

Gathering customer information from a mobile application

James Adams, SAS Institute Inc.

ABSTRACT

SAS® Customer Intelligence 360 is the new cloud-based customer data gathering application that uses the Amazon Web Services cloud as a hosting platform. Learn how you can instrument your mobile application to gather usage data from your users as well as provide targeted application content based on either customer behavior or marketing campaigns.

INTRODUCTION

In April of 2015, media research firm comScore (Lella and Lipsman 2015) noticed an important shift in how consumers access the Internet: mobile app usage had surpassed that of the desktop for the first time. And, since then, mobile devices, primarily smartphones and tablets, have increasingly become our primary entry point to the Internet.

This sea change has sent a loud signal to customer-centric organizations across the globe and within the Fortune 1000. Mobile app developers and mobile marketers must now work together in order to provide optimal mobile experiences for their customers as well as relevant content to assist them in their mobile tasks.

A consumer's mobile behavior takes place across a number of key areas:

- Mobile search
- Mobile web
- Mobile apps

Mobile marketers are seeing a rise in the use of mobile apps versus mobile web, which is providing marketers an opportunity to reach more prospects and, ultimately, presenting more effective approaches to converting these prospects into loyal customers.

According to Nielsen (Nielsen Research 2015), the average smartphone user accessed over 26 apps per month in 2012 and 2013. More importantly, the study also discovered that, while the overall number of apps has stayed flat, there has been a rise in usage from 23 hours per month in 2012 to over 37 hours per month at the end of 2014. Given this 63% lift, customer-facing organizations are seeking to directly deliver engaging mobile app experiences to their customers. Some organizations have leapt into the world of mobile applications without much forethought resulting in some pretty humorous results (Crap Brapps 2016).

SAS Customer Intelligence 360 is a product that will allow a mobile marketer to target users in the organization's owned property: the organization's mobile app. Owned property means the website or mobile application that the marketer owns instead of a third-party website or application that is accessible only through paid advertisements.

SAS Customer Intelligence 360 offers the ability to target specific users based on their behavior, location, and history in a real-time way in order to enhance the effectiveness of their messages (including offers). For example, SAS Customer Intelligence 360 can gather data on usage patterns and combine that with historical behavioral patterns. Thus, we can choose the correct "message" (for example, offer) at the correct time for the correct user.

This paper examines how the marketer and mobile app developer coordinate to provide this data gathering capability to their mobile applications.

GATHERING DATA WITH SAS CUSTOMER INTELLIGENCE 360

SAS Customer Intelligence 360 currently supports data collection and analytics for mobile applications

that run on the Android and iOS platforms of Google and Apple respectively. The Android platform supports the Java language and the iOS platform supports ObjC as well as Swift. SAS Customer Intelligence 360 also supports many devices including all phones and all tablets.

To begin gathering data for your mobile application, you must configure the application using the following sequence of actions:

1. Register your application with SAS Customer Intelligence 360.
2. Download the SAS Customer Intelligence 360 Mobile SDKs to your developers.
3. Add the corresponding SDK to your application.
4. Run your application.

It is important to remember that there will have to be a collaboration between the application developer and the mobile marketer. An ongoing dialog is essential for a successful integration of your mobile application with SAS Customer Intelligence 360.

REGISTERING YOUR APPLICATION WITH SAS CUSTOMER INTELLIGENCE 360

To register your application with SAS Customer Intelligence 360 you must first authenticate with the system. Then navigate to the Settings page. Choose **Manage Mobile Applications**. On this screen you will enter a name for your application. The name consists of two parts. The first is a label that will be used throughout SAS Customer Intelligence 360. The second is a moniker that will be used within the underlying SDK to identify your application. On this screen you will also add any certificates you have to allow your application to respond to push notifications and in-app messages. This is an optional feature that will be discussed later. See Figure 1. Creating a Mobile Application”

Figure 1. Creating a Mobile Application

Once you have registered your application with SAS Customer Intelligence 360 you will need to download the SDKs and send them to your developers. In the **Manage Mobile Applications** screen click the select button in the upper right corner of the screen. Now select your application and click the download button at the top of the screen. This downloads a ZIP file that contains two SDKs, one for Android and one for iOS. Each SDK is in its own directory. The iOS directory contains a ZIP file. This file should be sent to your iOS developers and unzipped there. On OS X you unzip the file by double-clicking it in the Finder app. The Android SDK consists of two files: SASCollector.jar and SASCollector.properties. The iOS SDK consists of SASCollector.framework, SASCollectorBundle.bundle, and SASCollector.plist. The properties file and the plist file contain information specific to your application and are not to be shared between different applications. The rest of this paper is focused on adding data collection to an iOS application. An understanding of iOS, ObjC, and Xcode is assumed.

To activate the iOS SDK in your application, you will first create a directory within your application project. You can call this SASCollector. Copy SASCollector.framework and SASCollectorBundle.bundle into this directory. Open Xcode and drag the SASCollector.plist file into your resource folder. Select copy when the dialog for adding the file is displayed. Ensure that the file is added to your target since we need this file in the built application. Select your target and navigate to the Build Phases tab. Locate the Link Binaries With Libraries area and click the plus button. Click **Add Other** and find SASCollector.framework that you put in your project previously. Locate the Copy Bundle Resources area and click the plus button. Click **Add Other** and find SASCollectorBundle.bundle. At this point you should be able to run the application and have data collected in SAS Customer Intelligence 360. To verify this, add the following line in your AppDelegate application:didFinishLaunchingWithOptions: method:

```
[SASLogger setLevel:SASLoggerLevelAll];
```

You will also need this line at the top of the file:

```
#import <SASCollector/SASCollector.h>
```

When you run your application you will see messages in your console indicating that the SASCollector SDK is communicating with SAS Customer Intelligence 360.

At this point your application is gathering simple data. The information that we gather includes data identifying the type of hardware that is running as well as the operating system level. We gather the screen size and, if it is a phone, information about the network provider. We also gather some user behavior information such as the first time they use the application, every time they open their application and every time they leave the application. If the user allows, we will also gather their location when they open the application. Additional behavioral data can be gathered if the developer adds a `newPage` call into the application. This is done in every `UIViewController` in the `viewDidAppear:` method.

This looks something like the following example with a different moniker used for each portion of the application. You can use slashes to indicate a hierarchy if you wish:

```
[SASCollector newPage:@"main"];
```

With this simple addition to your application, we can get a picture of how the application is used. This information can be used to drive marketing campaigns if desired.

ESTABLISHING YOUR MOBILE SPOTS

The next thing that the marketer and application developer have to agree on are areas in the application that can be directly driven by the marketer. These areas are called mobile spots and represent a known area within the application where content can be dynamically provided based on the behavior of the application user and the specific campaign that the marketer is designing. For example, there might be a banner location at the top of the home page that the marketer might want to change to drive the user in some other direction, either to buy something, or to use a different part of the product. Normally that area would display, for example, the name of the company. Occasionally you might want to change it to highlight, for example, a white sale. By defining this mobile spot in SAS Customer Intelligence 360, the content of that area falls under the marketer's control.

For the mobile application developer, this is done by adding a `SASCollectorUIAdView` to the application's `ViewController`. In Interface Builder this is easily done by dropping a `UIView` onto the page and changing its class to `SASCollectorUIAdView`. Connect the `hostViewController` property to the hosting `viewController` and set the `SpotID` property to the value that the developer and marketer have decided to use.

Next, the mobile marketer will need to go into the SAS Customer Intelligence 360 user interface and create a mobile spot. The marketer will need to assign it the same name that was agreed upon with their respective mobile application developer. Knowing the size of the mobile spot is very important. Something to remember, however, is that the mobile spot might be a different size on different devices. There are several ways to handle this. One easy way is to just create multiple spots, one for each type of device. For example, you might construct a banner spot for a phone that is only 320 pixels wide while the same spot on an iPad would be 1,536 or 2,048. And don't forget the iPad Pro, which can have a width or height of 2,732. If you name these appropriately the mobile app developer can set the mobile spot ID based on the device type and the marketer can drive the correctly sized image to that area.

Another way to handle this situation is to add attributes to a mobile spot. The attribute could be the device type or a size moniker. These attributes can then be used to drive the correct content to the device without having to use multiple spots. However, it does require some more work on the part of the mobile marketer to ensure alignment. The mobile spot attributes have to be handled throughout the entire campaign instead of breaking the campaign up by mobile spot.

The preferred way to handle this is to provide multiple creatives to put in the mobile spot. Creative is the term used to describe the actual content that will be displayed in the mobile spot. Each creative is sized

for a phone or a tablet. The marketer creates a SAS Customer Intelligence 360 task that uses the mobile spot and specifies the creative that will go to that spot. The marketer can then go into the **Recurrence** tab in the task and put a rule based on the device type that chooses which creative is sent to the device. See Figure 2. Rule-Based Creative Selection in a Task.”

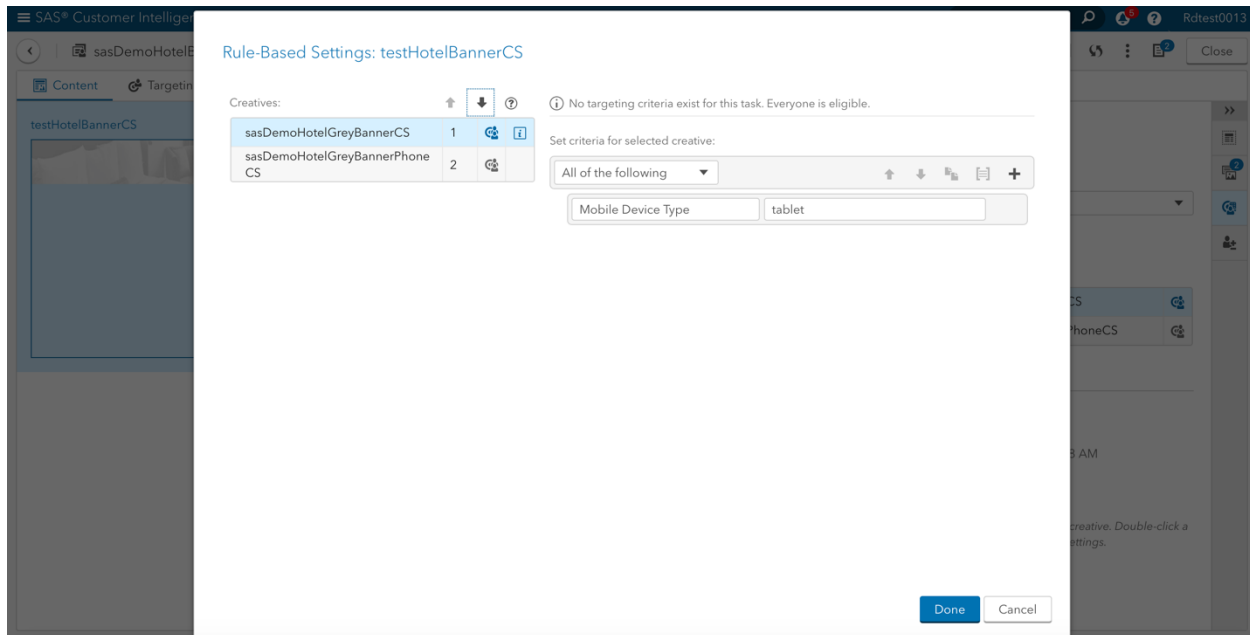


Figure 2. Rule-Based Creative Selection in a Task

Whichever method you choose to handle sizing scenarios, it is important that you maintain a relationship with your mobile application developer to ensure that the correct mobile spot IDs and mobile spot attributes are always used.

Geolocation is a feature built into the SAS Customer Intelligence 360 SDK. The marketer can define geographic regions that can be used to drive content or to capture behavior. An example would be defining the location of all of your stores. If you upload this data to SAS Customer Intelligence 360, the SDK can trigger an event when the user enters or goes near a store. This can be used to send offers or to modify the display in the application. Imagine customers walking into a store and your application has a banner that welcomes them to this specific location. That makes for a very friendly customer experience. Another technology that is becoming prevalent is the use of beacons to provide additional location information. Beacons are small electronic components that emit a low energy Bluetooth signal. There are two styles currently in use. One style just emits a unique signature, which allows you to know the exact unit you are near. The other style emits additional information such as an URL to a web page. SAS Customer Intelligence 360 supports the first style. Marketers can use this information to drive even more specific content, allowing for even more ways the customer can be offered the right offer at the right time.

Earlier in the paper we mentioned the use of certificates for push notifications and in-app messages. SAS Customer Intelligence 360 allows the marketer to send targeted messages to the mobile application that do not use the mobile spot technique. Push notifications are sent to the user and are meant to be seen when the app is not running. The content of the notification is a simple message. The intent is to drive the consumer back into the application. This promotes re-engagement of occasional users and can also be used to point loyal users to new offers. See Figure 3. Push Notification.”

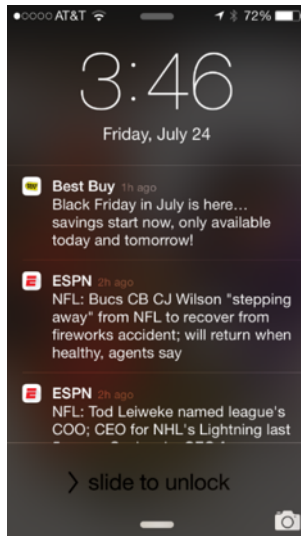


Figure 3. Push Notification

In-app messages are a way to send a message to the user while the user is actually using the application. The intent is to either increase customer engagement by driving a customer to a specific part of the application or to reward the person for being a loyal customer. These messages also require no changes on the part of the application developer, so they are totally under the control of the marketer. In-app messages consist of an image, some text, and some buttons. The buttons can be used to link the user to a different part of the application. This technique is called deep linking. See Figure 4. In-App Message.”

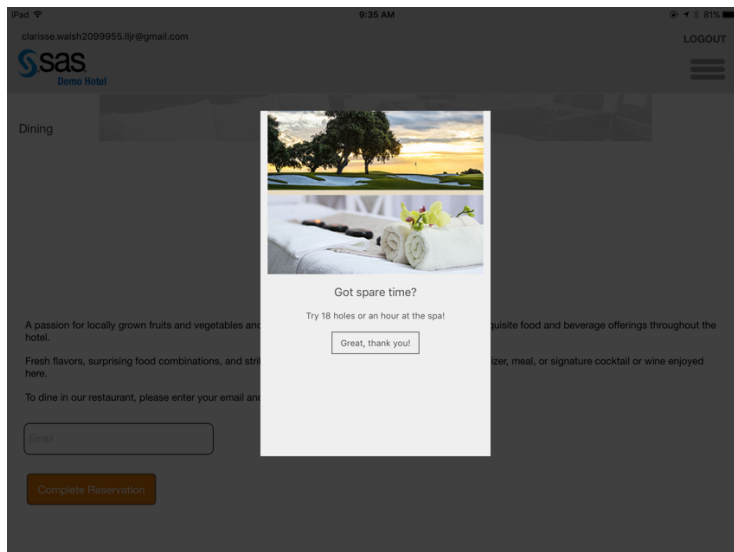


Figure 4. In-App Message

Certificates are required for the sending of push notifications and in-app messages. The certificates must be sent by the application developer to the marketer for inclusion into the Manage Mobile Applications screen. These certificates are sent to Amazon Web Services where they are used to communicate with the Apple and Google Notification Services. One certificate is required to talking to Android devices and two certificates are required to talk to Apple devices. The two that Apple requires are for developing applications and for production applications. The production certificates expire every year. The development certificates expire in 6 months.

CONCLUSION

SAS Customer Intelligence 360 allows the marketer to specialize web and application content to maximize customer engagement, conversion, and loyalty. By combining the SASCollector SDK with your mobile applications, you can begin to use a new tool to increase your knowledge of customer behavior. By combining the historical data of the different channels of interaction with customers, you can be in the best position for offering the best offer for each customer at the right time.

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CONTACT INFORMATION

Your comments and questions are valued and encouraged. Contact the author at:

James Adams
SAS Institute
jim.adams@sas.com

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