

Iterative Mobile Development



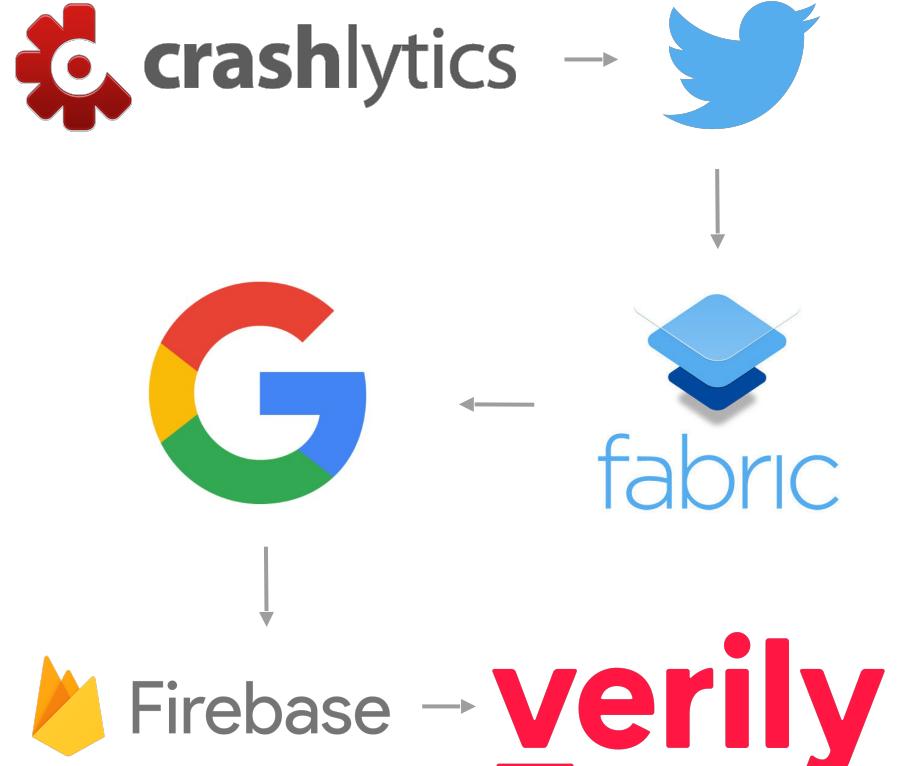
Andrea Falcone, Verily Life Sciences

 GDG DevFest
Ukraine 2018

Andrea Falcone

Senior Software Engineer

@ASFalcone



Would your
customers rather get:
1 complete feature or
3 half done features?

Would developers
rather deliver:
1 complete feature or
3 half done features?

Iterative Mobile Development - Key Points

- Product innovation process
- Team setup for iterative success
- Tools of the trade
- Progress principle
- Iterating your way to customer happiness

Product
development
process and
customer
focus

Software
development
process and
team focus

Tiny piece of
the puzzle

Innovation

Team

Tools

Progress

Iteration

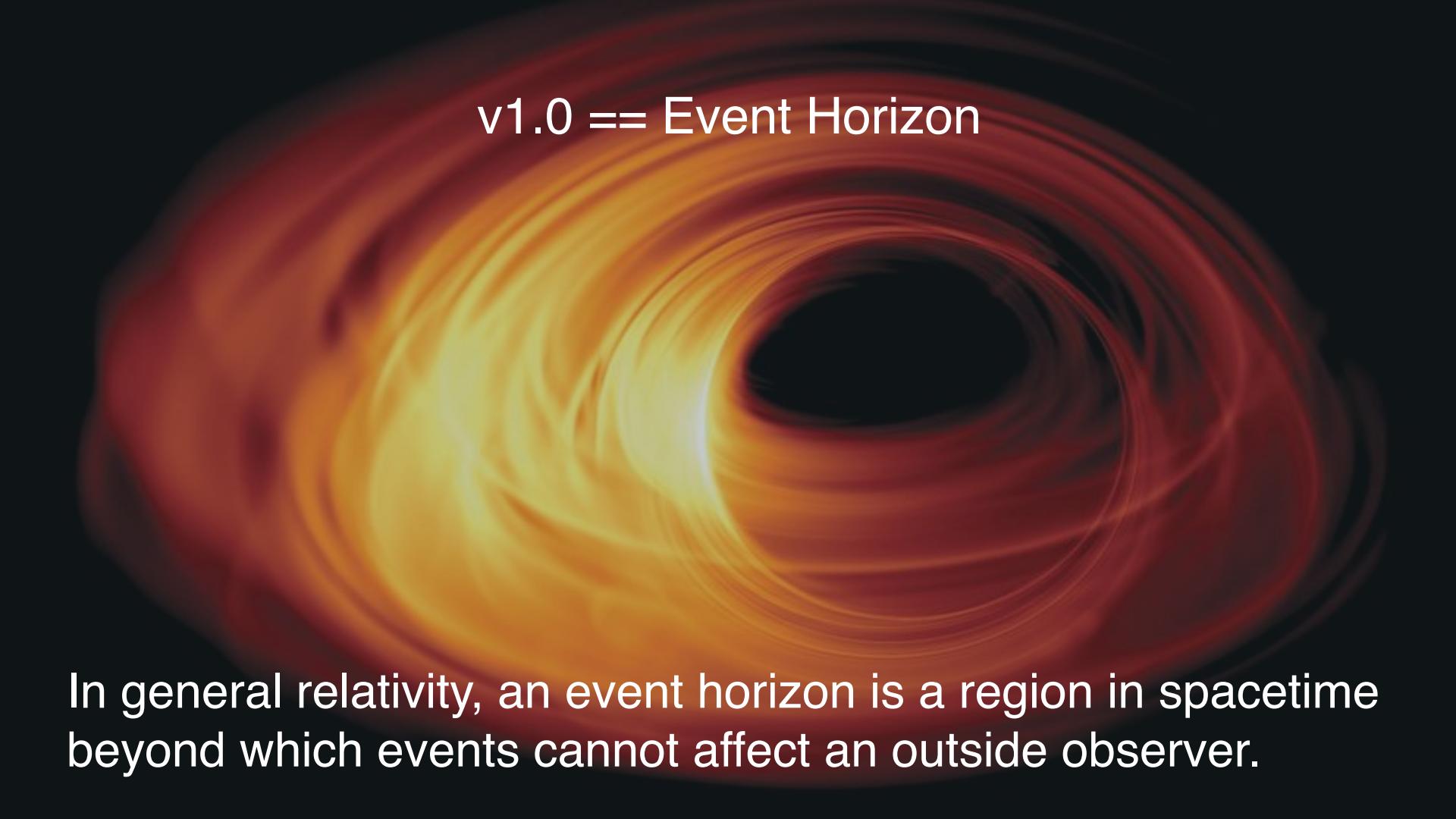
Product innovation process

v1.0



The team can't even see
v1.0 from where they are.



A black hole with concentric event horizons.

v1.0 == Event Horizon

In general relativity, an event horizon is a region in spacetime beyond which events cannot affect an outside observer.

Launch!

Sun	Mon	Tue	Wed	Thu	Fri	Sat
26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	1	2	3	4	5	6

Sun	Mon	Tue	Wed	Thu	Fri	Sat
29	30	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	1	2

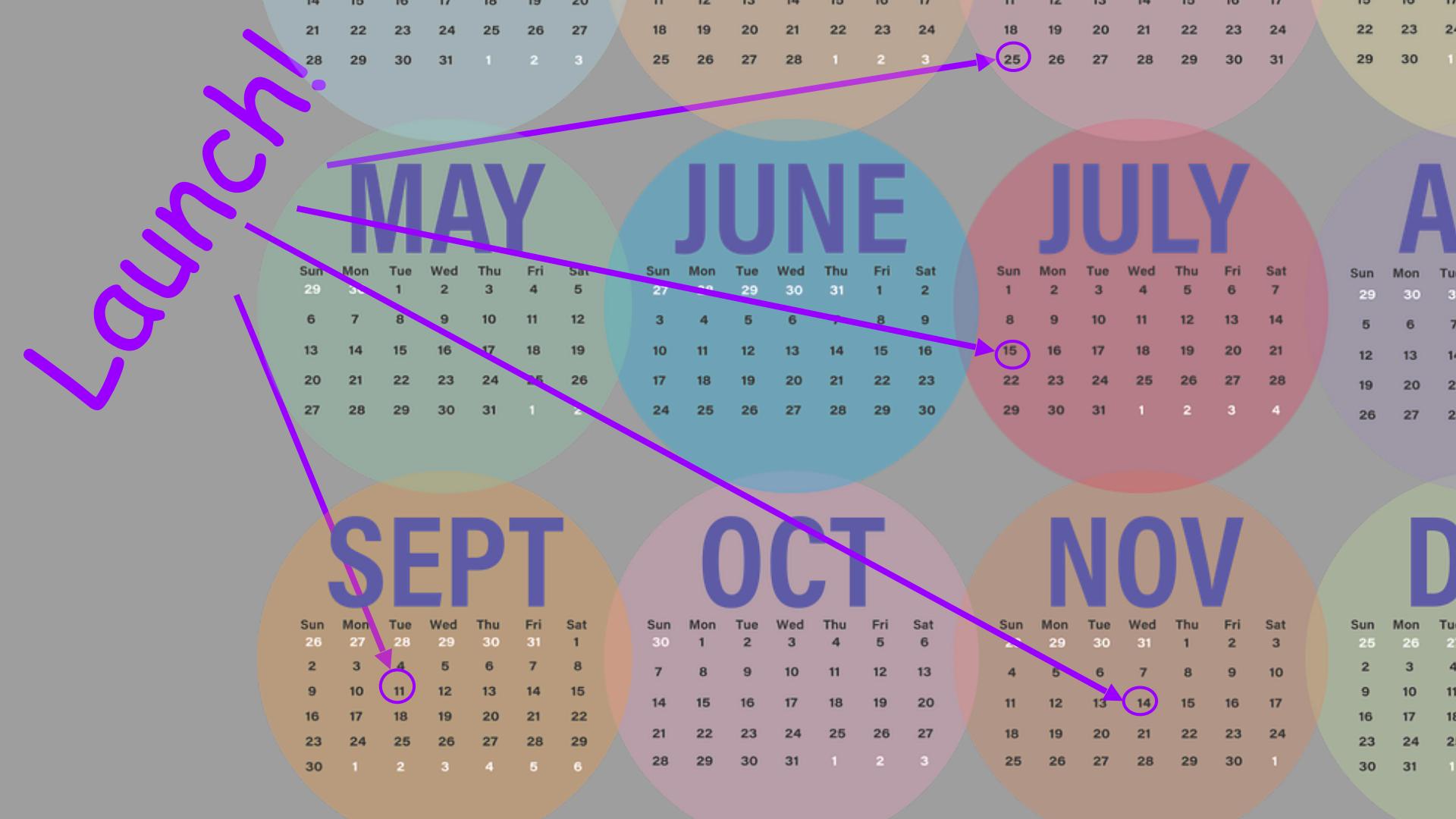
Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4

Sun	Mon	Tue	Wed	Thu	Fri	Sat
18	19	20	21	22	23	24
25	26	27	28	1	2	3

Sun	Mon	Tue	Wed	Thu	Fri	Sat
18	19	20	21	22	23	24
25	26	27	28	29	30	31
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4

Sun	Mon	Tue	Wed	Thu	Fri	Sat
18	19	20	21	22	23	24
25	26	27	28	29	30	31
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4



Shipping
hardware
is
different



Team setup for
iterative success

Key Points

- Investigate Kanban and Lean process
- Allow team to focus on getting fewer things done well
- Work as a team to deliver some value to customers instead of none

Kanban

1. Visualize the work
2. Limit work in progress
3. Manage flow
4. Make policies explicit
5. Use feedback loops
6. Evolve through experimentation

Lean

1. Eliminate waste
2. Amplify learning
3. Decide as late as possible
4. Deliver as fast as possible
5. Empower the team
6. Build integrity in
7. See the whole

Kanban

1. Visualize the work
2. Limit work in progress
3. Manage flow
4. Make policies explicit
5. Use feedback loops
6. Evolve through experimentation

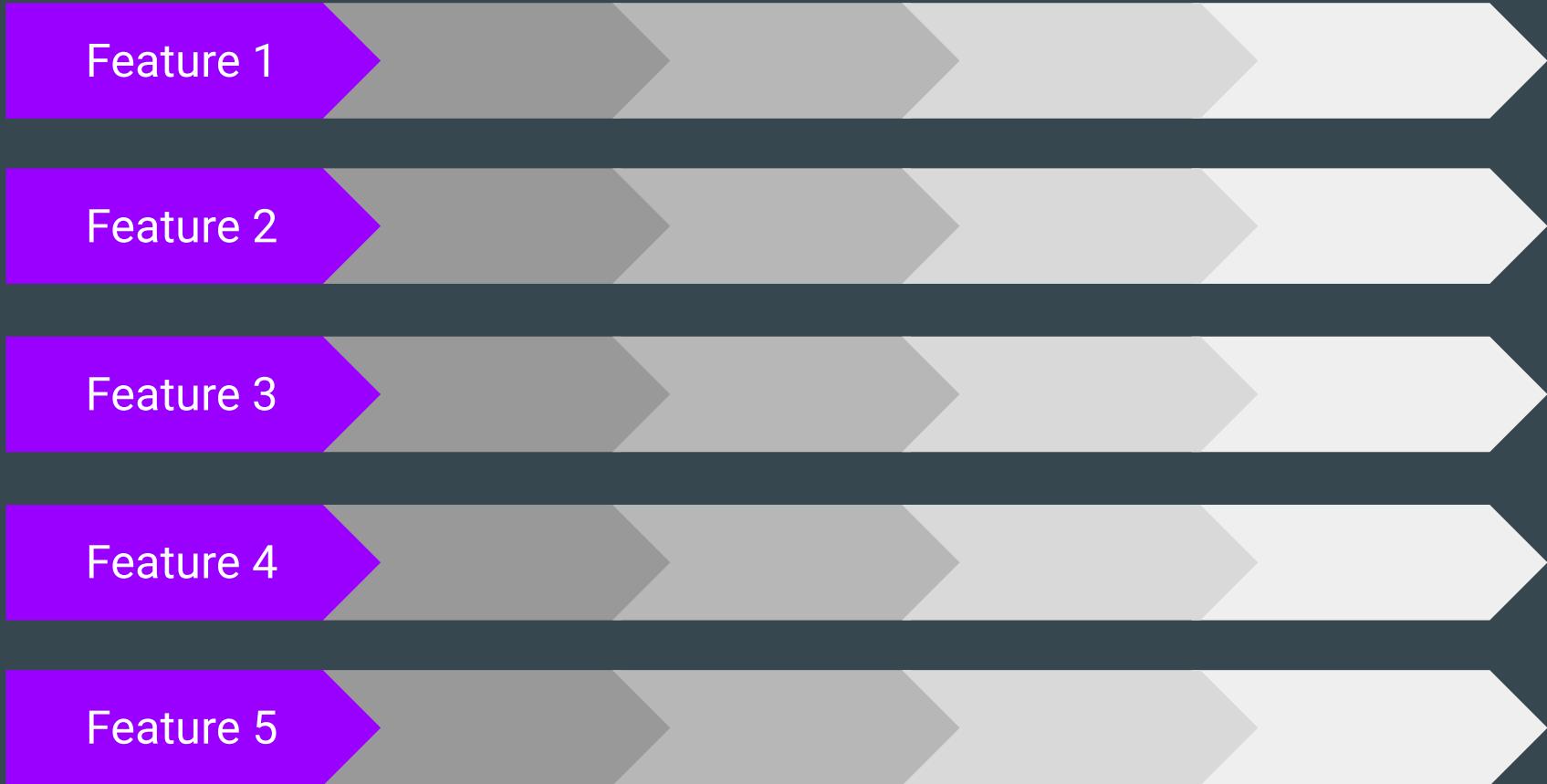
Lean

1. Eliminate waste
2. Amplify learning
3. Decide as late as possible
4. Deliver as fast as possible
5. Empower the team
6. Build integrity in
7. See the whole

PRODUCT DEVELOPMENT TEAM



PRODUCT DEVELOPMENT TEAM





Feature 1

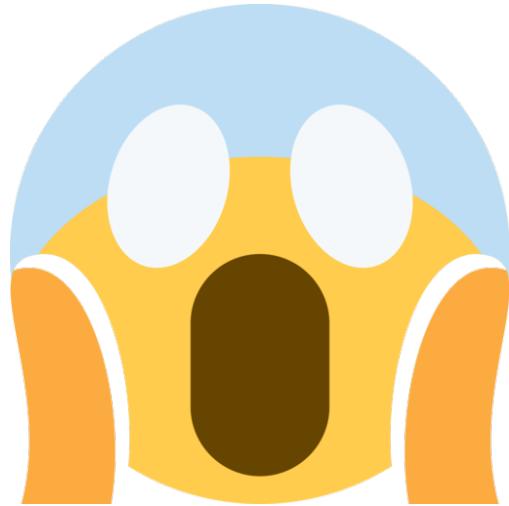
Tools of the Trade

Key Points

- Set up a CI process that is frictionless (**Eliminate Waste**)
 - Use *fastlane* to reduce the burden of shipping
- Slow your roll (**Use feedback loops**)
 - Percentage rollouts
 - Alpha and Beta channels
 - Remote config
- Test (**Build Integrity In**)
 - Actually run the tests...
 - Firebase Testlab
- Metrics (**Evolve through experimentation**)
 - Crash reporting and analytics

Andrea is in
Ukraine this week...

So we will have to **wait until**
next week to do the release





**SHIP
IT!**

fastlane

fastlane is an open source platform aimed at simplifying Android and iOS deployment.

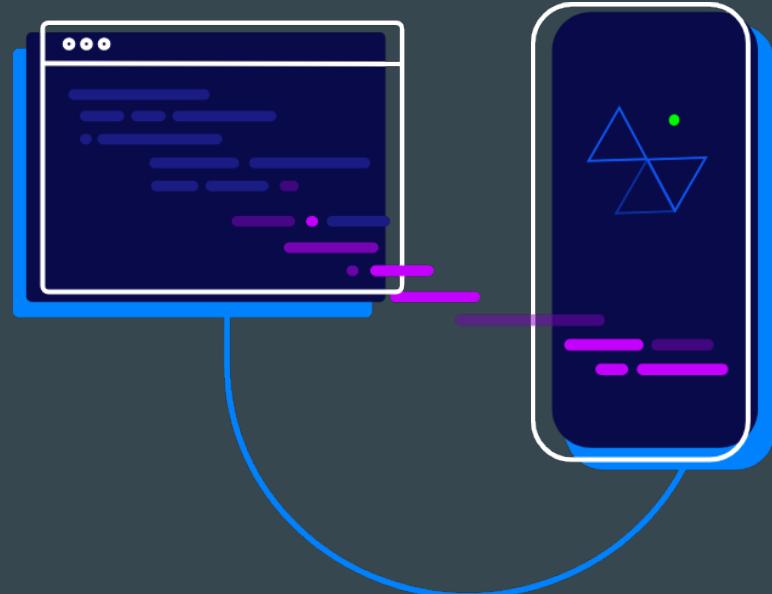
fastlane lets you automate every aspect of your development and release workflow.



fastlane

Generate localized app store
screenshots in minutes.

Publish your app to prod or beta
with the push of a button



```
lane :beta do
  increment_build_number
  build_app
  upload_to_testflight
end
```

```
lane :appstore do
  capture_screenshots
  build_app
  upload_to_app_store
  slack
end
```

```
lane :beta do
  increment_build_number
  gradle(task: 'assemble')
  Upload_to_play_store
    (track: 'beta')
end
```

```
lane :playstore do
  capture_screenshots
  gradle(task: 'assemble')
  upload_to_play_store
  slack
end
```

Test

Test on your laptop

Test on CI

Test on your users

For the love of god, test

Actually run the tests...

git/hooks/pre-commit

```
// Only run the tests if there are committed iOS changes
diff=`git diff --name-only --staged | grep "appname/ios"`
if [ -z "$diff" ]; then
    exit 0
fi

set -euo pipefail

xcodebuild_cmd="xcodebuild test -workspace
iOS/app.xcworkspace -scheme AppName -destination
'platform=iOS Simulator,name=iPhone 7'"
eval "$xcodebuild_cmd" | xcpretty -t; exit ${PIPESTATUS[0]}
```

Firebase Test Lab

Test Android and iOS apps: runs Espresso and UI Automator 2.0 tests on Android apps, and XCTest tests on iOS apps

Run on real devices: find issues that only occur on specific devices, OS versions, and configurations

Workflow integration: integrated with the Firebase console, Android Studio, and the command line tools and CI systems



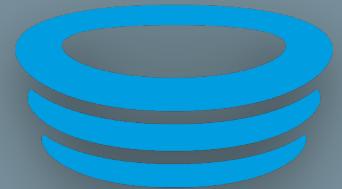
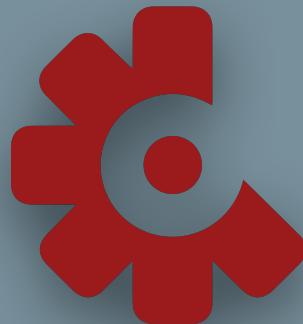
 XCTest, 8/27/18, 4:30 PM ⓘ

Failed	Passed	Skipped	Inconclusive
0	4	0	0

Test execution	Duration	Locale	Orientation	Issues
 iPhone 8, iOS 11.2	4 min 24 sec	English (United States)	Portrait	—
 iPhone 7, iOS 11.2	53 sec	English (United States)	Portrait	—
 iPhone X, iOS 11.2	1 min 40 sec	English (United States)	Portrait	—
 iPhone 7 Plus, iOS 11.2	1 min 30 sec	English (United States)	Portrait	—

Use beta distribution to pre-release app features. Small beta releases give you a feedback loop to get valuable insights from customers.

Use beta distribution to pre-release app features.
Small beta releases give you a feedback loop to get
valuable insights from customers.



Use **staged rollouts** to release app updates to production. Staged updates help catch any issues you missed during testing before those issues affect **all** your users.



Use staged rollouts to release app updates to production. Staged updates help catch any issues you missed during testing before those issues affect **all** your users.

Phased Release for Automatic Updates



Release rollout percentage

Use Firebase Remote Config to change your app's behavior by tuning server side parameters. Branch your app code so you can flip the switch to enable certain features without waiting for a release.



Remote Config



Parameters Conditions



Search parameters, values and conditions

Add parameter



home_screen_text

Text for the home screen

10 percent iOS

This is an awesome app



Default value

This is a great app

shiny_feature_on

Turn on the feature

Android Users

true

Default value

false

Add condition



10 percent iOS

OS type: iOS
User in random percentile: less than or equal to 10%

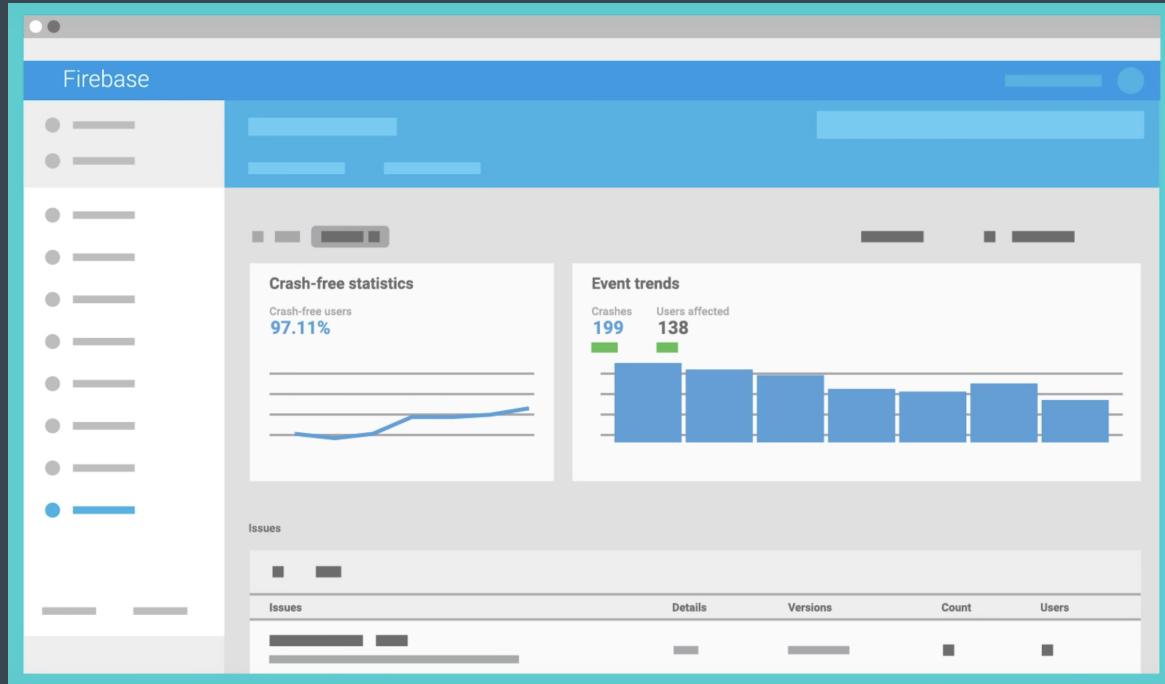
Affects parameter home_screen_text

Android Users

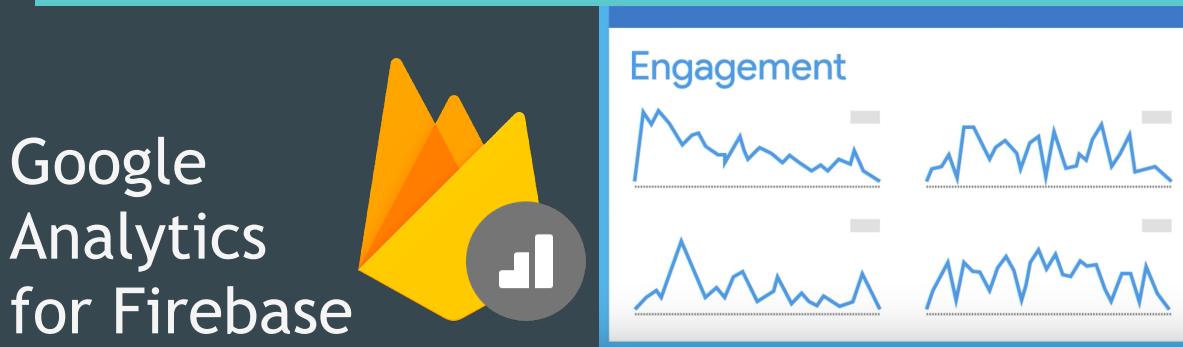
OS type: Android

Affects parameter shiny_feature_on

The order of conditions determines their evaluation order. Parameter values are determined by the first true condition.



Firebase Crashlytics



Google
Analytics
for Firebase

Retention

	Week 0	Week 1	Week 2	Week 3	Week 4
1	100%	17%	11%	9%	5%
2	100%	19%	10%	7%	
3	100%	20%	14%		
4	100%	22%			
5	100%				

Average revenue

ARPU	Monthly \$0.46 -10.2%	Weekly \$0.31 +34.5%	Daily \$0.11 -50.5%
ARPPU	Monthly \$25.75 -14.3%	Weekly \$24.03 +79.7%	Daily \$25.09 +34.3%

Progress principle

The Power of Small Wins

BASED ON THE #1 BREAKTHROUGH IDEA FROM HARVARD BUSINESS REVIEW

THE PROGRESS PRINCIPLE

USING SMALL WINS TO
IGNITE JOY, ENGAGEMENT, AND
CREATIVITY AT WORK



TERESA AMABILE
STEVEN KRAMER

HARVARD BUSINESS REVIEW PRESS

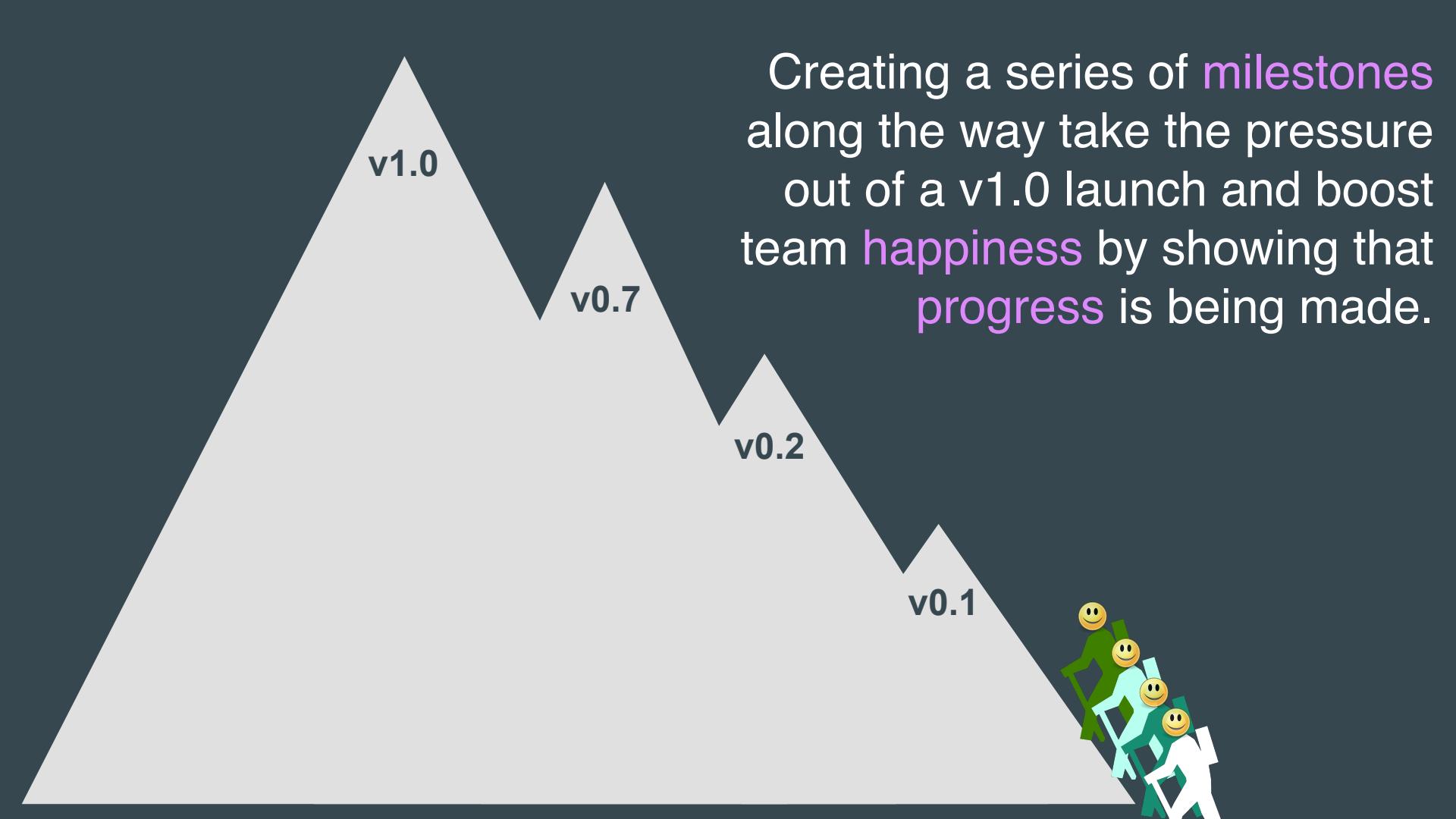
“

Of all the things that can boost
inner work life, the most important
is making progress in meaningful
work.

- Teresa Amabile and Steven J. Kramer

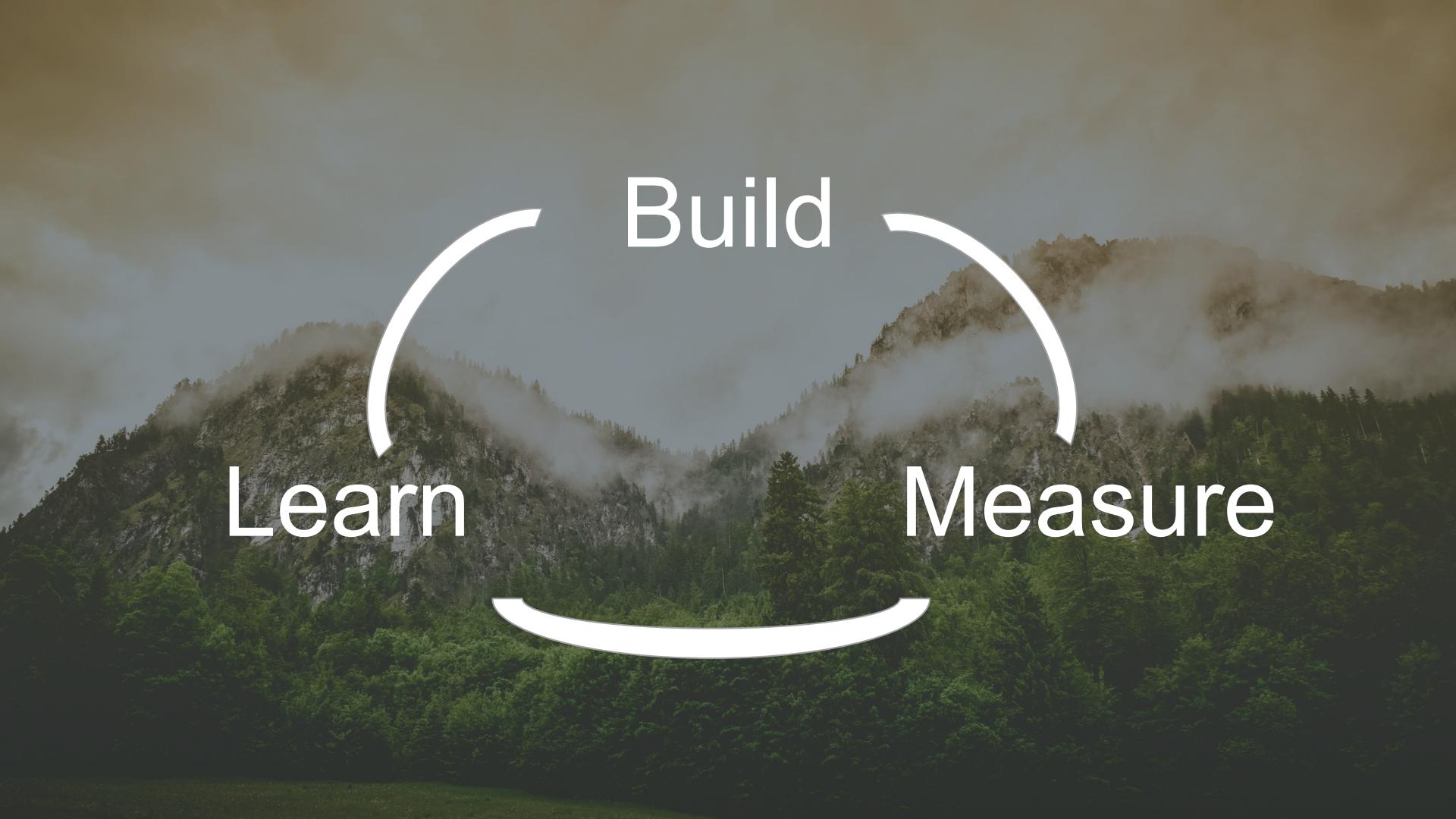
The team can't even see
v1.0 from where they are.





Creating a series of milestones along the way take the pressure out of a v1.0 launch and boost team happiness by showing that progress is being made.

Iterating your way to
customer happiness



Learn

Build

Measure

Measure what matters

- Usage Metrics
- Are we meeting user needs?
- What are the next features?

Does this meet our standards

- Could this be architected cleaner?
- Are there obvious bugs or areas of poor quality?
- Are we proud of the product?

Prioritize User Stories

Design

Build

Code Review and Test

Usability Testing

Ship

Does this meet customer expectations

- What can we learn from customer interviews?
- Are end users excited/confused/satisfied?

Iterate
based on
feedback
& evolving
priorities

Not like this....



1



2



3



4

Like this!



1



2



3



4



5

Henrik Kniberg

Christmas in July

Still Christmas?



Credit: <https://www.megapixl.com/santa-claus-sitting-under-parasol-with-gifts-on-beach-stock-photo-29666144>

Iterative Mobile Development - Key Points

- Product innovation process
- Team setup for iterative success
- Tools of the trade
- Progress principle
- Iterating your way to customer happiness

Thank you!

Andrea Falcone
@asfalcone