

LEANPLUM

# Personalize or Bust

## The Impact on App Engagement

## **A Little Background**

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In March, we released our inaugural data science report, part of a larger narrative around mobile engagement.

The report analyzed app sends versus user opens from over 671 million push notifications around the world. The results: we found that 63 percent of mobile apps send push at the wrong time. To help you close the engagement gap, we laid out the best practices for maximizing your push opens.

If you haven't read it, you can download **Breaking Barriers to Push Notification Engagement** [here](#).

## **The Data**

In our second report, we're upping the number and analyzing 1.57 billion push notifications sent to users around the world.

To get this data, we drew from hundreds of apps that ranged in size. These included massive apps with millions of Monthly Active Users (MAU) and smaller apps still building steam. We examined this data over the course of January 2015 to March 2016, or about 455 days.

# **What Is User Engagement for Push Notifications?**

When it comes to push notifications, what is user engagement?

At Leanplum, we define user engagement as having four components. Those components are:

- 1. The number of users who open a push notification**
- 2. The time it takes for users to open that push notification**
- 3. The action users take based on that push notification**
- 4. How long an app retains that user**

In this report, we'll analyze the impact of the first two factors – the number of opens and the time to open. In our next report, we will tackle action and retention. Stay tuned.



# **From Open**

## **Rates to Time**

### **To Open**

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First, a note on time to open. Throughout this report, we look at the time it takes for a user to open a push notification. It's important to not just look at open rates, but also how long it takes for a user to engage with that message. It's akin to analyzing the when and why behind that action.

As a note, for all time to open statistics, we only focused on users who did open the push notification. We also focused on median, rather than mean, to reduce the possibility of any outliers affecting the numbers.

**Here are some questions we hope to answer with the data:**

**What drove users to return to your app?**

**What's their level of interest?**

**What's the time span in which a user will re-engage?**

**How does the message relevance affect opens?**

# The Factors That Affect Engagement

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Many factors come into play when determining why a user opens your push notification. In this report, we examine four elements.

If you can **personalize** any combination of the factors above, there's a good chance you'll see high user engagement.

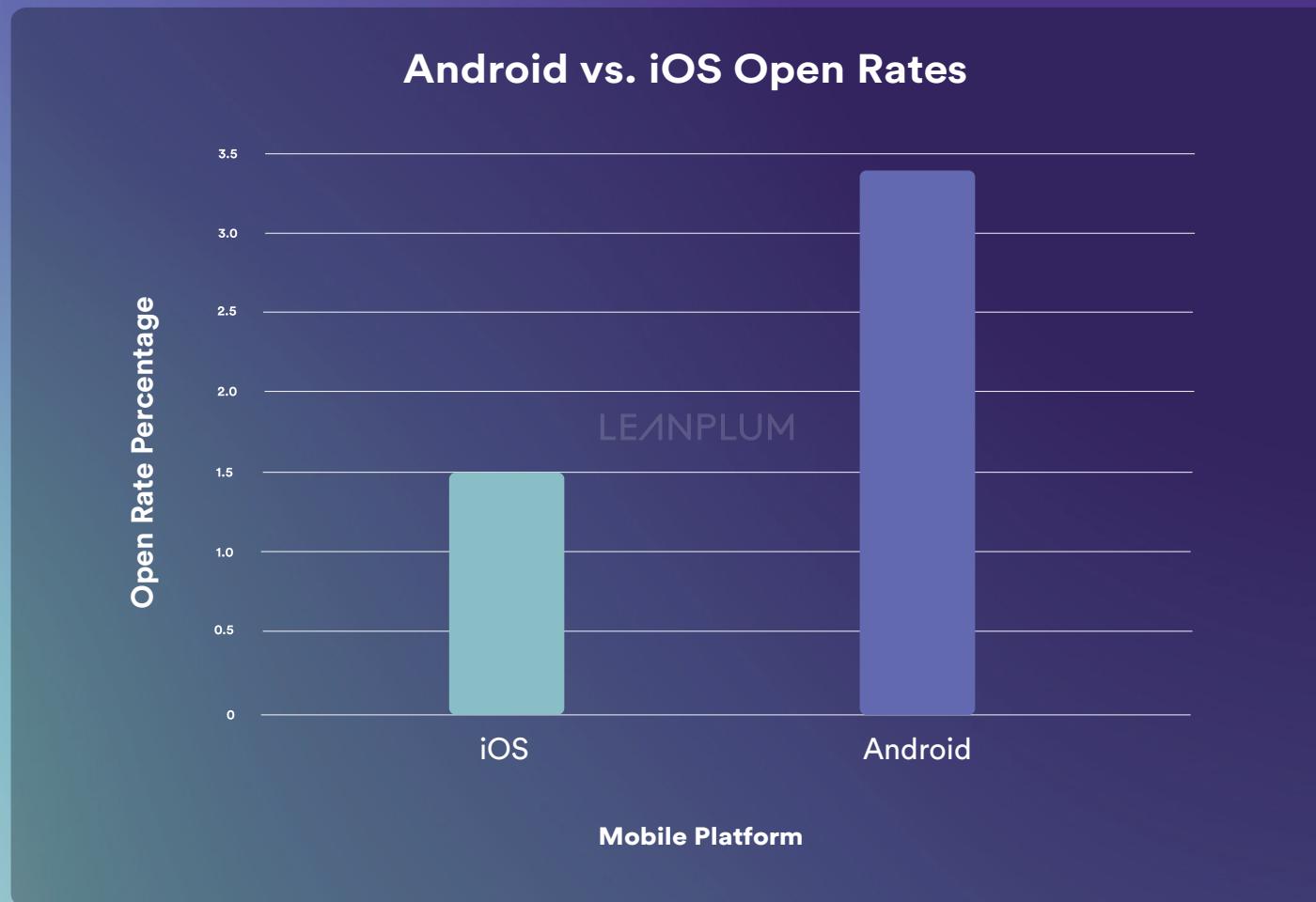
**#Protip:** The links to the right act as a table of contents. Feel free to use them to navigate through this guide.

- Platform
- Content
- Delivery Type
- Geographic Region

# Mobile Platform

# The Effect of Platform on Open Rates

First, let's look at how users react to push notifications on different platforms. As you can see in the chart, **the push open rate is twice as high on Android than on iOS.**



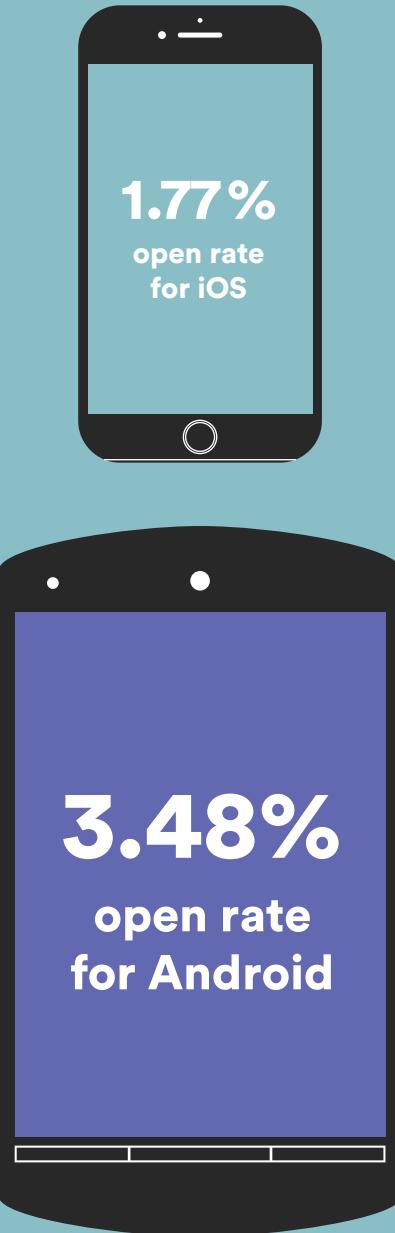
# The Effect of Platform on Open Rates

There are a number of theories as to why Android sees **open rates twice as high** as that of iOS. One plausible explanation accounts for the push user experience within the design of the operating system (OS).

Some may argue that iOS lags behind Android when it comes to push notification open rates **due to its UI**. On Android, messages “stick” around longer in the lock screen. A user is required to acknowledge the notification in some form, whether opening or dismissing, for it to disappear. Even after users

shelve notifications, Android still lets them know they have unread notifications by adding a sticky icon to the top left corner of the home screen.

Conversely on iOS, once a user unlocks their screen to take any action, the message moves straight to the notification tray. It is then only accessible if a user drags the tray down from the top bar. **The ephemeral nature of iOS push notifications may play a large role in the vast open rate differences.**



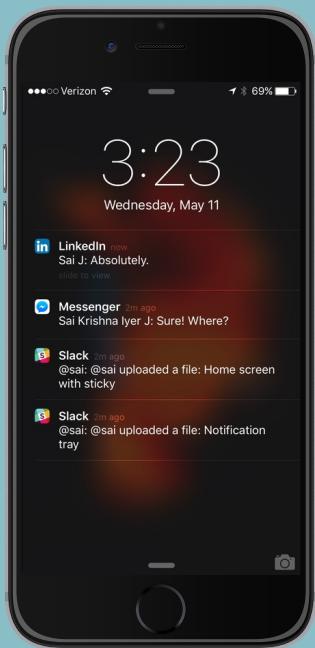
# Push Differences on Android v. iOS

Android



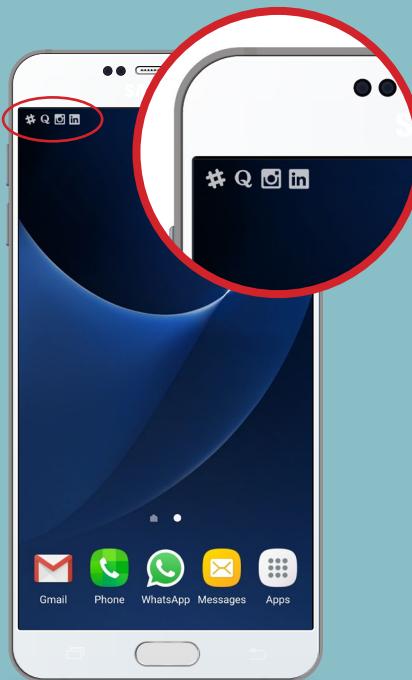
Lock Screen

iOS



Lock Screen

Android



Home Screen

iOS



Home Screen

Notifications persist on the lock screen until a user takes action, i.e. swipes it away.

Notifications disappear from the lock screen as soon as a user unlocks the device.

Notification alerts appear on the top of the home screen until a user takes action.

Once a user unlocks the device, there isn't a persistent push alert section on the screen.

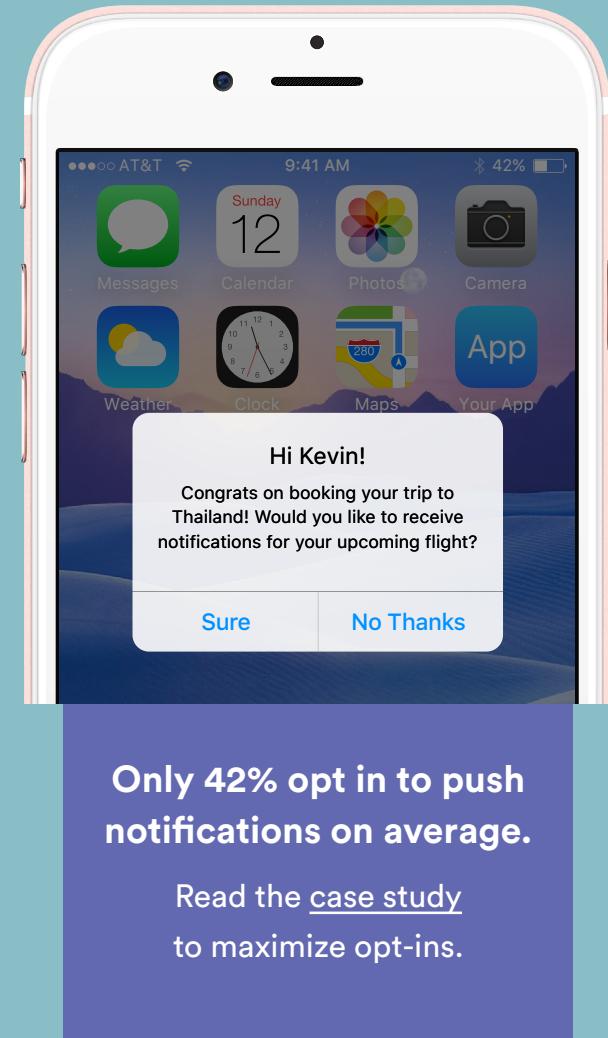
# The Effect of Platform on Open Rates

This points to the important role of analytics in identifying how OS impacts user behavior. Brands should leverage analytics to apply unique personalization tactics that engage across custom segments.

For this report, we only compared data from Android users, who automatically opt-in to push notifications, and iOS users who manually chose to opt-in. However, on iOS, the majority of users don't opt-in. Other engagement channels prove critical for brands who want to engage with that audience.

For example, Newsfeed enables a persistent container of messages inside the app itself, while email is a great supportive channel to reach users on mobile outside of the app.

Lifting the number of iOS users who opt-in to push ensures a wider audience for all your marketing initiatives. One successful tactic to boost push permissions involves a feature like Soft Ask Push Permissions. Soft Ask suppresses the default iOS prompt and instead explains the value of push at a moment when the user is most engaged.

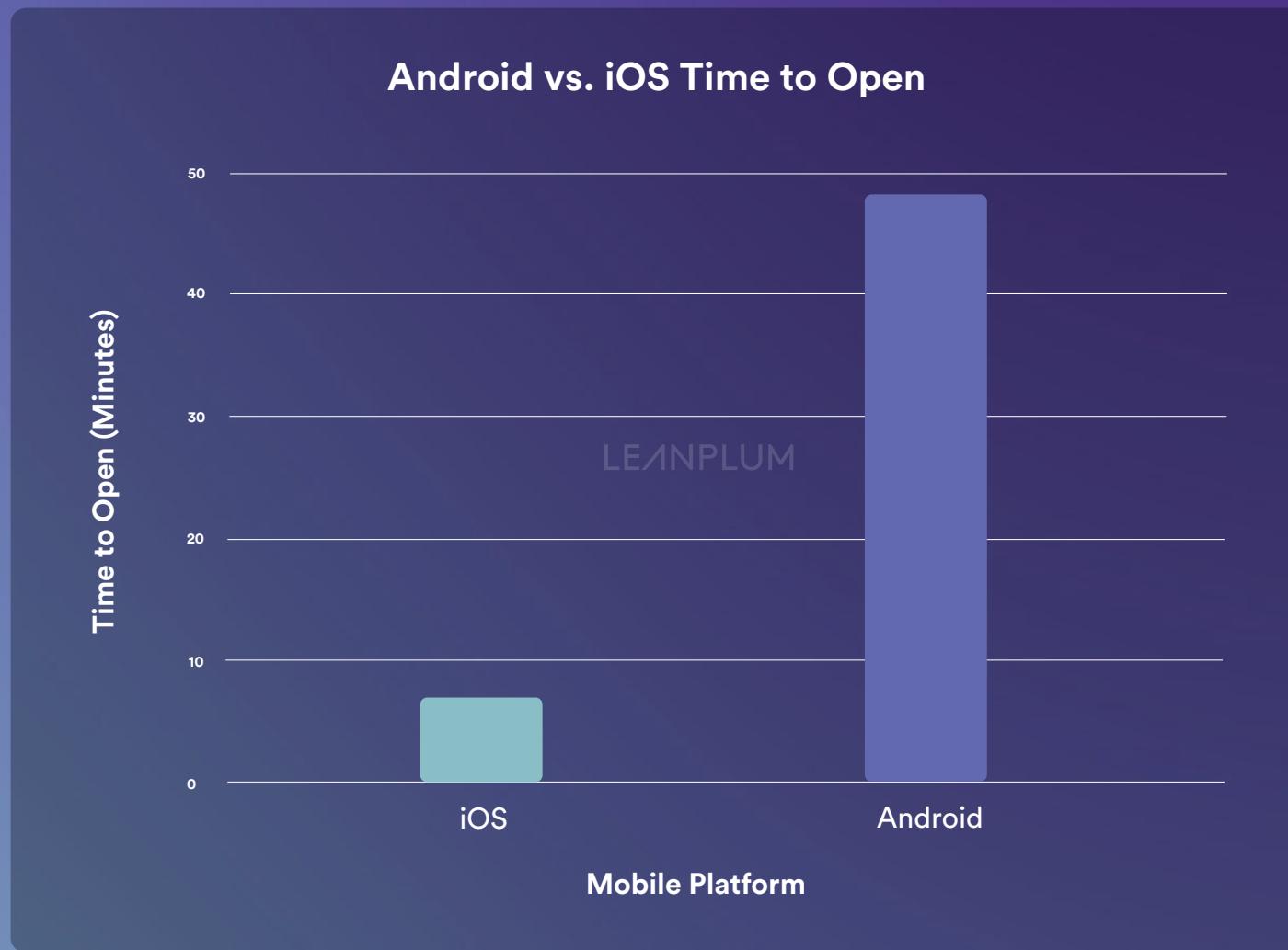


**Only 42% opt in to push notifications on average.**

Read the [case study](#) to maximize opt-ins.

# The Effect of Platform on Time to Open

Now, let's examine the time to open duration for Android versus iOS.

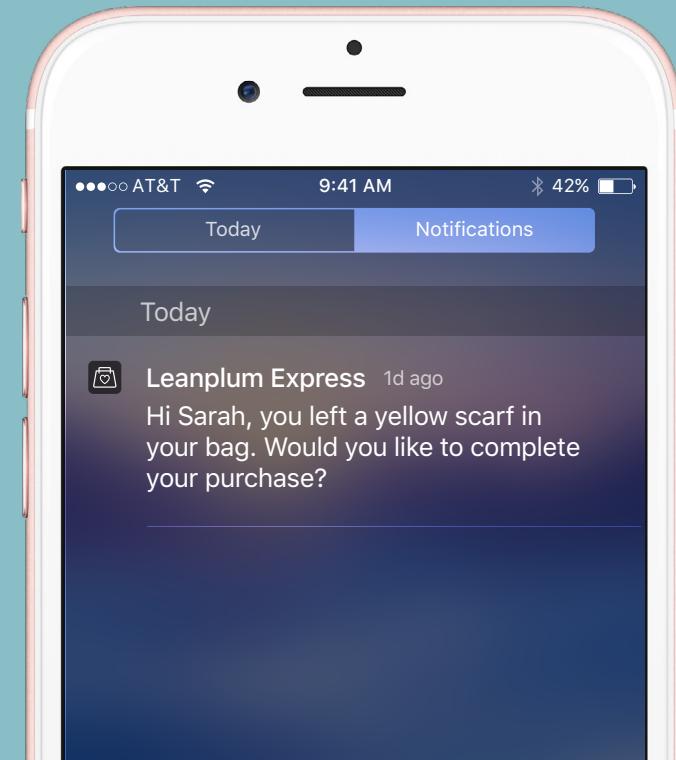


# The Effect of Platform on Time to Open

Android, which has twice the open rates, sees a much slower time to open. **The median time Android users take to open a push notification is around 48 minutes. On the other hand, iOS users are fast, opening push in median time of seven minutes.**

Our hypothesis is that the difference is related to the distinct user experience between iOS and Android. As we highlighted above, it may come down to a design difference.

Since iOS pushes disappear after a user unlocks their screen, open rates are lower. **Yet iOS users who open, do so faster than those on Android.** As notifications disappear after a user unlocks their iPhone, users open push directly from the lock screen, while the message is front and center. Perhaps iOS users are trained to act with more immediacy, knowing how quickly pushes will be moved into the hard-to-find notifications tray.



## **The Effect of Platform on Time to Open**

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Amar from Orbitz, a Leanplum customer, theorizes that the open rate difference is due to the varying user experiences on iOS versus Android.

**“For multi-platform push notifications I run, I’ve consistently observed higher open rates on Android than iOS. I believe it can be attributed to Android requiring users to explicitly dismiss a notification for it to stop displaying on locked home screen.”**

— Amar Parikh, Product Manager at Orbitz



# **Content**

# What Is Personalized Content?

**Let's move on to personalized content.**

**How do we define this?**

Personalized content can be executed in a number of ways, from lightweight to contextual. It can factor in small details, such as the receiver's first name. Or dive deeper to include an event parameter, action item, language, lifecycle, real-time location, and more.

**The value of personalized content lies in making the user feel engaged.** It initiates a one-to-one conversation, rather than putting the user on the receiving end of a generic blast.

## **Personalized Content**

[first name], [last name], [gender], etc...

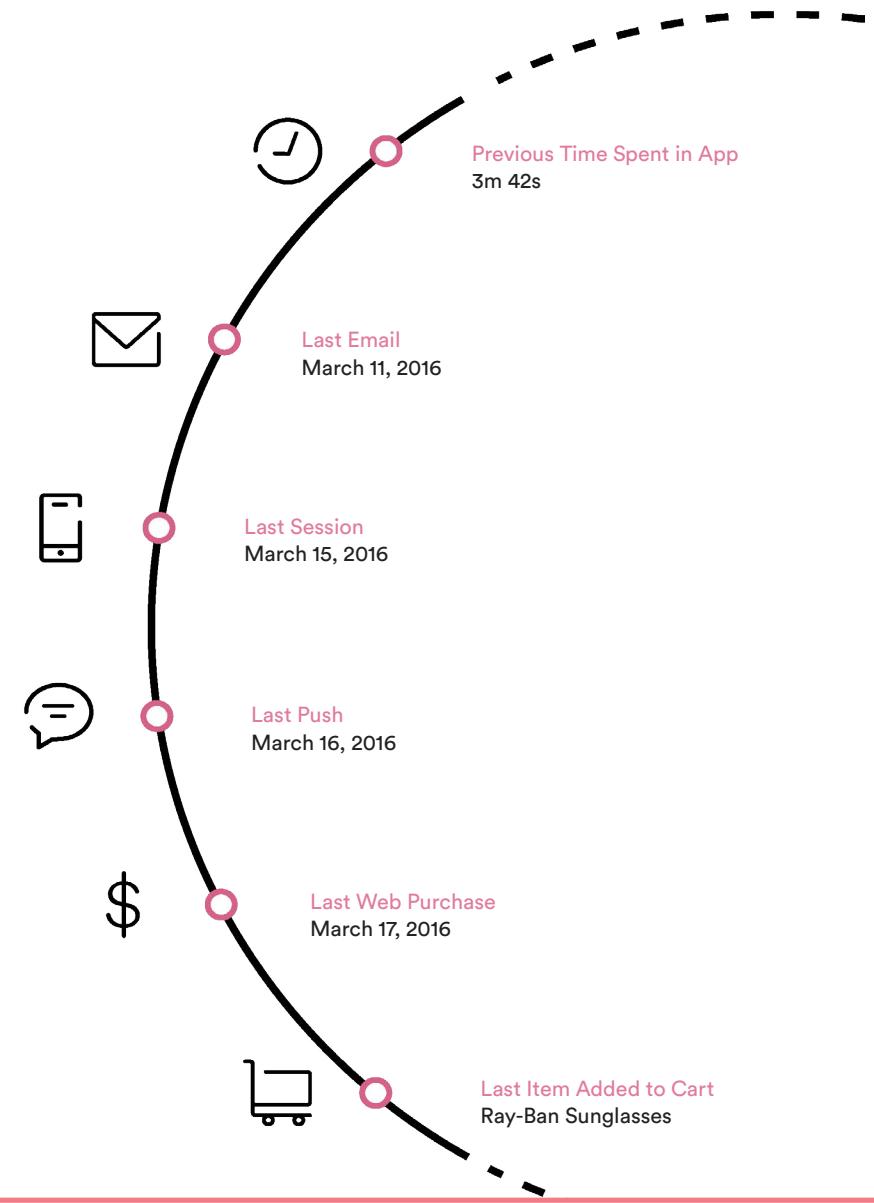
[event parameter], [action item],  
[language], [lifecycle],  
[real-time location], etc...

# Ways to Personalize



Susan Liu

Email	<b>sliu@gmail.com</b>
Age	<b>25</b>
Gender	<b>Female</b>
Country	<b>United States</b>
City	<b>San Francisco</b>
Language	<b>English</b>
Total Occurrences	<b>10 total purchases</b>
Total Value	<b>\$276 in purchase value</b>
Device Model	<b>iPhone 6</b>
Push Enabled	<b>Yes</b>



Personalization based on

Technology

Lifecycle Stage

Localization

Demographic Information

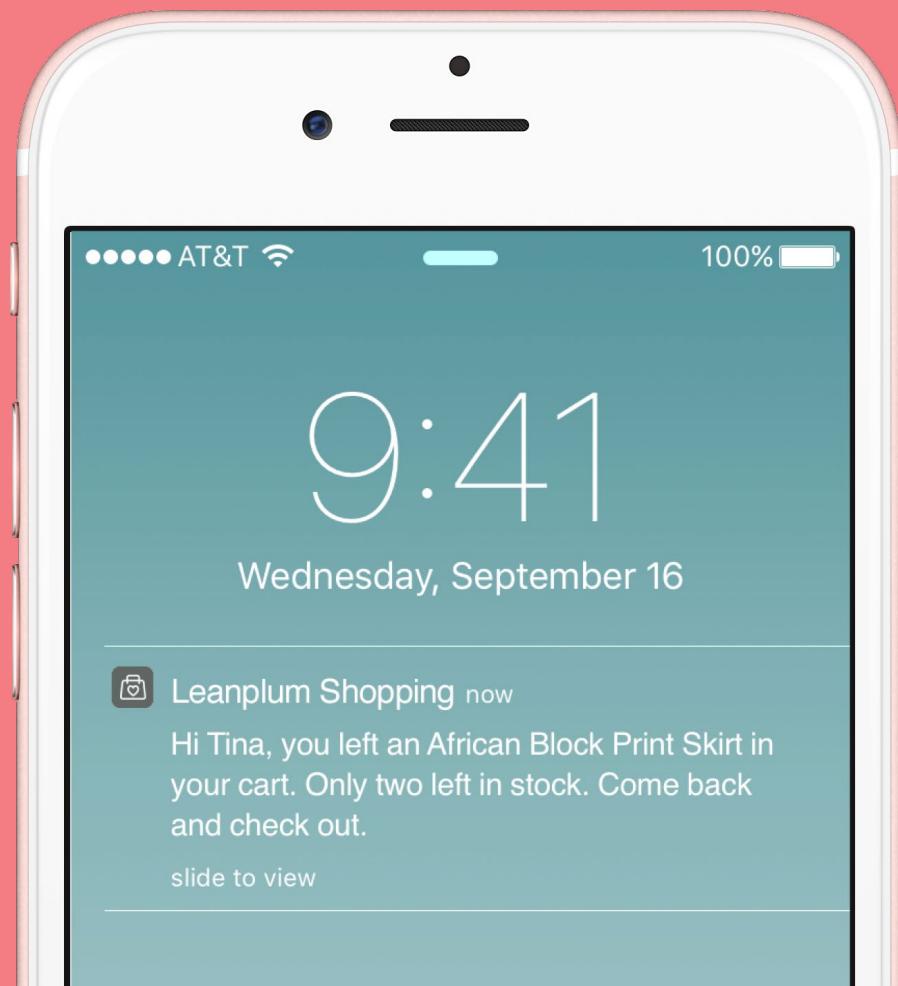
Behavioral Attributes

Data Enrichment

# What Is Personalized Content?

Even though a lot of aggregated data goes into one personalized push notification, the end result feels natural. An integrated platform that can personalize on a long list of attributes makes content-rich messaging a breeze. The most successful marketing strategies recognize user behavior, provide value, and in turn ask users to take action inside the app.

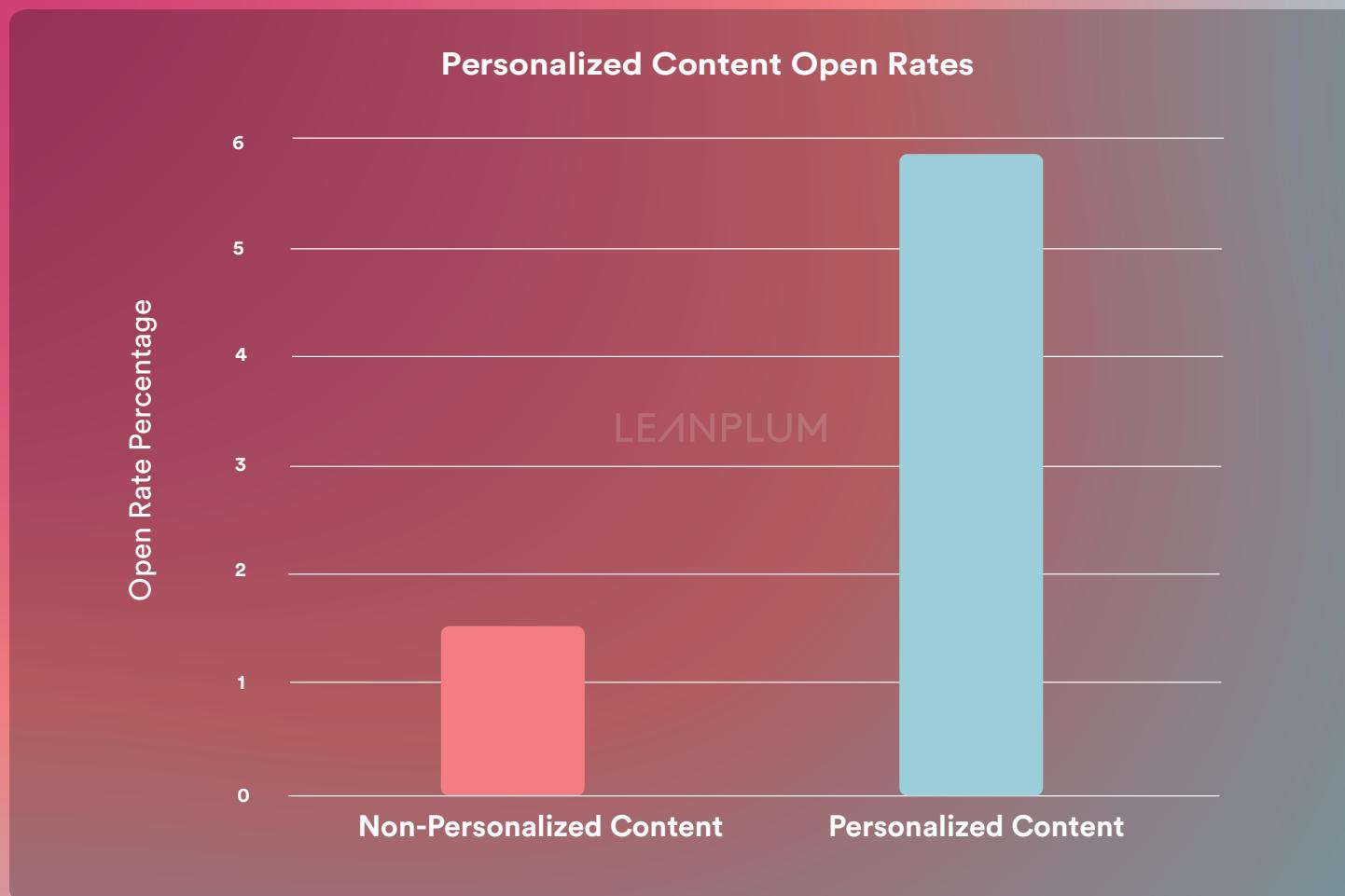
For example, a push notification could be as specific as, **“Hey [Tina], you left an [African Block Print Skirt] in your cart. Only [two] left in stock. Come back and check out.”**



# The Effect of Personalized Content on Open Rates

The personalization opportunities are vast. And the research shows personalization works.

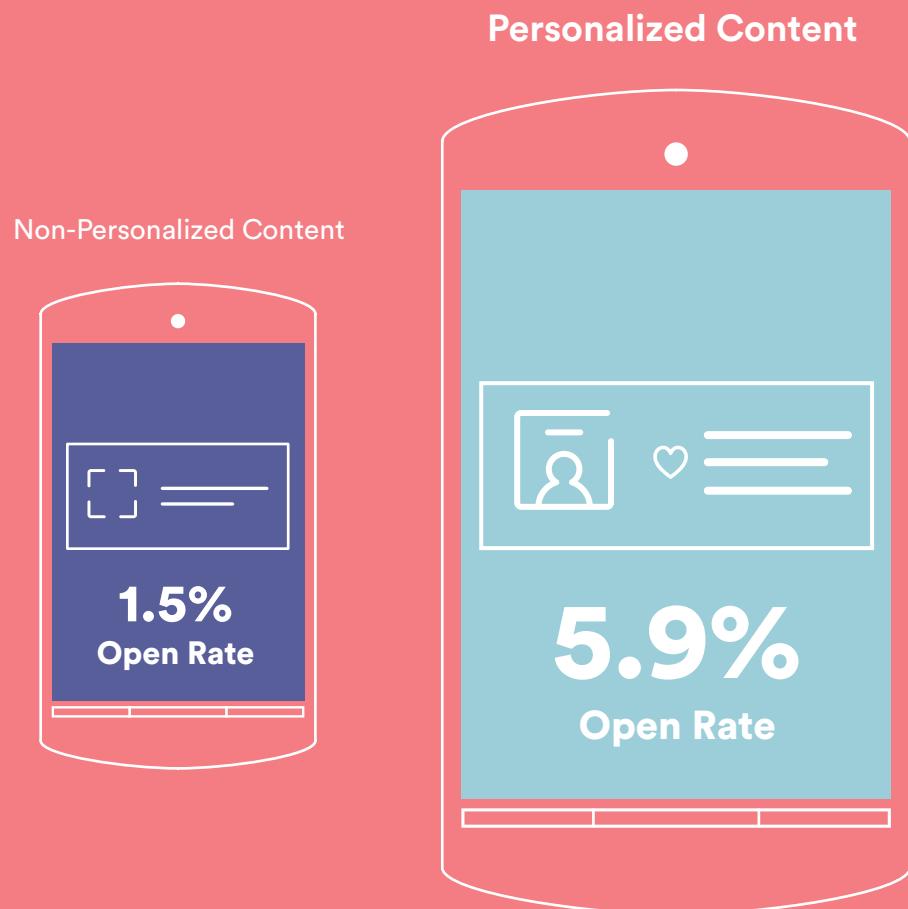
Here's a look at how users respond to non-personalized versus personalized content.



# The Effect of Personalized Content on Open Rates

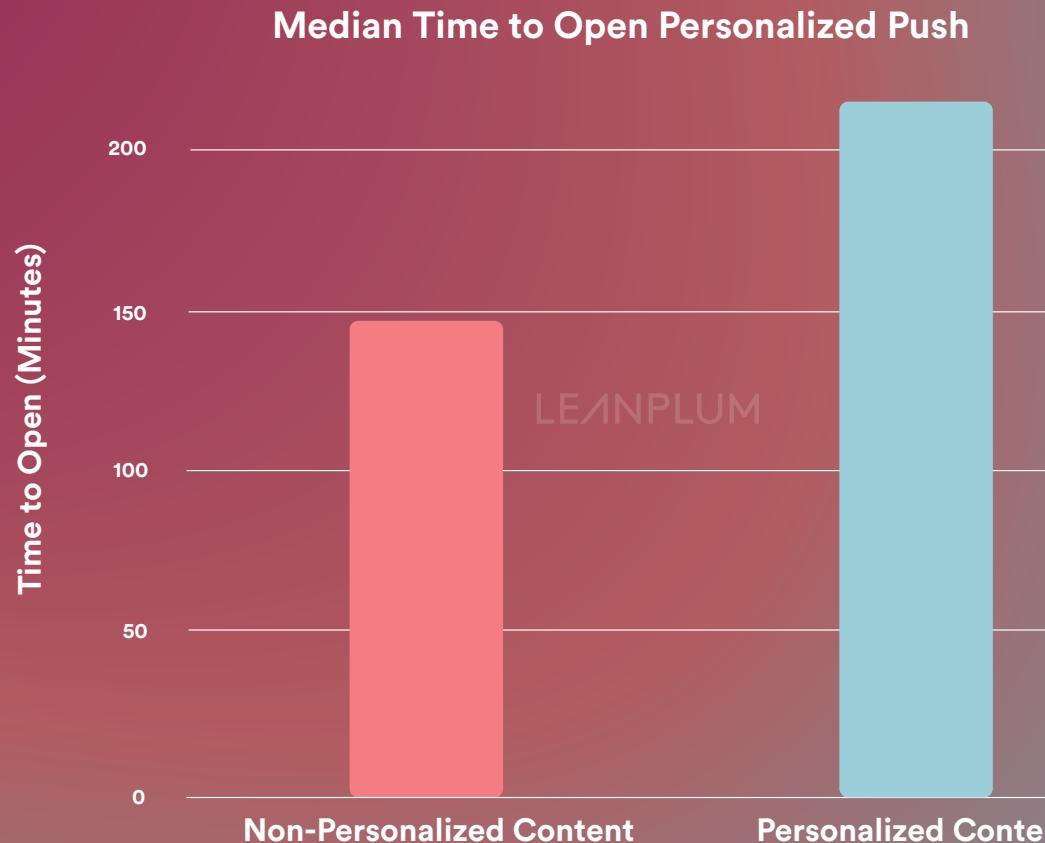
You can see that on average, 1.5 percent of people open a push notification sent with generic content. Conversely, 5.9 percent of people open a push notification that contains personalized content — anything from a name to an event parameter.

That means personalizing the content in your push notifications can result in a **4x lift on open rates**.



# The Effect of Personalized Content on Time to Open

Next, you can see the time it takes for users to open push notifications with personalized content versus non-personalized content.



# The Effect of Personalized Content on Time to Open

The numbers point to an interesting paradox. Earlier, we learned that users are most likely to open push notifications that contain personalized content. Here, we learn that users also take longer to open those messages.

One theory rests around the required action. If a user receives a generic message at an inopportune time, they may dismiss it without a second thought. However, a user may react differently if they receive a relevant message tailored to an action item they want to take, also during an inopportune time. That person may instead wait for a more appropriate time in their schedule to open the message.

For example, if a retail app sends a user a push reminding them to buy an item in their cart, they may be in the middle of a meeting at work and unable to look at the app. Rather, they wait until they get home from work to open the message and finish purchasing.

Hey [first name], don't forget to place your order of [item name] you left in your cart. Check out before 8pm today, for [#percent] off your next purchase.

# Delivery Type

# The Effect of Delivery Types on Open Rates

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**Next, let's look at delivery types. There are five ways you can deliver your push notifications.**

## **Immediate**

Launch messages right away, to selected users at once.

## **Scheduled Blast**

Send messages to selected users at a predetermined future time.

## **Scheduled by Time Zone**

Program messages to arrive at the same time in every user's local time zone. For instance, every user would receive the message at 8pm their time.

## **Optimal Time**

Use a machine learning algorithm that analyzes individual app usage patterns to automatically send messages at a time in the day when users are most likely to open.

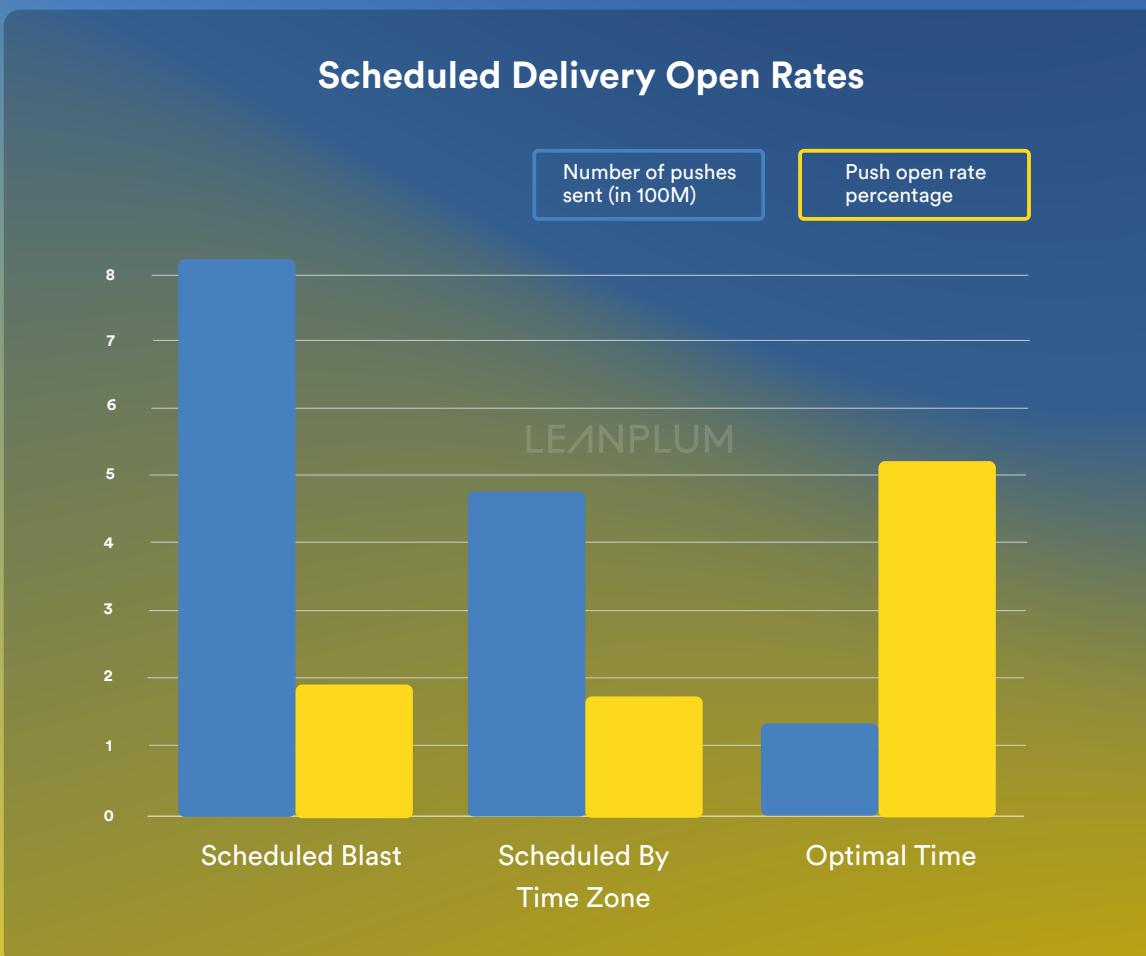
## **Behavior-Based**

Deliver messages in response to specific behaviors. For example, if a user adds an item to their mobile shopping cart, a behavior-based push reminds them to check out.

# Delivery Types: Scheduled Delivery

To keep it simple, let's parse out how these delivery types perform in sections.

First, let's review how push notifications scheduled to go out at a future time compare to one another. We've laid out the engagement rates for messages sent via scheduled blast, scheduled by time zone, and Optimal Time.



# **Delivery Types: Scheduled Delivery**

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**Learnings from the push notifications we analyzed:**

- **Brands send over 820MM notifications by scheduled blast, and 1.9 percent of users open**
- **Brands send about 470MM notifications via scheduled by time zone, yet less than 1.7 percent of users open**
- **Brands send just over 130MM notifications using Optimal Time, but 5.3 percent of users open**

## **Takeaway**

Optimal Time sees the highest success rates. Optimal Time accounts for users' individual engagement patterns, sending push notifications when users are prone to open the app. The intelligence of the algorithm contributes to much higher open rates.

# Delivery Types: Scheduled Delivery

In our [last report](#), we learned that users around the world engage with push notifications at different times of day. Even if marketers schedule by time zone, sending at 8pm for example may result in great open rates in North America. But due to cultural differences, users in other regions might prefer to engage earlier in the day.

While some brands may think that localizing by time zone is sufficient, data shows that **users respond to greater levels of personalization**. Every person is unique. Apps must leverage tools that recognize and respond to individual engagement patterns.

North  
America



Opens push at 8pm

Latin  
America



Opens push at 5pm

APAC



Opens push at 11am

EMEA

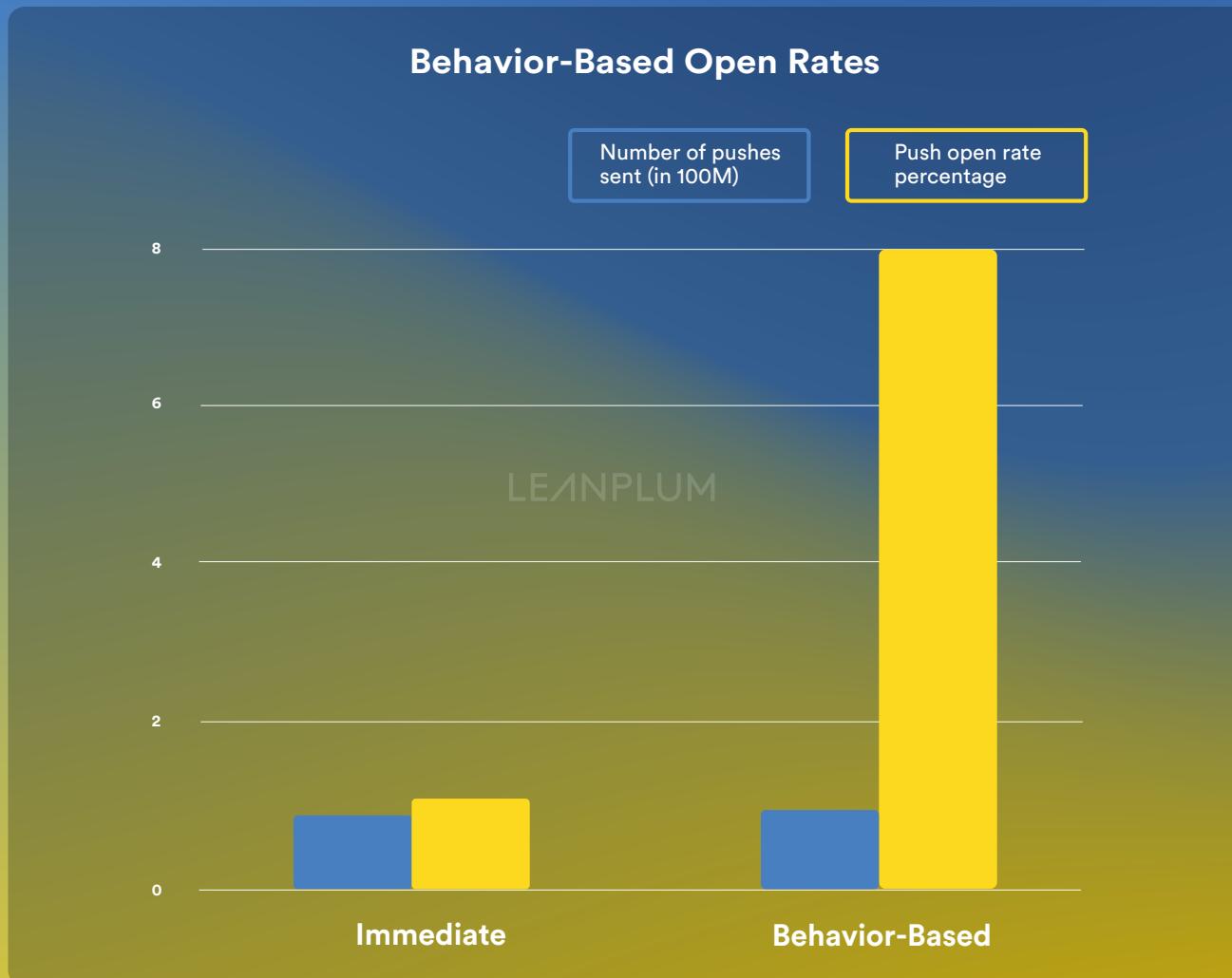


Opens push at 9pm

# Delivery Types: Behavior-Based Deliveries

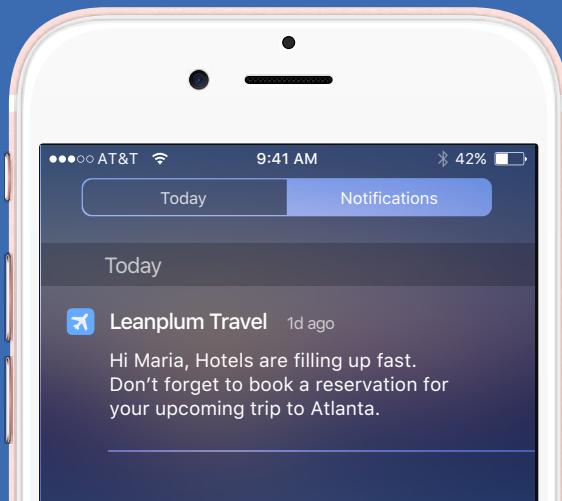
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Next, let's look at how immediate and behavior-based deliveries perform side-by-side.



# Examples of Behavior-Based Messaging

## Travel



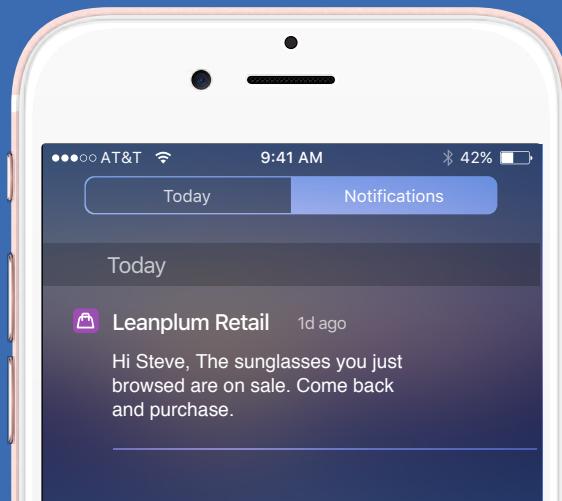
**Send a message in response to a traveler booking a flight.**

## Media



**Send a message in response to a listener playing music from a particular artist.**

## Retail



**Send a message in response to a shopper viewing an item.**

# **Delivery Types: Behavior-Based Deliveries**

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## **What we learned:**

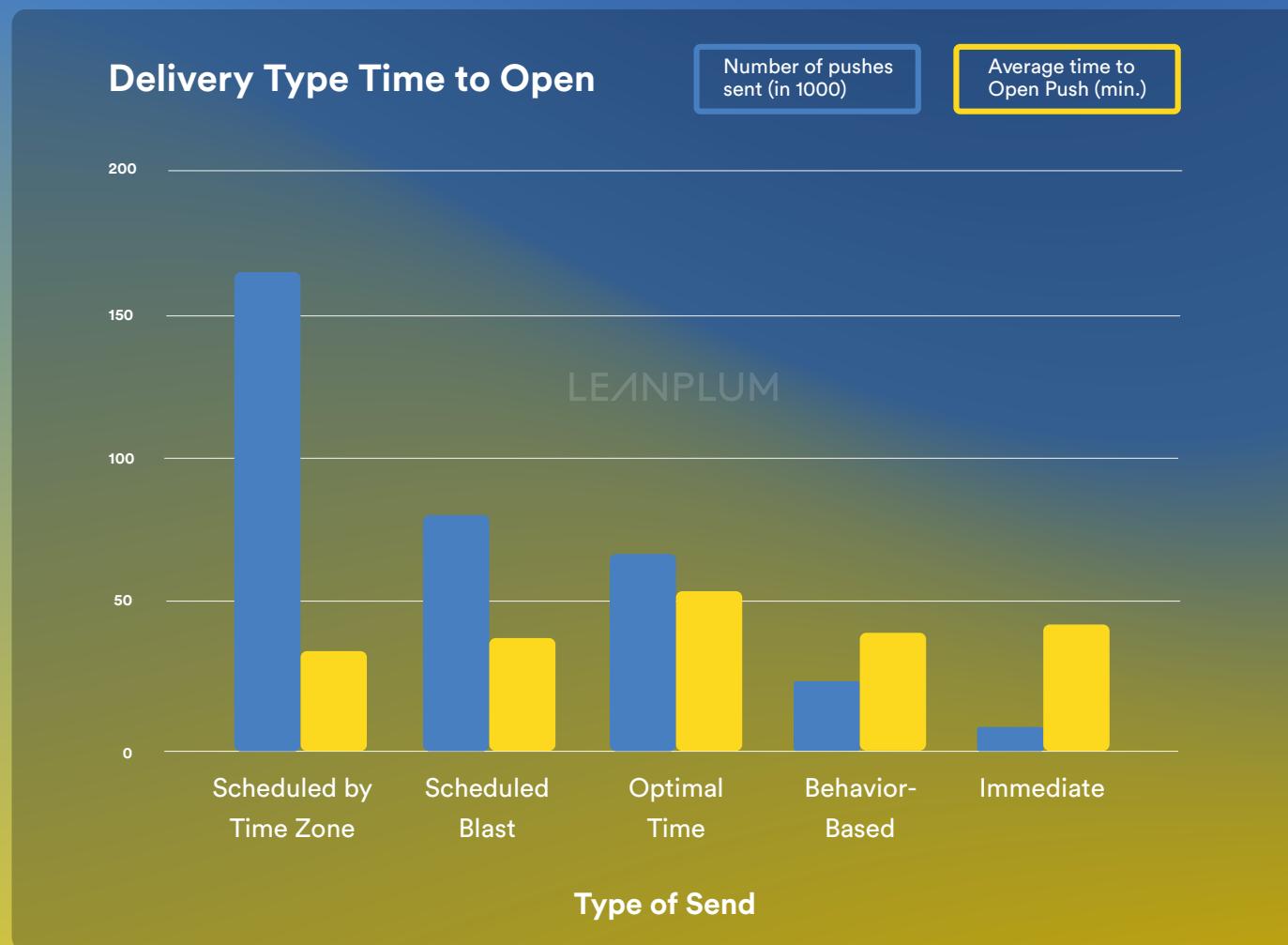
- **Brands send around 73MM notifications immediately, and the open rate hovers at only 0.9 percent**
- **Brands send about 69MM notifications via behavior-based sends, yet the open rate is eight percent**

## **Takeaway**

Of the five delivery types, brands were less likely to send messages via immediate and behavior-based methods. Both of these categories had under 100MM pushes sent. Yet behavior-based notifications, triggered by unique user actions, saw astounding engagement. **Behavior-based push results in open rates 800 percent higher than generic blasts.**

# The Effect of Delivery Types on Time to Open

The delivery type also affects the time it takes for a user to open a push notification. Here, you can see in minutes how long a person takes to open a message once their phone receives an alert.

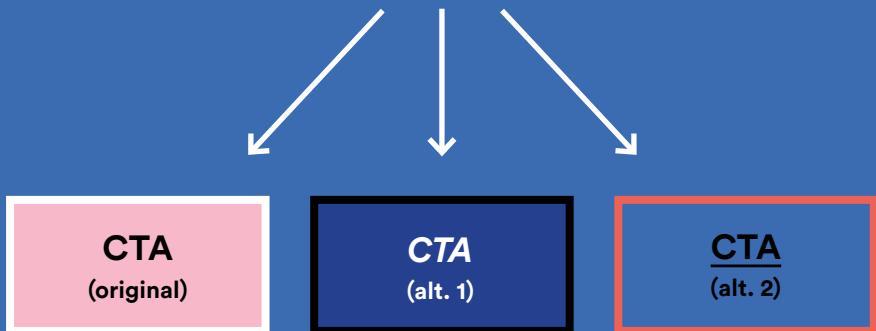


# The Effect of Delivery Types on Time to Open

This repeats the pattern showcased in the previous slide. While users are more likely to open messages sent via behavior-based deliveries and Optimal Time, it takes them longer to do so.

**If expediting time to open would benefit your business, one solution is to run an A/B test to optimize scheduling and experiment with copy to produce more urgency.** Test different variants of your message, adding alternative copy, a new CTA, or including personalized content. This will help you determine the best combination of ingredients to reach the ideal open rates and time to open.

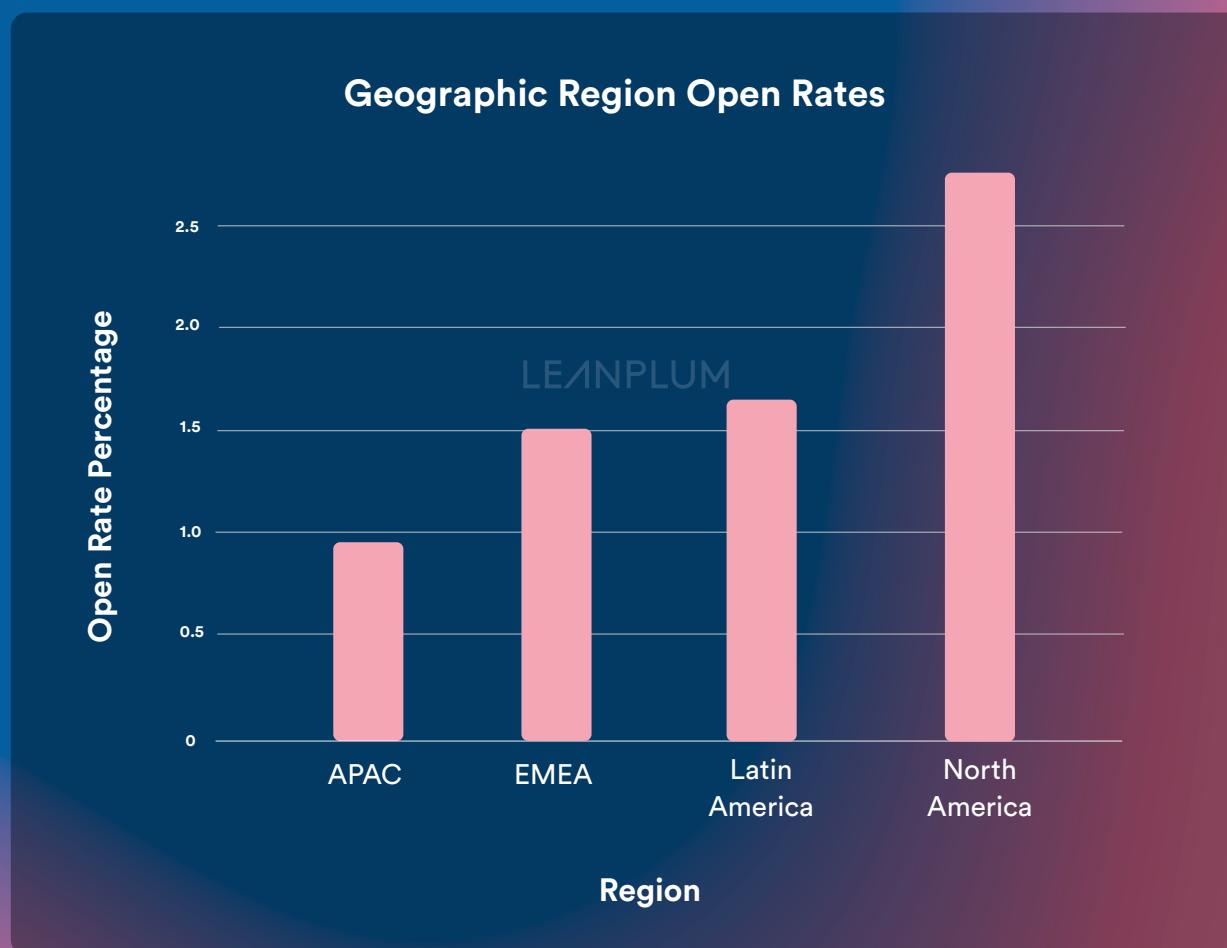
## A/B Test Multiple Variants



# Geographic Region

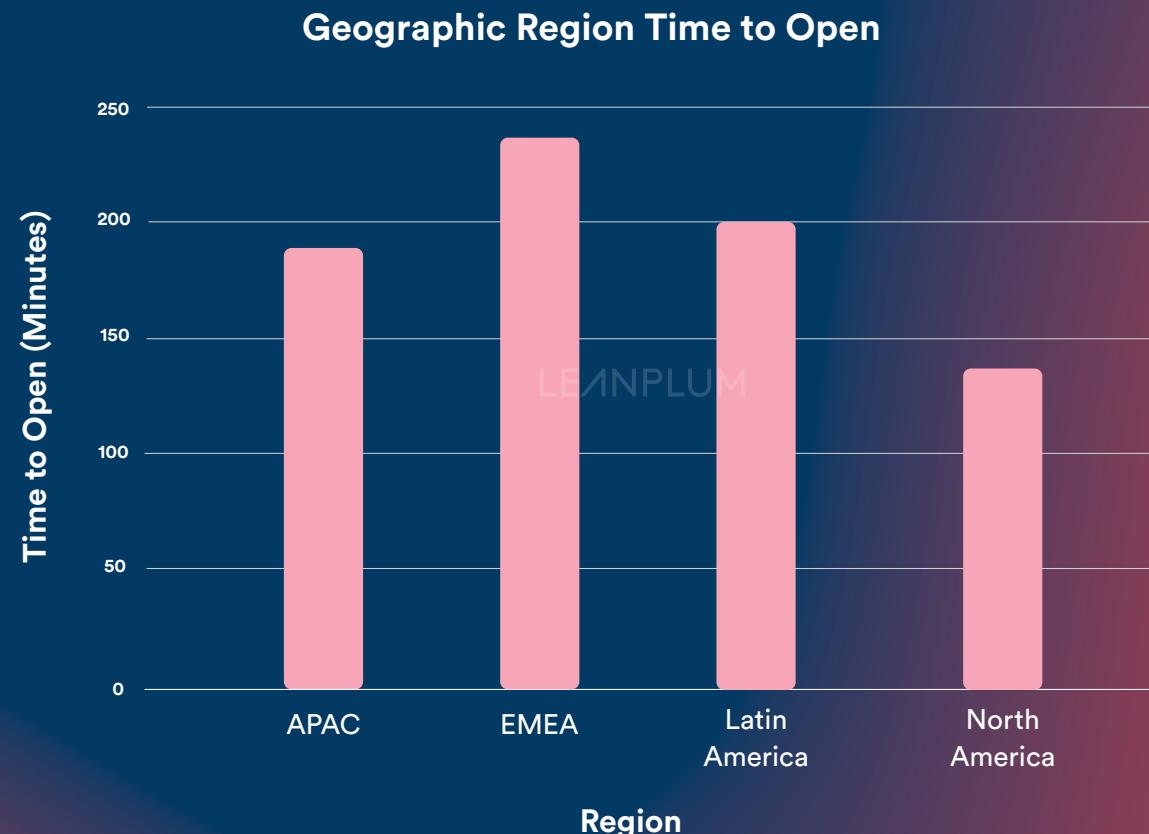
# Open Rates by Geographic Region

Now, let's examine the average push open rates around the world. In our last report, "Breaking Barriers to Push Notification Engagement," we analyzed these numbers in much more depth. Click [here](#) to see each region's open rates by the hour.



# Time to Open by Geographic Region

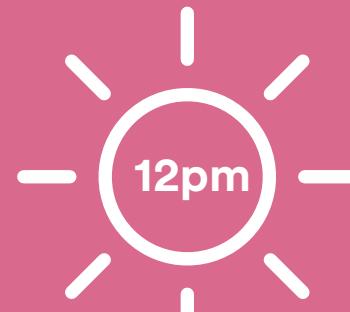
Here, you can see that users in North America engage with push notifications the quickest out of all users analyzed.



# Time to Open by Geographic Region

So, why do users in North America respond to push notifications at higher rates and quicker than users in other areas?

Judging by the data, we know that not all push deliveries are localized by individual time zones. **One theory for North America's quick opens: the majority of North American apps send all push notifications at one time, rather than delivering them during localized times for users around the world.** This means that North American users are more likely to receive a better-timed message than users in other regions. Other areas, like APAC and EMEA, could receive push while sleeping and delay the overall time to open.



North America

Apps push sends during afternoon breaks resulting in a spike in opens.



APAC

Apps push sends overnight at resulting in fewer opens.

# Comparing the Numbers

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Let's look at how personalized push notification open rates compare with click-through rates (CTRs) in other mobile marketing tactics.

- The average CTR of a display ad is 0.06 percent.
- The average CTR of a video ad is 1.84 percent.
- The average CTR of an email, though it varies by industry and frequency of messages sent, hovers between one and five percent.

eMarketer reported that digital ad spend in the US alone approached \$60 billion in 2015. Marketers are spending staggering amounts of money to grow and engage their audience, yet missing out on the benefit of mobile. Personalized push notifications give brands a powerful outlet to connect with their audience. **Personalized messages see up to 800 percent more engagement than traditional advertising and marketing.** This means that brands already have a channel to effectively engage and retain their existing users. The opportunity lies in the pockets of billions of people across the globe.

## The Future of Personalization

How does personalization fare in a connected world? Increasingly, our demands for personalized content are starting to see greater market adoption. Our Netflix suggestions recognize our preferences and only serve up interesting content. Our navigation apps predict our commutes to work and find the fastest route. Our customer-centric mobile commerce apps curate shopping feeds personalized to our tastes. **Apps that adopt rich personalization deliver more value, experience higher engagement, and in turn enjoy more customer loyalty.**

In other words, apps and devices must understand who we are as individuals to retain relevance and impact growth. Personalization is more than a marketing trend. It's a must.

To help brands drive more app engagement and ROI, we've put together a toolkit for personalization success.

# Your Toolkit for Success



## Optimal Time

Use a machine learning algorithm to automatically predict when a user is likely to open your push.



## Soft Ask Push Permissions

Send personalized in-app messages to encourage push permissions at a time when iOS users are most engaged.



## Lifecycle Engine

Automate hundreds of personalized campaigns based on behaviors across channels such as push, email, in-app messages, and more.



## Personalization

Customize your messaging based on attributes such as demographic, technology type, location, and user behavior to create the relevancy that inspires action.



## Linked Data

Add just-in-time information from external sources, such as weather reports, store inventory, or a daily menu, to add rich context to your push notifications.



## A/B Testing & Analytics

Test every variable of your messaging, channels, and the in-app UI, to create a consistent user experience.

# **Perfect Your Delivery Times**

## **Optimal Time**

Send push notifications during the moments when users are most likely to engage. This intelligent algorithm draws from each user's past behavior to predict future engagement. By analyzing when someone interacts with your app, you can send messages when users are most likely to open.

## **How It Works**

One person may prefer to read a news app in the morning hours, during their commute to work. Another person may like to read at night, when winding down from the day. The news app would be able to send the same push notification to both those users during the respective times they interact with the app, ensuring higher open rates.



**17% increase in  
overall revenue.  
See the case study [here](#).**

## **Behavioral Analysis**

Review each user's activity to determine when someone wants to hear from you.

## **A/B Testing**

Evaluate real-time insights from every message you send to refine future campaigns.

## **Intelligent Learning**

Our algorithm equips you to make data-driven decisions that improve deliveries.

# **Automate Conversations, at Scale**

## **Lifecycle Engine**

Engage users with personalized messages designed to reach goals, like onboarding users or shopping cart checkouts. Build personalized drip campaigns in one visual timeline and automate across engagement channels such as push, email, newsfeed, in-app messages, and more.

### **Example Use Case**

If a mobile user favorites a brand in a retail app, you can alert them to an upcoming sale via a push notification. If they add an item from that brand to their shopping cart but forget to check out, you can send them a reminder after a designated length of time — for example, the next day, the next hour, or a few minutes later. If they don't interact with the message, you can send another push a week later offering an additional discount. Once they check out, you can automate a notification thanking them for their purchase. Then move them to a new campaign goal, such as re-engagement.

### **Simple Set-up**

A single campaign houses multiple messages across channels, moving users towards conversions.

### **Effortless Automation**

No matter how many Lifecycle campaigns you set up, we ensure they hit your milestones.

### **Easy Analysis**

Since messages are grouped, data is aggregated and tracked together.

# Add Context to Your Messages

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## Linked Data

Add external, just-in-time information to your push notifications, such as weather updates or available inventory, to add rich context.

### Example Use Cases

A retail app could minimize shopping cart abandonments by informing the user there are only three items from their wish list left in stock. A travel app could let users departing for a trip know about popular events in their destination city as well as the current weather. A restaurant app can send a message detailing the day's menu and drink specials.

## Just-In-Time

Pull the freshest data as you need it so your messages never contain stale information.

## Personalized Content

Customize messages to specific user needs to make every push notification feel like a conversation tailored to them.

## A/B Test & Analyze

Test Linked Data push notifications versus a control group and analyze the insights to improve your next campaign.

# Maximize Push Opt-Ins

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## Soft Ask Push Permissions

On average, only 42 percent of users opt-in to push notifications. Send a personalized in-app message to encourage push permissions at a time when the user is most engaged. With this feature, you can suppress the default iOS prompt that asks early in the app experience and instead identify a more optimal time to explain the value of push.

### Example Use Cases

Deliver value before asking for push notification opt-ins.

After users in a travel app search for a flight deal, ask them to opt in to push to receive information about destination guides. After users in a retail app buy a new item, ask them to opt in to be the first to know about upcoming sales.



**Increased push  
notification opt-ins  
by 182%. See the case  
study [here](#).**

### Optimal Timing

With Soft Ask, you can move beyond the default iOS push prompt to engage users during peak times.

### Multiple Chances

Display prompts during different moments across the app, to increase the chances of users opting in when they engage with the right content.

### Clear Value

Showcase the benefits of push at more compelling times during the app experience.

# Personalize In & Out of the App

## Personalization

Provide context and personalization enabled by individual user profiles that get richer over time. Leanplum captures demographic, behavior, location, time, and external data to power relevance.

## Example Use Cases

Once a user books a flight, you can send a custom push notification or email with a travel guide for their destination city. Or when a user crosses the geo-fence near a retail location, give them a discount coupon to inspire a brick-and-mortar visit. Once that user returns to the app, you can personalize in-app content based on learnings from your A/B tests.

## Unified User Profiles

Aggregate customer attributes and behaviors over time to create in-depth personalization.

## Rich Data

Pull insights from all your marketing channels to take customer targeting to the next level.

## Segmentation Made Easy

Build simple or complex segments in a cinch to deliver relevant experiences to users.

# **Test Without Limits. Then Act on Data**

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## **A/B Testing & Analytics**

Run A/B or multivariate tests on both messaging and in-app content changes, without App Store resubmissions. After you deploy, get automated insights that highlight significant changes around engagement, retention, revenue, uninstalls, and more.

## **Test Examples**

A/B test both your messaging channels — like whether to deliver a push notification, email, or both — and what you say. You can test the timing, audience segments, deep links, etc. Once you lure users back to your app, optimize your UI to swap out images, change copy, update app logic, and more.

## **Complete Freedom**

Test any type of content in and out of your app, such as UI content, logic, and messaging channels.

## **Out-of-the-Box Data Science**

See campaign impact in real-time to focus on optimizations, rather than crunching numbers.

## **Focus on ROI**

Create meaningful experiences and optimize app performance, driving revenue and engagement.

# A Partnership for Success

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Leanplum is the most complete mobile marketing platform, designed for intelligent action. Our integrated solution delivers meaningful engagement across messaging and the in-app experience. We offer Messaging, Automation, App Editing, Personalization, A/B Testing, and Analytics, alongside a dedicated customer success team to help you with all your campaign needs.



delivery.com



Frank & Oak



Lumosity



Lyft



Ola Cabs



Project  
September



StumbleUpon



Tesco



The Times

# **Additional Resources**

**Leanplum Blog**

**Breaking Barriers to Push  
Notification Engagement**

Want to learn how you can increase your push notification engagement? We're happy to support you at every step.

**[hello@leanplum.com](mailto:hello@leanplum.com)**

**[www.leanplum.com](http://www.leanplum.com)**

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