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eBooks

Deep linking

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1 Introduction

You are asking yourself what's the fuss about deep linking? Well, let's picture that: The internet without URLs. Hard to imagine, right? As the World Wide Web is the collection of all web resources identified by URLs on the internet. You've actually already got your answer. But, let's take it further: Deep links are very specific URLs, just like specific websites but with one key aspect, they can route users to a specific spot, whether that's on a website or in an app. So, take note: Deep links are a necessity for marketing managers and product managers to meet today's standards of how to deliver a seamless user experience and master mobile marketing.

Deep linking isn't an innovation that came along with mobile apps. The concept of deep linking has been around for a much longer time and has grown with the internet. With the age of mobile commerce, came a need for better tools to drive users through the conversion funnel. The goal today is to deliver an increasingly targeted and personalized user experience. Deep linking provides mobile marketers with more options to get users into their apps - today there is an array of proven use cases of deep linking.

We start this eBook with the understanding that deep links must be an essential part of today's app marketer's toolkit. Deep linking is at the core of every mobile marketing campaign and needs to be approached as such. Implementing deep links can aid in improving your app's user experience, enabling personalization and it can significantly increase your conversion and retention rates.

This eBook is a learning resource for all marketing managers and product managers to get a better understanding of the concept of deep linking. We introduce you to the idea of deep linking and dive deeper into the purpose it serves in the mobile context as well as its benefits for both - users and mobile marketers. We also explain the structure of deep links, the main types of mobile deep linking and present to you the most popular use cases of deep linking. We aim to provide today's mobile marketers with the knowledge of how integrating deep links in their marketing strategy can support them in marketing their app and succeeding in the highly competitive mobile landscape.

2 The concept of deep linking

2.1 What is deep linking?

As internet users, we all are familiar with regular hyperlinks (URLs that can refer to many different types of resources such as websites, databases, APIs, and much more). App deep links can be compared to URLs for websites. But there is one crucial difference: These URLs don't contain the ability to link anywhere other than sites within web browsers. This is where deep links come into play: They direct a user from the web to an app or a particular location within an app rather than just launching the app's home page.

Smartphone users have become accustomed to this technology. Most people wouldn't think further about it, but it takes a good technical setup to be able to share your favorite items with your friends - via a deep link that brings them directly to those items. Without deep links, they would have to find the app in the app store or on their device if it's already installed, open the app, locate the search function, and then try to find the items you told them about. In short: It would be quite exhausting to find the right product or page without deep links and could end up in a navigational nightmare.

2.2 Deep linking as a crucial part in your mobile tech stack

Even though deep linking doesn't require an additional tool, most apps do not support deep linking. It is therefore impossible to depict even the most simple routing mechanisms. Not to mention the deficient user flow between mobile web and app.

Yet, integrating deep links is simple. Once you understand the deep linking structure, you can get started with creating links, handing them over to your developers, who implement them in the app - and that's about it for standalone deep links.

We advise any marketing manager and product manager to add the ability to generate deep links to their toolkit. It is a necessity to keep up with how consumers like to browse and buy today - having fast, easy access to their desired content switching across platforms without any hassle.

2.2 Deep linking as a crucial part in your mobile tech stack (continued)

If you don't make use of this tool in the mobile growth stack of an app, you simply won't be able to realize the full potential of mobile marketing campaigns.

Deep linking is the antidote for a poor customer journey and customers quitting halfway through the conversion funnel. With increasing digitalization and more evolving channels and platforms, the power of this engagement tool will rise. Enabling users to switch from one to the other channel as quickly and efficiently as possible without any friction, will be key for optimizing your app marketing campaigns to increase conversions and retention.

2.3 Deep linking structure

Deep links function like hyperlinks on a webpage. Apps can directly open via a unique registered scheme called a URI Scheme. In mobile programming language, a Uniform Resource Identifier (URI) is a string of characters. It contains all the information, that, when called upon, launches a specific location within the app. To enable deep linking, deep links must contain these basic structural elements:

- Best way to get started is implementing a URL with a **unique scheme name**. Most applications tend to stick with their brand name to avoid conflicting schemes across different applications e.g. twitter:// or fb://

- To link users to a particular app screen, certain **routing parameters (path and query strings)** must be implemented. The query string is only necessary if you need to pass a specific parameter such as a product ID.

- Routing parameters: These are optional but highly recommended for a good user experience.

- Query string: This one is optional as well but used if you need to pass specific parameters, e.g. a product ID.

- If there is a corresponding website to the app, the routing parameters syntax for the app should match the URL structure on the website.

2.3 Deep linking structure (continued)

When developing the app, developers create a hierarchical tree structure from the home address of the app. This structure of the apps subpages is man-made; no index in Google will tell you the links within an app. The developer can define it and teach the app to understand the structure.

Important to know for mobile marketers in regard to creating deep links and it's structure: In order to change your deep link structure, your app will need to be updated.

See below for a few examples of deep linking for an e-commerce app:

Prefix	Destination (Screen)	Parameter / Sub-Destination (Screen)		Expected Behavior
brandname://	/profile			Open up profile page
brandname://	/profile	/settings		Open up settings screen
brandname://	/profile	/voucher		Open up voucher screen
brandname://	/profile	/voucher	?voucher_code=ABC123	Open up voucher screen and pre-fill voucher code "ABC123"

2.4 Benefits of deep linking in a mobile context

When we take a look at the key advantages of using deep links in a mobile app context, we can refer to two sides: Benefits for mobile users and benefits for mobile marketers.

- Deep linking makes the lives of all mobile users easier - with a proper setup, users can move between different mobile views and apps, provided with a **seamless UX across apps and platforms**. They get **directly to the desired content within an app** without any hassle.

2.4 Benefits of deep linking in a mobile context (continued)

- A better overall experience with less friction and reduced user frustration, in turn, benefits mobile marketers as it **ensures happier, stickier users**. Happy users promise to **keep retention rates high.**

- If retention rates still drop, deep linking provides mobile marketers with great possibilities to **retarget and activate lapsed users**. By including deep links in retargeting campaigns, mobile marketers can r**edirect the user right back into the desired view of their app** upon clicking on the retargeting ad - ideally to a reward straight away.

- Another way that mobile marketers can counteract low retention rates and increase conversions is by using all the data they are constantly gathering.. With all relevant information about where a user is coming from, where he or she wants to go, where the link was clicked, who originally shared the link, and much more custom data, mobile marketers are empowered to b**uild strong personalization features and customize user experiences**.

To sum up the key advantages of deep linking for your mobile marketing: Deep links help you optimize your app marketing campaigns, increase conversions, improve engagement by personalization, and build retention.

3   Types of mobile deep linking

When we are talking about "types" of deep links, we refer to "mechanisms" of deep linking. Today, there are two types of deep linking technology in use.

3.1 Standard deep links

Standard deep links direct a user to specific app content using the app URL. The issue with traditional deep linking is that the user will not be able to open the content if the app isn't installed already. If the user doesn't have the app, nothing will happen if they click on a plain standard deep link. Therefore, standard deep links are only used in the context of retargeting campaigns where a mobile marketer is solely interested in finding users who have the app installed and want them to return.

3.2 Deferred deep links

Deferred deep linking comes into play when users haven't installed the app yet. If the app is installed already, regular deep linking will make sure that you land on the appropriate location within the app. However, if the user hasn't downloaded the app yet, using deferred deep links, the user will be directed to the App Store or Play Store first to download the app. Deep linking then makes sure that the user gets to the "deferred" content/location in the app immediately after downloading and launching the app. Without deferred deep linking, the user would not see a promotion and merely get to the homepage of the app. The odds that they are going to leave the app and won't come back are higher.

Deferred deep linking needs to navigate a detour/logic queries. For this purpose, a tracking provider is needed. When working together with a so-called MMP (Mobile Measurement Partners like Adjust, AppsFlyer or Branch) the marketer has to create a tracking link that contains a deep link that they can deposit within an ad banner.

The shortcoming of deferred deep linking is the user flow. If the user hasn't installed the app when clicking on e.g. an ad banner, the user flow could be interrupted once the user is directed to the App Store or Play Store. The challenge for the app is to understand that after installing and launching, the user should be taken immediately to the specific content (e.g. the advertised product they clicked on) and not to the onboarding tutorial of the app.

4 Approaches to deep linking in Android & iOS

The importance of deep links for the user flow is also underlined by the fact that both Apple and Google are constantly working on features that require a correct deep linking setup. We explain to you how to approach deep linking in Apple's iOS and Google's Android. The one major difference when looking at the approaches that Apple and Google have taken towards universal deep links is that Apple is essentially enforcing them (practically starting to deprecate traditional custom URL scheme based deep linking as shown before in this article) while Google is only recommending to use them, maintaining full functionality of the traditional deep linking for Android at this point.

4.1 Universal Links (iOS)

As of iOS 9.2 (December 2015), Apple has decided against traditional custom URL scheme based deep linking (like we have explained under 2.3). Apple introduced so-called [Universal Links](). A Universal Link is Apple-exclusive and their specific way of launching an app on their operating system. In the mind of Apple, developers are supposed to use the existing URL of the product or brand's homepage which they then also have to register as a valid URL deep link scheme within the app. With this method, you also have to place a configuration file on your website (aka the server). The iOS app can then confirm that it is communicating with the website. A Universal Link could look like [this](): „https://www.myapp.com/ulink/product?product_id=342".

[The way Universal Links work]() is as follows: When you support Universal Links, iOS users get redirected to your installed app without going through Safari when taping a link to your website. If your app isn't installed, tapping a link to your website opens your website in Safari.

When you want to get started with Universal Links on iOS, the documentation at Apple will ask you to create and host an "AASA" file. The ["Apple App Site Association"]() file is required by Apple to be hosted by a domain, to enable that domain to open an app via iOS Universal Links technology. The AASA file contains a reference to the app ID the domain would open. In other words, it's a safe way to prove domain ownership to iOS.

Universal Links have proven to be a major challenge in [many ways]():

• The full decision power about what app or website to open upon a user clicking the link is with Apple and the developer can not decide, whether it would maybe make more sense to open this specific URL in the app, rather than on the website.

• Since it is a direct link to the app or website and Apple is not allowing certain redirects to happen, tracking is essentially broken (you will not be able to track app installs or activity with a plain Universal Link).

4.1 Universal Links (iOS) (continued)

- Users can easily break them and it's hard to re-enable them

- Developers have almost no possibilities to debug and test them

4.2 Android App Links (Android)

With the release of Android Marshmallow (6.0), Google introduced its solution to opening up an app directly. With Android App Links, Android users get seamlessly directed to content inside a native app with HTTP URLs if it is installed on the device. This deep linking technology can open the app without ever requiring the Android "chooser" modal that asks the user to select the app to open. In case users haven't installed the app yet, they get redirected to a web browser.

This procedure is possible as Android App Links on Android 6.0 (API level 23) and higher allow an app to designate itself as the default handler of a given type of link. If the user doesn't want the app to be the default handler, they can override this behavior from their device's system settings.

The first steps of creating an Android App Link for Android are similar to setting up a Universal Link on iOS, but the process is a little bit easier. You need to set up intent filters, add code to handle the incoming URLs, and make an association between your website and your app. Also, Google requires you to create a file to be hosted by a domain, to enable that domain to open an app via Android App Links technology. Here it is called the DAL - The "Digital Asset Links" file. The DAL file contains a reference to the app ID that the domain would like to open.

As Android App Links and Universal Links on iOS are similar, developers and mobile marketers are confronted with two major limitations:
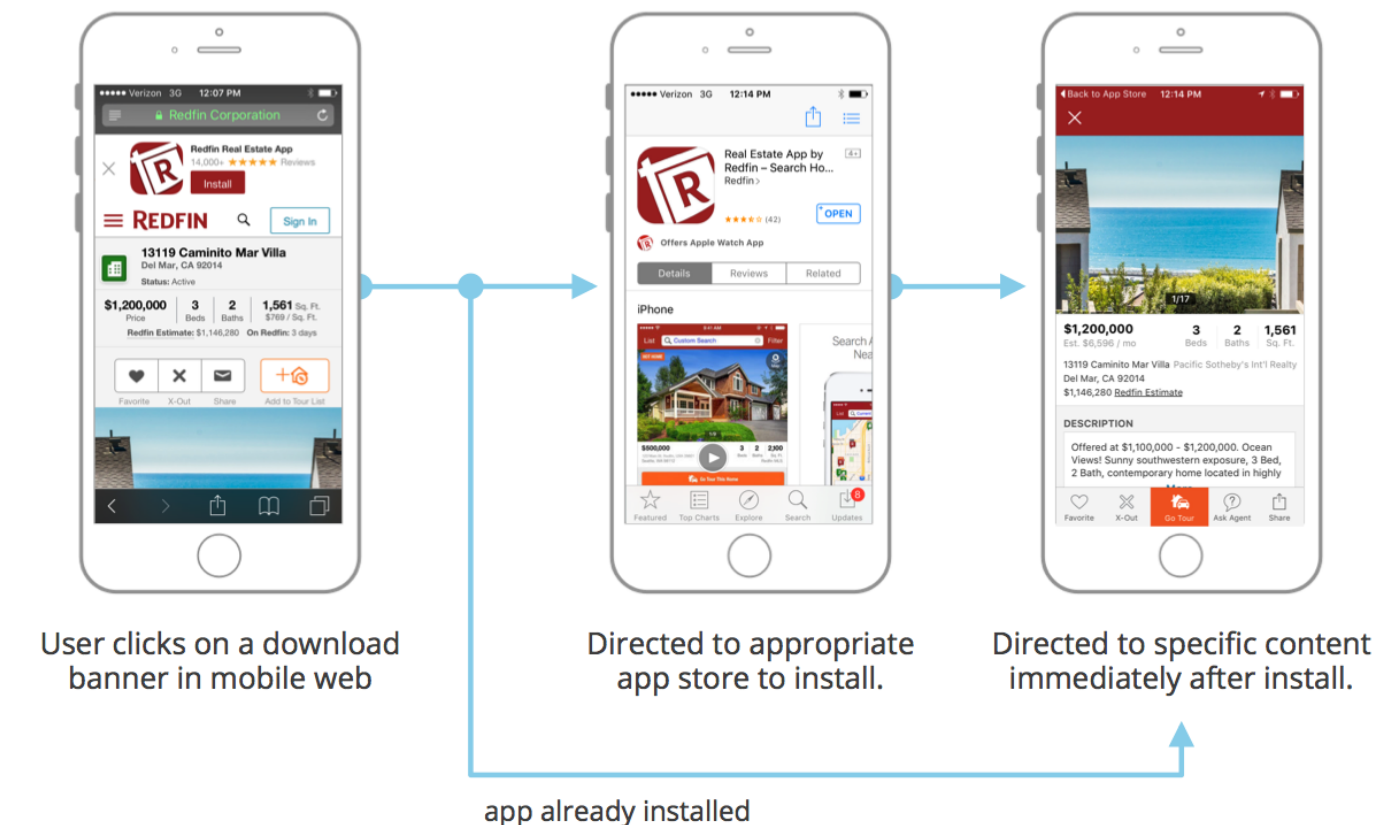
- It requires a functional mobile website where users would be redirected if the user does not have the app

- There are no built-in deferred deep linking capabilities.

5   Use Cases of Deep Linking

A deep link can be any link that directs a mobile user to the right location within an app. From which platform or channel this starts can greatly vary. Here are the most common use cases of deep linking:

5.1 From website to app

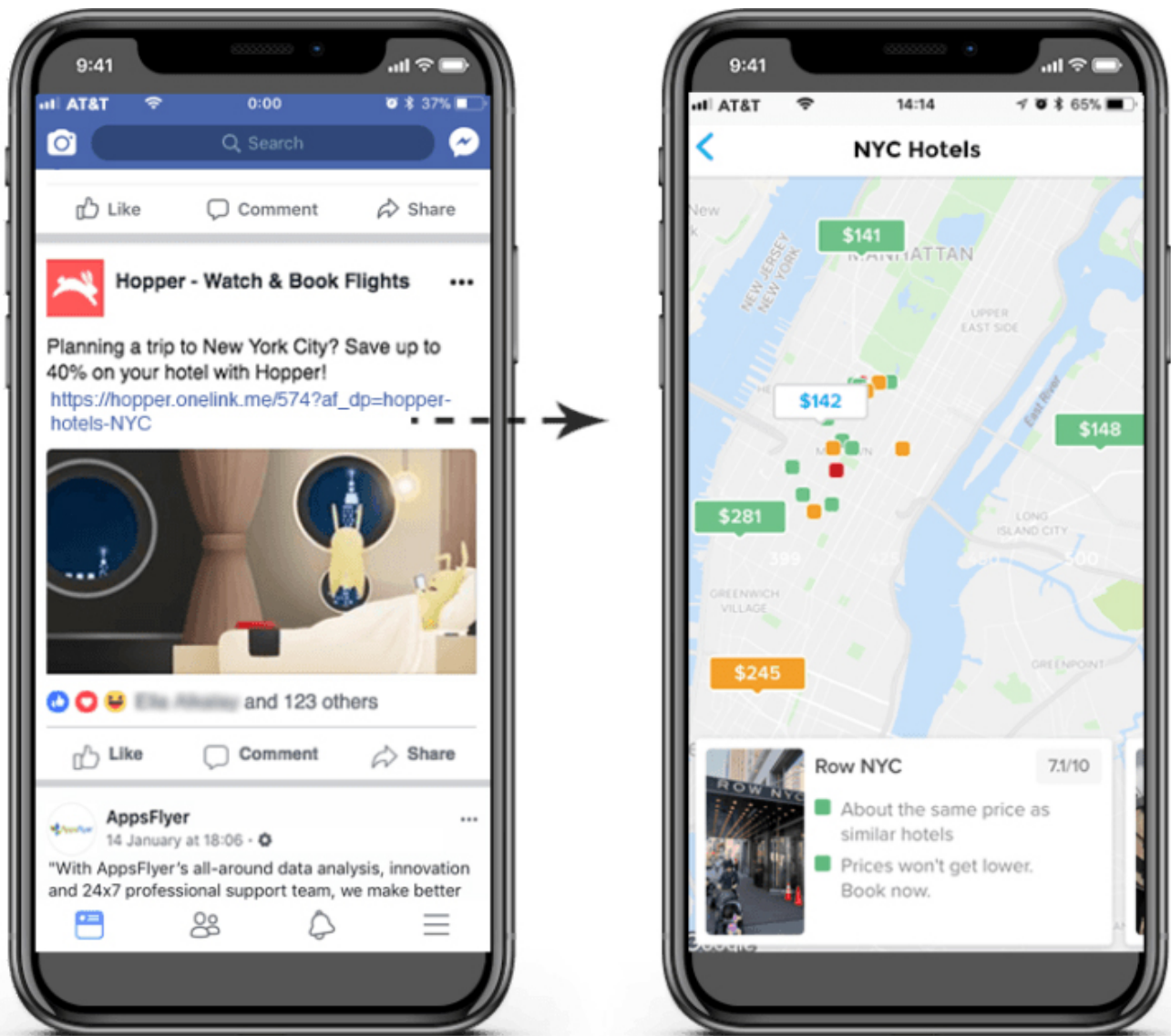Deferred deep linking is used to drive users from the mobile web to apps, i.e. via a web-to-app smart banner.

User clicks on a download banner in mobile web

Directed to appropriate app store to install.

Directed to specific content immediately after install.

app already installed

(Source: Branch)

5.2 From social media to app

Deep linking can be used by placing a link to content in the app on a social media channel. This link will lead the user to the appropriate content in the app (via deferred deep linking). They might have to visit the app store first in case they haven't installed the app yet. But in any case, deep linking social content on mobile can be positive for user acquisition and retention. It is one of the most common use cases for leveraging mobile links.
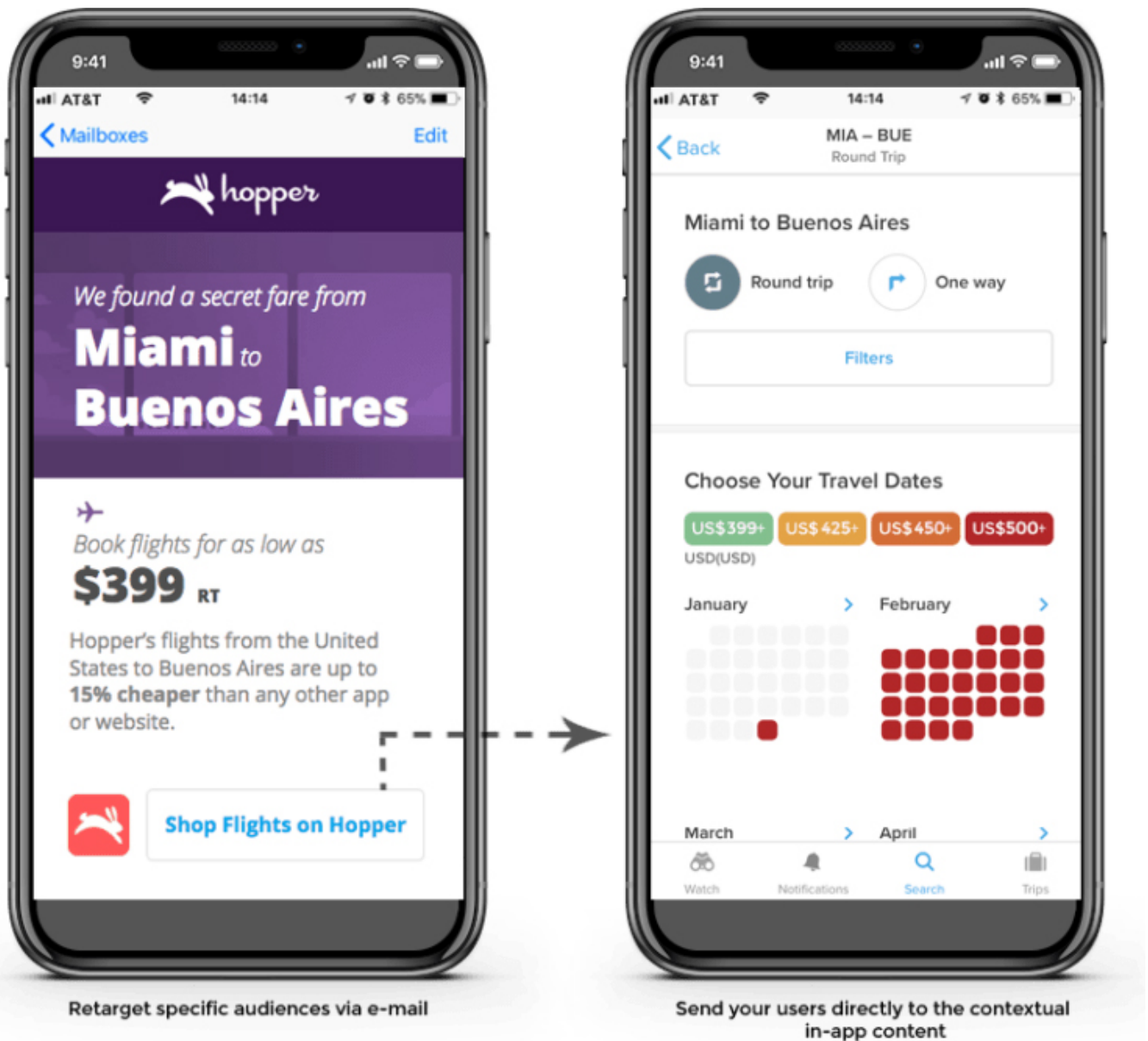
(Source: Appsflyer)

5.3 **From email to app**

You can undoubtedly launch an app from an email newsletter. To create a better user experience, you can create deep links manually and place them in the email. With this approach, the subscriber will not be routed into the mobile browser but to the right location in the app or the app store if the app isn't installed yet. It is a great medium to leverage attribution and deep links.

Retarget specific audiences via e-mail

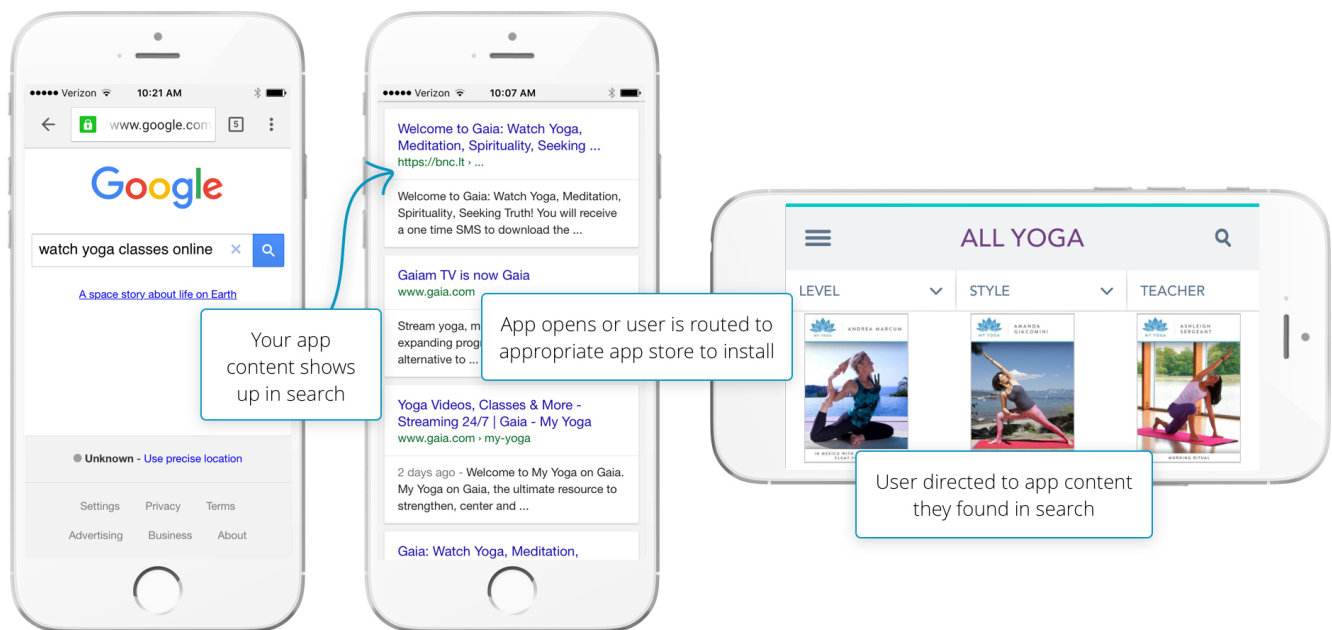Send your users directly to the contextual in-app content

(Source: Appsflyer)

5.4 **From search result to app**

By using "App Indexing", you can connect organic search results via deep links directly with in-app content. To be able to achieve this, all connections between Website URL and in-app pages have to be defined and then be stored in a so-called "routing table" on the corresponding website.
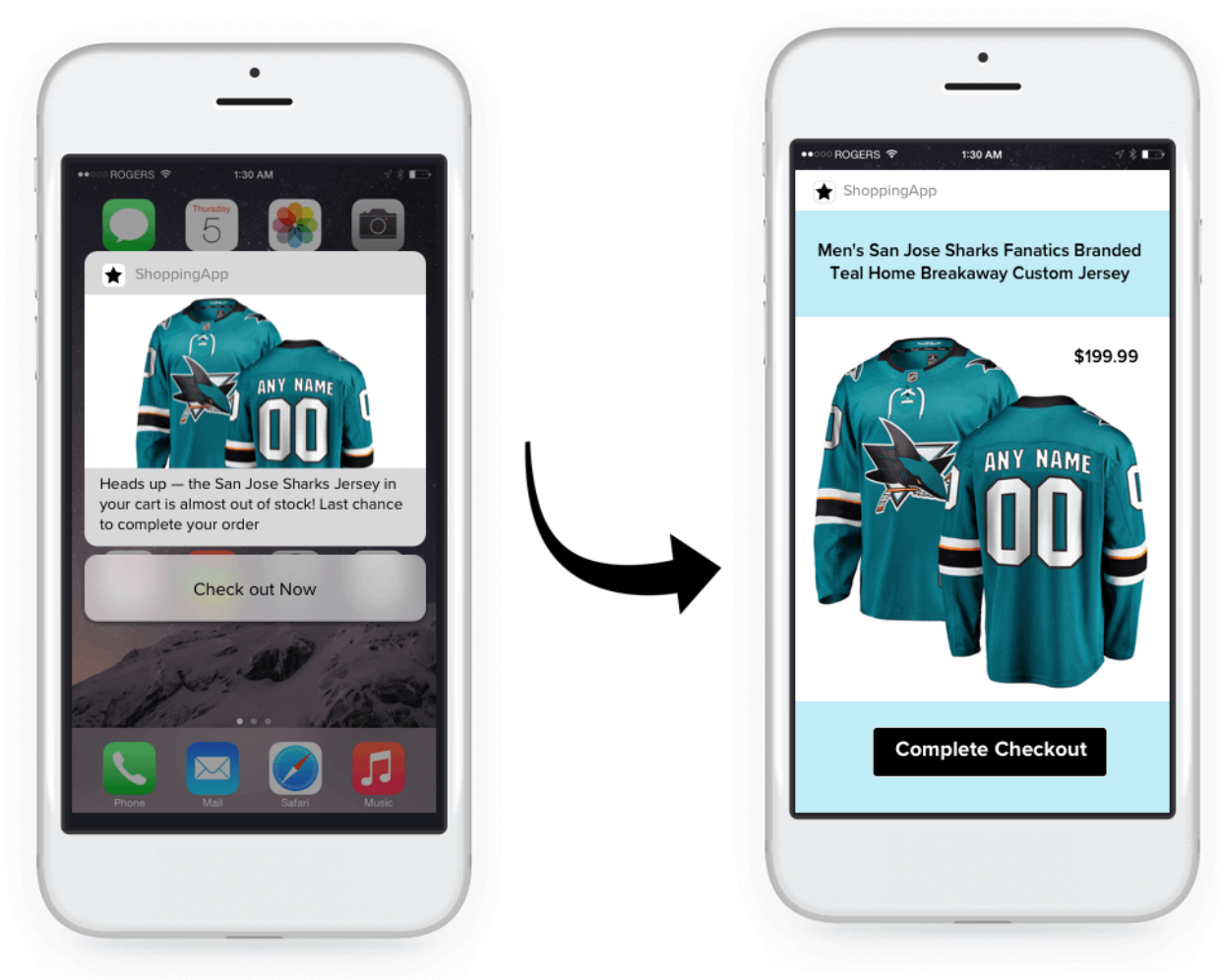
From search result to app (continued)

(Source: Branch)

5.5 **Via push message**

Mobile marketers can certainly boost push notification engagement with mobile deep linking. Deep linking from push notifications sends users to specific content within an app, prompting them to view new content, reconsider an abandoned cart or shop an item on sale that's on your wish list. Deep links take a user back to conversion points within the app, tailored by their past behavior.
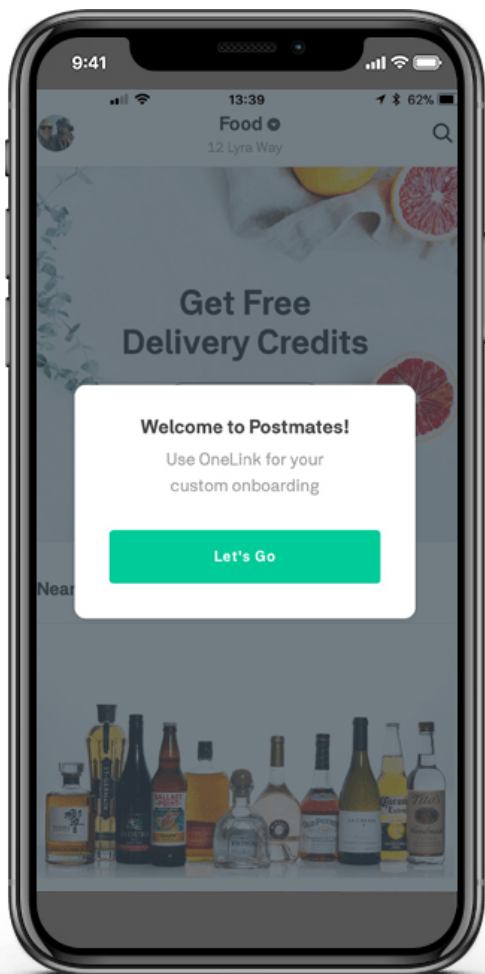
5.5 **Via push message (continued)**

(Source: Clevertap)

5.6 **Via in-app message**

In-app messages are messages delivered to your users while they are active in your mobile app. In-app messages can be highly targeted and delivered to the right person at the right time. Via deep linking, you can customize the link destination directing a user to a specific conversion event. Also, it is very useful for customized onboarding.

(Source: [Appsflyer](#))

5.7 **Via QR Code**

A great way to provide users with more information about your company or specific offers is via a QR Code. QR Codes can not only be included in websites but also used for OOH-campaigns, such as posters and used for ads in a physical place such as retail stores. Mobile marketers can define where they want to take users with the deep link that they insert. When a user scans the QR Code, they will be directed to the specific content in the app or the app store to download it (if an MMP is being used).

(Source: Appsflyer)

6 Conclusion

In summary, deep linking isn't a new technology. The concept has been around for quite some time and has grown with the internet and the age of mobile commerce. It is a mobile marketer's solution to a poor customer journey. As more platforms and channels have evolved, cross-promotions have become increasingly important to master mobile marketing.

Cross-promotions thrive thanks to deep linking as mobile marketers can provide users/ potential customers with a seamless UX across platforms. Deep links direct mobile users straight to the desired content within an app without any hassle of having to navigate themselves across different platforms.

Conclusion (continued)

Finding the right product or page without deep links is exhausting and the probability to lose customers at an early stage of the customer journey is higher. People are simply used to fast and easy access to almost anything today. Therefore, it takes an improved UX to drive users throughout the conversion funnel and prevent them from quitting halfway through due to the time taken.

Enabling users to switch from one to the other platform as quickly and efficiently as possible without any friction is key for optimizing app marketing campaigns and increasing conversions and retention. Happy customers are more likely to stick with your mobile app and keep retention rates high. In case retention rates aren't as high as you expect, deep linking provides you with great possibilities to retarget and activate lapsed users that haven't uninstalled the app yet. With a deep link, you can easily redirect the user right back into your app upon clicking on a retargeting ad, and reward him for doing so. Further, you can build strong personalization features and customize user experiences.

Surprisingly, until today, missing deep links are the rule rather than the exception. Most apps do not support deep linking. We want to encourage all mobile marketers to consider implementing deep linking in their app's mobile growth stack. For relatively small input, you can achieve great results. Deep linking doesn't require an additional tool, once you familiarize yourself with the structure, you can get started and hand over the links to developers to implement them in your app. Integrate this powerful engagement tool in your mobile tech stack to meet today's standard and master your mobile marketing.

7   Annotations

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https://www.adjust.com/blog/dive-into-deeplinking/

https://developer.apple.com/library/archive/documentation/General/Conceptual/AppSearch/UniversalLinks.html

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7 Annotations (continued)

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