6 ESSENTIAL ANALYTICS
Your App Needs

SOURCEBITS

Magnify Your App Metrics

Customized User Messaging

A/B Testing & Optimization

User Acquisition Performance

Segment & Cohort Analysis

Financial Reporting

User Behavior

1 2 3 4 5 6

SOURCEBITS
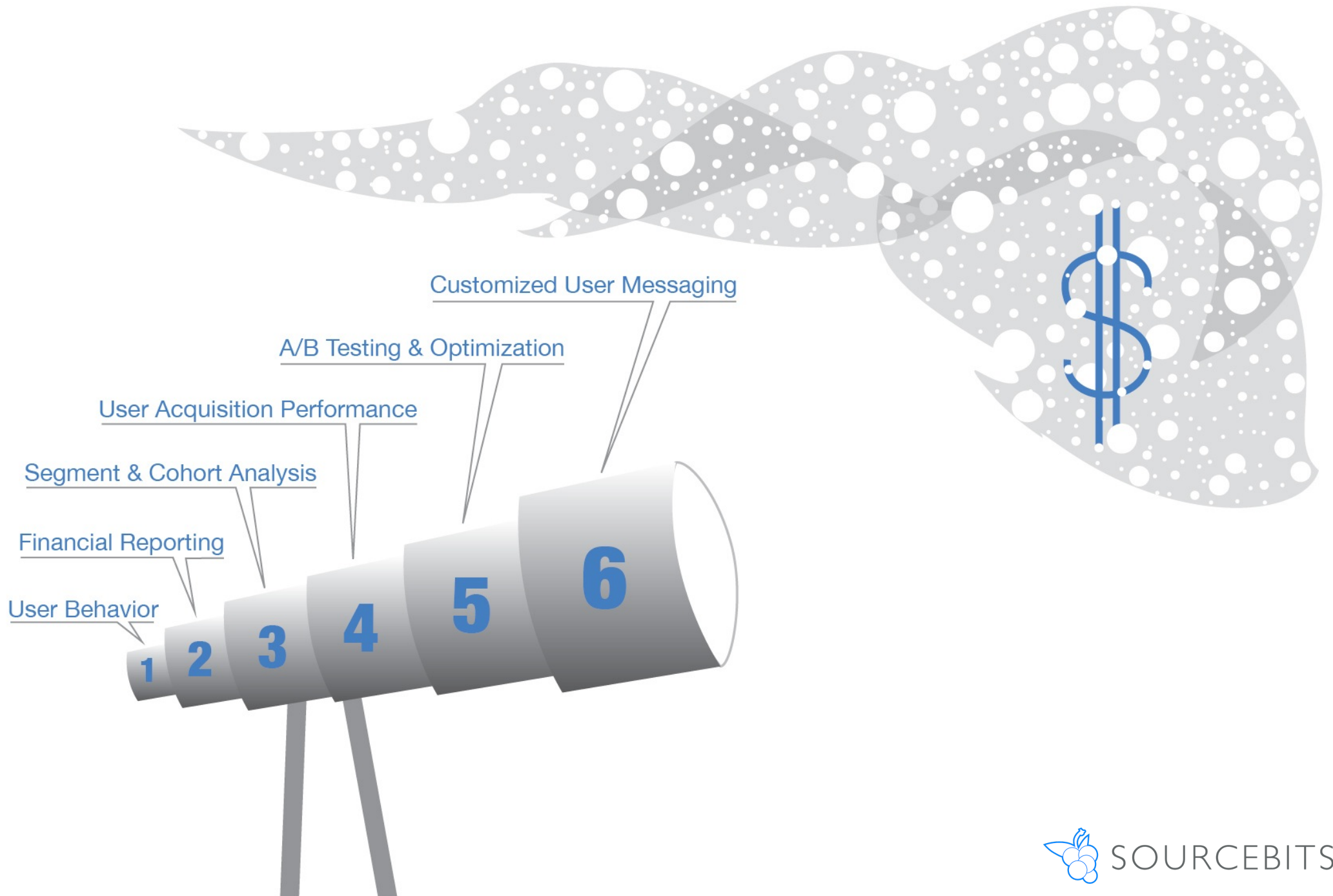
Introduction

Creating an app requires a lot of time and resources. But building your product just gets you to the starting line. When you finally launch, you'll need a short and long-term marketing plan and a product roadmap. You'll also need to track and evaluate your app's performance to plan for future iterations. Your gut instincts need to be supported - or contradicted - by facts. With the right analytics, your app's future can be determined through data-driven mobile development.

Don't make your data architecture an afterthought.

Not very long ago, having a data-driven process meant using Flurry's SDK to create as many events as you possibly could. From that, great data insights would inevitably follow - right? Well, sort of.

Using a "spray and pray" Flurry approach is far from being data driven. In fact, it's a huge missed opportunity for your app development and business growth. With the pace of technology ramping up, you need a new system for collecting insights. It needs to address all of your mobile analytics needs in one simple, elegant package and it shouldn't crush your engineers or require hiring a team of analysts to understand it.

This whitepaper covers the 6 areas of mobile analytics that are necessary to give you the deep, accurate data insights needed to drive your app development. Your analytics should:

1. Evaluate user behavior and demographics

2. Provide financial insights

3. Analyze by segment and cohort

4. Measure user acquisition performance

5. Include A/B testing and optimization

6. Support direct, customized user

#1 Evaluate User Behavior & Demographics

The "create events in Flurry" approach does answer many high-level questions without getting into custom events. Flurry events can tell you:

- Installs by country

- User retention

- Session frequency

- Time spent in the app

- Active users by app version

- Top device / carrier / firmware

But if you stop there, inevitably you'll soon experience painful, head-smacking, "How are we not capturing that?!" moments.

For example: "For users that have never returned, what's the last screen they viewed?" When this question - or something like it - inevitably gets asked, how will you find the answer?

If you haven't pre-built the right data-capturing into your app, "surprise" questions like this will take about a month of scrambling to reveal the answers.

A month?! Why? Because updating your analytics after launch requires you to go through planning, implementation, store re-submission, new data collection and finally analysis. This data lag can kill momentum and delay the process of making important decisions about how to improve your product. It can also have a significant snowball effect as data requests start piling up.

Custom events are just the tip of the iceberg compared to the tools available to developers today. Build your data to answer as many questions, and offer as many insights, as possible.

On the next page is a table of some of the top providers and their capabilities.

User Analytics Providers

Company	Client Metrics	Server Metrics	Retention	Community	Click Attribution	A/B Testing	Pricing
mixpanel	🟩	🟩	🟩	🟧 Push Only	🟩 with Partner	🟥	$ / event
KISSmetrics	🟧	🟩	🟩	🟥	🟥	🟥	$ / event
FLURRY	🟩	🟥	🟩	🟥	🟥	🟥	MAU
Apsalar	🟩	🟩	🟩	🟧 Push Only	🟩 only Apsalar	🟥	MAU
swrve	🟩	🟩	🟩	🟧 In-App & Push	🟩 with Partner	🟩	MAU
Artisan	🟩	🟥	🟩	🟥	🟩 with Partner	🟩	MAU
Omniata	🟩	🟩	🟩	🟧 In-App & Email	🟩 with Partner	🟩	MAU

Community includes: Emails direct to users push notifications and custom in-app messaging by segment.
Research last updated April 15, 2014

What percentage of users come back tomorrow?

How much do US users spend in our app per week compared to UK users?

Should I keep supporting iOS6?
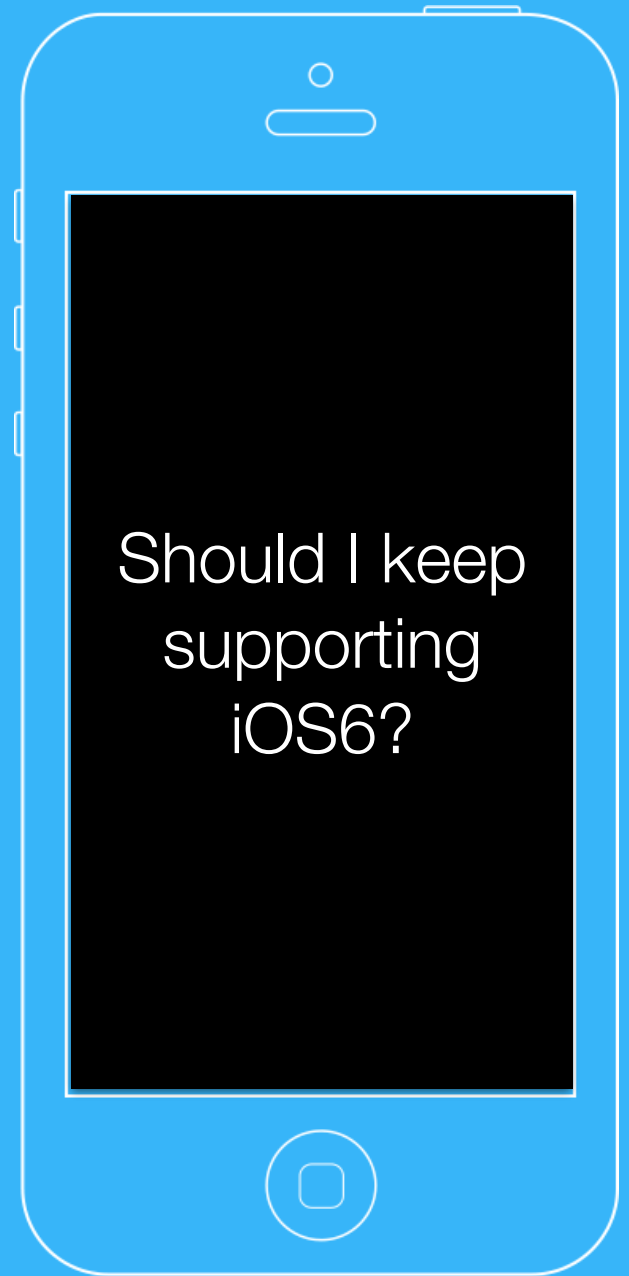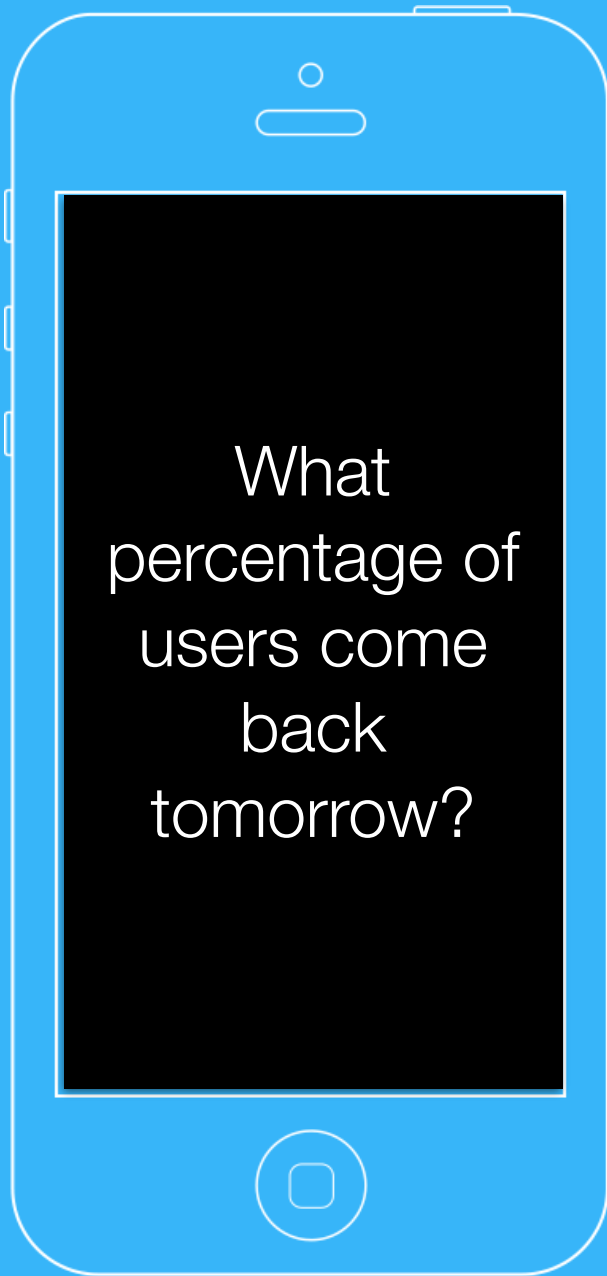
#2 Provide Financial Insights

Financial performance analytics are often the most central requirements to the data needs of an organization. However, they're not currently addressed by traditional analytics platforms.

Why? It's not their traditional specialty, the data is incredibly sensitive, and it's difficult to ensure the numbers are accurate. But financial analysis is necessary to run a business, please your investors and optimize your product for revenue. So detailed transactional data is usually being pulled the hard way (manually and frequently) by data scientists.

In an ideal world, you want to create a simple process for financial reporting that doesn't require a full-time analyst. But every company has different data needs, and your staffing will depend on the level of detail your reporting requires. On the next page we've outlined some simple financial formulas, and the sources to get the numbers you'll need to crunch.

But this is just a starting point. A word of caution about the accuracy of financial data: Fake purchases (also known as jailbreaking) make it difficult to accurately report revenue. There have been cases where a report will say $25,000 in revenue, but you've really only made $1,000.

Some analytics partners can now identify these bad transactions and remove them from the data so they don't show up in your reports (which we highly recommend). However, they can't actually prevent the fake transactions from occurring.

Inaccurate financial reporting can lead you to make incorrect decisions about product iterations. It can affect the user experience, and also messes up the economy of your app. Make sure you have confidence in the credibility of your transactions before you make business decisions.

3 Financial Formulas to Run

store report(s)

①

$$\frac{\text{Daily Revenue}}{\text{Daily Active Users}} = \text{ARPDAU}$$

(average revenue per daily active user)

analytics provider

②

$$\text{LTV} = \text{ARPDAU} \times \text{Expected days retained}$$

(lifetime value)

calculate with analytics provider

predictive formulas vary

③

$$\text{Acquisition Cost} - \text{LTV} = \text{Profit}$$

track providers

How many transactions did we have in Turkey last August?

What was our average revenue per user on Android vs iOS last weekend?

What is the lifetime value (LTV) of a user we obtained through a Facebook ad?
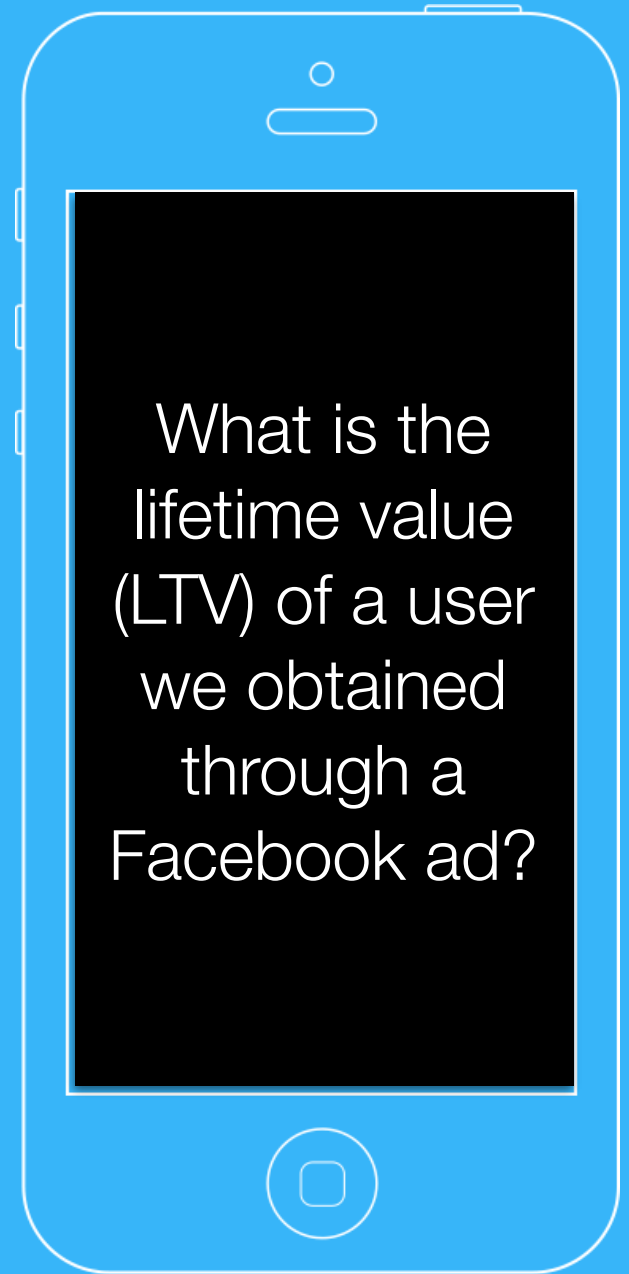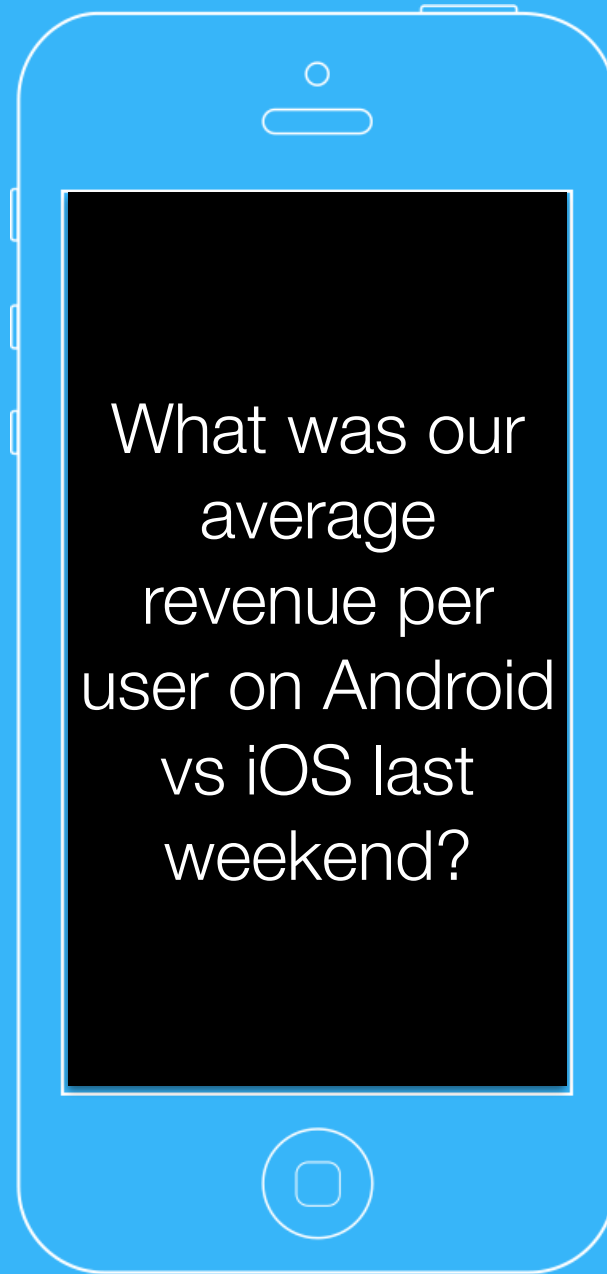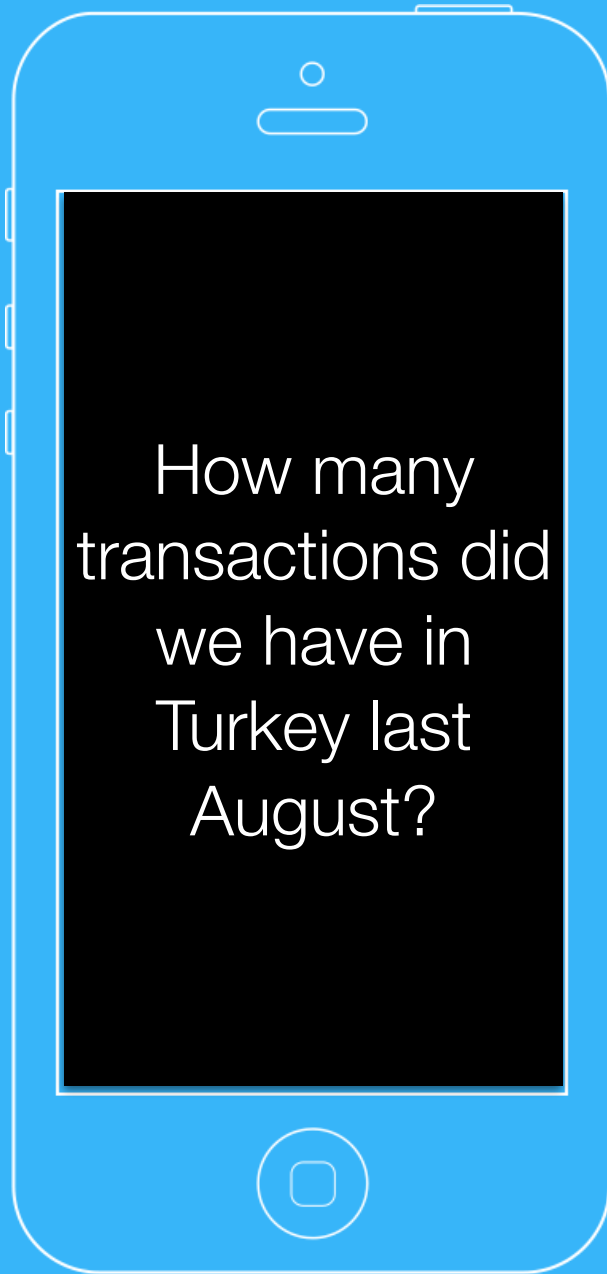
#3 Analyze By Segment and Cohort

Events need context to give you insights.

The importance of comparing user segments (based on actions) and cohorts (new users in a period of time) becomes rapidly apparent after you launch. To address this need in the past, many mobile developers went down the hard and expensive road of building their own internal intelligence systems. This created a market for services such as Mix Panel, Apsalar and Kontagent. They promise (and deliver) faster, more accurate, and more dynamic ways to slice your data. Companies like Swrve have taken it a step further and built A/B testing directly into their product, allowing you to try variations at the same time and compare results.

Set up your analytics system to allow you (or your analyst) to slice and dice your data in various ways. Then begin exploring the possibilities.

You'll have specific pre-existing questions that need answers. But the feeling of data serendipity comes when you run reports "for fun" and discover actionable insights. Let your curiosity guide you.

Whenever possible, don't leave the data just to your analyst. You might be struck one evening by a question like: "How do women last week in NY vs. last week in CA interact with this feature?" The answers often lead to more questions. But as the information is revealed, you may discover an insight that helps your marketing be more efficient, or leads to a new feature.

Bottom line: bulk data observation may open your eyes, but comparing segments by user actions or cohorts can blow your mind (and help you make informed product changes).

Did retention of new users improve between version 1.1 and version 1.0?

How did our new "sale" messaging" perform this weekend compared to last?

What do women who post do next, vs. men who post?
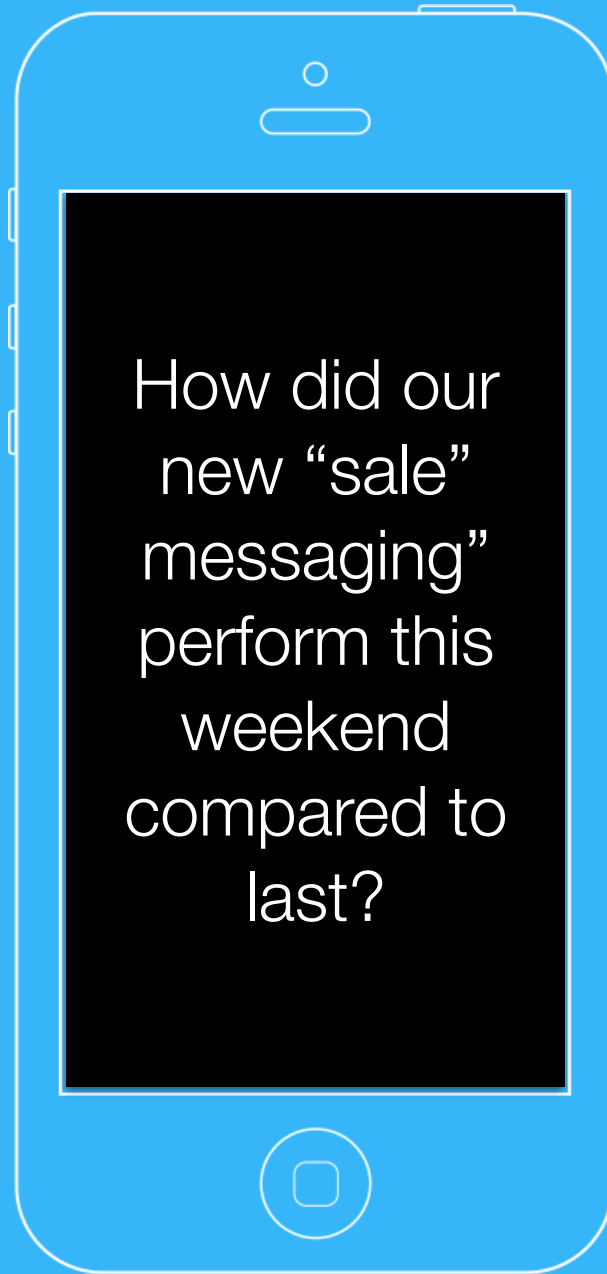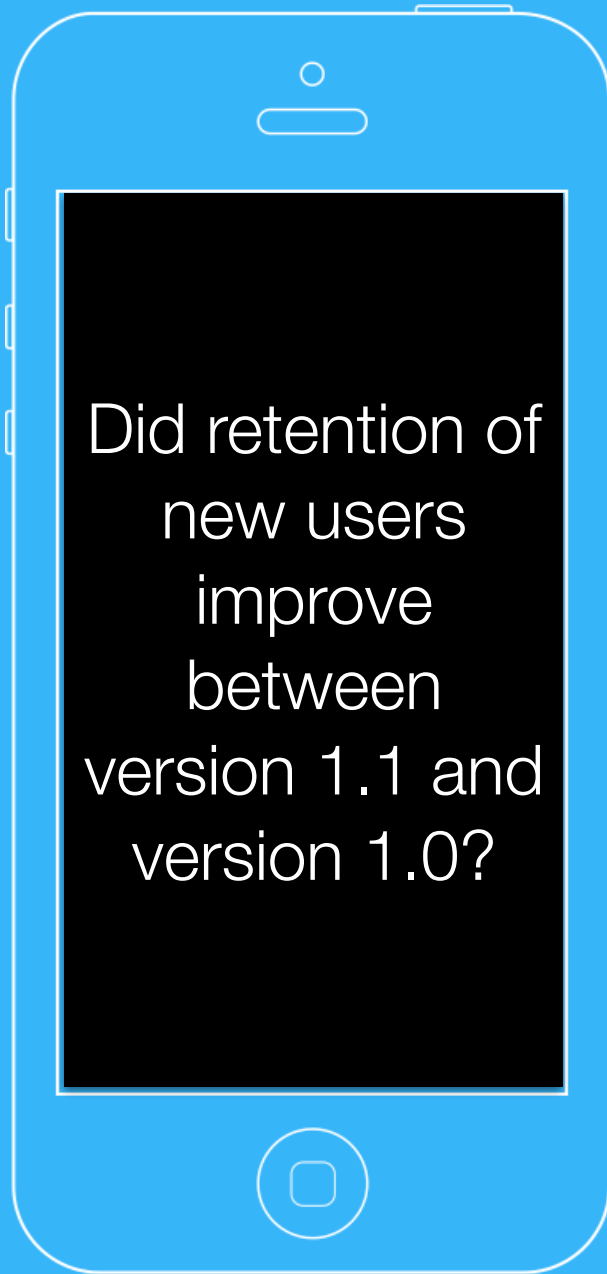
#4 Measure User Acquisition Performance

If you spend money on acquiring users (and most developers do), then the right data can help you avoid wasting your marketing dollars. How? In the past, you might run an ad campaign on Facebook and another ad across a network - and if a user saw both ads you would be charged by each provider for the same install. Avoid ad publisher "double-dipping" by implementing click attribution.

Click attribution (CAT) providers can pinpoint the origin of each install, solving the black-box mystery of app store installs when you're running user acquisition campaigns. They can also analyze information about the user's cost for acquisition, their app engagement benchmarks and/or the amount of revenue generated. This allows you to identify the marketing channels that have been most effective at meeting your business goals.

Companies like HasOffers (MobileAppTracking) and Kochava have dominated this space and forced many major ad networks to go fully transparent, a major win for the industry.

It's now possible to calculate the precise return on investment (ROI) for all media spending on a per-user level. Want to know the value of Twitter vs. Facebook users? No problem! Was spending twice as much per install for videos worth it? You can answer that in two clicks.

The next two pages outline the process of click attribution, and provide a summary of 6 marketing analytics providers and their various offerings.

How Click Attribution Works

❶ ❷ ❸ ❹ ❺

Ad Ad Hello!

User sees ad | User taps ad | User hits tracking URL, is taken to App Store | User installs app | User opens app, is attributed to ad and behaviors+revenue are tracked to ad
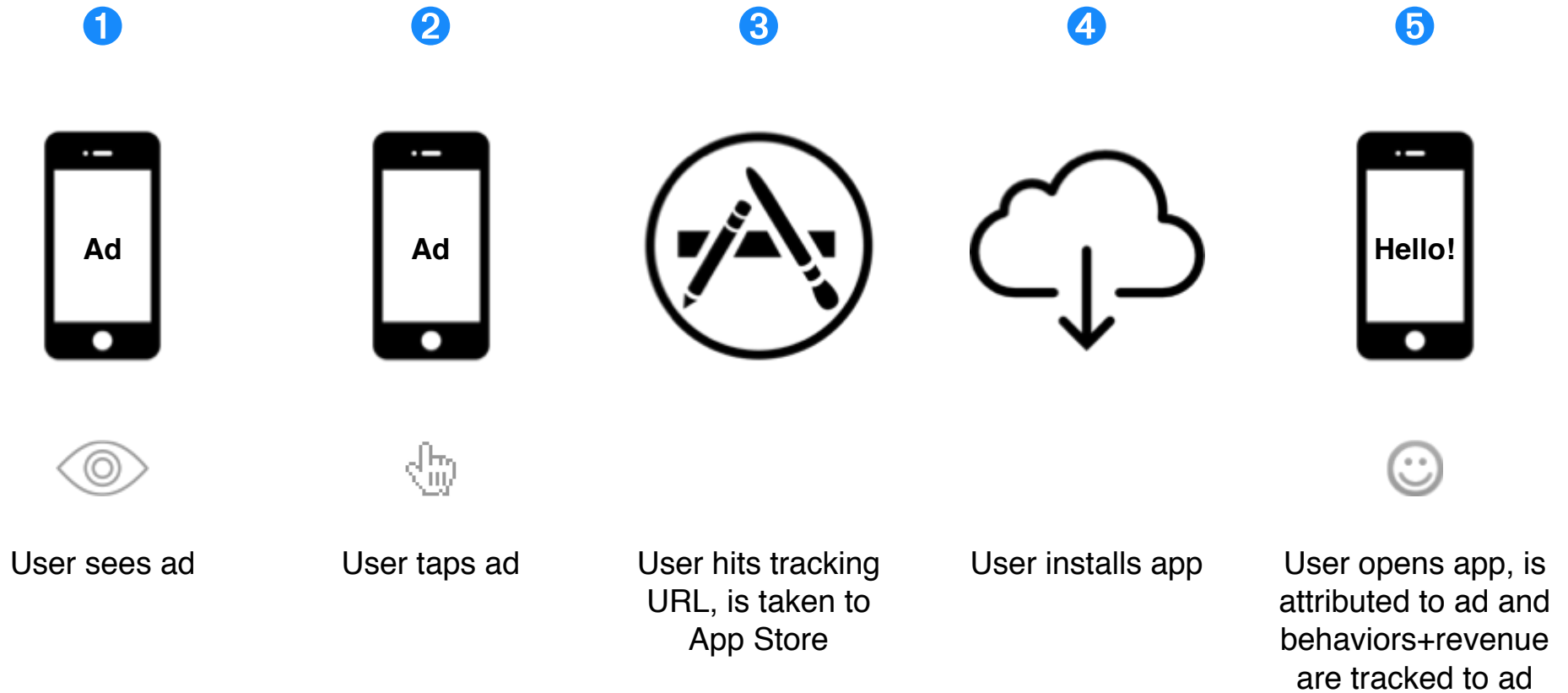
Marketing Analytics Providers

Company	Click Attribution	Handles Billing	Managed Campaigns	Self-Directed Campaigns	Reporting API	Pricing
★KOCHAVA★	🟢	🔴	🔴	🔴	🟢	$ / event
has offers	🟢	🔴	🔴	🔴	🟢	$ / event
Apsalar	🟢	🟢	🟢	🔴	🟠 Premium	Ad Commission
GrowMobile	🟢	🟢	🟢	🟢	🟢	Ad Commission
{Fiksu}	🟢	🟢	🟢	🔴	🔴	Ad Commission
TAPSENSE	🟢	🟢	🟢	🟢	🟢	Ad Commission

Research last updated April 15, 2014

How much revenue did we we earn per user from paid acquisition compared to organic installs?

What percentage of my users installed from my social media marketing efforts?

Should I remove the spending cap on this campaign that's killing it?
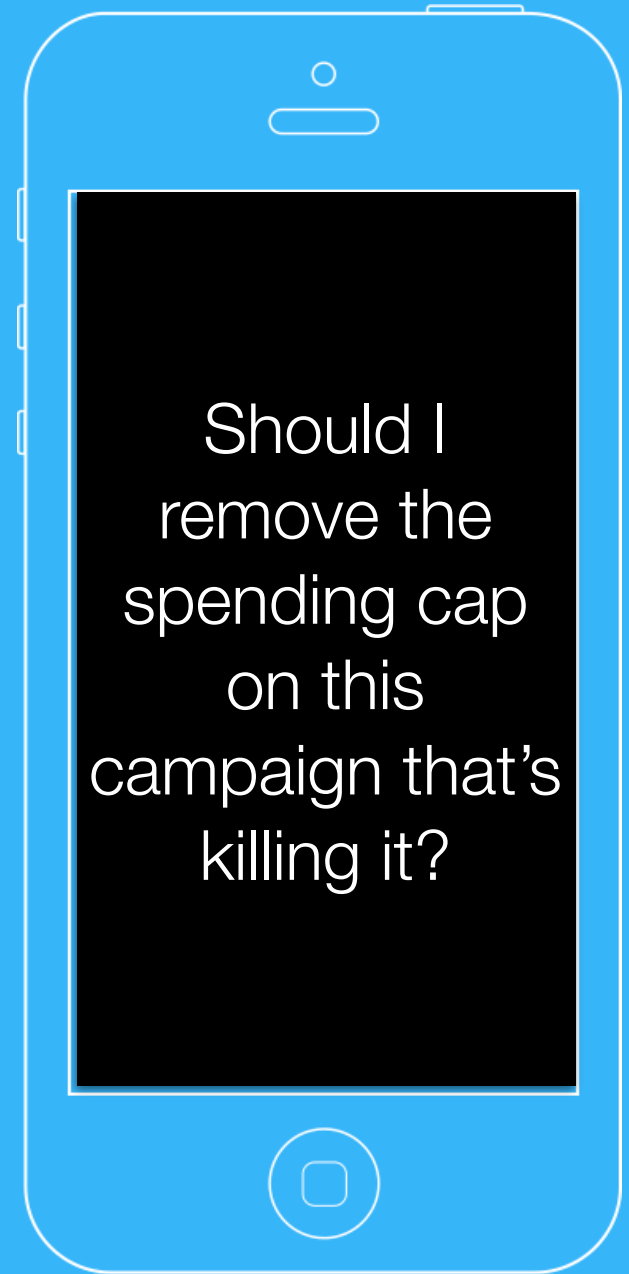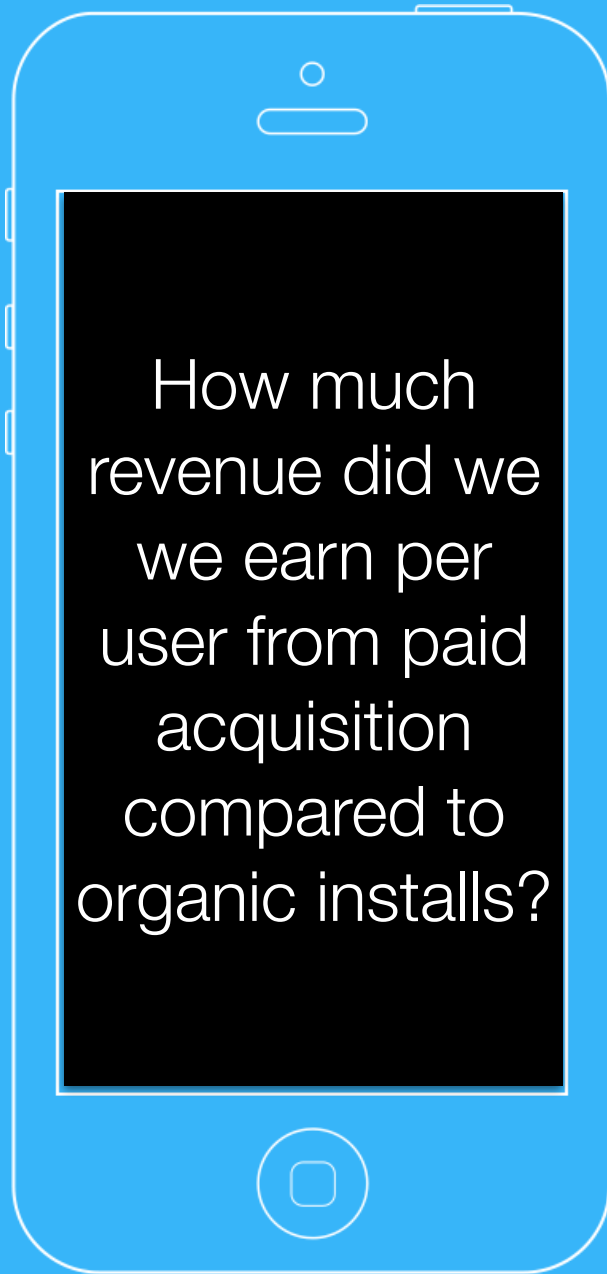
#5 Include A/B Testing and Optimization

While A/B testing and optimization of websites (particularly e-commerce) have been happening since Yahoo started classifying URLs, it hasn't been easy to bring this discipline to mobile apps. This can be partially attributed to the inherent difficulties of app engineering, combined with delays in app store approval and an overall longer release cycle than websites. But now you can use solutions such as Artisan, which allows you to run A/B tests on the placement of UI elements in your app on the fly.

Some app elements you might A/B test:

‣ Price points for purchasing

‣ In-app messaging

‣ Value propositions

‣ Color options for buttons

‣ Placement of advertising units

‣ Facebook Connect integration points

A word of caution: just say no to "multi-variant testing." People who use this term for app testing either have millions of users, or they're over reaching. Testing multiple variables means more users, more time in field and more chances to get false positives. Stick to the basics, and don't get too fancy with your tests.

Some A/B tests will generate incremental improvements, while others are integral to your product success. Be patient, and keep testing.

The most important A/B testing is often around determining your price point.

When evaluating this element, total revenue will be a key indicator. But don't forget to examine the changes in user behaviors. Does a user that pays more for a feature come back more often, or less? Do they need to spend 10 minutes in-app before they make a purchase, or 100 minutes? Look at the whole app picture, not just the bottom line.

Share your score!
A: red button
B: blue button

Lose weight fast!
A: bacon
B: fruit smoothie

Which price point works best?
A: $1.99
B: $0.99
C: $4.99
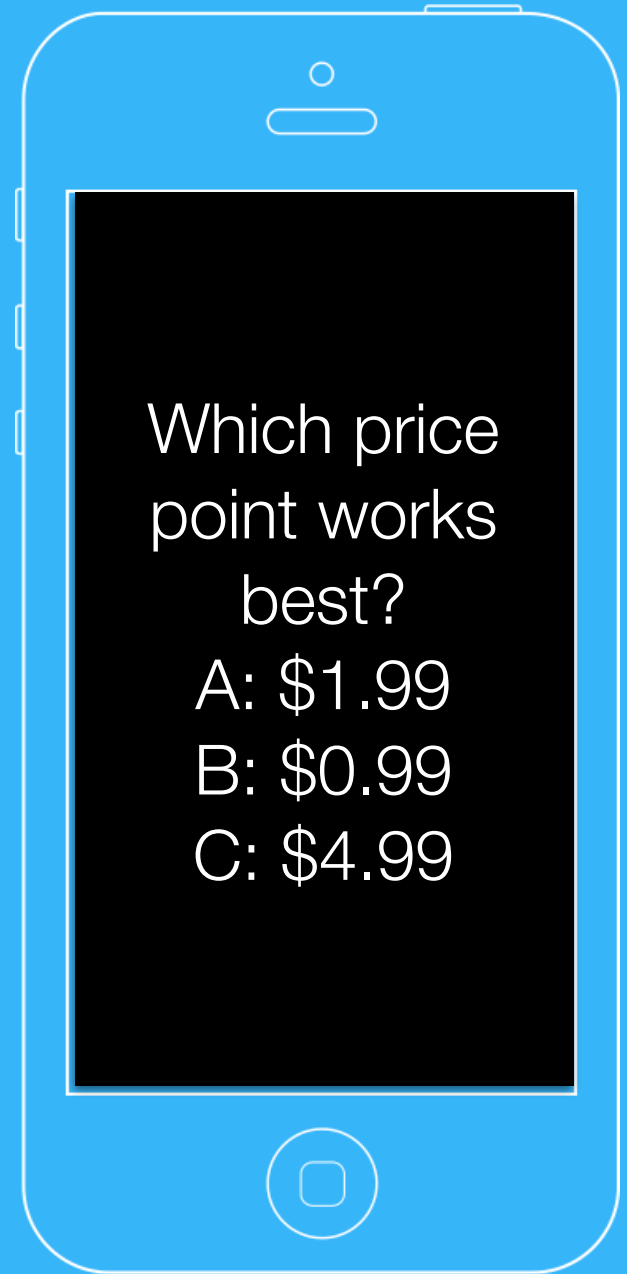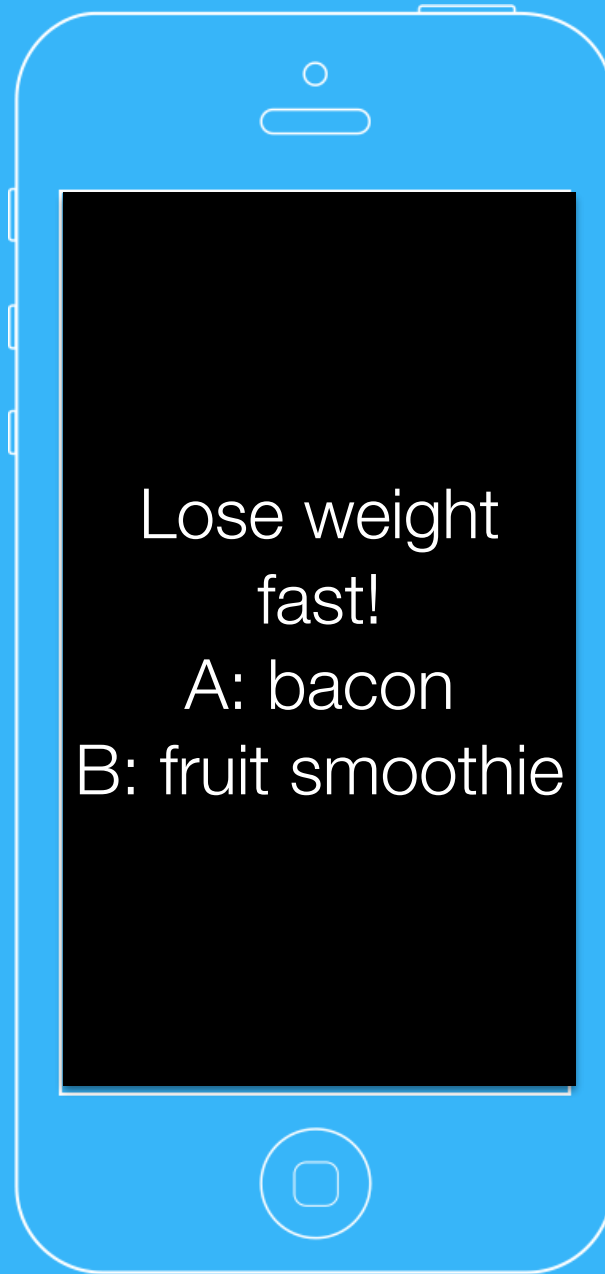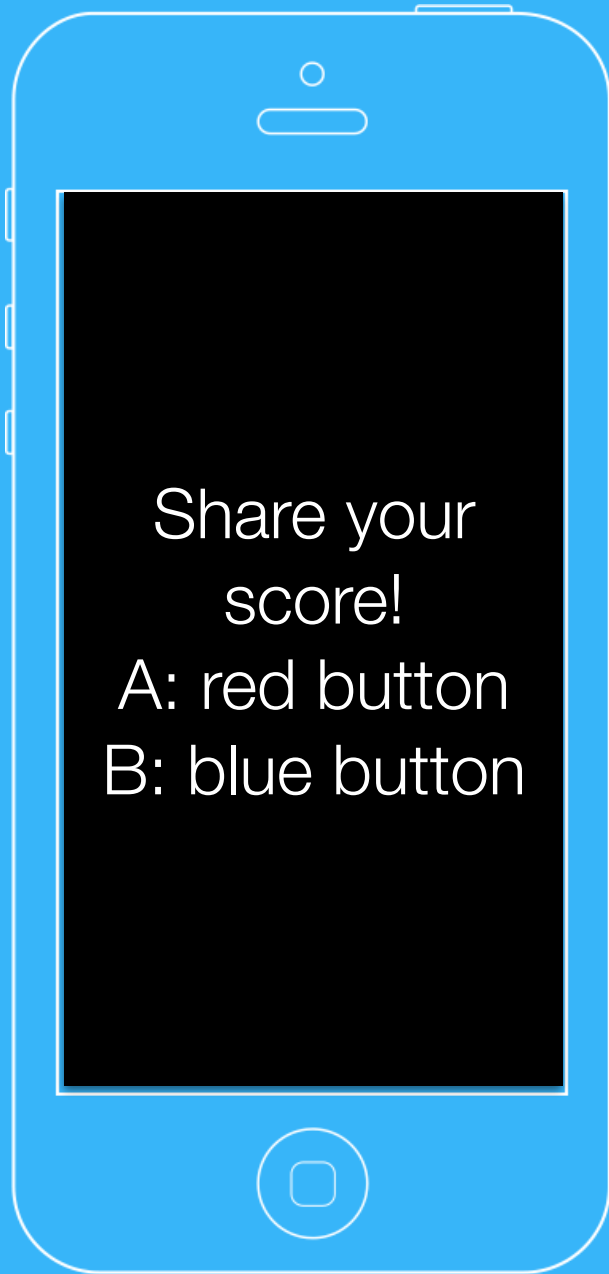
#6 Support Direct, Customized User Messaging

Mobile apps used to be incredibly, frustratingly static for customizing marketing within the app (with the exception of advertising displays.) But it's finally within your grasp to deliver an evolving, customizable user experience with messaging tailored to individual users based on their habits.

Custom messaging can be accomplished by using three tools - email, in-app and push notifications - to directly communicate with users. These messages can be targeted based on any number of triggers, segments, or conditions. They can also be fully prioritized and limited per session or per day as part of an individualized plan to keep each user engaged.

Messaging customization is built upon comprehensive analytics (so it requires the previous elements discussed in this guide). Since the analytics system knows so much about a user, it can now contribute to customizing the user experience more easily than actually building new product features.

For example, if you got your candy crushed badly at level 23, the game might send these targeted user messages:

1) Immediately: An in-game message, using A/B testing, offering tips to win vs. showing you the friends that beat your score

2) 30 minutes later: A notification saying "Vote 'No' on 23!" vs. "Your hearts are refilled"

3) 24 hours after last attempt: An email with a free boost, saying "I'll give you 23 good reasons to come back right now!"

These custom experiences can be measured and optimized to increase engagement, retention and revenue. But to be successful, you need to build and test your custom messages based on a solid analytics foundation.

"Hey, we haven't seen you in a week, here's $10!"

Paying users: "VIP sale on top items!"

Pre-converters: "3X sale is on!"
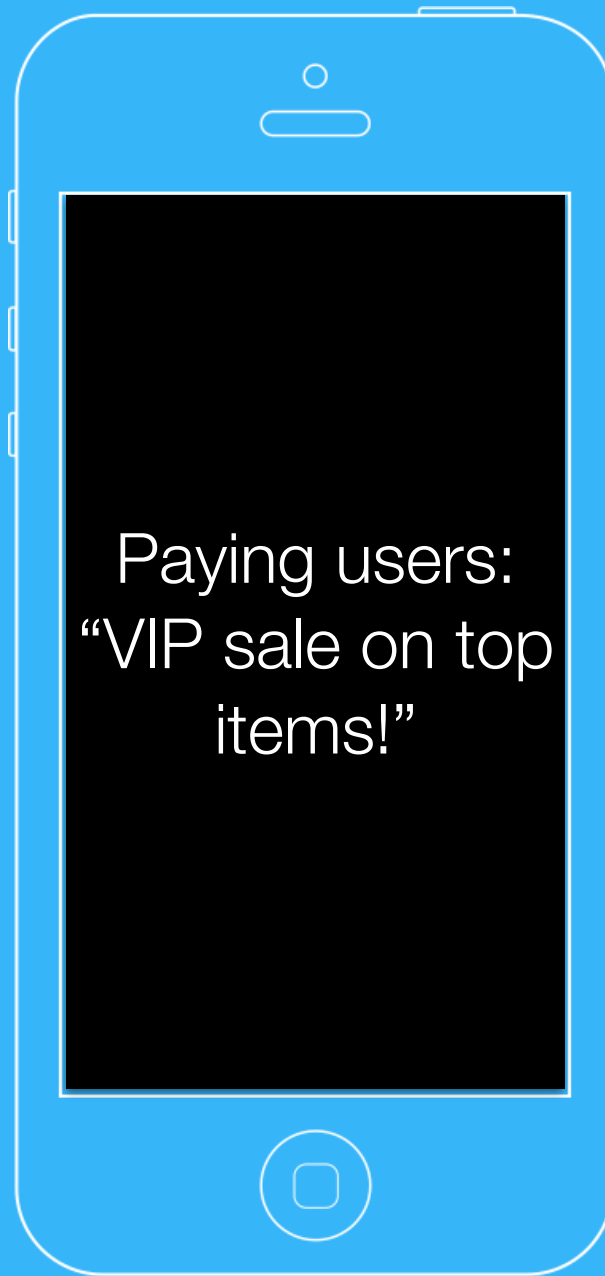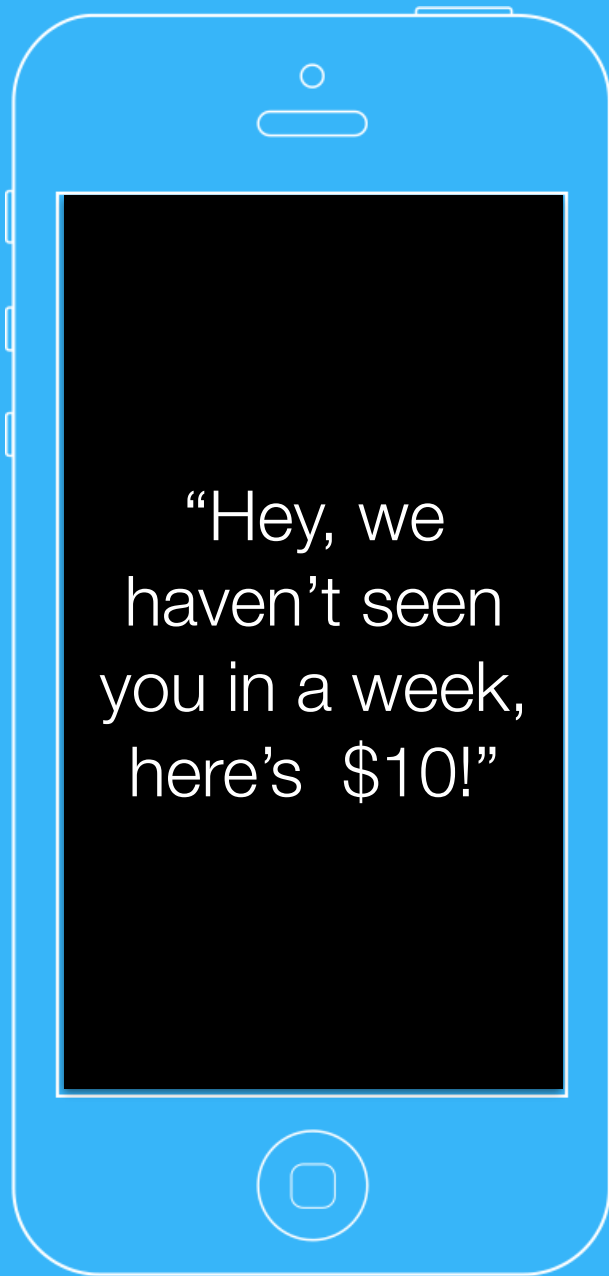
12 Steps to Being Data-Driven

1. **Always start with questions.** Work backwards to determine what needs to be tracked - and *how* to track the data to give actionable insights later.

2. **Collect smart data.** Every data point should go towards answering a question today or in the future.

3. **Measure success against benchmarks.** Focus on company-wide KPIs (key performance indicators) and constantly ask how your work contributes to them.

4. **Provide actionable data to all.** Instead of restricting access to "sensitive" data, put it out there in your company - you never know who will ask an insightful question or have the next great idea.

5. **Don't manually pull reports.** Reports should be set up once and refreshed as necessary, with analysis time focused instead on answering questions.

6. **Leave room for serendipity.** Allow your analyst 20% of his/her time (pick one day/week) to explore the data without expectation. The new insights will surprise you.

7. **Be proactive vs. reactive.** Organizations have to get out of the habit of looking at potholes in the rear-view mirror. Instead, think about fixing the road ahead.

8. **Mark your milestones.** Share your results throughout your company, and celebrate your successes. Decide on significant metrics you want to make public, and share them with your users (along with a thank you) and with relevant media.

9. **Quantify customer sentiment.** Monitor your reviews and incoming emails for clues about data to analyze for usability improvements.

10. **Learn from your mistakes.** Create a centralized location for test results and findings that all team members can access.

11. **Consider the long-view.** Daily reporting and incremental changes allow you to zoom in. But remember to zoom out and look at longer timeframes and see bigger trends.

12. **Measure a relevant sample size.** Make sure you're looking at a statistically significant data set - both the number of users and the length of time. This will vary by app and feature tested.

Conclusion

The six data elements outlined in this paper - along with the 12 steps to becoming a data-driven developer - give you an overview of the information your analytics program should include.

But to be truly "data-driven," an organization needs to incorporate the gathered insights and analysis into real-time decision making. Your company's development strategy should be built around metrics. The features you design and build are determined by the outcomes of testing. The marketing campaigns you run are carefully measured and optimized - with the winners replicated and the losing campaigns terminated.

Being "data driven" means real data in real time and building your company around it. Nothing more, nothing less, no compromise and nothing personal.

If done correctly, analytics can add freedom to your organization because determining the product roadmap based on user data is as close to letting your customers make decisions as it gets.

Every day in your app, users vote about how it should be improved through their intentions, interactions and, of course their wallets.

How well is your organization set up to listen?

About Sourcebits:

Sourcebits is a global leader in mobile strategy, design and development. Sourcebits works with companies of all sizes, from large enterprises like SAP, IBM, Intel, Hershey's, Adobe and Bank of America to innovative startups like Twitpic, Mobeam, Skyfire, Peel and Posterous. Sourcebits has developed more than 550 mobile, web and cloud applications to deliver business results. More than 30 apps designed by Sourcebits have reached the top 10 in their category. Founded in 2006 and backed by Sequoia Capital and IDG, Sourcebits employs more than 200 people around the world.

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Additional Resources:

Key Performance Indicators for Indie Game Developers, David Xicota
[HOW-TO] Estimate LTV on Freemium Apps and Games, Thiago Appella
The role of LTV in freemium, Eric Benjamin Seufert
Seven Steps to Creating a Data Driven Decision Making Culture, Avinash Kaushik
From Analytics to Action Part I: Building a Data-Driven Organization, Caroline
31 Essential Quotes on Analytics and Data, bdykes