Untangling Mobile and Web Applications

Ricky Chilcott
Rakefire

Rakefire

- Build SaaS and Custom Software
- Ruby on Rails
- Javascript, HTML, CSS

Topics

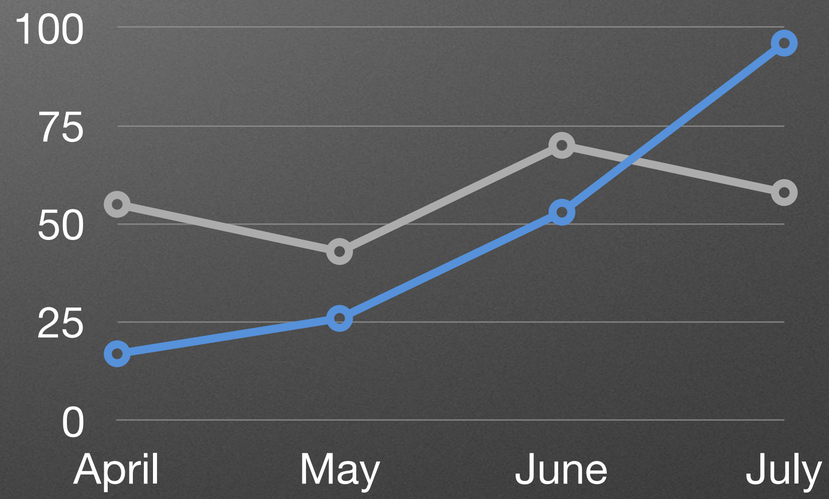
- Web App or Mobile App?
- Software Development Platforms
- Marketing, Usability and Application Adoption

Before you begin

- Start with Why
  - What problem are you trying to solve?
  - Is it a real problem or made up?
  - Validate the problem exists and needs a solution (Survey, Focus Group, etc.)

Before you begin

- What are the goals?
- Tie goals to KPIs
- What constitutes success?
  - 10% of all patrons have downloaded app and spent at least 10 minutes using it
  - Average session length is 25 minutes
  - 5% of new patrons have come from app usage
  - 20% reduction in phone calls and in-person questions



Mobile Platforms

- Web Applications
- Native Applications
- Hybrid Applications
- Progressive Web Applications

Web Applications

Overview

- Client-server application that runs in a web browser
- Backend typically generates HTML and delivers it to the client
- Server handles database interactions
- Client-side javascript is added

Web Applications

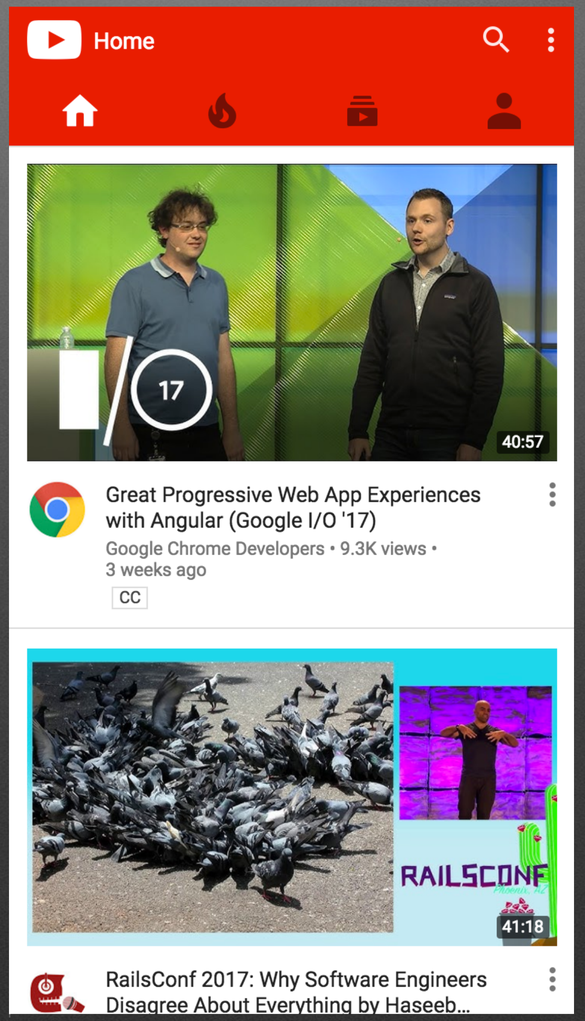
Platforms

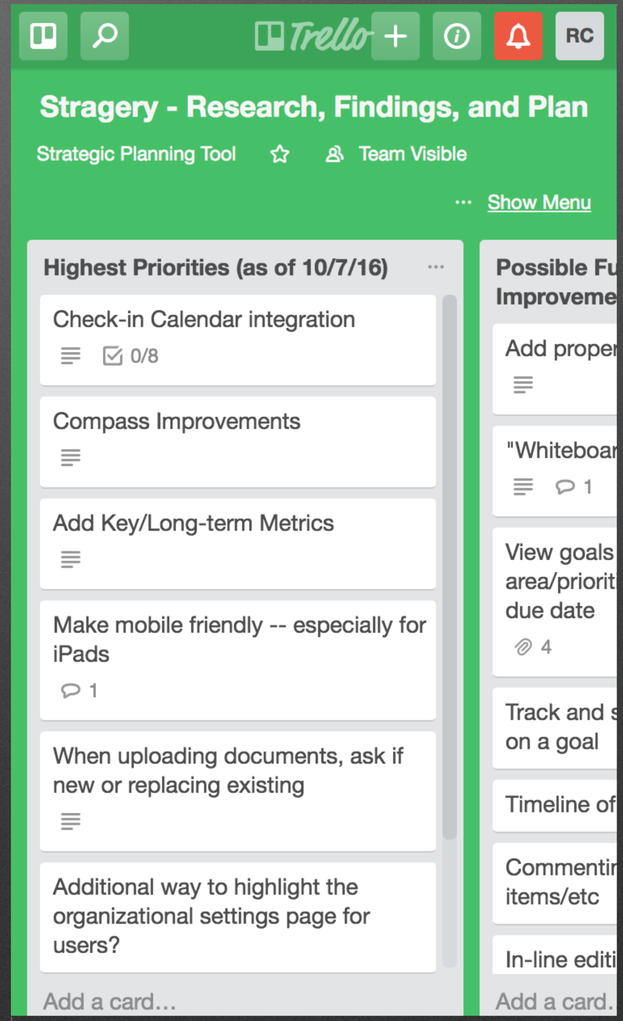
- AngularJS
- Ruby on Rails
- Django
- Meteor
- Node.js
- ASP.NET

Web Applications

Examples

- YouTube
  m.youtube.com
- Trello





Web Applications

Pros and Cons

- Pros
  - Easiest to get to market
  - Generally, cross platform
- Cons
  - Not ideal for computationally, visually, or interactive-rich projects
  - Uncanny valley

Native Applications

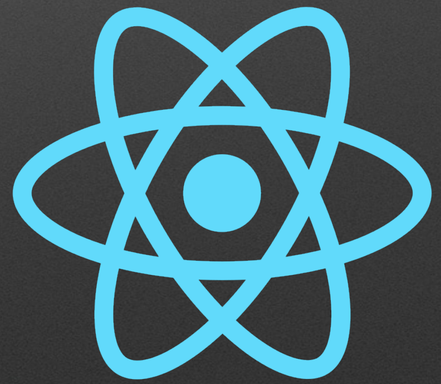
Overview

- Written in a native language like Swift or Java
- Application code is compiled and submitted to App Store
- Installed on users' phones
- May still need a server backend

Native Applications

Platforms

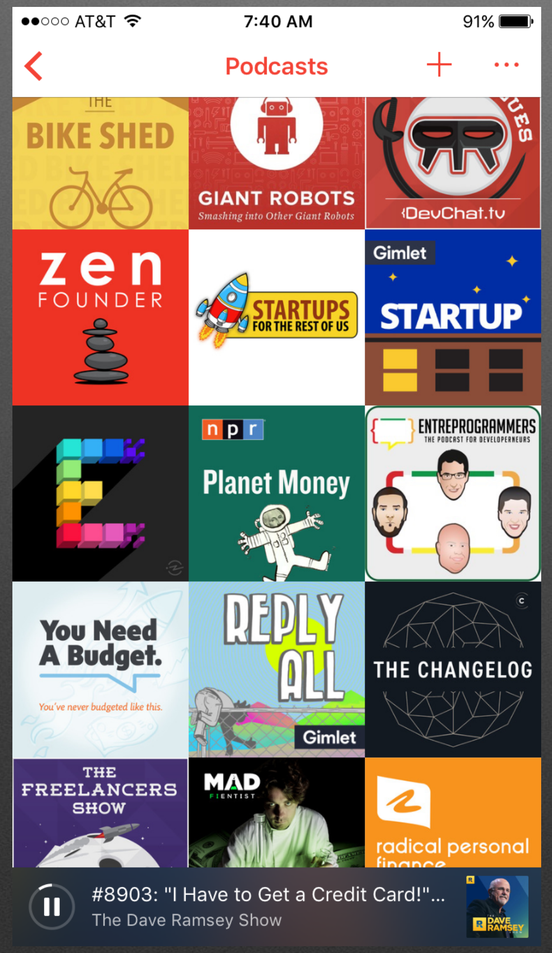
- iOS
  - Xcode + Swift/Objective C
- Android Native
  - Java, Kotlin
- Stange platforms
  - Appcelerator Titanium
  - Xamarin Studio
  - RubyMotion
  - React Native

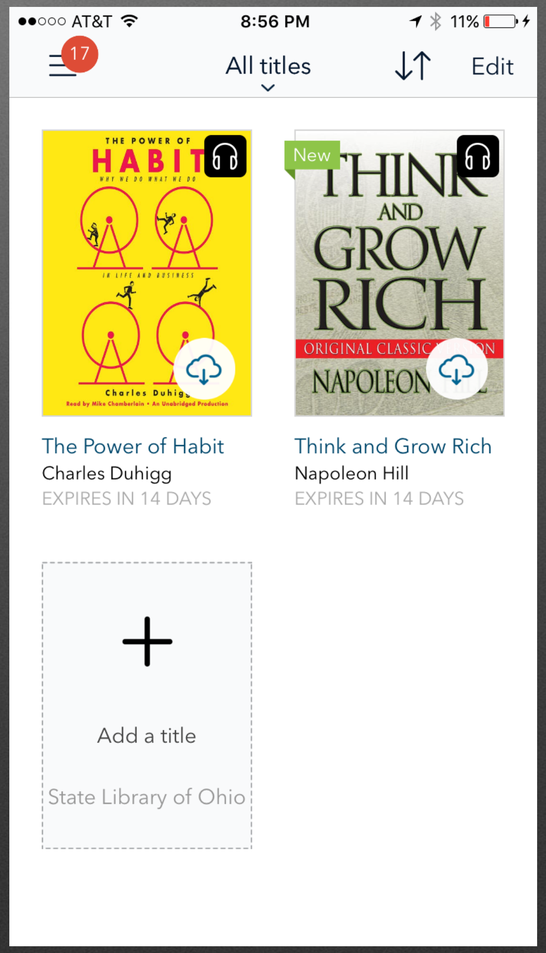


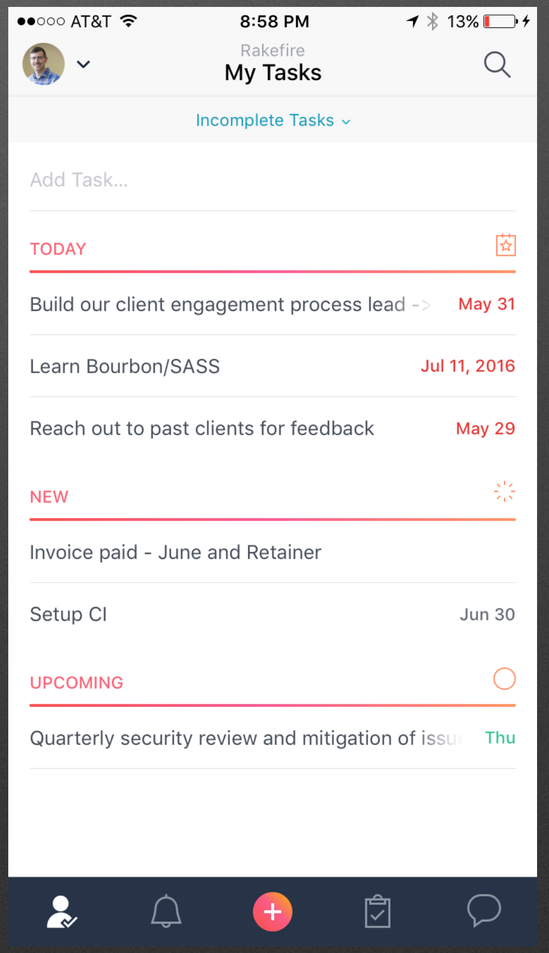
Native Applications

Examples

- Casts
- Overdrive
- Asana







Native Applications

Pros and cons

- Pros
  - Utilize features provided by phone's operating system
  - Fast code execution
  - Monetization
- Cons
  - Costly to develop for multiple platforms

Hybrid Applications

Overview

- Mobile Web Application (i.e. HTML, CSS) that runs inside of a Native Web View
- App is submitted to App Store
- Some native components are accessible via Javascript
  - Push Notifications
  - GPS

Hybrid Applications

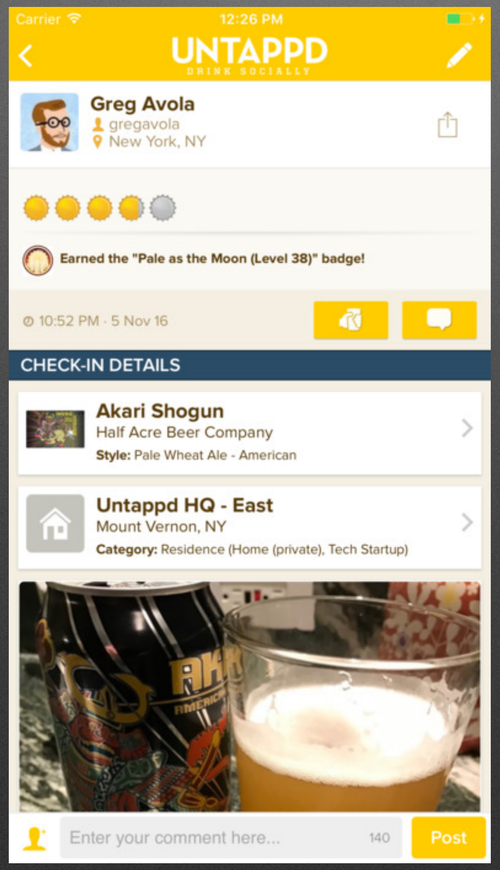
Platforms

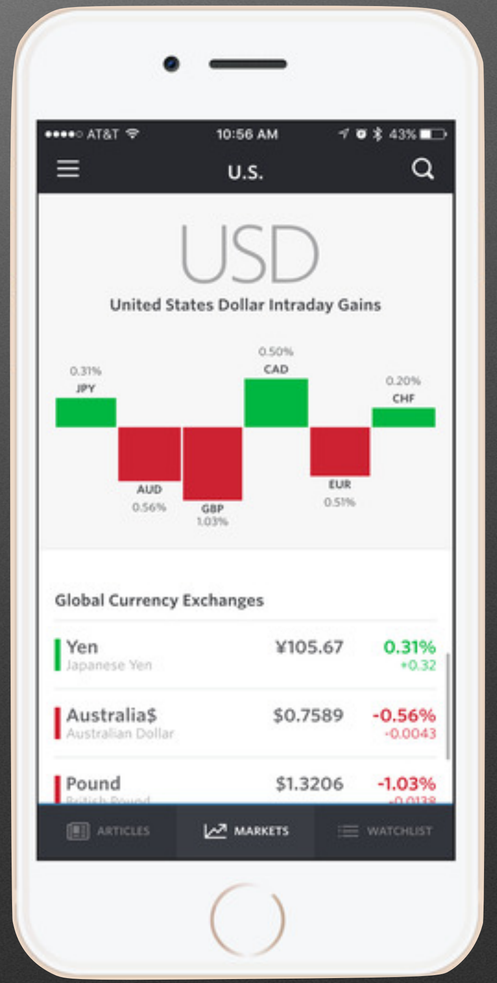
- PhoneGap/Cordova
- Ionic
- Sencha Touch
- Intel XDK

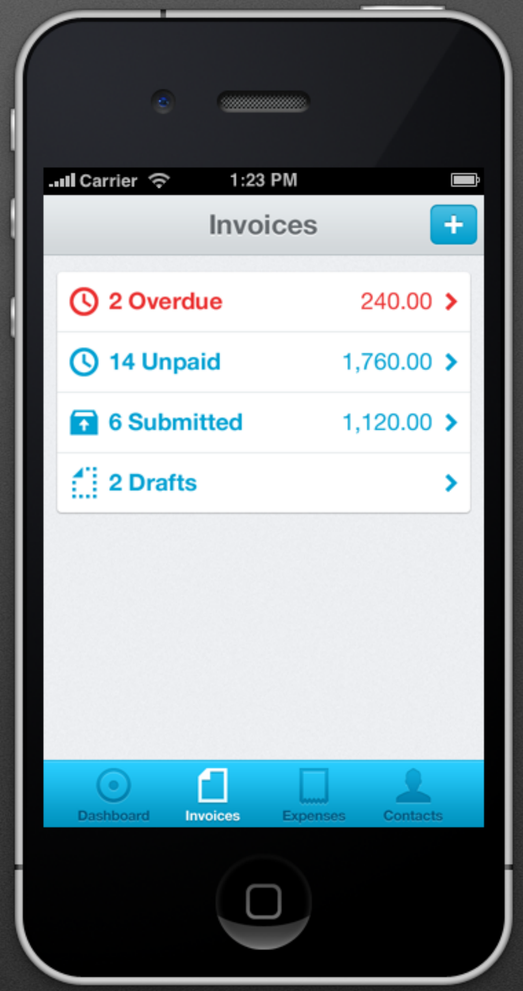
Hybrid Applications

Platforms

- Untappd
- MarketWatch
- Xero







Hybrid Applications

Pros and Cons

- Pros
  - Installable from the App Store
  - Ease of development (because it's HTML, CSS, JS)
  - Access to some native functionality
  - Deploy to multiple platforms
- Cons
  - May have performance issues
  - Technical challenges may be hard to solve

Progressive Web App

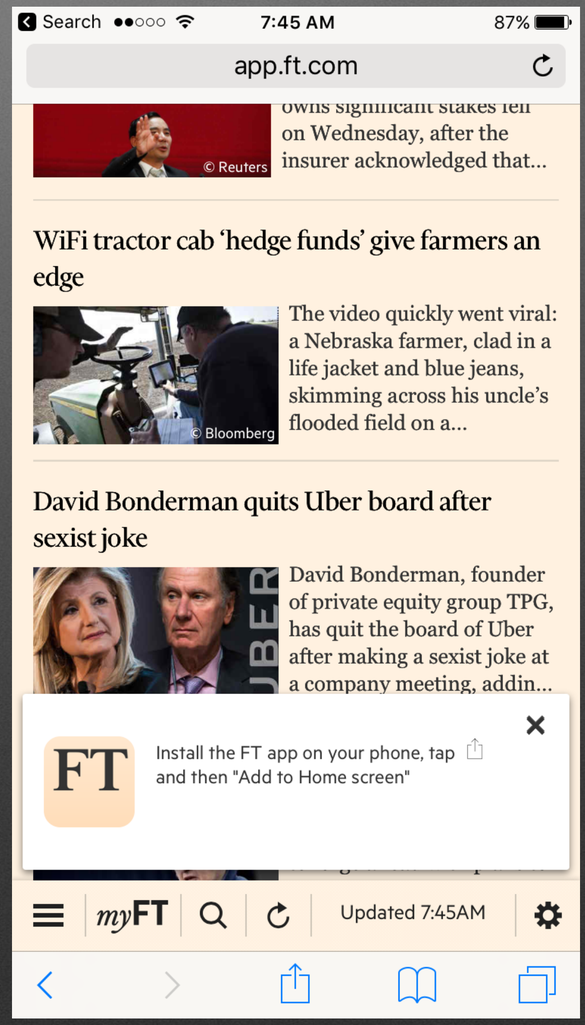
Overview

- Works on any device: desktop, mobile, tablet
- Connectivity-independent
- Feels like an app (feels native), even though it’s not compiled
- **Installable**, but doesn’t require the app store
- Easily share, discover, and re-engage with the app

Progressive Web App

Technologies

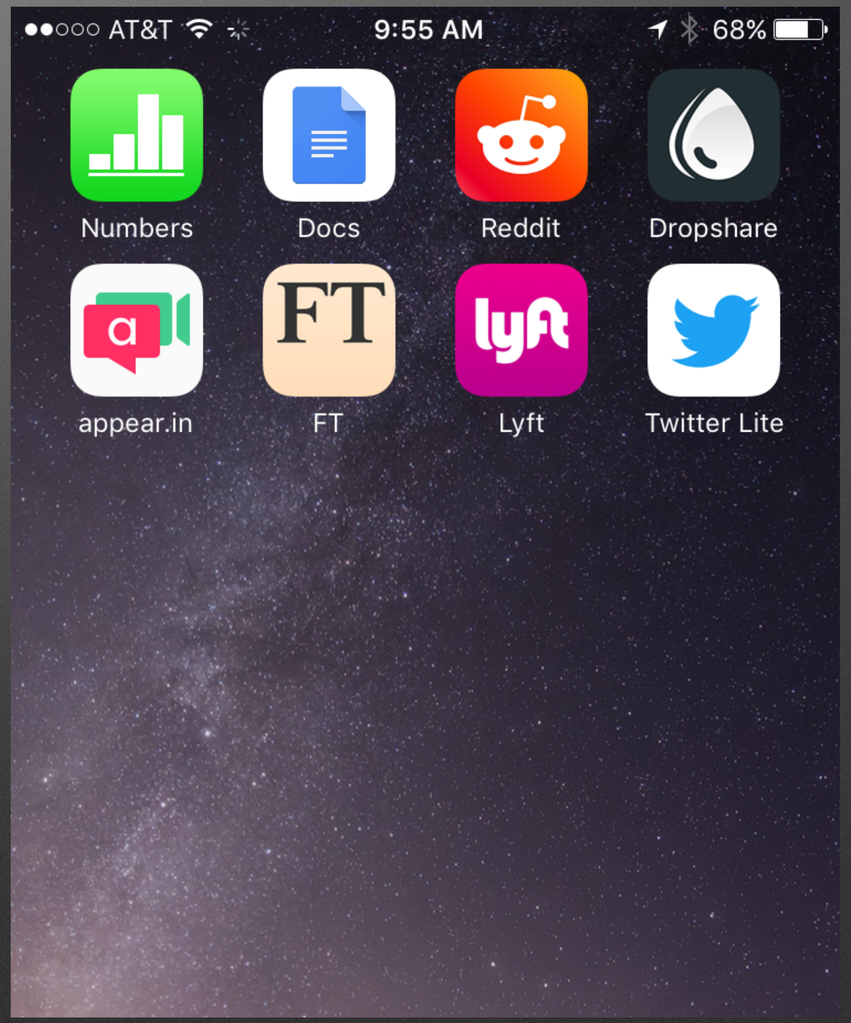
- Platforms: *See Web Application Technologies*
- Faster Javascript engines
- Web Push Notifications
- Service workers for:
  - Background updates
  - Improved performance
  - Web push
  - Offline support



Progressive Web App

Examples

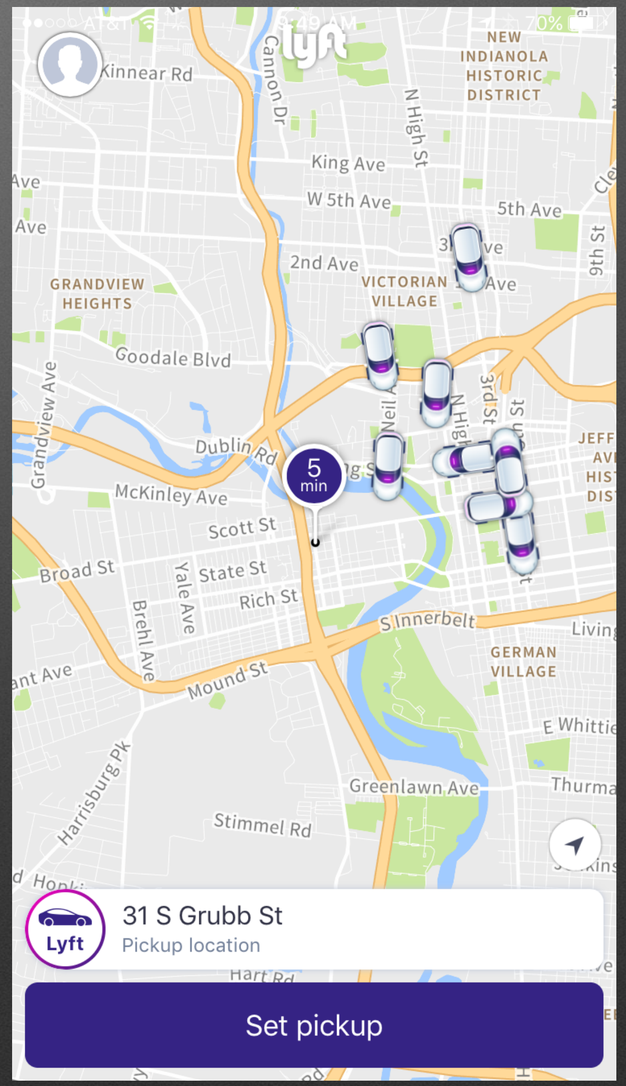
- https://mobile.twitter.com
- https://app.ft.com
- https://ride.lyft.com



Progressive Web App

Pros and Cons

- Pros (see web apps +)
  - Less pressure for users to install right away
  - Morphs from passive to active usage
- Cons (see web apps +)
  - Very early and consistent cross platform support is challenging



Who builds it?

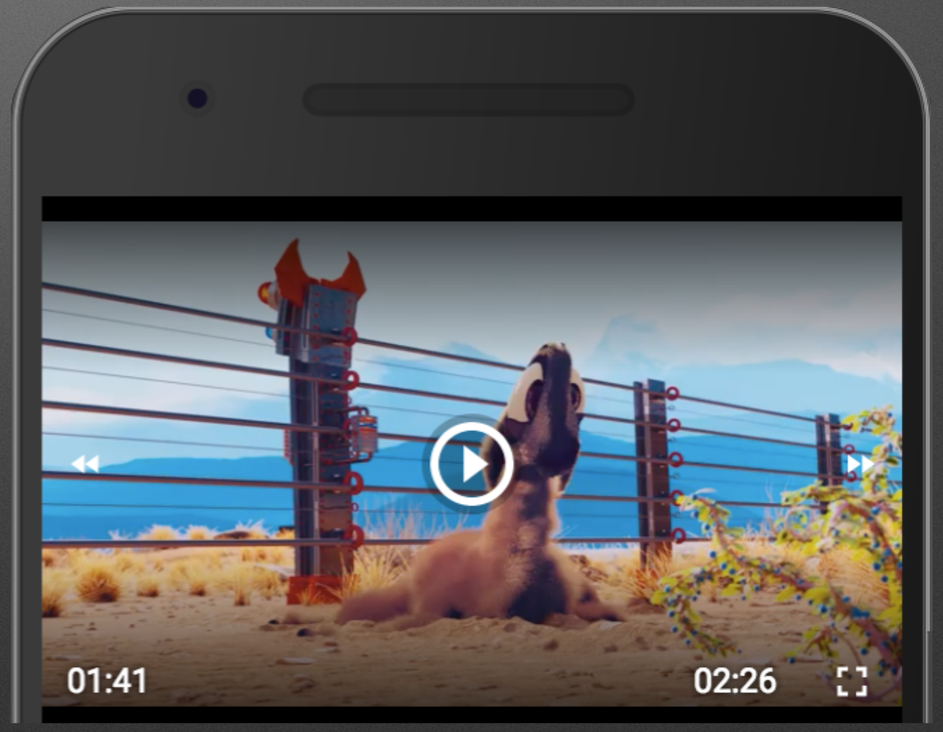
- Yourself
- Students/Volunteers
  - Attractive option
  - Long-term support?
  - Management
- Internal group within organization
- Agency/Freelancer

Technical considerations

- Authentication
  - Open vs Authorized
  - Single Sign On
  - Social Media
  - Apple Touch ID
  - Nexus Imprint
  - Multi-factor

Technical considerations

- Audio playback
- Video playback
- Augmented reality

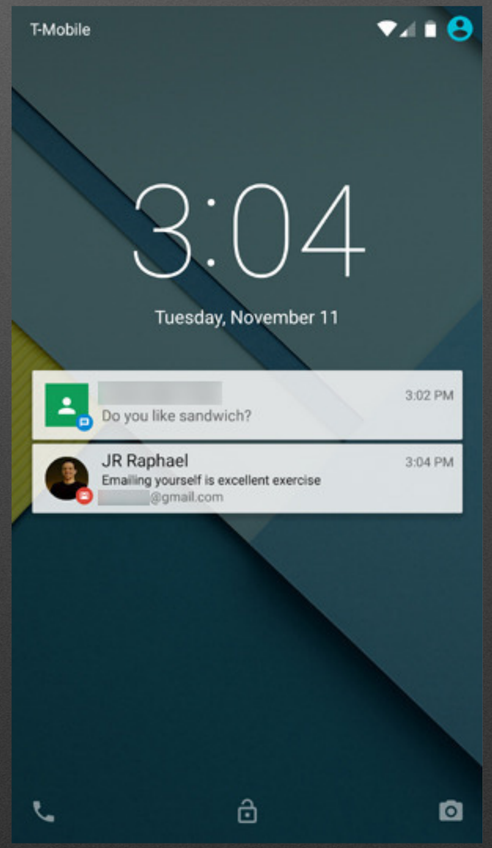


Technical considerations

- Background Code Execution
  - Updating list of messages received by user
  - Downloading bigger items

Technical considerations

- Push Notifications
  - Marketing messages
  - Updates
  - Features
  - Geolocation-aware
  - Remote or local

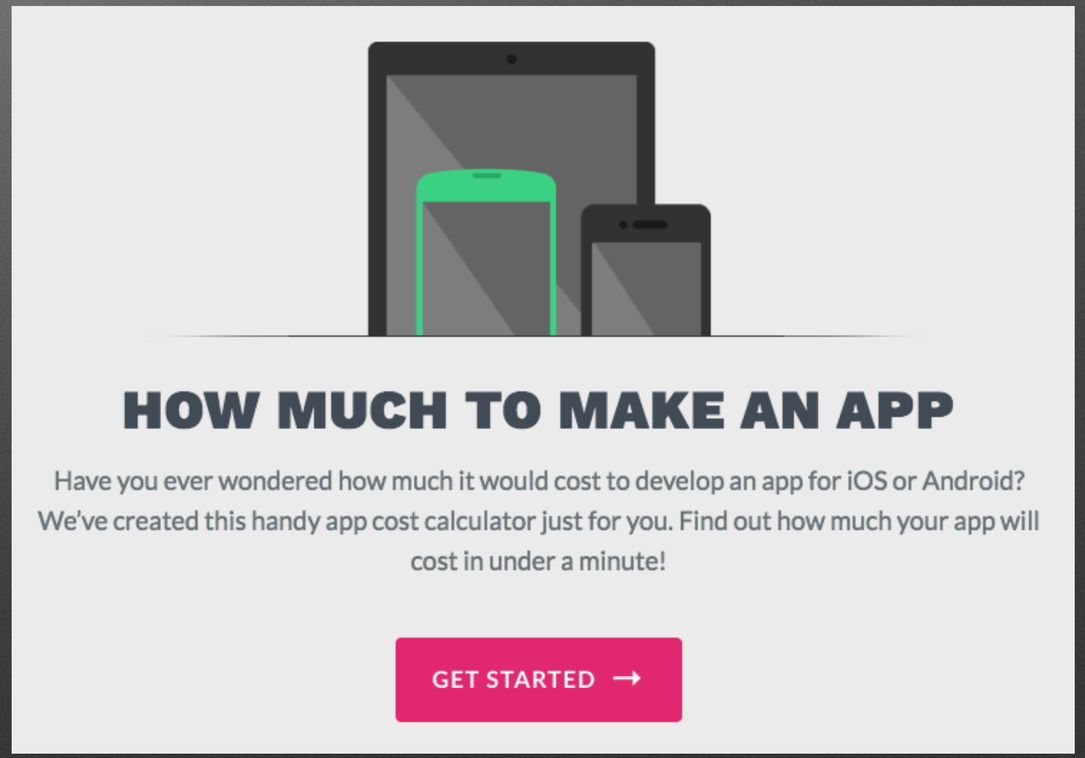


Technical considerations

- Access to native features on device
  - Camera
  - Fingerprint
  - Geolocation
  - Accelerometer
  - Contacts
  - Filesystem

Budget

- Use a calculator for ballpark
  - howmuchtomakeanapp.com
  - estimatemyapp.com
- To Build
- To Maintain
  - Hosting
  - Licensing costs
  - Developer Account



Maintainability

- Multiple Platforms
  - iOS
  - Android
  - Microsoft Phone
- Multiple App Stores
- Multiple Operating Systems
- Multiple Ecosystems
- Multiple Vulnerabilities

How do you decide?

- Bias: the web is getting better every day and easier to build for mobile
- 3x more (unique) users are on web vs within mobile apps*
- Currently, **20X more** time in mobile apps vs mobile web properties*
- Faster devices bridge the gap between native and web apps
- Mobile devices and Javascript interpreters are getting faster

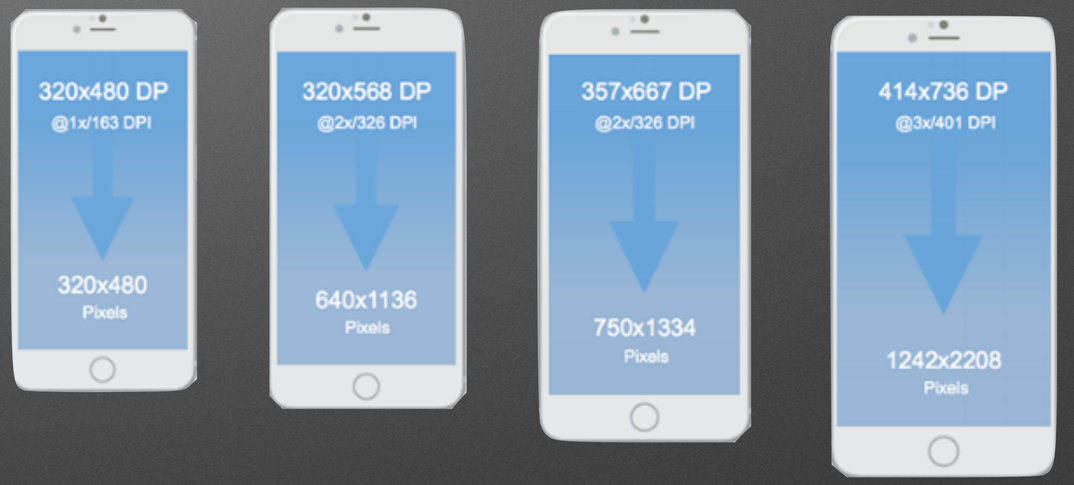
* Progressive Web Apps: Great Experiences Everywhere (Google I/O '17)

How do you decide?

- What technical constraints push you to a specific direction?
- Is it a truly mobile experience or do you also need a desktop/laptop experience?
- What is your budget?
- What skills are available to build and maintain?
- What KPIs push you in a certain direction?
  (KPI = Key Performance Indicators)

Marketing, Engagement, and Usability

- Designing for mobile is more challenging than laptops/desktops
  - Less space — pixels matter
  - Variances is screen size
  - Connectivity speed/ reliability

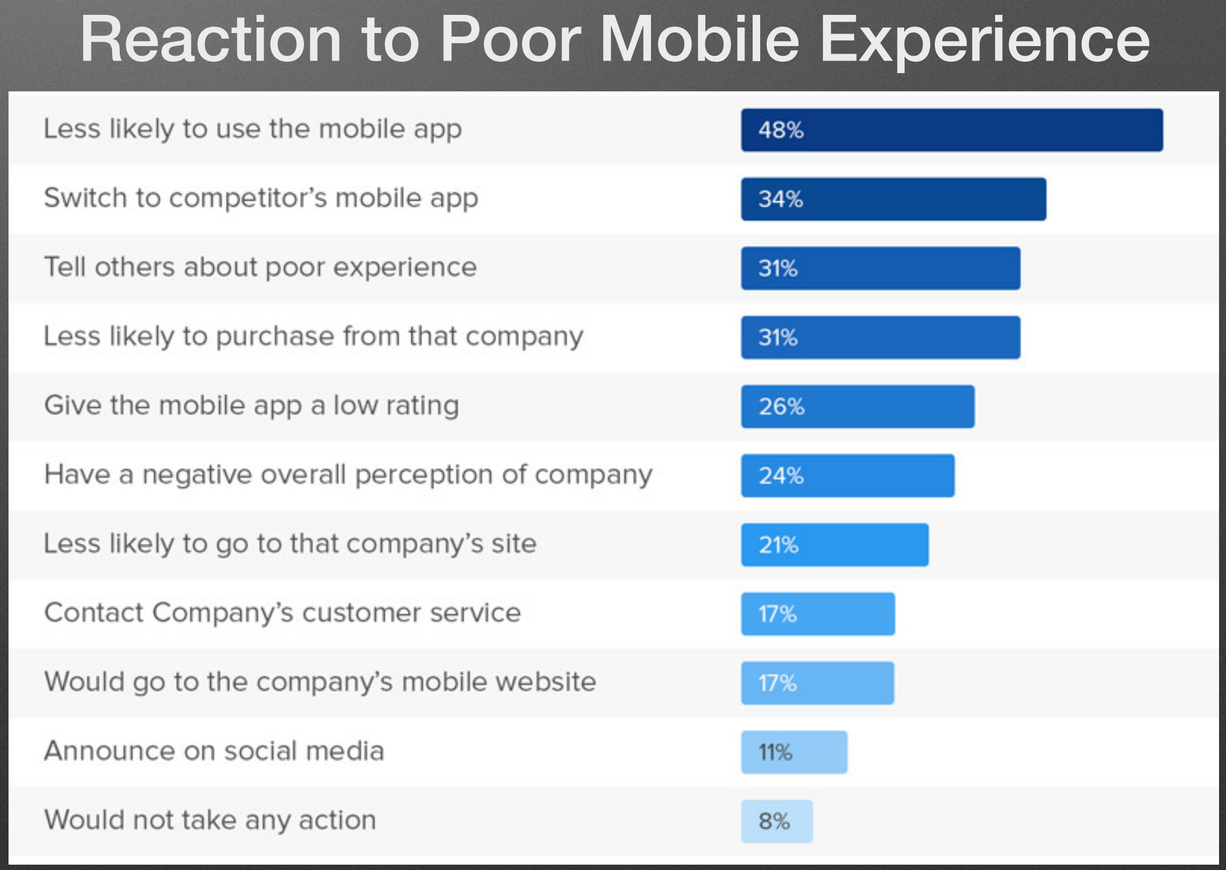


Marketing, Engagement, and Usability

- Remind users to engage with app without being annoying
  - Go back to your “why?”
  - The app must provide value
  - Good user experience.
    Frustrating apps won’t get used!

Marketing, Engagement, and Usability

- First impressions
  - On-boarding experience
  - Is the app intuitive?



https://info.dynatrace.com/rs/compuware/images/Mobile_App_Survey_Report.pdf

Marketing, Engagement, and Usability

- Personalization
  - Knowing user's name
  - Tweaking preferences
  - Only deliver relevant information
  - Colors/accessibility

Marketing, Engagement, and Usability

- User Engagement
  - Push notifications
  - Rewards/incentives
  - Gamification
  - Solicit feedback from users
  - Import/export data
  - Deep linking
  - Easy to share app
  - Don’t ask for too many permissions

Thank You!
Questions?

Ricky Chilcott
ricky@rakefire.io
https://www.rakefire.io/