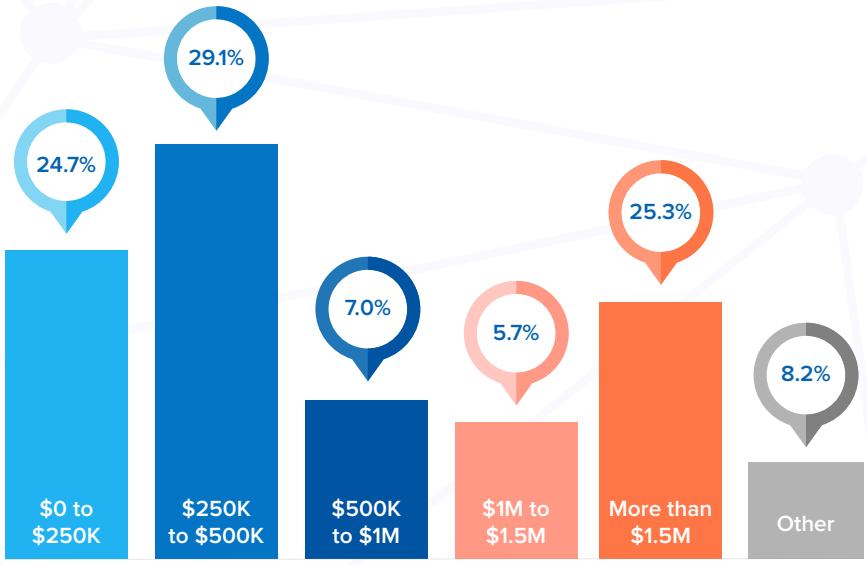
APPTIMIZE

5 Ways to Use Feature Flags

NINJA STYLE

According to a survey by the Enterprise Mobility Exchange, most enterprises have budgeted $250,000-$500,000 for the next 12-18 months of mobile development. A quarter of the companies surveyed are investing over $1.5 million in that time frame.

Budget for mobility solutions for the next 12-18 months



Data Source: Enterprise Mobility Exchange

The point is that mobile apps are costly. On average, it takes 7-9 months to build a native mobile app. The initial cost of development is only 35% of the actual two-year cost.

Time taken to develop and deploy a mobile app

Data Source: Kinvey

That means that for an app that costs $1.5 million to build, the two-year cost is $4.3 million—almost **3x the cost**. If a mobile app is heavily used, it is well worth the return on investment.

While the opportunity on mobile is massive, companies are often hampered by long release cycles and byzantine App Store approval process. To compete, they need to adapt and learn from mobile innovators like Facebook and Uber.

How to Develop Like Facebook and Uber Using Feature Flags

Mobile operates according to a different set of rules than web development. On mobile, gatekeepers like the App Store and Google Play have lengthy approval cycles, which means you can't push live updates to your production code. Once you release your feature, you're basically locked in until you update your app again. It takes too long to get feedback from your users and learn.

> *In mobile what do I do? I push a button, it goes to The App Store, the black hole that is Apple, and out comes, in some indeterminate amount of time, my binary. If I've made a mistake or if there's a fatal, or something silly in that app, it's gone. That bullet has left the barrel, and I'm screwed.*

Chuck Rossi
Engineering Director at Facebook

Conventional Mobile App Release Cycle

Mobile-first companies like Facebook, Uber, Twitter, and HotelTonight do not wait around on the App Store. They rely on a software development technique called **feature flags** to move fast, test, and iterate on their apps through rapid learning. As Douglas Squirrel, a consulting CTO, says, the trick is "*to slice features into tiny, user-ready, deployable pieces—and of course you will want to control access to those pieces with feature flags.*"

Feature flags, also known as “feature toggles,” are a mechanism that separate deployment of code from the feature release process in an update. They let you maintain multiple branches of code in your production environment. This allows you to update your app without releasing new features all at once. You can gradually roll out new features and code to who you want, when you want. Feature flags offer you granular control over every aspect of your mobile product.

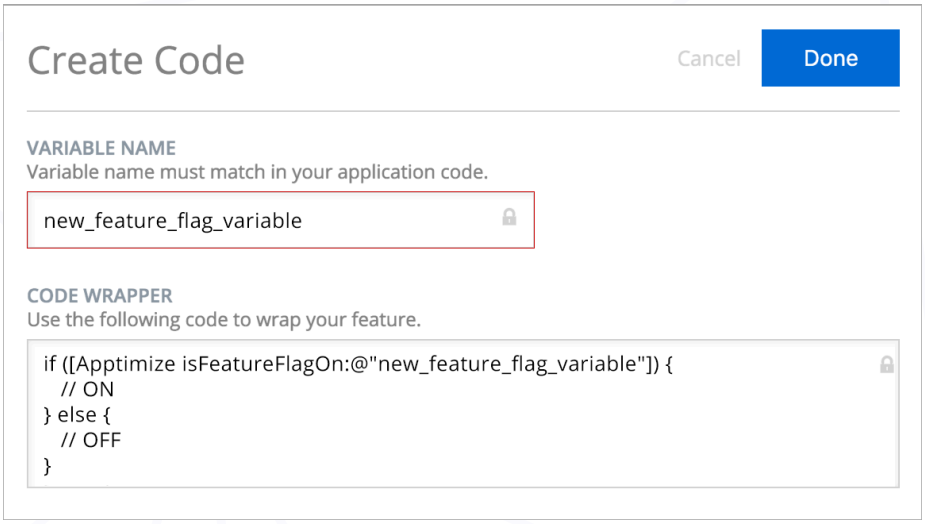
In this guide, we will show you how companies like Facebook and Uber supercharge mobile growth by using tools like feature flags, and how you can do the same.

1. Build a Kill Switch to Mitigate Development Error

According to a study by Apigee, an API company, 44% of users said they would delete an app immediately if it does not perform as expected, while 38% of users said they would delete the app if it freezes for longer than 30 seconds. As mobile matures, people are used to apps that just work.

Agile mobile teams often get caught in a dilemma. Shipping new features to get feedback faster and learn runs the risk of crashing their mobile apps. This is where feature flags come in.

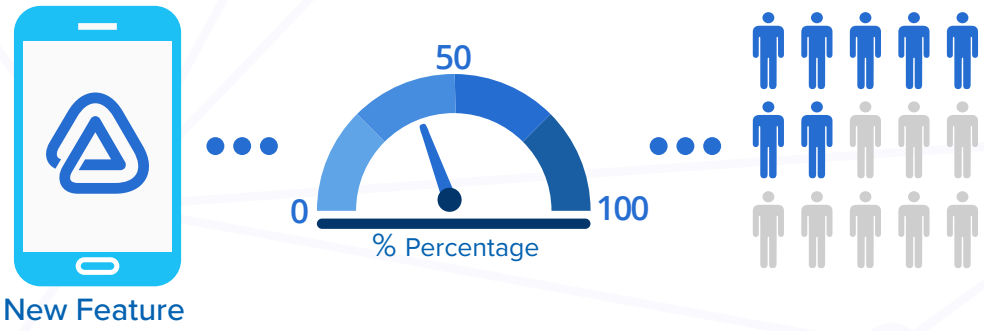
A feature flag is an on-and-off switch for every feature of your mobile app.



Take a new real-time commenting feature for your mobile app as an example. Your team thoroughly tested it, however a bug in the code slips past your QA process. On launch day the live version of your app crashes. In this situation, most mobile teams have to work day and night to patch the buggy code. With feature flags, you can just switch the broken feature off.

As Raffi Krikorian, VP of Platform Engineering at Twitter points out, "*the highest correlation to failure in a system like ours, not just Twitter but any big system, is software development error.*" Building safeguards around human error through feature flags allows you to take risks with your mobile app, *without* risking the customer experience.

2. Exercise Granular Control over Feature Rollouts



If you have ever wondered why a friend's version of Facebook looks different from yours, the answer is feature flags. Companies like Facebook are constantly testing new features. At any given time, Facebook is trying out a new marketplace feature, live photos, or a new design.

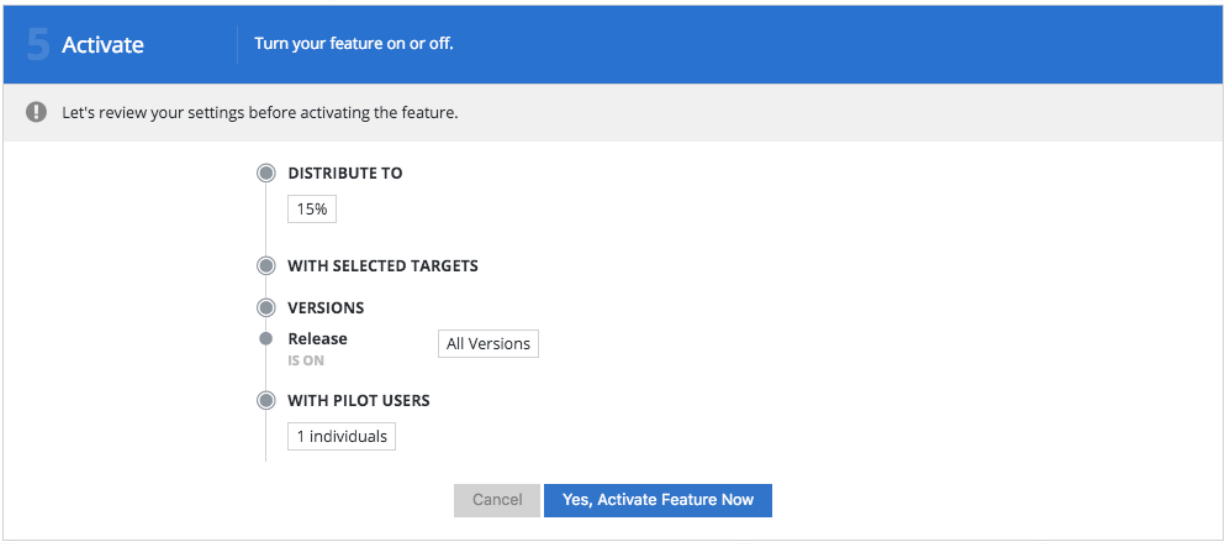
Rather than launching new and experimental features to their massive 1.4 billion userbases, Facebook uses feature flags to reduce risk while experimenting. Feature flags provide mobile teams granular control over every aspect of launching a new feature. They let you deploy a new feature to 1% of users, 10%, or 100%.

Here is a sample feature release schedule using feature flags:

1. Roll out a feature for employees at your company.
2. Roll out a feature to beta testers and volunteers.
3. Roll out a feature to a targeted segment of users.
4. Roll out the feature to everyone.

By staging controlled feature rollouts, you can test your new feature internally within your team and select users, without having to risk crashing your app for the entire userbase.

3. Target Custom Segments of Users

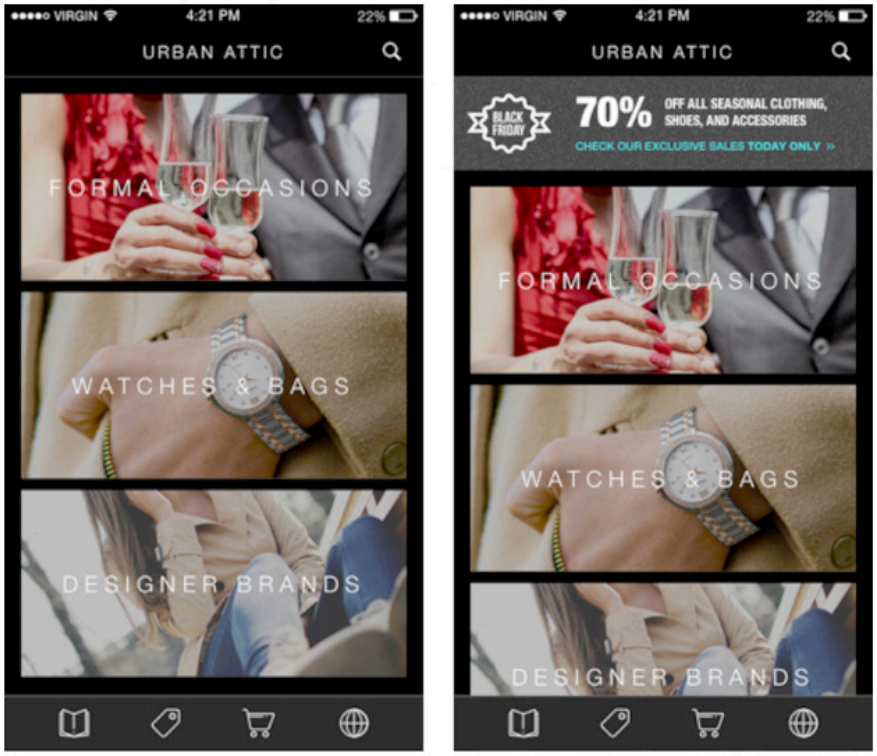


To truly engage with a global audience on mobile, you have to personalize the customer experience. Mobile users in Bangkok want and expect different things than your users in Iowa. By deploying specific features to targeted segments of users, you can deliver a tailor-made experience, even at global scale.

Here are a couple of sample groups you might consider launching specific features to:

- **Specific Users:** If you have built up a community around your mobile app, you can treat dedicated users with exclusive access to special features.
- **Gender:** With an e-commerce app, you can offer a tailored shopping experience depending on the user's gender.
- **Internal Employees:** By launching new features of your app to employees, you can test your app internally before scaling changes globally.
- **Reporters:** Launch new features early for the press.

4. Run Timely Marketing Campaigns When You Want



Turn marketing campaigns on or off with the flip of a switch

Holidays and special events present perfect opportunities for marketing campaigns and massive ROI. In the 2015 holiday season, $12.5 billion dollars were spent on mobile alone. The problem with traditional mobile release cycles is that you have to lean on your mobile team to develop and deploy an update to run a one-week marketing campaign. Further, if some users have not updated their apps, you miss them completely.

Feature flags allow marketers to run relevant and timely campaigns and in-app promotions. They let you coordinate your mobile marketing with television and web advertising, integrating various touch-points into an omnichannel outreach strategy.

Here are a couple examples of marketing campaigns run through feature flags:

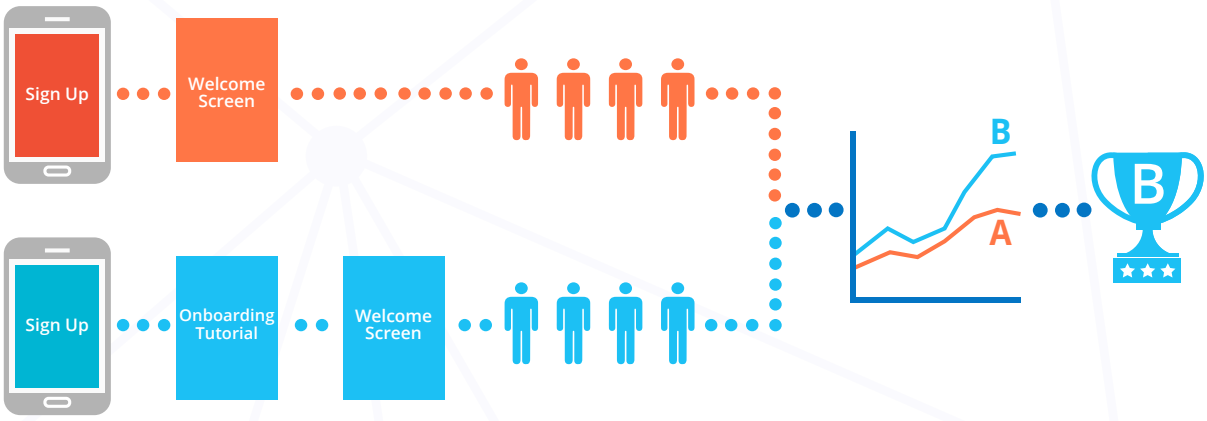
- **Uber's UberPuppies campaign** allowed specific users to order puppies on-demand in specific cities. The proceeds were donated to charity.

- **Tinder's "Swipe the Vote" campaign** was geared toward engaging millennial voters with the 2016 election. The campaign "matched" users with presidential candidates through it's swiping feature.

5. Gain Quantitative Feedback to Validate Your Product Roadmap

Because Feature Flags allow you to stage feature rollouts to specific sets of users, they are a powerful way for you to constantly improve your product through data-driven testing and informed decision-making.

> *If you push people into an app experience that they're just going to churn out of, you're going to lose more than you think.*
>
> **Meenal Balar**
> former Director of International Growth, Facebook



They allow you to gather real user data and split-test your mobile app without worrying about breaking it. Not every feature that you develop will be a success. Getting your new feature in front of a live audience is critical for knowing when to pull the plug on development, and when you should double-down on a winner.

With feature flags, you can test:

- The optimal number of screens in your welcome tutorial.
- User engagement with new features.
- Different version of your checkout experience for maximum conversion.

10x Your Mobile Toolchain

Companies like Facebook, Twitter, and Uber have created an internal toolchain that allows them to agilely develop and iterate specifically for mobile. This gave them a first-mover's advantage which led to rapid and massive growth.

Today, tools like feature flags are not limited to bleeding-edge startups and they are available to any company trying to tap into the potential of mobile. They are what will power the next generation of mobile innovation and growth.

About Us

Apptimize is the best-in-class mobile growth platform for enterprise and SMBs. Our platform has powered 1.2 Billion App downloads, across 75 countries.

Key Features

Native A/B Tests

Run experiments within minutes using our drag and drop Visual Editor and programmatic testing.

Feature Flags

Excercise complete control and manage risks at every stage of new feature rollouts.

Instant Updates

Launch changes and promotions directly to your app without using any code.

Some Apps That Use Apptimize

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