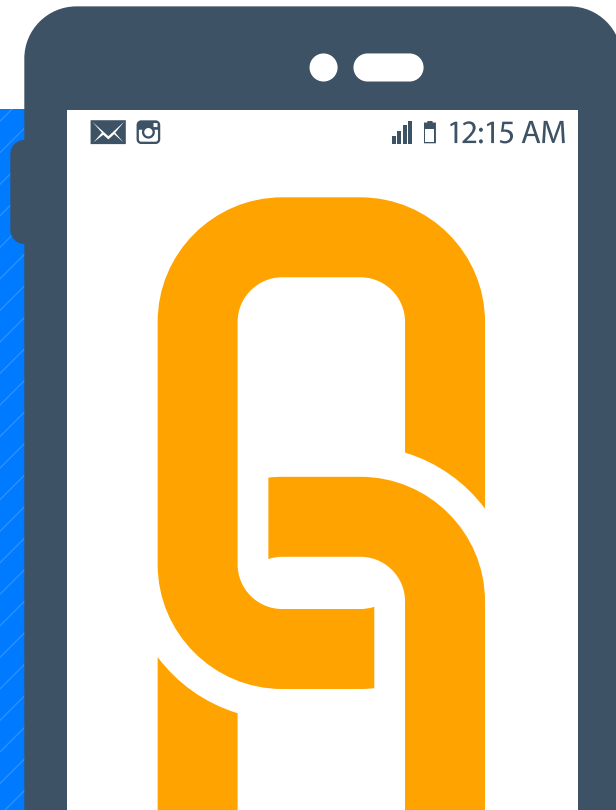


# Deeplinking: A Fundamental Change in the Mobile App Ecosystem



Co-written by URX and TUNE

**TUNE**

**URX**

# Deeplinking: A Fundamental Change in the Mobile App Ecosystem

Internet usage on mobile apps overtook PC consumption for the first time in January of this year,<sup>1</sup> lending significant support to the long-projected narrative that mobile is the platform of the future. As the trend to mobile strengthens, app developers and marketers must pay close attention to the continuously evolving mobile ecosystem in order to successfully attract active and engaged users.

Despite the impressive advances of the last several years, the technological architecture inherent in mobile app design presents a number of challenges for mobile marketers. Among the most prominent, the inability for marketers to link users to screens deep within mobile apps creates a difficult user experience that negatively impacts conversion. Considering mobile ad spend is projected to reach \$31.45 billion in 2014<sup>2</sup>- an increase of 75% from 2013 - the need to optimize every aspect of the conversion funnel has never been more pressing.

This white paper explains the concept of deeplinking and illustrates how this technology completely transforms the mobile space. A basic overview of the technical specifications are provided, along with ways app developers and mobile marketers can best utilize deeplinking technology in both paid and organic campaigns. Lastly, opportunities for scaling with deeplinking and the importance of mobile analytics are discussed.

## Deeplinking

In the context of mobile, deeplinking is a “technology construct which allows mobile apps to be interconnected in a way that’s similar to how the web itself operates via clickable links.”<sup>3</sup> To gain insight into how deeplinking works - and to better understand the implications it has for mobile marketing - it’s helpful to compare it to linking in the World Wide Web.



### Linking in the world wide web

The indexed World Wide Web is made up of more than four billion<sup>4</sup> web pages interconnected by trillions of hyperlinks. These links are a defining characteristic of the Internet and play a vital role in the overall experience of Web users.

A website's homepage is generally considered the top page in the site hierarchy, and any page other than the home page is considered "deep." However, the Web does not distinguish between types of links - in other words, deeplinks and other types of links functionally identical.

Websites on the Internet are built upon a Hypertext Transfer Protocol (HTTP) foundation, which enables links to point directly to the specific Uniform Resource Locator (URL) of each individual web page. The result is that any individual page on the Web can link directly to any other page.



### Linking in mobile apps

Mobile apps are not developed with the same structure or technological protocols as websites, instead utilizing a series of screens and states. Consequently, navigating seamlessly from one app to another using hyperlinks is not a default characteristic of mobile apps.

Previous technology made it possible for a link within one app to open a second app, but in terms of marketing, linking utility was extremely limited. Marketers essentially had two options:

- A link could direct users to a generic landing page where the user could download and install the app.
- If the user already had the app installed - a link could open the app (but it would only open to the home screen).

Neither of these options permitted marketers to connect users to a screen other than the home screen - which severely compromises the ability to connect users to relevant content.

To illustrate why this is problematic, imagine an Internet where a jeweler selling products on eBay could only direct customers to eBay.com. Customers would have to browse and search extensively before (hopefully) locating the jeweler's specific product pages. As unpalatable and ineffective as this situation sounds, this is essentially how apps worked previous to deeplinking.

The real value of deeplinking is that it eliminates unnecessary taps and enables marketers to remove friction from the conversion process. By removing the navigational barriers to the content, services, and marketing creative found within apps, deeplinking has the ability to completely transform the mobile app ecosystem.

## Technical requirements of deeplinking

### 1. Set up deeplinking structure

The first step is setting up deeplinks inside the mobile app. App developers need to create a custom URL scheme and register it with the operating system. The next step is to map routes to destinations or activities within the app, which is similar to the way that URLs are mapped to web pages.

Experienced developers should be able to set up deeplinking in an iOS or Android app fairly easily. Android developer documentation indicates how to add intent filters to map routes. On iOS, the `openURL` method of the app's `AppDelegate` is launched when a user deeplinks into the app. The developer can either manually parse the URL or use Turnpike, an open-source framework from URX, to map the URL to defined routes.

### 2. Expose deeplink structure

After the mobile app is ready to accept deeplinks, the deeplink structure needs to be exposed publicly as this enables third parties to drive traffic inside the app. Similar to the Web, this is how Google indexes content or how Twitter automatically adds an image when someone tweets out a link.

To expose the deeplink structure, web developers simply need to add a few links to the `<head>` tags of the website related to the app. Facebook (App Links), Twitter, and Google all have tags associated with their individual services, so developers need to implement tags from each source in order to take advantage of traffic through the different channels. URX also has a single set of tags that will enable others to index the app which can be found at <http://urx.com/documentation>.

### 3. Route traffic to the app

The final step is to send links that direct a user into the app if they have it, or to a mobile site if they don't. This enables marketers to send a single link in all of their outbound marketing - social media, emails, paid advertising - and it will resolve correctly.

This routing functionality can be built internally or provided by a deeplinking company. URX Omnilinks allow you to get started immediately without any code - just add `urx.io/` in front of all of the links and it will send the user to the right place depending on their device and if they have the app installed. Alternatively, developers can integrate `omnilinks.js` into a website which will automatically direct any mobile visitors who have the app installed to the deeplink.

## Taking advantage of deeplinks

To date, the vast majority of mobile marketing campaigns revolved around getting users to download mobile apps. Deeplinking enables marketers to re-engage users by linking them directly to relevant content through both organic and paid strategies.



### Organic marketing

Organic marketing gives mobile marketers an opportunity to create and market content for free via social media, email, push, and search channels. Most of these strategies are standard in traditional digital marketing, but by utilizing deeplinks and optimizing for mobile, marketers are able to connect with users in a whole new way.

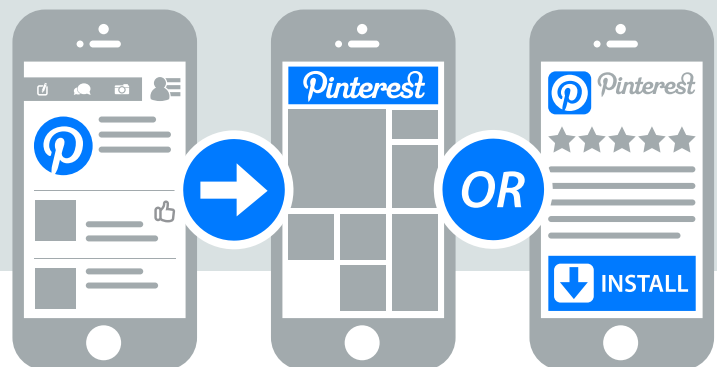
### Social media

Research from Forrester forecasts that 200 million users will access social media via a mobile device by 2018.<sup>5</sup> The opportunities for deeplinking vary depending on the social platform, but considering the average consumer spends 2 hours and 19 minutes per day using mobile apps, and nearly 30 percent of that time in social media or social messaging apps,<sup>6</sup> the probability of finding a viable opportunity for deeplinking is strong.

For example, deeplinks can be included when an app posts an update to Facebook on behalf of its users. As seen in the image below<sup>7</sup>, the Pinterest update includes a deeplink that directs users to a specified screen within the Pinterest app (assuming the user already has the app installed), or to the Pinterest landing page on the App Store where the user can download and install the app.

Although Facebook has been criticized for limiting the reach of organic social content,<sup>8</sup> deeplinking functionality can also be included in app search, app bookmarks, app requests, story attribution, story links, and more, giving mobile marketers additional opportunities for discovery on the social network.<sup>9</sup>

Twitter cards also provide opportunity for app installs through deeplinking. Similar to the example on the right, after tapping on a deeplink, the user is directed to a deep screen in the mobile app, or to the App Store depending on whether the user has the app installed.<sup>10</sup>





## Email

One consequence of smartphone proliferation is that an increasing number of users access and read email on their mobile device. One study of 2013 Q4 data found that 65% of email is opened on a mobile device.<sup>11</sup> These mobile open rates will almost certainly continue to climb, giving mobile marketers an excellent channel for driving users to mobile apps through deeplinks.

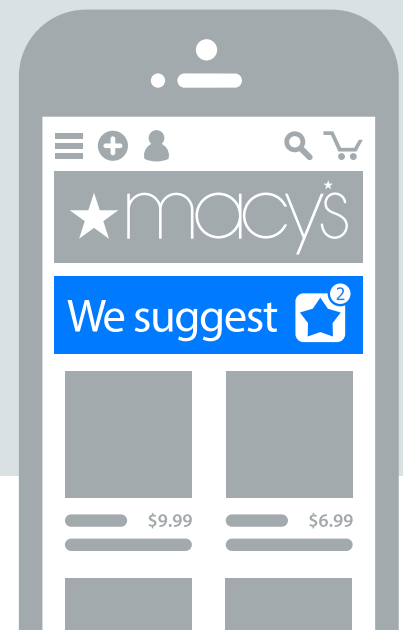
With deeplinking, email marketing campaigns can now be used to connect users directly to relevant content on a screen deep within an app. This enables users to bypass a browser redirect, creating a more streamlined user experience and improving the path to conversion.

## Push

Push notifications allow an app to notify a user of events, new messages, or other activity without requiring the user to open the app. Functionally, push notifications work in a similar way to text messages - the notification typically creates a sound and an icon appears at the top of the screen. The push message also shows up in the notification center and can be seen when the screen is locked.

Push notifications are a permission-based form of marketing (i.e. the user has to opt in). If used appropriately, push messages can be a strong component of marketing strategies, playing a major role in driving user engagement. Combining push notifications with deeplinking, gives marketers the ability to essentially tap a user on the shoulder and direct them to relevant content within the app.

One emerging application of push notification is to combine it with iBeacon technology. iBeacon is Apple's indoor proximity system that can send notifications to users within a certain vicinity. In late 2013 over 250 U.S. locations were outfitted with iBeacon technology.<sup>12</sup> To illustrate one example, Macy's has experimented with iBeacon and push technology in its department stores. As seen in the example,<sup>13</sup> when a user with Macy's Shopkick app enters the store, a notification is automatically sent which alerts the user of deals and connects users to items they may be interested in.



## Search

In early 2014, Google announced it would start indexing in-app content.<sup>14</sup> This is great news for marketers as apps with deeplinking functionality can now be featured among the Google Search results. For example, if a user is searching for a movie on a mobile device, Google includes deeplinks to apps in the search result. When a user taps on the “Open in app” deeplink, instead of just launching the mobile app, the app will open directly to the movie in question.<sup>15</sup>



## Paid ads

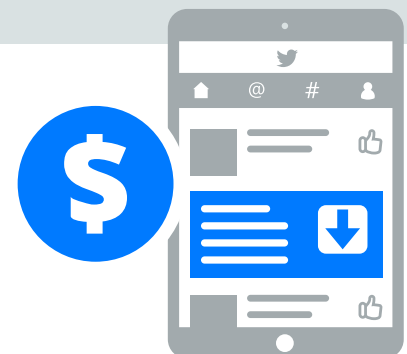
Paid ads are a fundamental component of mobile app marketing campaigns, regardless of the existing popularity or prominence of the app (or the organization creating the app). Banner ads, sidebar ads, and paid search have long been a part of paid campaigns, but ad formats have evolved to include video, interstitials (full screen), rich media, and most recently, native ads.

Promoted posts on social media have become a popular resource for mobile marketers with an established social community. In particular, promoted posts that utilize native design are developing a reputation for effectiveness, as one study found that native ads on Facebook generate click-through rates that are 49 times higher than ads placed in the right-rail sidebar.<sup>16</sup>

## Ad retargeting

Ad retargeting across mobile apps is becoming an essential component of driving app installs and increasing user engagement. Retargeting is an emerging technology that helps marketers deliver content to the right user at the right time, and is particularly powerful as it enables marketers to serve ads based on user behavior and preferences.

Companies like TapCommerce and ActionX are among the leaders in retargeting capabilities. To illustrate, if a smartphone user browses tickets to a sporting event on SeatGeek but closes the app before making the purchase, marketers can match the smartphone’s device ID via Apple’s IDFA or Android’s Advertising ID with other information about the game from SeatGeek’s API to push an ad about the event. Through deeplinking capabilities, these ads can then direct users to a specific screen in the SeatGeek app, making it easier for the user to locate the event and complete the purchase.



## Scaling with deeplinks

Companies like URX are creating technology to help marketers scale deeplinking campaigns. These modern campaigns enable a proliferation of ads to be created for a specific user segment - instead of relying on a single generic ad for a large customer segment.

For example, previous to deeplinking, a marketer running campaigns for a retail app selling shoes had very little incentive to create numerous creative pieces, as links could only direct users to the app home screen. However, through deeplinking and technology provided by companies like URX, the incentive to create highly specific ads tailored to user preferences is much higher. Through dynamic ad campaigns that ingest a product feed, utilize template-based creative, and optimize campaigns by matching to users based on previous in-app behavior, it becomes possible to serve an ad tailored to user preferences.

To continue the shoe retailer example, a campaign that previously included one or two ads for a particular style of shoes featuring the most popular color, could instead create a dynamic campaign that featured the shoe in every color available. If a user had previously browsed or searched “red flats,” the ad featuring the red flats would be displayed. In addition, each ad would link directly to the appropriate screen within the mobile app (i.e. the ad featuring a red shoe would link directly to a screen where the user could view and buy the red shoe).

The combination of deeplinking and optimized ad serving technology enables marketers to serve ads that are far more powerful and appealing to users.

## Analytics and measurement

As illustrated throughout this white paper, one of the primary purposes of deeplinking is to optimize mobile marketing campaigns. Over the last several years, the industry as a whole has made incredible advances in mobile analytics, giving marketers valuable insight into how users find and interact with mobile apps at different steps in the conversion funnel.

Through marketing analytics, app developers and marketers can learn which ad (and deeplink) users are tapping before installing an app. For example, if a



marketer runs five different ads on ten different publisher sites, marketing analytics would identify exactly which deeplink (the specific ad and publisher) was responsible for the install. Marketers can use this insight to adjust campaigns by purchasing more of the most successful ads on the most promising publisher sites.

Through in-app analytics, app developers and marketers can learn which deeplinks are being used most often, and by whom. These patterns can be analyzed to determine which steps in the conversion process are problematic. Through iteration, any friction can be refined, enabling the conversion process to be as seamless as possible.

For example, a retail app may notice a sharp drop off when users try to add an item to a shopping cart, or a gaming app may notice that an alarming number of users leave the game at a certain level (indicating that the level may be too difficult). In-app analytics provides the insight needed to refine the process and improve the user experience.

## Conclusion

As mobile continues to become the dominant platform for Internet consumption, it's essential that those in the mobile ecosystem evolve. Deeplinking is a transformative technology that enables screens within mobile apps to link to each other in a manner similar to pages on the World Wide Web. This advancement makes it possible for mobile marketers to connect users directly to the most meaningful and relevant content. Most importantly, deeplinking enhances the user experience and removes friction to conversion, enabling marketers to take advantage of a refined conversion funnel.

Through retargeting, marketers are able to deliver ads to the right user at the ideal time. And as mobile campaigns scale, emerging technologies makes it possible for marketers to utilize deeplinks and serve dynamic ads to users based on in-app behavior and personal preferences. Measuring which ads lead to conversion enables marketers to adjust campaigns and focus on the most successful ads and publishers. In-app analytics provides the feedback marketers need to further improve the conversion process, optimizing the user experience.

Deeplinking is not a trending fad, rather, it is a fundamental change in the mobile app ecosystem. In order for app developers and marketers to remain competitive, they need to adapt to the changing mobile landscape and adopt deeplinking technology.

## About URX

URX is a pioneer in mobile deeplinking technology that aims to reconnect native apps and the web to create a more relevant mobile user experience. URX works with leading mobile companies including Spotify, Hotel Tonight, and Yummly to intelligently route traffic inside their mobile apps. URX is a Y Combinator alumni and has raised over \$15 million from Accel Partners, Google Ventures, First Round Capital, and SV Angel.

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# URX

## About TUNE

TUNE is on a mission to make mobile marketing better for everyone. As the most adopted measurement and attribution provider for the top 100 apps across iOS and Android, TUNE is trusted by Expedia, Sephora, Starbucks, Amazon, and many other world-class brands. TUNE builds solutions that arm marketers and their partners with insights to help effectively engage consumers with timely, personalized marketing messages. Headquartered in Seattle, Washington, with over 325 employees in eight offices worldwide, TUNE's solutions are globally recognized as the most innovative, reliable, and best supported in mobile marketing.

# TUNE

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