile Order & Pay is emerging as the fastest and easiest way for Starbucks customers to conduct their transactions.

Starbucks has been a digital pioneer pushing mobile payments.

"Over 21% of total U.S. transactions were paid using mobile apps during the last quarter of 2015. Over one million customers in the U.S. used the Mobile Order & Pay capability in the month of December, and those customers averaged approximately five mobile orders in the month, driving meaningful revenue growth and incrementality."

COO Kevin Johnson.

Closed-Loop System

The Starbucks Mobile App is based on a closed-loop payment system. This means it can only be used for purchasing at Starbucks stores. The closed-loop system makes it easy to reward customers for loyal purchases: Starbucks grants customers a star for every dollar spent on a registered Starbucks card.

Benefits of Closed-Loop Systems:

- Improves loyalty
- Enables capturing big data on customer transactions, including customer insights such as buying habits, popular items, and even an ROI measure on marketing campaigns
- Minimizes internal payment processing, which can lower merchant costs
- Maintains ownership over the entire merchant/customer process.

STARBUCKS PAYMENT SYSTEM COMPONENTS

There are four components for this transaction (Figure 1):

- Starbucks payment cloud: In charge of storing the balance of every individual user and transferring the money to the merchant (in this case, the Starbucks local store)
- Sources of funds: Gets the money from the user by way of a Credit Card on file
- Mobile app, or wallet: Loads credit into the app (via cloud) and executes the transaction via a QR code
- POS: Gets the transaction via the user's app (QR code)

Figure 1: Payment Components

The money flow (Figure 2) starts with the user reloading the Starbucks Mobile App by means of a few alternatives:

- Apple Pay
- Credit Cards (outside Apple Pay)
- Starbucks Gift Cards

The amount goes to the Starbucks cloud where it is stored and administered. The payment transaction is performed using a barcode scanner tied to the POS by reading the barcode on the app.
Once the transaction is completed and accepted (namely, the user has enough credit in the user account) funds are transferred from the cloud to the merchant.

Figure 2: Starbucks Money Flow

EXPANDING THE SUCCESS OF STARTBUCKS

CVS recently launched a similar barcode-based solution to pay for goods and prescriptions in the company's retail locations. Walmart, Dunkin Donuts, and Taco Bell—to name a few—have also recently introduced similar solutions.
In these cases, the store's mobile apps are clearly intended to substitute Apple or Android Pay, as these companies want to own the end-to-end system. Moreover, the main objective is to streamline the payment experience by joining it together with the information consumers provide through loyalty cards or similar systems. The "Pay" aspect is more about streamlining the "Loyalty+Pay" combo than it is about moving money.

Linking the payment and loyalty card functionality helps keep loyal shoppers even more engaged. Most of the companies that have implemented similar solutions, just like Starbucks, have seen a significant boost in sales with their mobile payment apps

DEATH OF THE QR CODE

> ***" What we're trying to do is provide real utility and solve real problems for customers using digital. With one scan, we're taking away three or four extra steps that customers have lived with for a long time. It has to be more than just payments. The value is in combining a couple of these things, and the examples in the market where that has happened have worked really well."***
>
> **Brian Tilzer, CVS Health's Chief Digital Officer**

The new system introduced by CVS truly simplifies the process of searching for the loyalty card (for user information) as well as the credit card (even if the user has both on the same phone). Having to dig either in a purse/physical wallet or in different apps (i.e. CVS loyalty card app or Apple/Android Wallets) can be frustrating. CVS solves the problem by consolidating both steps into just one. Nevertheless, the user still has to look for the app, launch it, and place the app barcode under the scanner.

CVS' largest competitor, Walgreens, recently made the Balance Rewards card available via the Apple Wallet app using an NFC-enabled card, and uses Apple Pay for payment processing.

Using Apple Wallet, the experience feels more natural. To use the Walgreens Balance Rewards card, customers only need to hold the iPhone (or Apple Watch) near the contactless POS and confirm with a fingerprint. The Balance Rewards information exchange just happens, without even having to unlock the phone. The technology that makes this seamless exchange of information possible is part of the NFC Forum standard[1] .
The experience is very much the same as making payments. In just two steps the user first presents loyalty card information, and then the user presents the phone and executes the transaction without having to select a credit card. The system automatically knows when to pull the Walgreens Balance Rewards card and when to pull the credit card. The user only has to place the phone on the POS and authorize the transaction using Touch ID (for a secure transaction).

TAKING THE FRICTIONLESS EXPERIENCE TO THE NEXT LEVEL

As previously explained, Walgreens' solution involves two completely frictionless steps (one for loyalty and another one for payment – see video demonstration[2]).

The Starbucks solution, on the other hand, combines these two steps (rewards card and payment) into one. Unfortunately, the barcode approach forces the customer to have to look for either the app or the rewards card themselves, which is quickly becoming outdated as more merchants put out apps and wallet passes.

Ideally, the checkout process should be resolved in a single-step and in one tap effectively streamlining the transaction experience. The best way to achieve this is using NFC-enabled reward cards and passes.

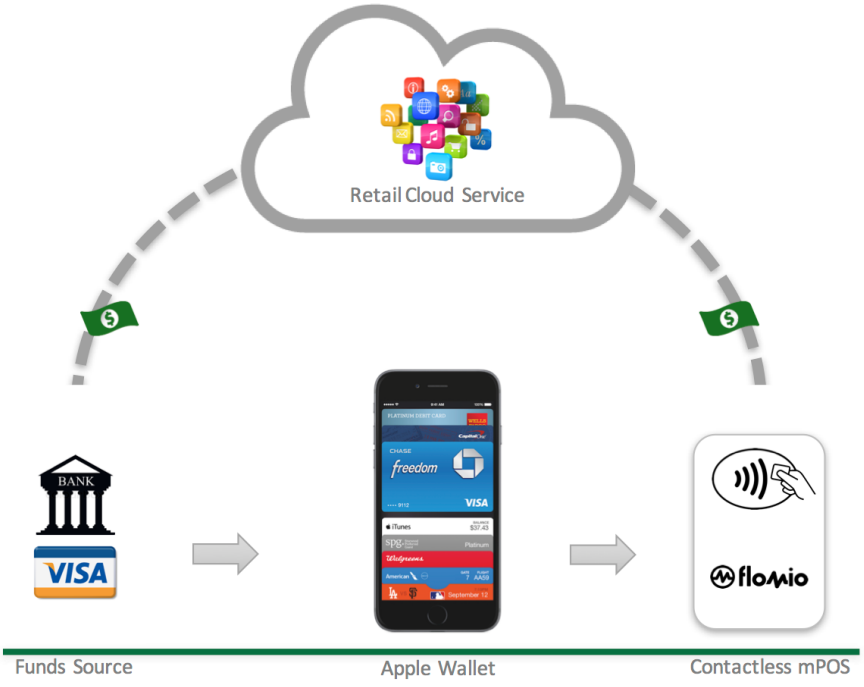

Figure 3: Streamlined Process

The Starbucks closed-loop solution would be close to perfect if it weren't for the burden of having to look for the rewards card. Thus, by adding closed-loop payments to NFC-enabled reward cards, the merchant has the freedom to securely use reward cards as payment and optimizing the entire process down to one single tap.
The money flow depicted in Figure 3 is like Starbucks Flow, but the transaction is streamlined combining two steps: Tap-and-pay and Tap-to-exchange credentials.

An alternative to the closed-loop payment scenario can also be considered if the store, for example, prefers using stored credit cards to complete the transactions instead of the "top-up" model that keeps a balance in the cloud. Note that the payment is not considered "Card Present" and higher merchant rates apply, but the user experience will be totally frictionless while eliminating the need to build top-up infrastructure in the cloud.

Figure 4 shows the money flow using the credit card method. The transaction process is substantially improved; with the only difference being that at the time of purchase the money is transferred from the credit card to the merchant.

Figure 4: Credit Card Alternative Money Flow

The solution is flexible enough to accommodate special types of payment scenarios like the classic "bar tab" approach. Bar tabs are convenient for customers and bartenders; with "Direct Pay" the customer simply taps the smartphone for every drink purchased, the credentials are stored the first time the patron taps the device, the purchases (drinks) are

added as they occur, and at the end of the visit, they are consolidated into one single payment. Source of payment can be the merchant card, a credit card, prepaid card, etc.

Among all the improvements of the proposed solution, the cost of the devices that accept contactless reward-reading/payment with the automatic selection of the store card are less expensive and smaller than existing POS, and with a similar level of security (secure communication with the host and secure NFC transaction).

Contactless increases transaction speed by

53%

THE FUTURE

A study conducted by American Express found that contactless transactions are 53 percent faster than traditional transactions. With speed and convenience increasingly becoming the driving goals of every transaction, it is expected that closed-loop payments will move away from barcode-based to contactless NFC-based systems.
Therefore, NFC-based payments will continue to grow at an accelerated pace.
At Flomio we are enabling the move to wearable mPOS by implementing and customizing cutting edge HW and SW solutions, and pushing the limits to reduce the size of mPOS devices and—most importantly—the cost.

Flomio customizes proximity ID solutions to help enterprise clients and developers cross the chasm to the Internet of Things (IoT). Funded by TechStars, Flomio is fundamentally changing the way people engage with the spaces around them by making proximity ID simple to integrate, easy to deploy, and fun to use. Soon, 50 billion devices will regularly connect to the Internet. The future is ubiquitous, frictionless connectivity and Flomio makes sure businesses take advantage of it.

Founded by Richard Grundy, Flomio is headquartered in Miami.

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Sources:

1) Auto-present Passes in Apple Wallet
2) NFC Enabled Walgreens Loyalty Card in Action

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