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Google

Iterative Mobile Development

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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

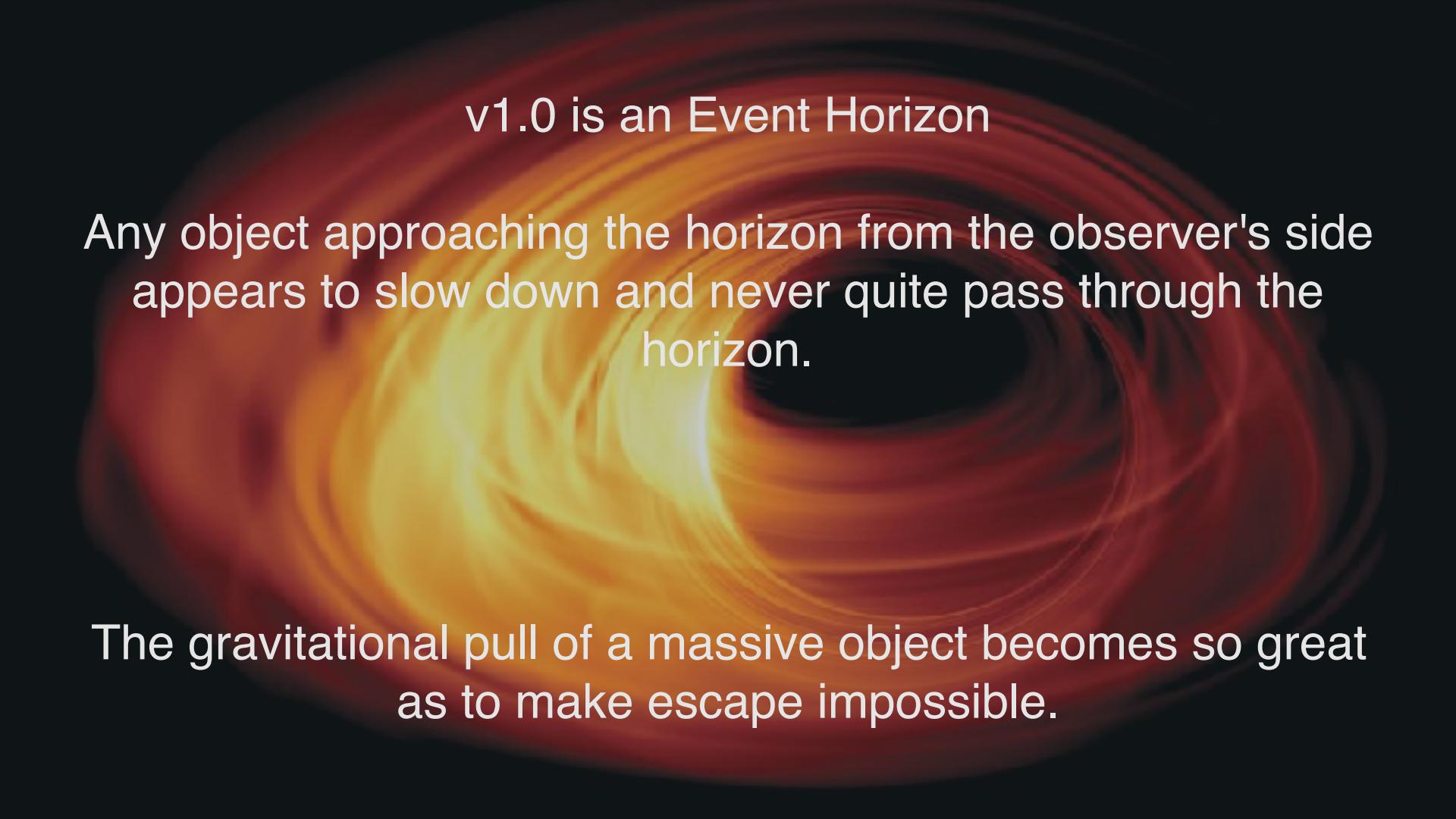
v1.0



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



I am not a physicist but...

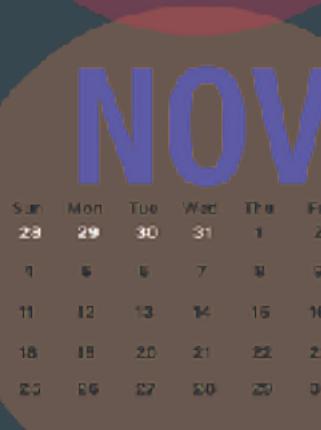


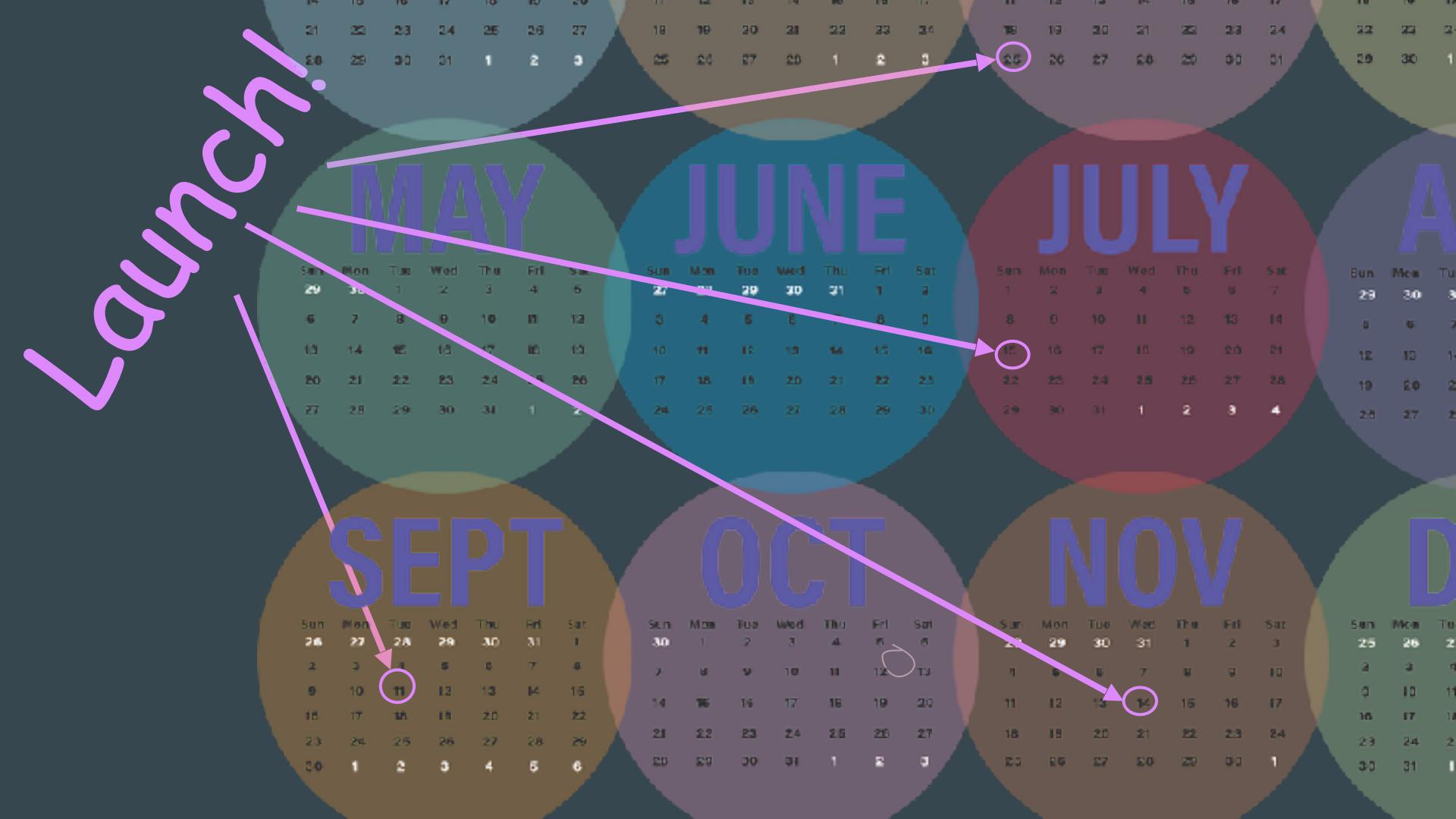
v1.0 is an Event Horizon

Any object approaching the horizon from the observer's side appears to slow down and never quite pass through the horizon.

The gravitational pull of a massive object becomes so great as to make escape impossible.

Launch!





This is not
how we
ship
software.



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

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Limiting work in
progress creates
teamwork

This is
teamwork.



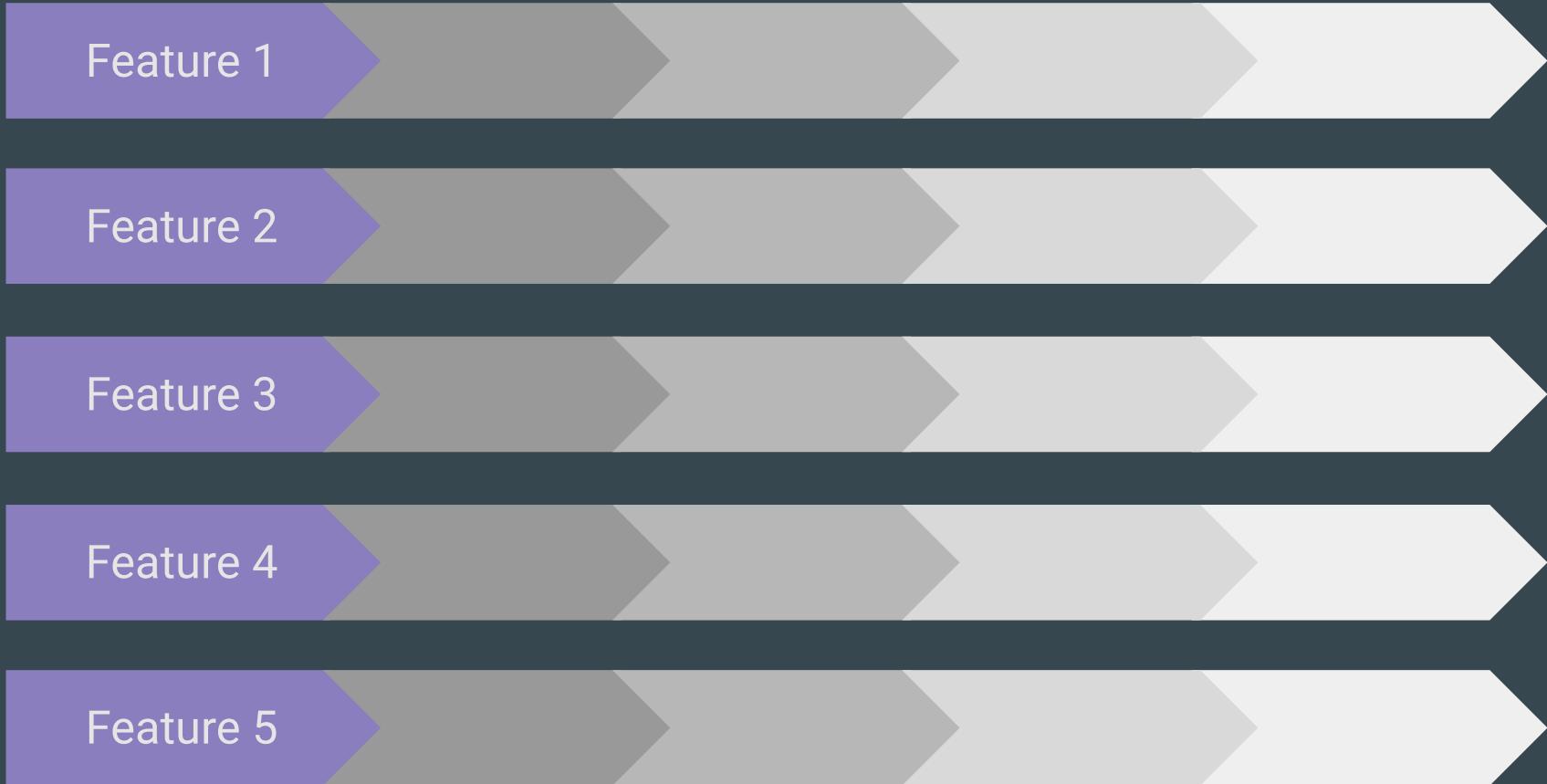
This is
NOT
teamwork.



PRODUCT DEVELOPMENT TEAM



PRODUCT DEVELOPMENT TEAM





Writing
your own
code



Reviewing
someone
else's
code

Controversial Opinion:

Code reviews should interrupt coding because they are closer to delivering value to customers.

A close-up, top-down photograph of a group of people's hands stacked together in a circle. The hands belong to various individuals, some wearing blue wristbands with the word "EMPOWER" printed on them. The hands are positioned in the center of the frame, creating a sense of unity and teamwork. The background is dark, making the hands stand out.

Limiting Work in Progress =
Maintainability + Flexibility



4GIFS.com

Tools of the Trade

Key Points

Eliminate Waste

- Use *fastlane* to reduce the burden of shipping

Use feedback loops

- Percentage rollouts
- Alpha and Beta channels
- Remote config

Build Integrity In

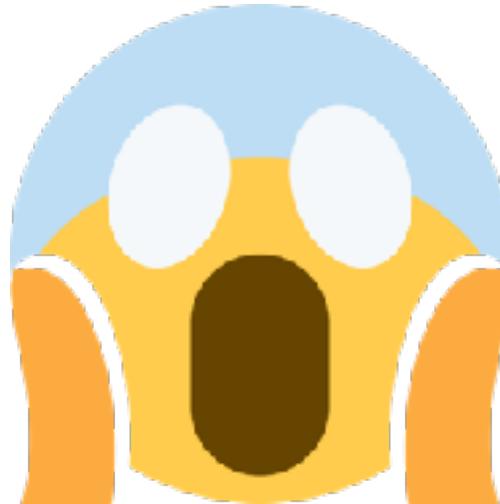
- Actually run the tests
- Firebase Testlab

Evolve through experimentation

- Monitor crash reporting and analytics

Andrea is in
Berlin 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.

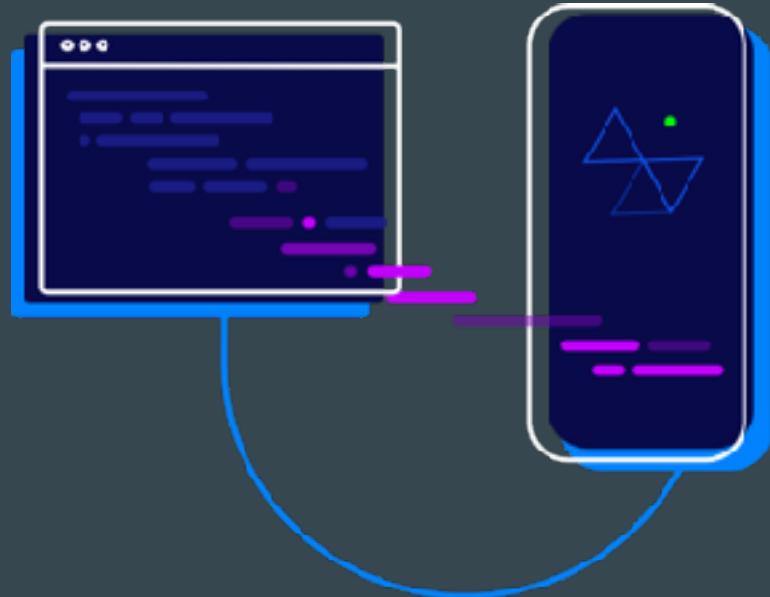
fastlane lets you automate every aspect of your development and release workflow.



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
  gradle(task: 'assemble')
  Upload_to_play_store(track: 'beta')
end

lane :release 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 android changes
diff=`git diff --name-only --staged | grep "app/"` 
if [ -z "$diff" ]; then
    exit 0
fi

./gradlew clean test

if [ $? -ne 0]; then
    echo "Cannot commit with failing tests..."
    exit 1
fi
```

Firebase Test Lab

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



Robo test, Just now

Cancel

Failed	Flaky	Passed	Skipped	Inconclusive
0	0	0	0	0

Test execution

Pixel 3, API Level Q-beta-3

Locale

English (United States)

Orientation

Portrait

Test execution

Pixel 3, API Level Q-beta-3

Locale

Japanese

Orientation

Portrait

Test execution

Pixel 2 XL, API Level 26

Locale

Japanese

Orientation

Portrait

Test execution

Pixel 2 XL, API Level 26

Locale

English (United States)

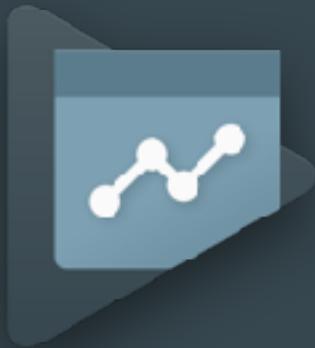
Orientation

Portrait

Use beta distribution to
pre-release app features.

Small beta releases give you a
feedback loop to get valuable
insights from customers.

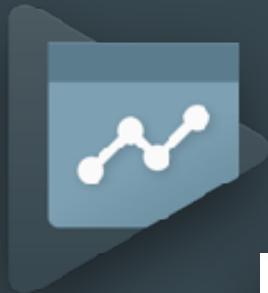
Use beta distribution to pre-release app features.
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Use **staged rollouts** to release app updates to production.

Staged updates help catch any issues you missed during testing before those issues affect **all** your users.

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Release rollout percentage

Release rollout percentage

Specify the percentage of your user base that you want to rollout this release to.

Installs on active devices

120,000

Rollout percentage

10%

Installs targeted by rollout

12,000

Rollout countries

PREVIOUS

DISCARD

START ROLLOUT TO PRODUCTION

You can automate rollouts with the Google Play Developer API

```
{  
    "releases": [{  
        "versionCodes": ["99"],  
        "userFraction": 0.12,  
        "status": "inProgress"  
    }]  
}
```

<https://developers.google.com/android-publisher/tracks>

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 or conditions



Add parameter

home_screen_text

Text for the home screen

10 percent

This is an awesome app

Default value

This is a great app

shiny_feature_on

Turn on the feature

German speaking users

true

Default value

false

Add condition



10 percent

User in random percentile less than or equal to 10%

Affects parameter home_screen_text

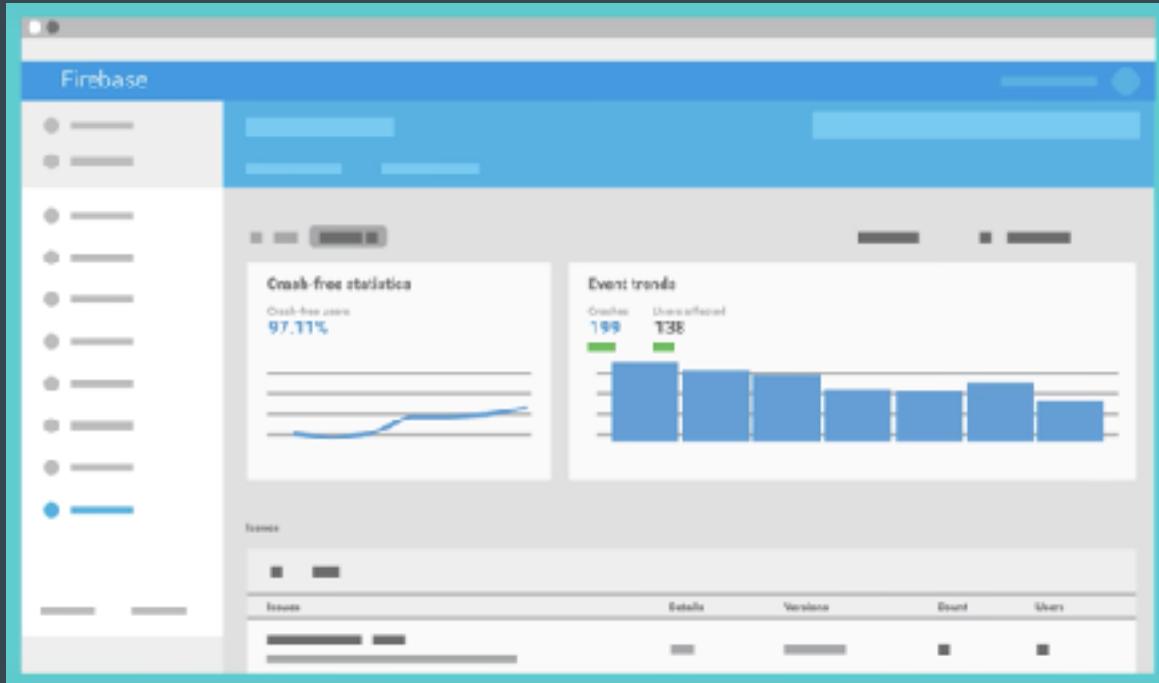
German speaking users

OS type: Android

Language: German

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



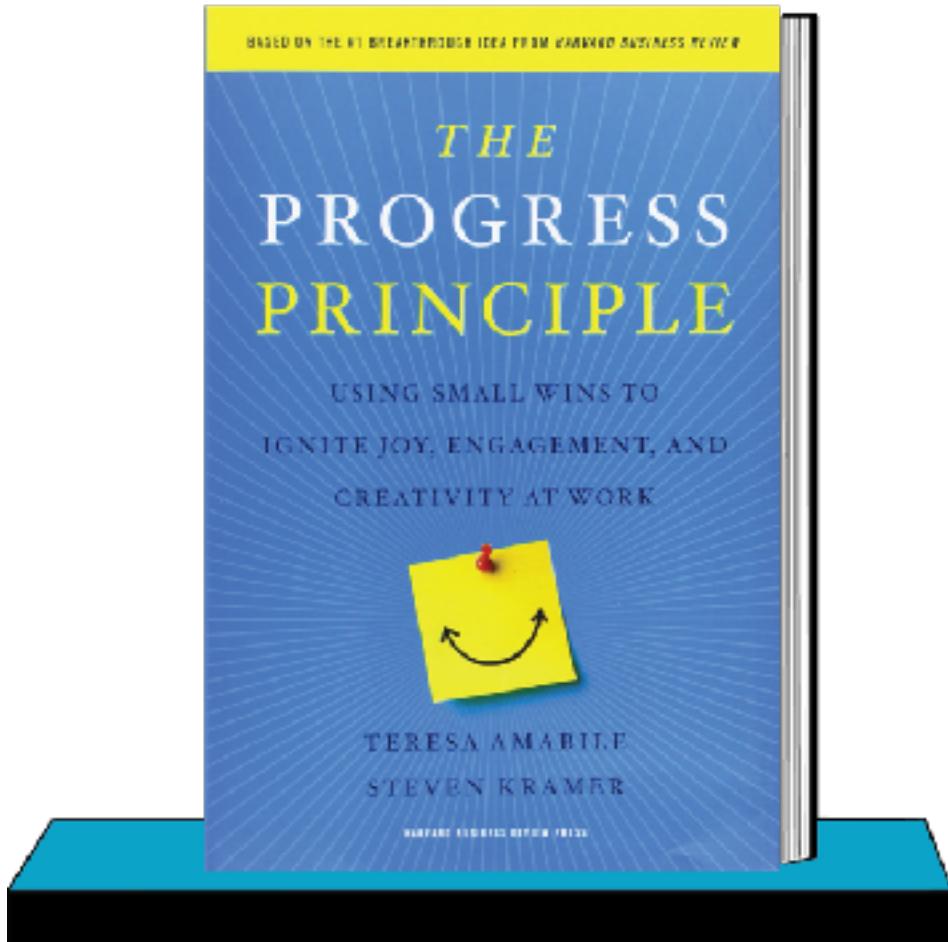
Average revenue

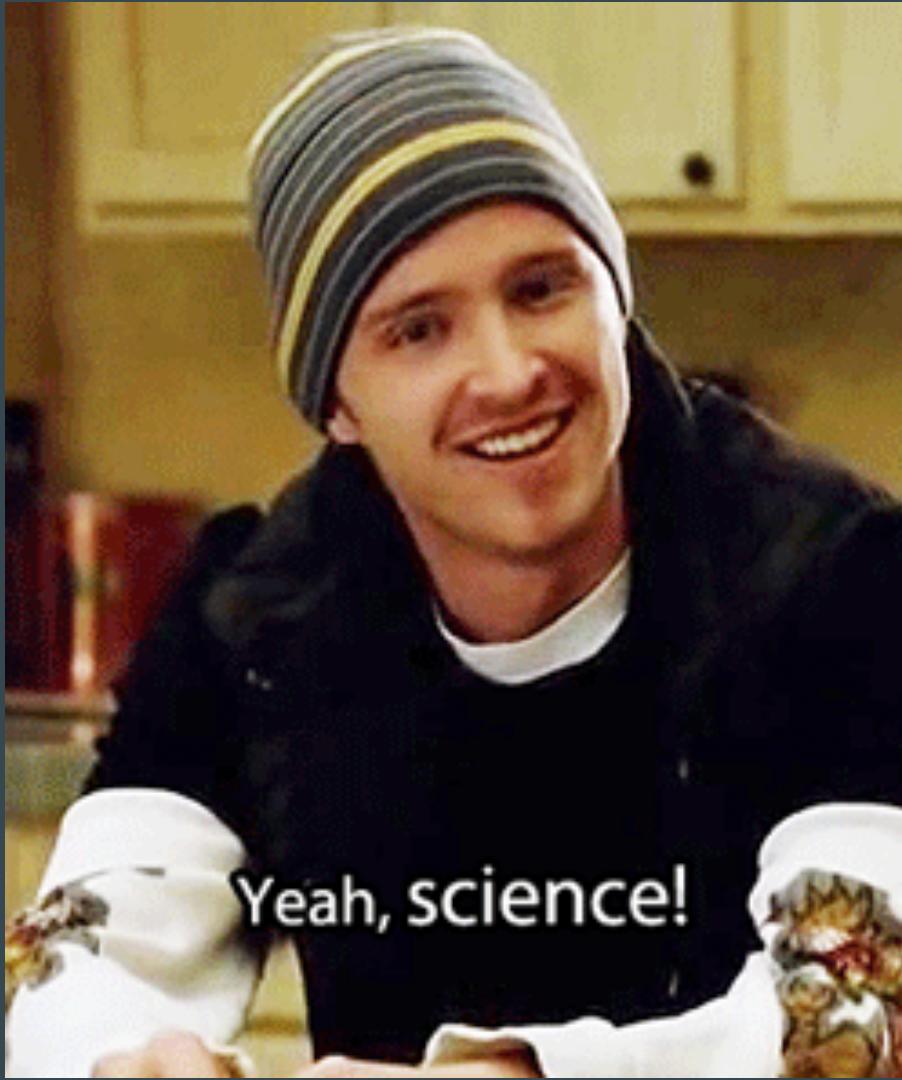
ARPU	Monthly \$0.16 -10.2%	Weekly \$0.31 +34.5%	Daily \$0.11 +60.6%
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ARPPU	Monthly \$25.75 +14.3%	Weekly \$24.03 -79.7%	Daily \$25.09 +38.3%
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Progress principle

The Power of Small Wins





Yeah, science!

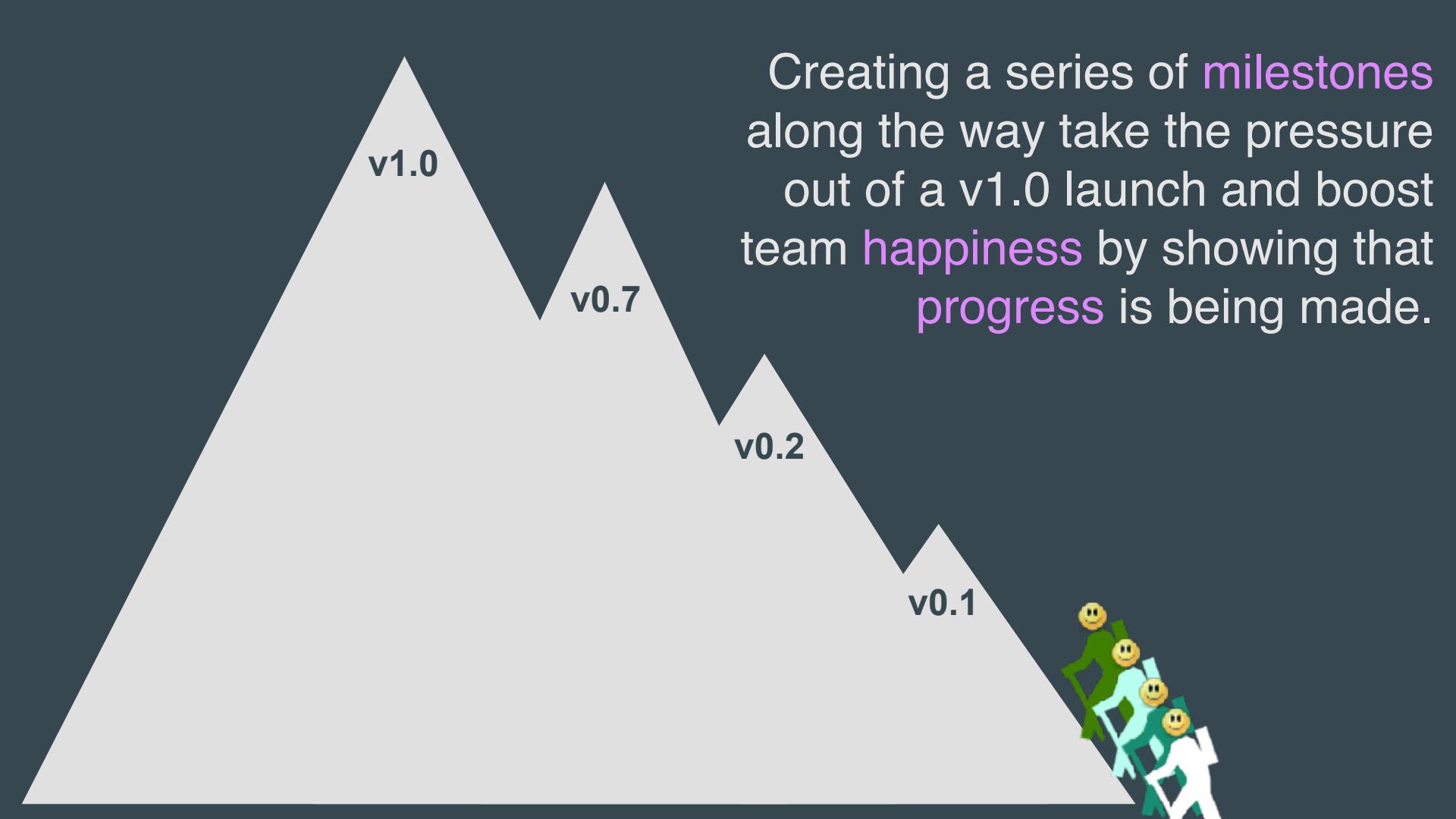
“

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.



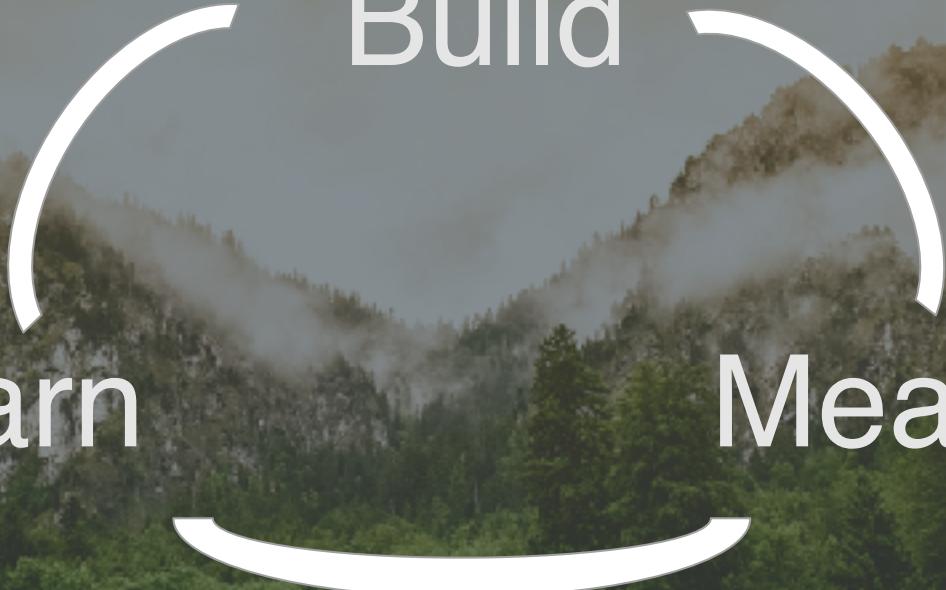


Creating a series of **milestones** along the way take the pressure out of a v1.0 launch and boost team **happiness** by showing that **progress** is being made.

LIFE HACK



Iterating your way to
customer happiness



Build

Measure

Learn

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>

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References

Teresa Amabile and Steven Kramer

"The Power of Small Wins" <https://hbr.org/2011/05/the-power-of-small-wins>

"The Progress Principle" http://progressprinciple.com/books/single/the_progress_principle

Henrik Kniberg

"Lean From the Trenches" <https://pragprog.com/book/hklean/lean-from-the-trenches>

"Making Sense of MVP" <https://blog.crisp.se/2016/01/25/henrikkniberg/making-sense-of-mvp>

Eric Ries

"The Lean Startup" <http://theleanstartup.com/>

Topics

- AndroidX/Jetpack
- Software development process
- GIFs

Thank you!

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