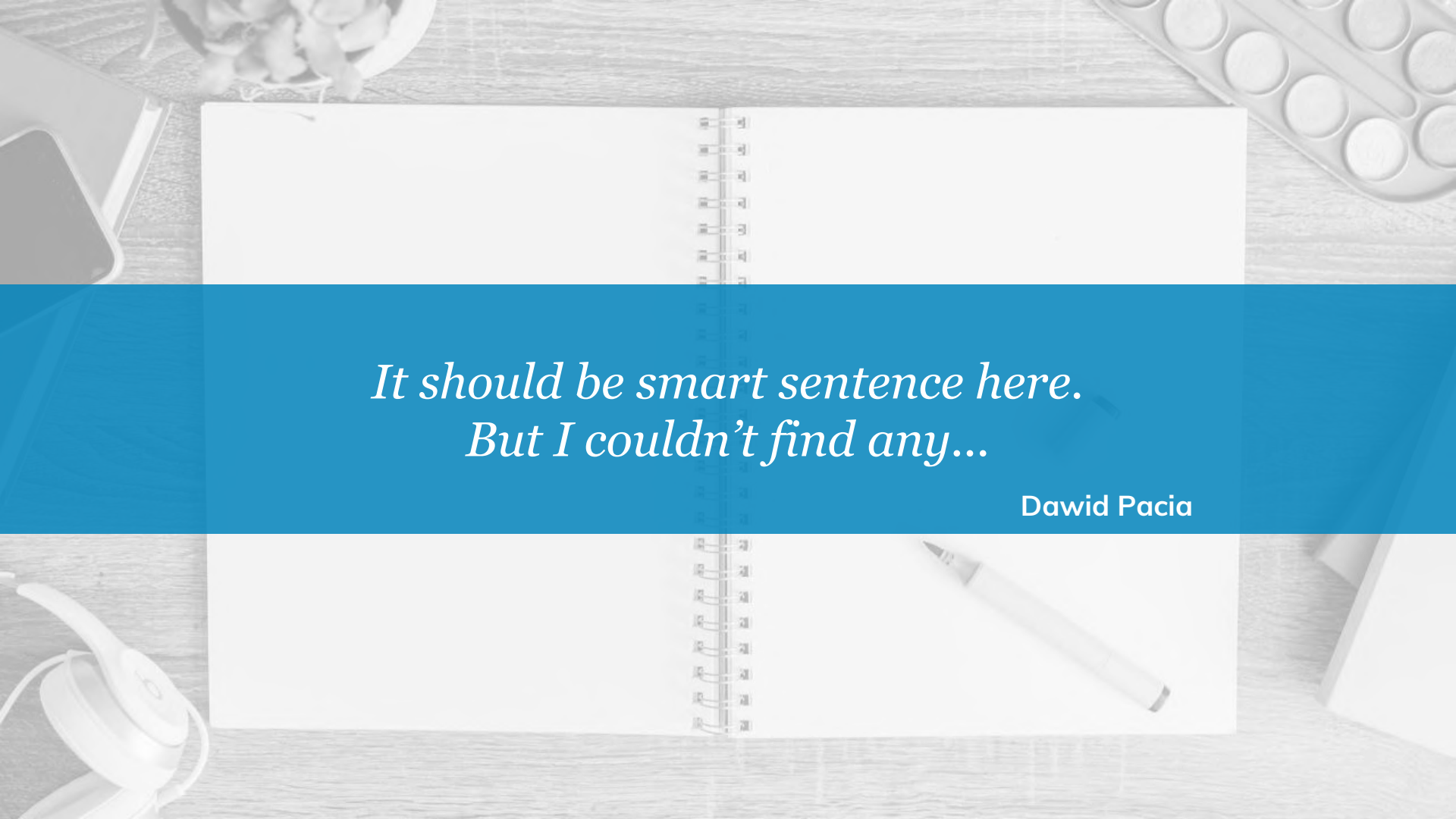
Put Your TestOps Shoes on! Improving Quality by Process Automation

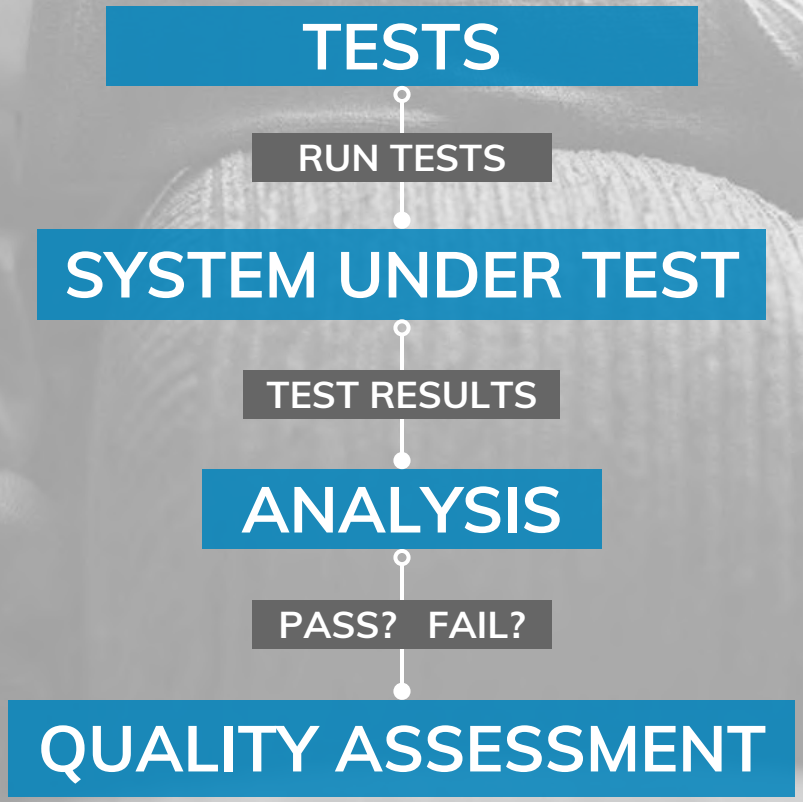
Dawid Pacia



It should be smart sentence here.
But I couldn't find any...

Dawid Pacia

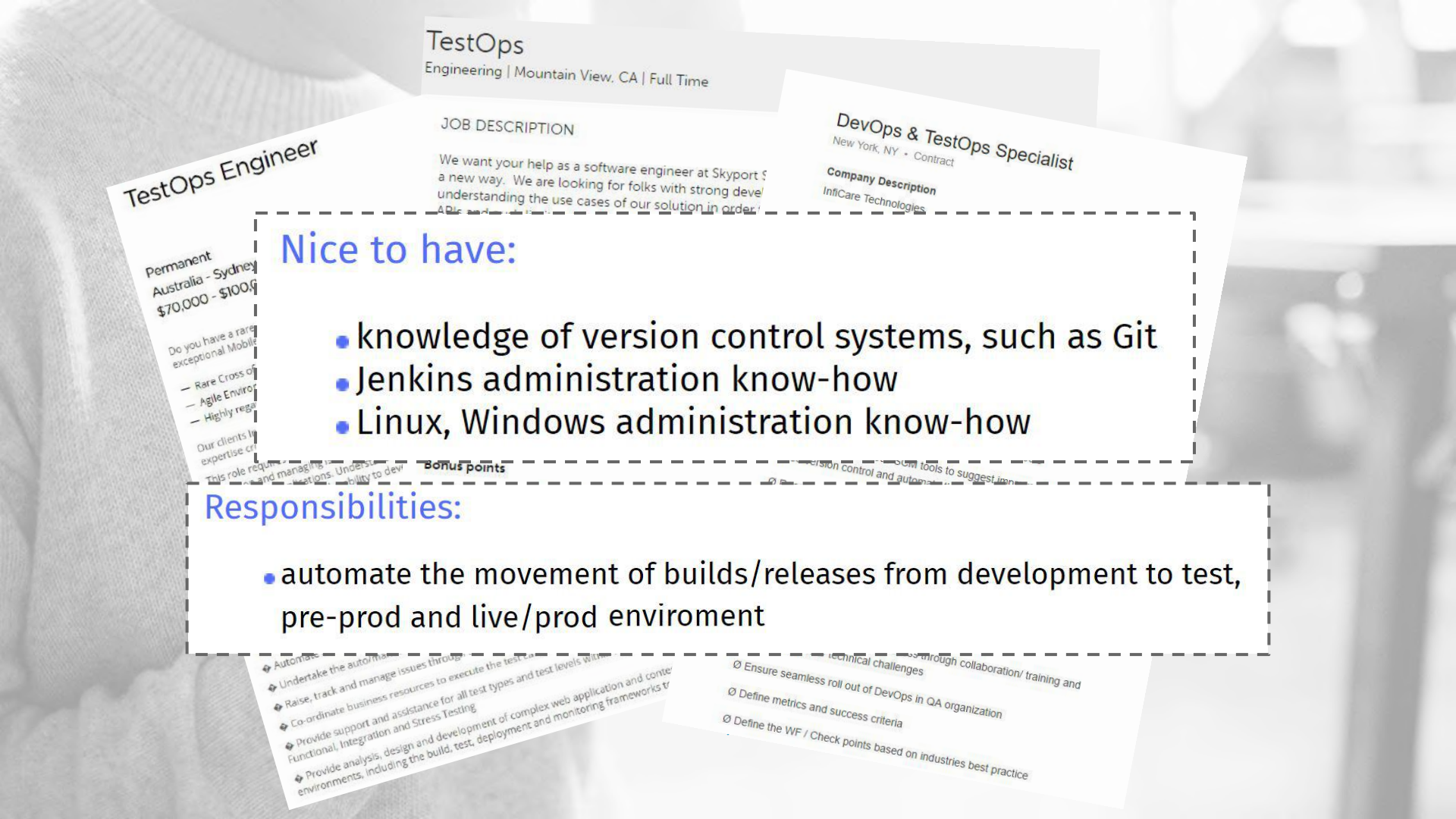
THE TRADITIONAL MODEL OF SOFTWARE TESTING



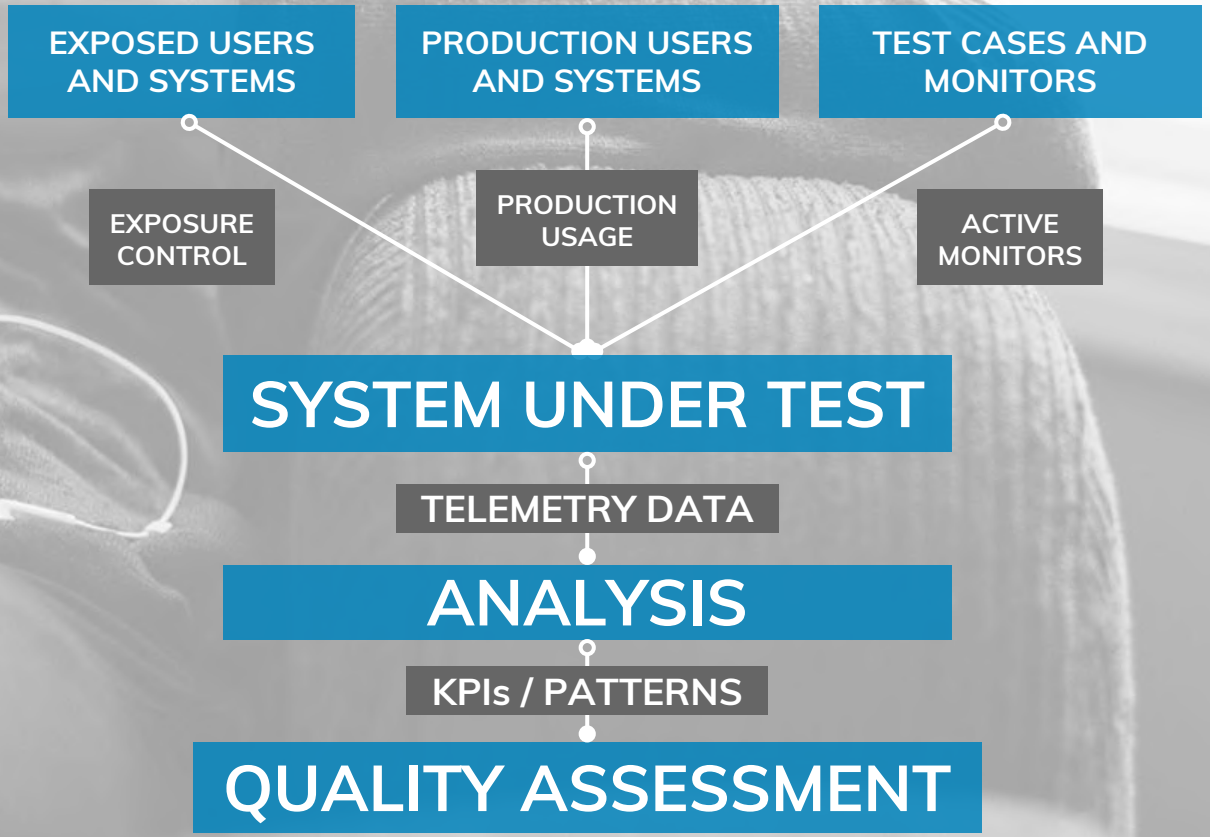
by Seth Eliot

The times have changed...

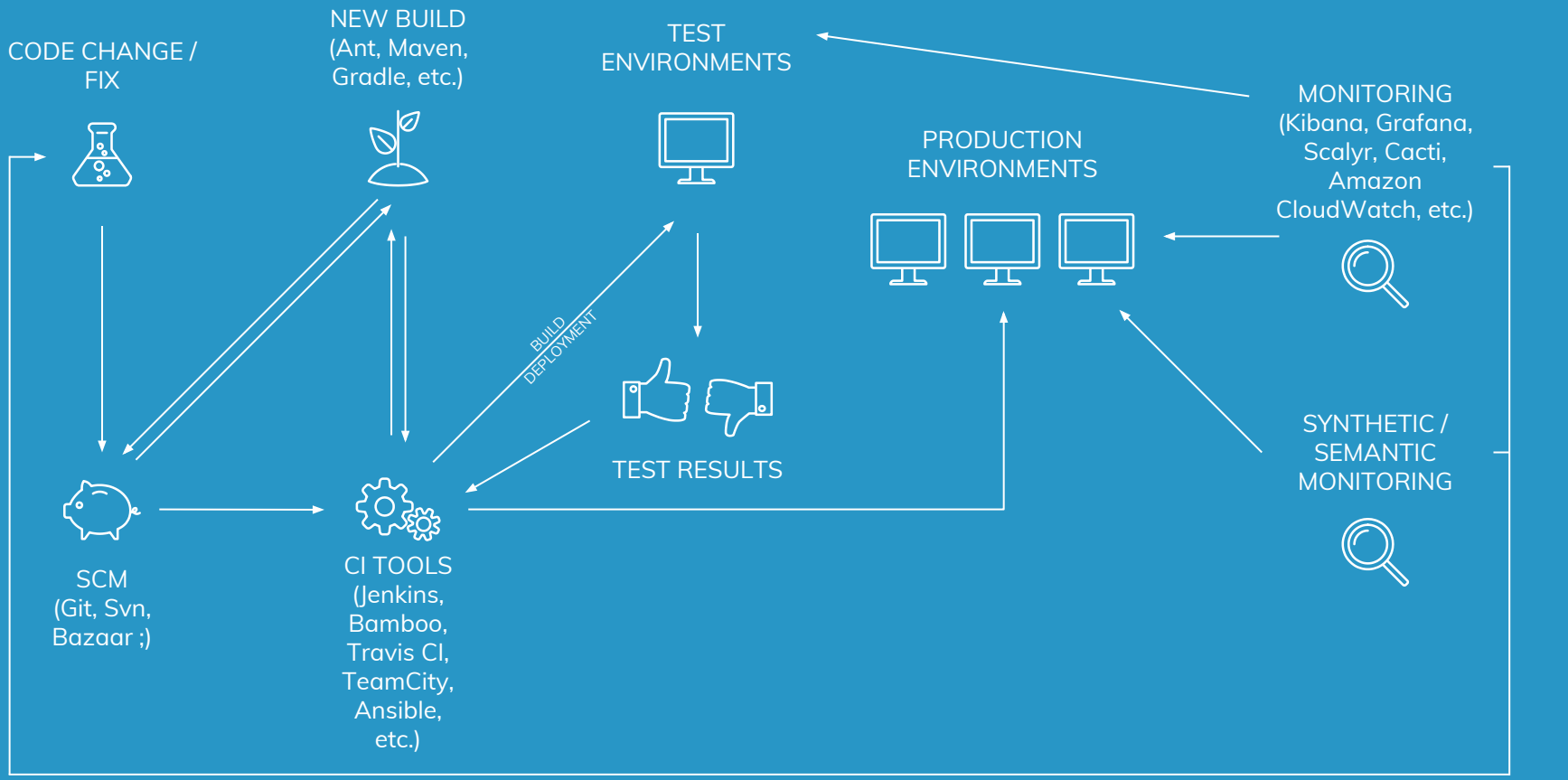
- Facebook users send on average over 31 million messages and view 2.77 million videos every minute
- Twitter users generate 347,222 Tweets each minute – or 21 million Tweets per hour
- Google provides search results for over 1 billion search queries each day
- Amazon deploys new software to production every 11.6 seconds.


TestOps
Engineering | Mountain View, CA | Full Time
JOB DESCRIPTION
We want your help as a software engineer at Skyport
a new way. We are looking for folks with strong deve
understanding the use cases of our solution in order
TestOps Engineer
Permanent
Australia - Sydney
$70,000 - $100,
DevOps & TestOps Specialist
New York, NY • Contract
Company Description
InfiCare Technologies
Nice to have:
knowledge of version control systems, such as Git
Jenkins administration know-how
Linux, Windows administration know-how
Bonus points
Responsibilities:
automate the movement of builds/releases from development to test, pre-prod and live/prod enviroment
Ø Ensure seamless roll out of DevOps in QA organization
Ø Define metrics and success criteria
Ø Define the WF / Check points based on industries best practice

THE TESTOPS MODEL OF SOFTWARE TESTING



by Seth Eliot



CONTINUOUS BUILD → CONTINUOUS VALIDATION → CONTINUOUS DELIVERY → CONTINUOUS MONITORING

Continuous Monitoring

- Synthetic monitoring (or semantic monitoring) runs a subset of an application's automated tests against the live production system on a regular basis.

TestOps: What Does This Mean?

- ➜ Integration with DevOps infrastructure
- ➜ Which tests to run and when
- ➜ No need to stand up the whole system to test

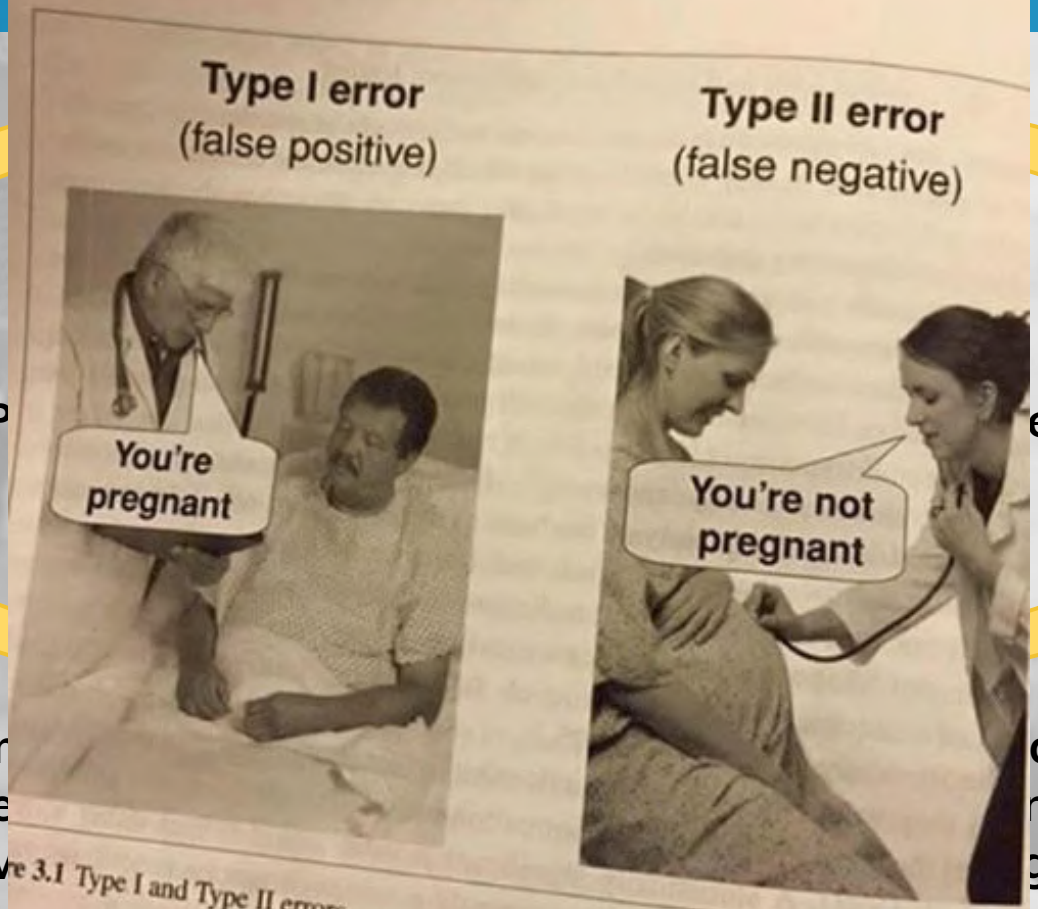
WHY SHOULD WE CARE SO MUCH?

WHAT DO WE WANT?

TO DELIVER BETTER SOFTWARE!

WHEN DO WE WANT IT?

CONTINUOUSLY!!!



ve 3.1 Type I and Type II errors

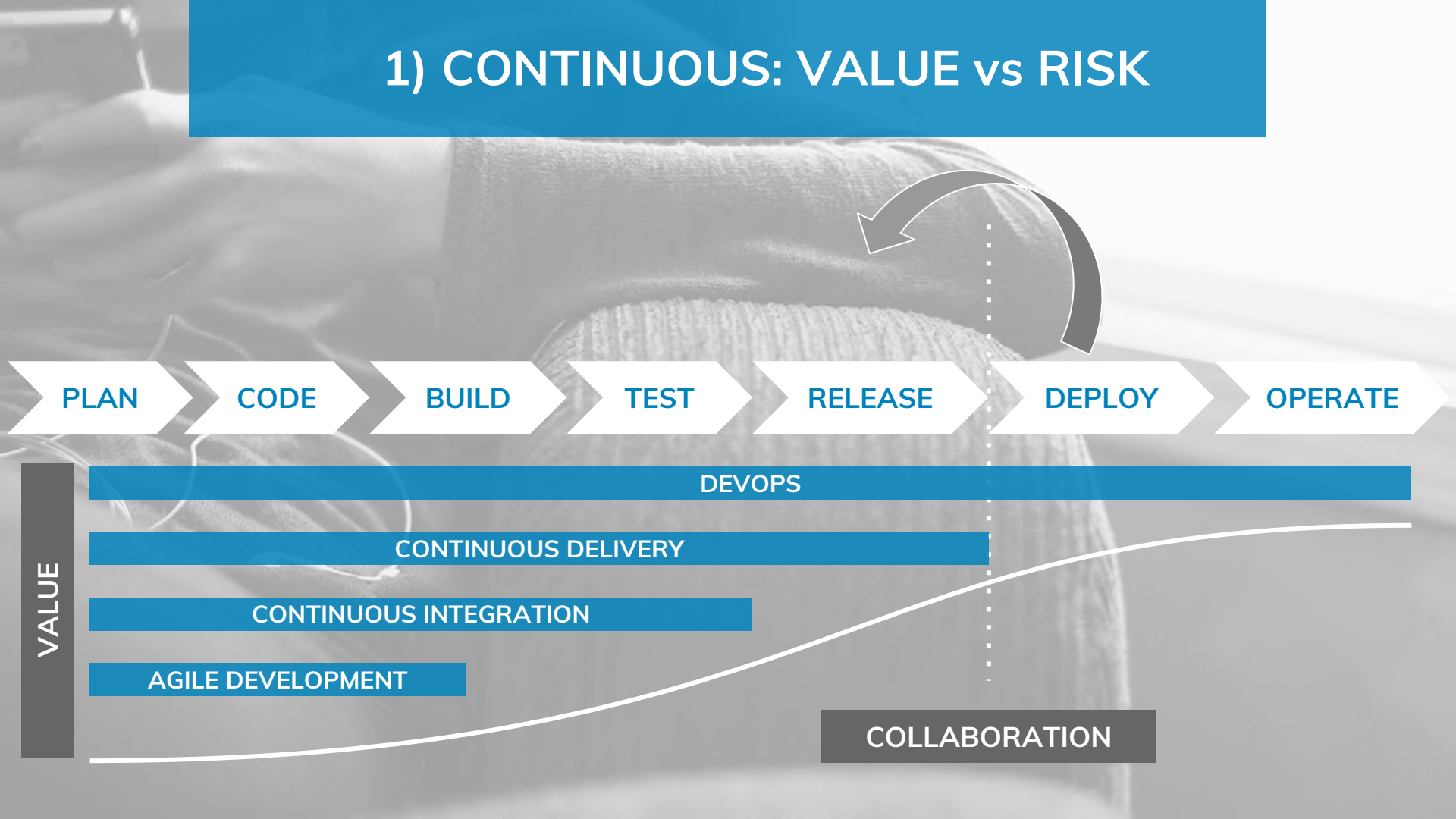
P es

The test is r d as Failed,
when the nality is not
g.

...YOU CAN ENCOUNTER SOMETHING WORSE

TESTS FAILING INTERMITTENTLY

1) CONTINUOUS: VALUE vs RISK



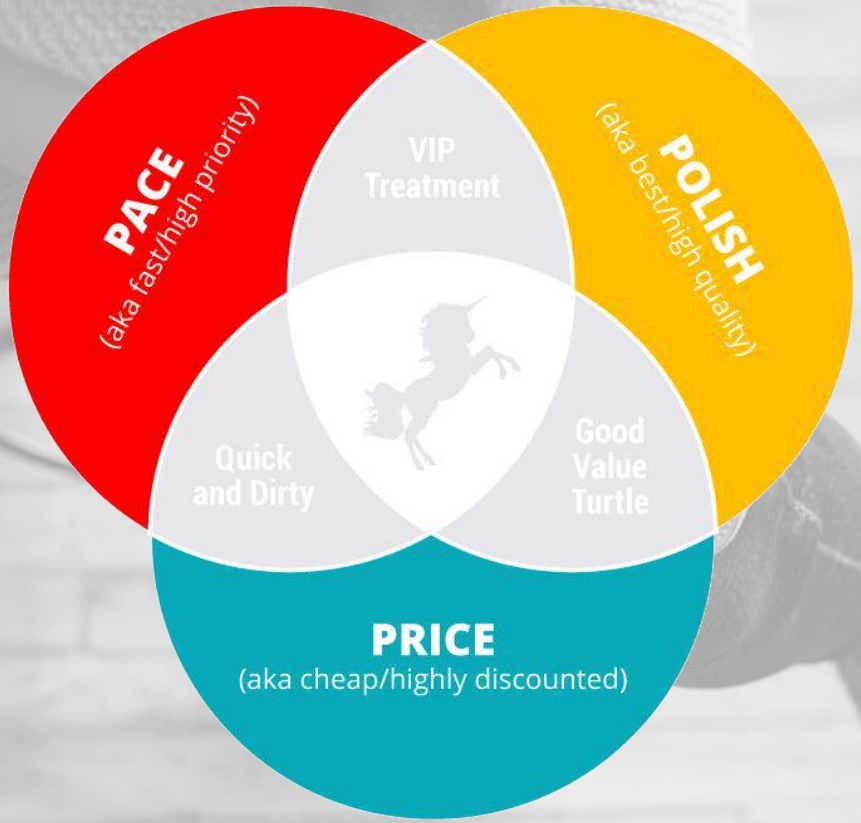
“More automatically,
more continuously,
more risky…”

Dawid Pacia

2) Pains of “high tech” companies

- Lack of time:
  - No TDD/BDD/XP, lack of Unit tests
  - No documentation
  - Not enough testers!
- Event-driven development (CES, IoT World, etc.)
- Chaotic environment with constantly changing priorities (on a daily basis)

3) “PICK TWO” → NEVERENDING DILEMMA…



~~Speed vs Quality~~ → Speed and Quality → Quick Wins

I SAY QUICK!
YOU SAY WINS!

Toolset and collaboration

ZEPHYR + { }

TEST MANAGEMENT

Jenkins

CI/CD

JIRA

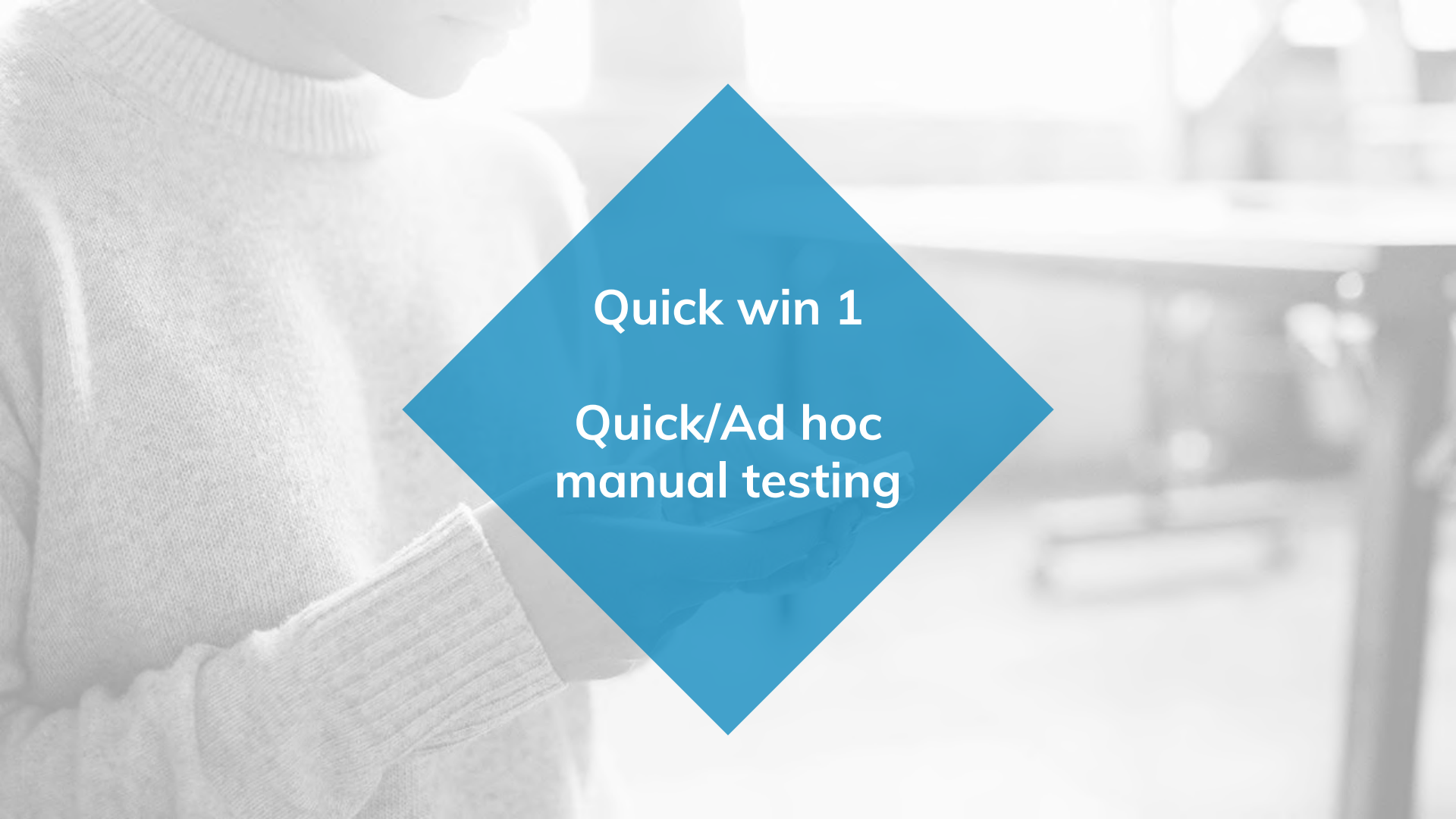
PROJECT MANAGEMENT

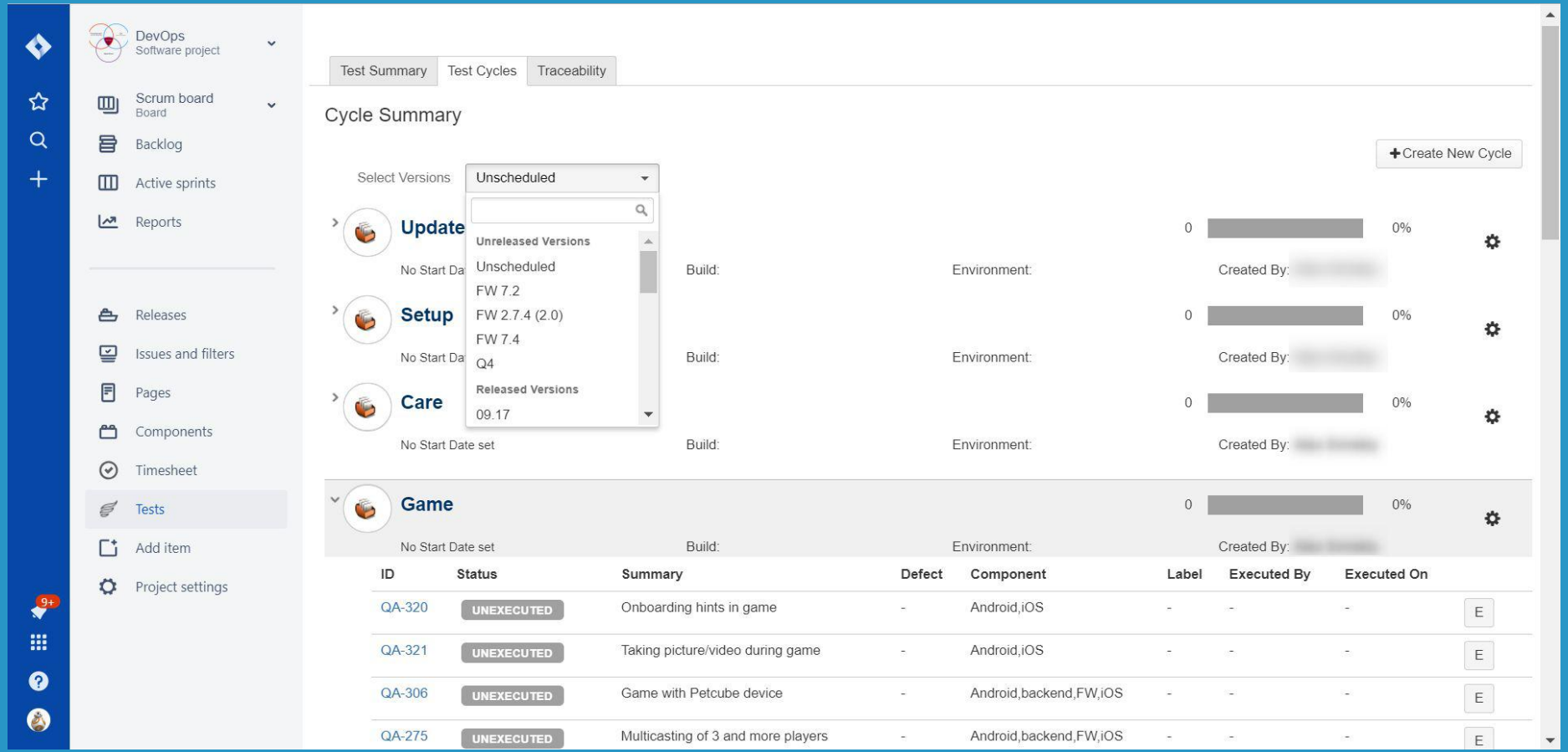
slack

COMMUNICATION & NOTIFICATIONS

crashlytics

CRASH REPORTING & LOGGING

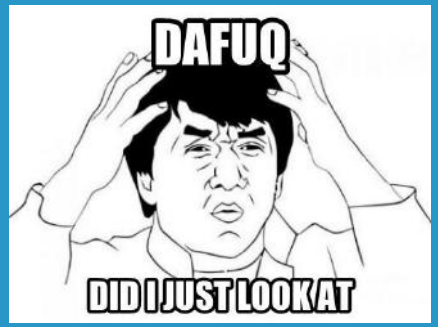

Quick win 1
Quick/Ad hoc manual testing


JIRA
DevOps
Software project
Scrum board
Board
Backlog
Active sprints
Reports
Releases
Issues and filters
Pages
Components
Timesheet
Tests
Add item
Project settings
Test Summary
Test Cycles
Traceability
Cycle Summary
+Create New Cycle
Select Versions
Unscheduled
Unreleased Versions
Unscheduled
FW 7.2
FW 2.7.4 (2.0)
FW 7.4
Q4
Released Versions
09.17
Update
Setup
Care
Game
No Start Date set
Build:
Environment:
Created By:
0
0%
ID
Status
Summary
Defect
Component
Label
Executed By
Executed On
QA-320
UNEXECUTED
Onboarding hints in game
Android,iOS
QA-321
UNEXECUTED
Taking picture/video during game
Android,iOS
QA-306
UNEXECUTED
Game with Petcube device
Android,backend,FW,iOS
QA-275
UNEXECUTED
Multicasting of 3 and more players
Android,backend,FW,iOS

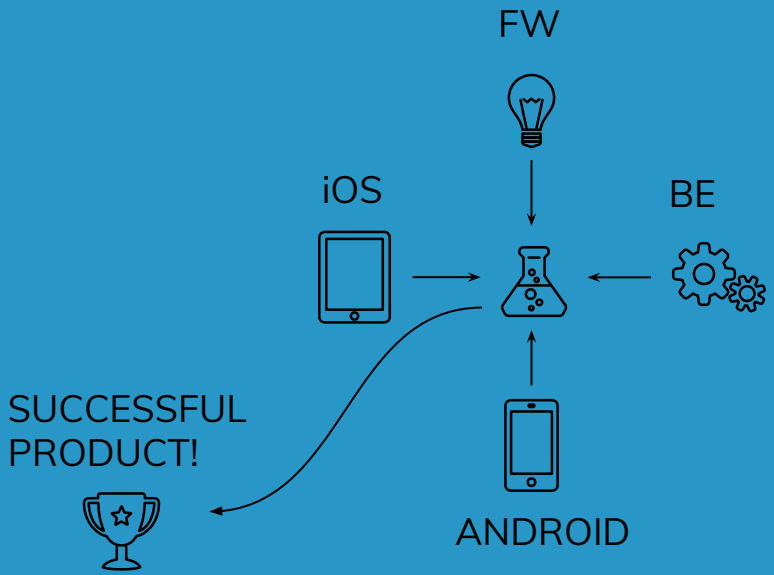
TESTS BUCKET

TEST SUITES
(aka. TEST CYCLE !?)

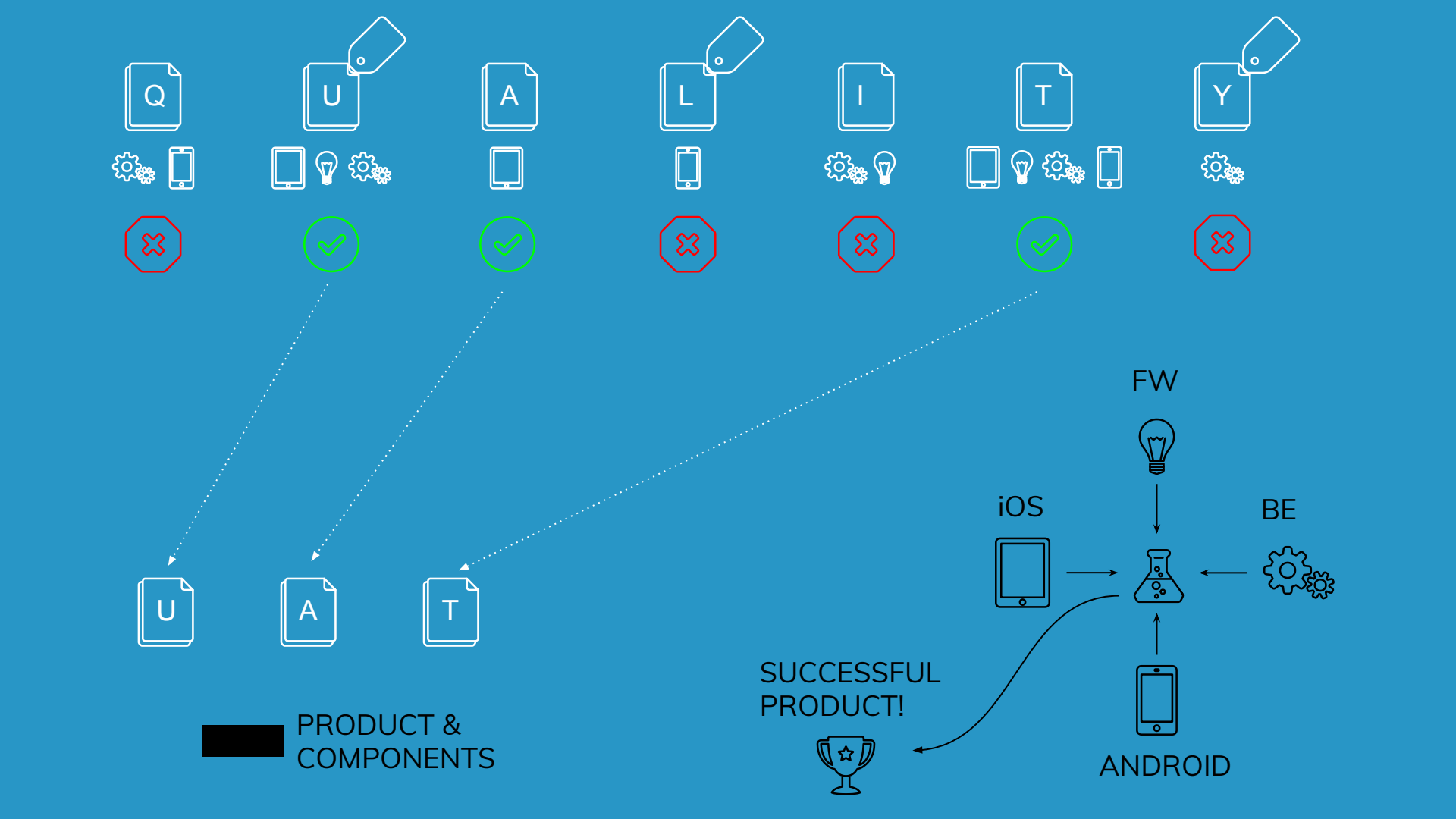
TEST CASES

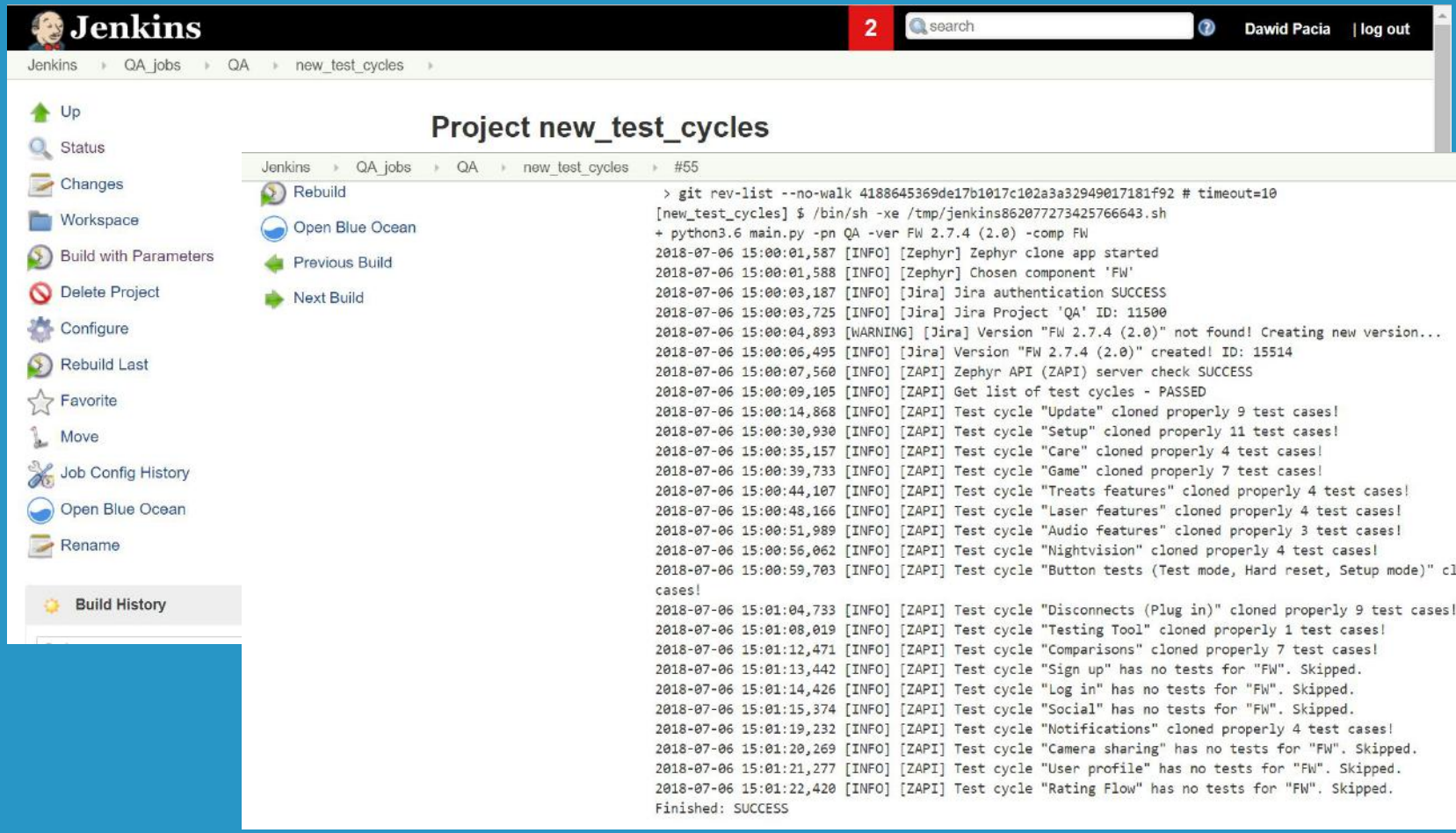


PRODUCT &
COMPONENTS



ONE BILLION FEATURE
REQUESTS


Q
U
A
L
I
T
Y
U
A
T
PRODUCT &
COMPONENTS
FW
iOS
BE
SUCCESSFUL
PRODUCT!
ANDROID


Jenkins
2
search
Dawid Pacia
| log out
Jenkins › QA_jobs › QA › new_test_cycles ›
Up
Status
Changes
Workspace
Build with Parameters
Delete Project
Configure
Rebuild Last
Favorite
Move
Job Config History
Open Blue Ocean
Rename
Build History
Project new_test_cycles
Jenkins › QA_jobs › QA › new_test_cycles › #55
Rebuild
Open Blue Ocean
Previous Build
Next Build
> git rev-list --no-walk 4188645369de17b1017c102a3a32949017181f92 # timeout=10
[new_test_cycles] $ /bin/sh -xe /tmp/jenkins8620772734257666643.sh
+ python3.6 main.py -pn QA -ver FW 2.7.4 (2.0) -comp FW
2018-07-06 15:00:01,587 [INFO] [Zephyr] Zephyr clone app started
2018-07-06 15:00:01,588 [INFO] [Zephyr] Chosen component 'FW'
2018-07-06 15:00:03,187 [INFO] [Jira] Jira authentication SUCCESS
2018-07-06 15:00:03,725 [INFO] [Jira] Jira Project 'QA' ID: 11500
2018-07-06 15:00:04,893 [WARNING] [Jira] Version "FW 2.7.4 (2.0)" not found! Creating new version...
2018-07-06 15:00:06,495 [INFO] [Jira] Version "FW 2.7.4 (2.0)" created! ID: 15514
2018-07-06 15:00:07,560 [INFO] [ZAPI] Zephyr API (ZAPI) server check SUCCESS
2018-07-06 15:00:09,105 [INFO] [ZAPI] Get list of test cycles - PASSED
2018-07-06 15:00:14,868 [INFO] [ZAPI] Test cycle "Update" cloned properly 9 test cases!
2018-07-06 15:00:30,930 [INFO] [ZAPI] Test cycle "Setup" cloned properly 11 test cases!
2018-07-06 15:00:35,157 [INFO] [ZAPI] Test cycle "Care" cloned properly 4 test cases!
2018-07-06 15:00:39,733 [INFO] [ZAPI] Test cycle "Game" cloned properly 7 test cases!
2018-07-06 15:00:44,107 [INFO] [ZAPI] Test cycle "Treats features" cloned properly 4 test cases!
2018-07-06 15:00:48,166 [INFO] [ZAPI] Test cycle "Laser features" cloned properly 4 test cases!
2018-07-06 15:00:51,989 [INFO] [ZAPI] Test cycle "Audio features" cloned properly 3 test cases!
2018-07-06 15:00:56,062 [INFO] [ZAPI] Test cycle "Nightvision" cloned properly 4 test cases!
2018-07-06 15:00:59,703 [INFO] [ZAPI] Test cycle "Button tests (Test mode, Hard reset, Setup mode)" cloned properly 3 test cases!
2018-07-06 15:01:04,733 [INFO] [ZAPI] Test cycle "Disconnects (Plug in)" cloned properly 9 test cases!
2018-07-06 15:01:08,019 [INFO] [ZAPI] Test cycle "Testing Tool" cloned properly 1 test cases!
2018-07-06 15:01:12,471 [INFO] [ZAPI] Test cycle "Comparisons" cloned properly 7 test cases!
2018-07-06 15:01:13,442 [INFO] [ZAPI] Test cycle "Sign up" has no tests for "FW". Skipped.
2018-07-06 15:01:14,426 [INFO] [ZAPI] Test cycle "Log in" has no tests for "FW". Skipped.
2018-07-06 15:01:15,374 [INFO] [ZAPI] Test cycle "Social" has no tests for "FW". Skipped.
2018-07-06 15:01:19,232 [INFO] [ZAPI] Test cycle "Notifications" cloned properly 4 test cases!
2018-07-06 15:01:20,269 [INFO] [ZAPI] Test cycle "Camera sharing" has no tests for "FW". Skipped.
2018-07-06 15:01:21,277 [INFO] [ZAPI] Test cycle "User profile" has no tests for "FW". Skipped.
2018-07-06 15:01:22,420 [INFO] [ZAPI] Test cycle "Rating Flow" has no tests for "FW". Skipped.
Finished: SUCCESS

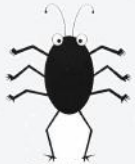
RUN TEST!

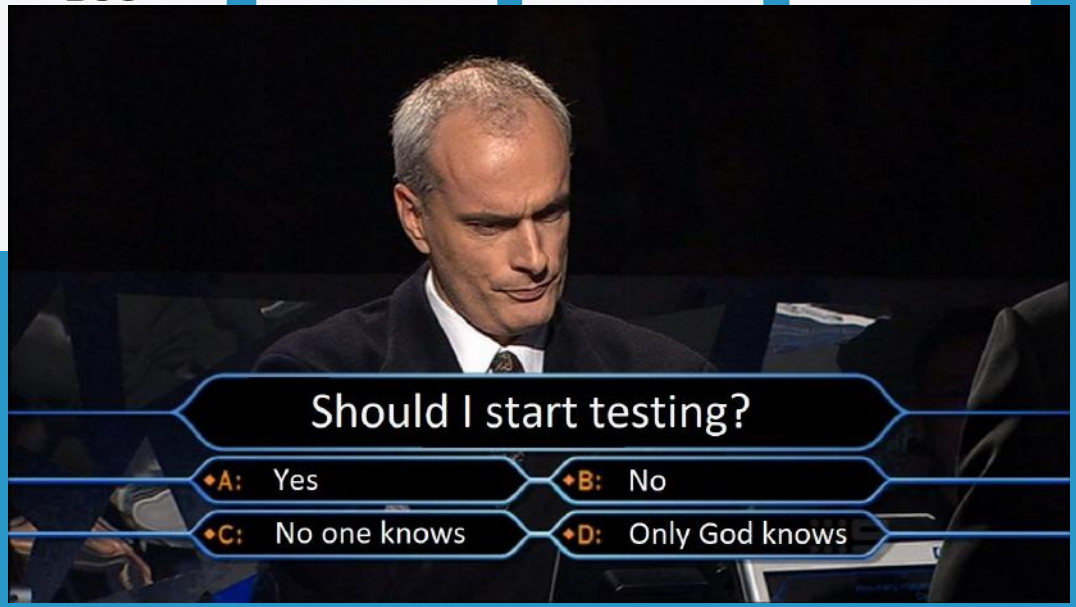
RUUUNNN!!!

Quick win 2

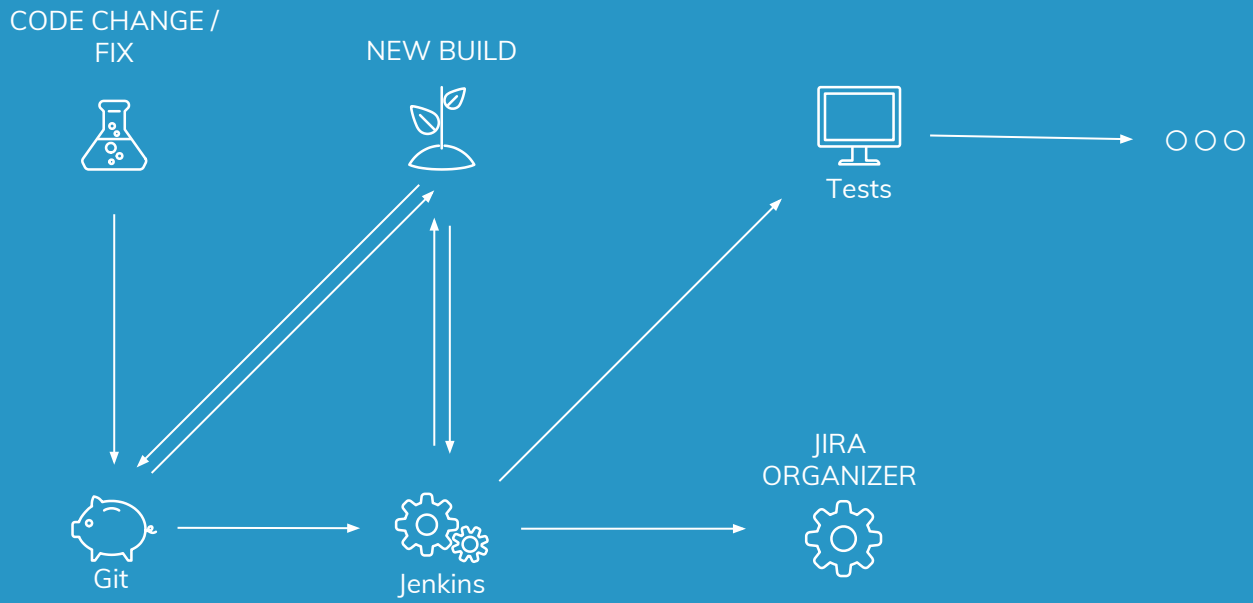
Project workflow management

Project issue/ticket workflow

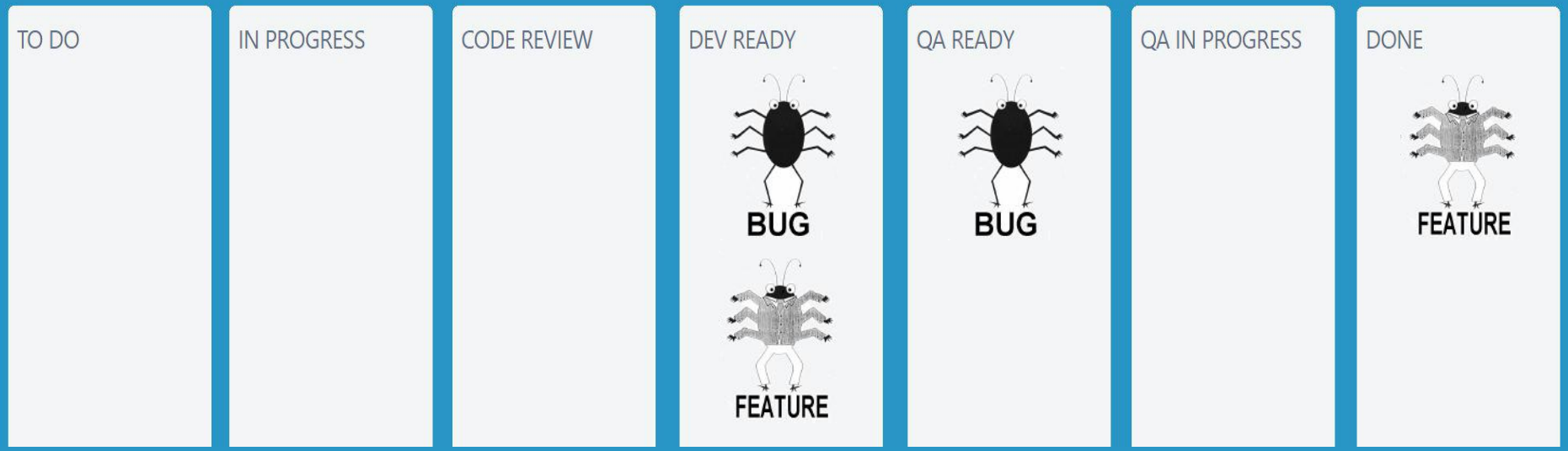
TO DO	IN PROGRESS	CODE REVIEW	DEV READY	QA READY	QA IN PROGRESS	DONE
FEATURE  BUG			BUG			



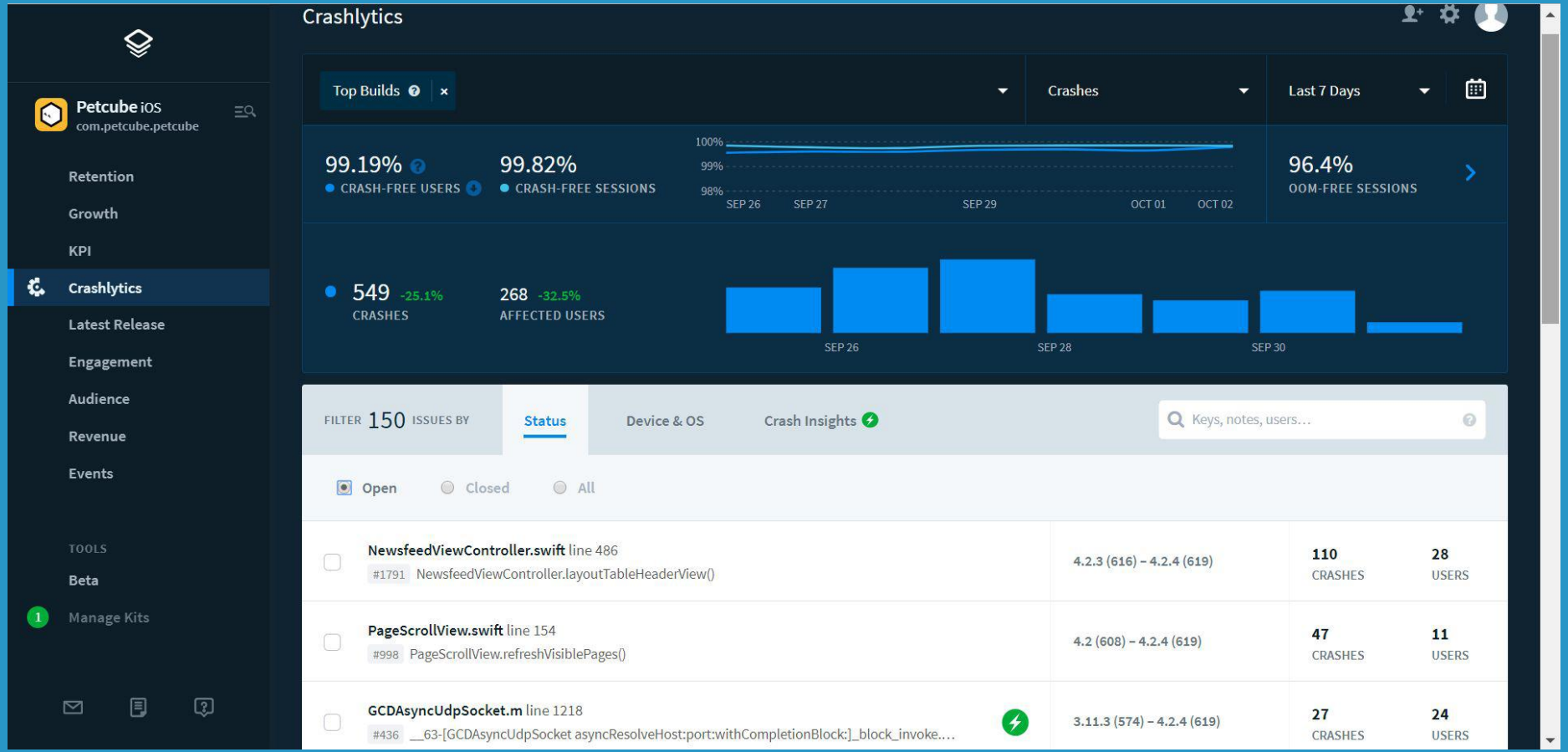
Project issue/ticket workflow

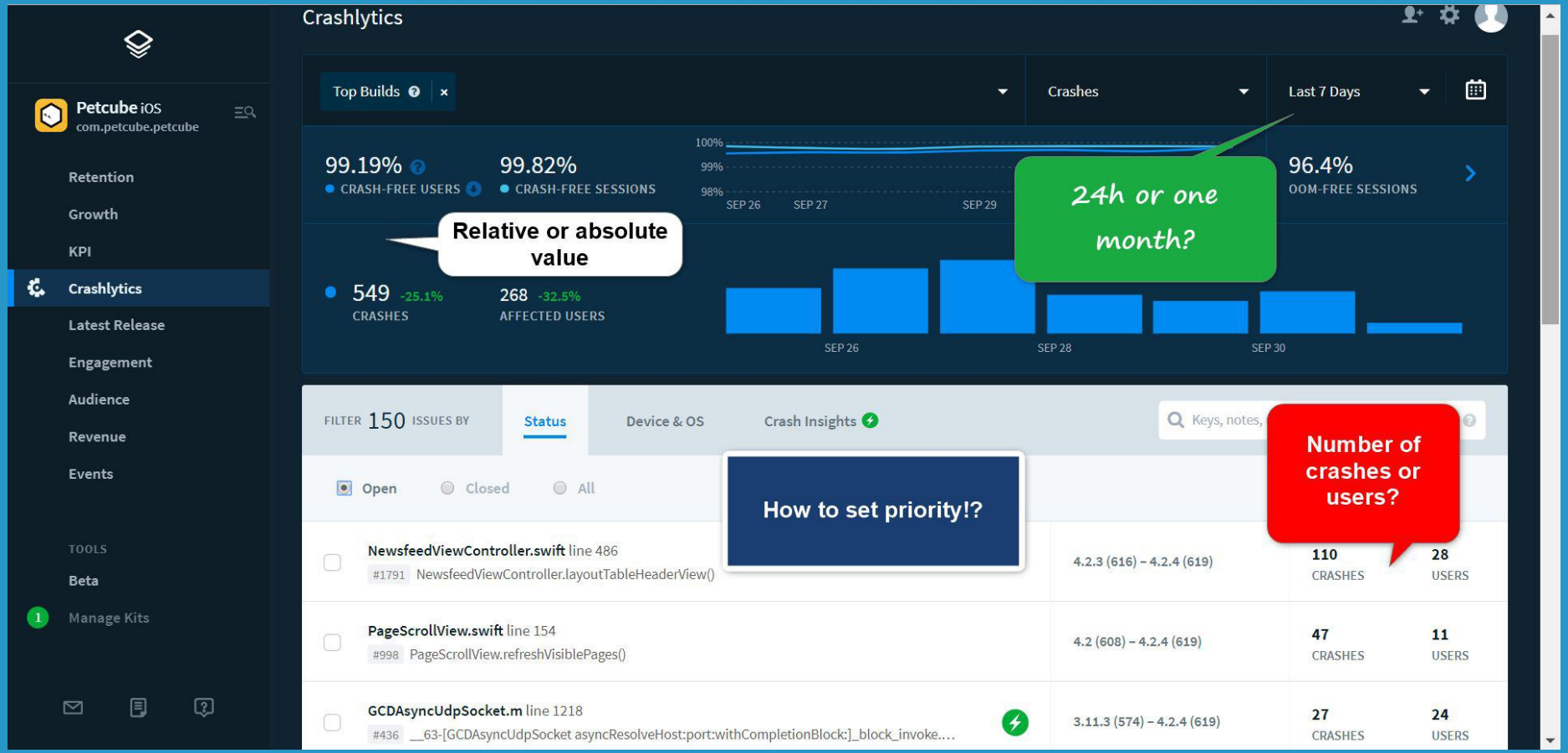


Project issue/ticket workflow



Quick win 3
Mobile app handling


Crashlytics
Petcube iOS
com.petcube.petcube
Retention
Growth
KPI
Crashlytics
Latest Release
Engagement
Audience
Revenue
Events
TOOLS
Beta
Manage Kits
1
Top Builds
Crashes
Last 7 Days
99.19%
CRASH-FREE USERS
99.82%
CRASH-FREE SESSIONS
100%
99%
98%
SEP 26
SEP 27
SEP 29
OCT 01
OCT 02
96.4%
OOM-FREE SESSIONS
549 -25.1%
CRASHES
268 -32.5%
AFFECTED USERS
SEP 26
SEP 28
SEP 30
FILTER 150 ISSUES BY
Status
Device & OS
Crash Insights
Keys, notes, users…
Open
Closed
All
NewsfeedViewController.swift line 486
#1791 NewsfeedViewController.layoutTableHeaderView()
4.2.3 (616) – 4.2.4 (619)
110 CRASHES
28 USERS
PageScrollView.swift line 154
#998 PageScrollView.refreshVisiblePages()
4.2 (608) – 4.2.4 (619)
47 CRASHES
11 USERS
GCDAsyncUdpSocket.m line 1218
#436 __63-[GCDAsyncUdpSocket asyncResolveHost:port:withCompletionBlock:]_block_invoke....
3.11.3 (574) – 4.2.4 (619)
27 CRASHES
24 USERS


Crashlytics
Petcube iOS
com.petcube.petcube
Retention
Growth
KPI
Crashlytics
Latest Release
Engagement
Audience
Revenue
Events
TOOLS
Beta
Manage Kits
Top Builds
Crashes
Last 7 Days
99.19%
CRASH-FREE USERS
99.82%
CRASH-FREE SESSIONS
100%
99%
98%
SEP 26
SEP 27
SEP 29
96.4%
OOM-FREE SESSIONS
Relative or absolute value
24h or one month?
549 -25.1%
CRASHES
268 -32.5%
AFFECTED USERS
SEP 26
SEP 28
SEP 30
FILTER 150 ISSUES BY
Status
Device & OS
Crash Insights
Keys, notes,
Open
Closed
All
How to set priority!?
Number of crashes or users?
NewsfeedViewController.swift line 486
#1791 NewsfeedViewController.layoutTableHeaderView()
4.2.3 (616) – 4.2.4 (619)
110 CRASHES
28 USERS
PageScrollView.swift line 154
#998 PageScrollView.refreshVisiblePages()
4.2 (608) – 4.2.4 (619)
47 CRASHES
11 USERS
GCDAsyncUdpSocket.m line 1218
#436 __63-[GCDAsyncUdpSocket asyncResolveHost:port:withCompletionBlock:]_block_invoke....
3.11.3 (574) – 4.2.4 (619)
27 CRASHES
24 USERS

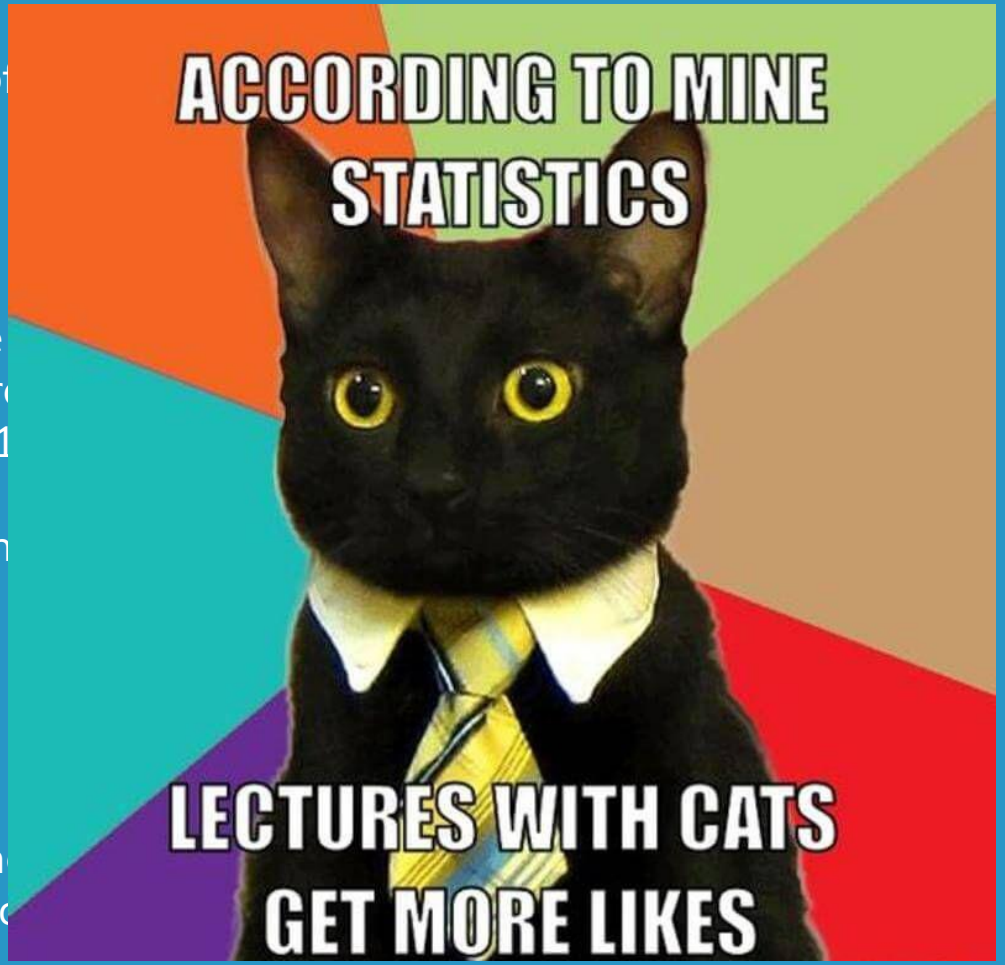
Lets calculate statistics

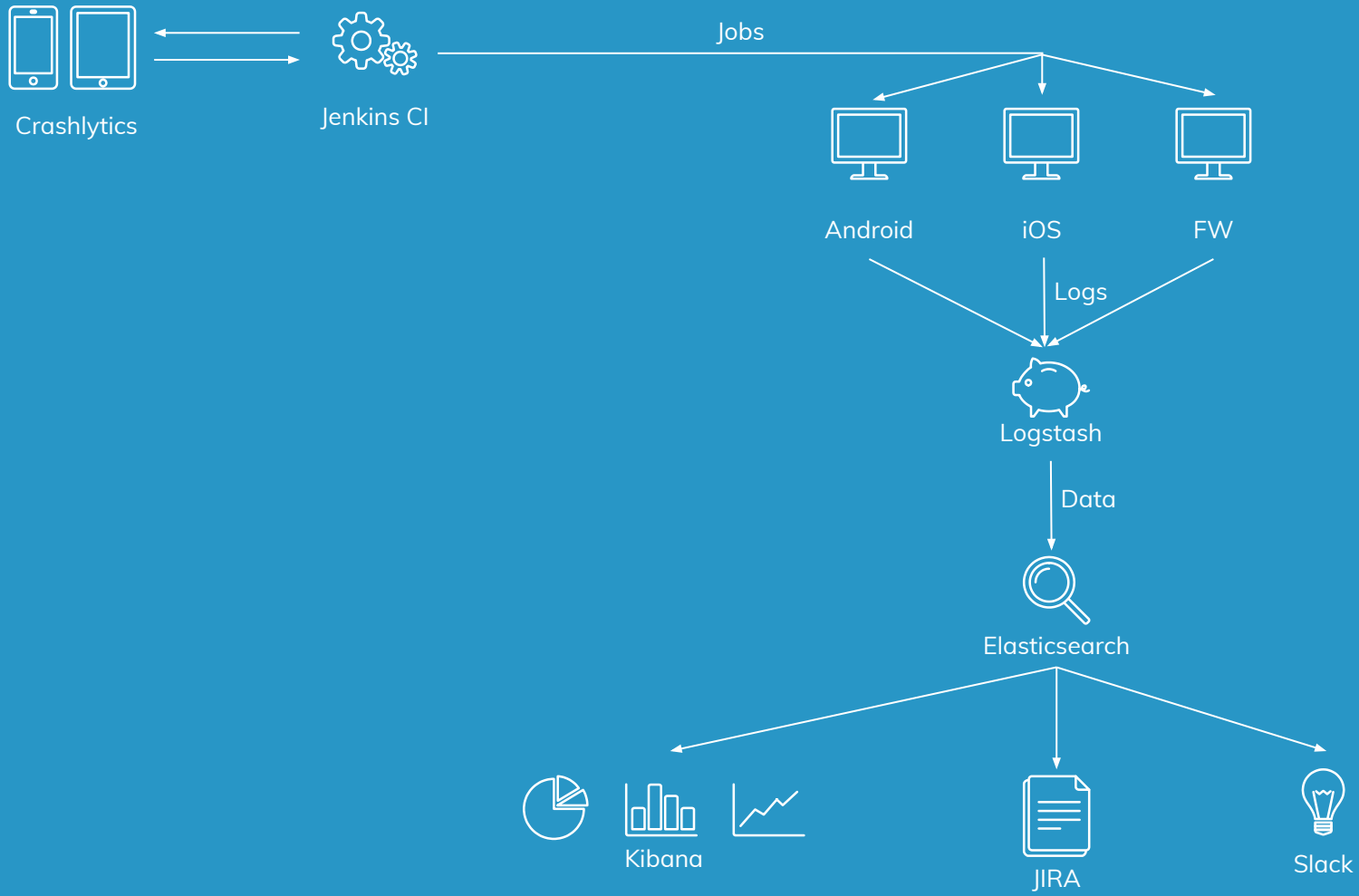
Number of Occurrences and the number of
We have following monthly stats:
iOS = 44.4 WAU
Android = 12.3k WAU

99.5% crash free sessions is a bottom line
- ➜ iOS: Less than 44.4k * 0.005 = 222 cr
- ➜ Android: Less than 12.3k * 0.005 = 61

Crashed devices per week (CDpW) as a th
- ➜ > CDpW = Blocker
- ➜ > 50% * CDpW = Critical
- ➜ > 20% * CDpW = High
- ➜ < 20% * CDpW = Middle

One more condition as Blocker is: Occuren
customer experiences this crash 3 times ec




Crashlytics
Jenkins CI
Jobs
Android
iOS
FW
Logs
Logstash
Data
Elasticsearch
Kibana
JIRA
Slack

1–33 of 33

Columns

T	Key	Summary	Assignee	Reporter	P	Status	Resolution	Created	Updated	Due	Epic Link
	IOS-371	Crashlytics: "pet_net_io_read"		QA Bot		CLOSED	Fixed	24/Apr/18	06/Jul/18		
	ANDROID-1555	Crashlytics: PetcRepositorySync.java line 184		QA Bot		CLOSED	Fixed	24/Apr/18	02/Jul/18		
	ANDROID-1556	Crashlytics: GameComposeUseCaseImpl.java line 838		QA Bot		CLOSED	Fixed	24/Apr/18	05/Jul/18		
	ANDROID-1557	Crashlytics: libc.so		QA Bot		REOPENED	*Unresolved*	24/Apr/18	02/Oct/18		
	ANDROID-1558	Crashlytics: libpjsipPetcube.so		QA Bot		REOPENED	*Unresolved*	24/Apr/18	02/Oct/18		
	IOS-402	Crashlytics: PhotoLibraryGridViewController.swift line 0		QA Bot		CLOSED	Fixed	04/May/18	11/May/18		
	IOS-409	Crashlytics: "__44-[PCPJSIPVideoPlayer didReceiveRenderFrame:]_block_invoke"		QA Bot		REOPENED	*Unresolved*	08/May/18	23/Sep/18		
	IOS-412	Crashlytics: "NewsfeedPresentersPool.itemDidBecomeHidden(at : Int) -> ()"		QA Bot		CLOSED	Fixed	10/May/18	07/Jun/18		
	ANDROID-1582	Crashlytics: FileProviderUtil.java line 25		QA Bot		CLOSED	Fixed	19/May/18	25/Jun/18		
	IOS-440	Crashlytics: AWSSignature.m line 652		QA Bot		OPEN	*Unresolved*	26/May/18	21/Sep/18		

Don’t forget about resolved bugs!
They are like your wife or girlfriend -
they love to bring back the same problem after a long time…

Dawid Pacia

99 little bugs in the code,
99 little bugs,
Take one down,
Patch it around,
127 little bugs in the code.

#crashes-mobile

9 | 0 | Add a topic

Search

Monday, August 13th

jira_crashlytics APP 10:02 AM

QA Bot created Bug IOS-550

Crashlytics: UIKit

Priority

High

Saturday, August 25th

jira_crashlytics APP 7:00 AM

QA Bot created Bug ANDROID-1741

Crashlytics: AndroidPlatform.java line 63

Priority

Critical

Saturday, September 15th

jira_crashlytics APP 2:24 PM

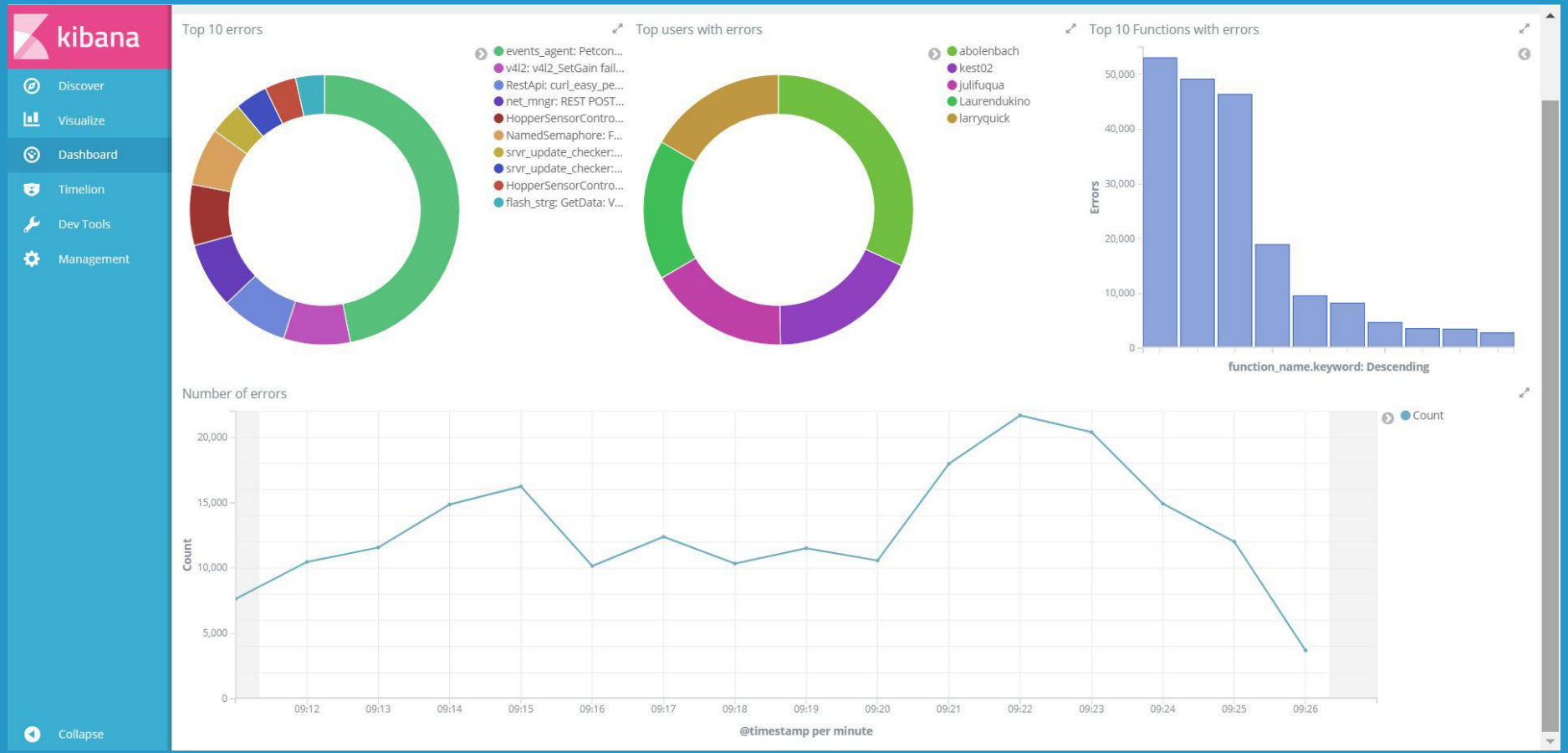
QA Bot changed Bug IOS-409 from "Closed" to "Reopened"

Crashlytics: "__44-[PCPJSIPVideoPlayer didReceiveRenderFrame:]_block_invoke"

Assignee	Creator
Dawid Pacia	QA Bot

slack

Message #crashes-mobile


kibana
Discover
Visualize
Dashboard
Timelion
Dev Tools
Management
Collapse
Top 10 errors
events_agent: Petcon...
v4l2: v4l2_SetGain fail...
RestApi: curl_easy_pe...
net_mngr: REST POST...
HopperSensorContro...
NamedSemaphore: F...
srvr_update_checker:...
srvr_update_checker:...
HopperSensorContro...
flash_strg: GetData: V...
Top users with errors
abolenbach
kest02
julifuqua
Laurendukino
larryquick
Top 10 Functions with errors
50,000
40,000
30,000
20,000
10,000
0
Errors
function_name.keyword: Descending
Number of errors
Count
20,000
15,000
10,000
5,000
0
09:12
09:13
09:14
09:15
09:16
09:17
09:18
09:19
09:20
09:21
09:22
09:23
09:24
09:25
09:26
@timestamp per minute

But...what is developer’s role in TestOps approach?

Takeaways

- TestOps provides a unique aspect for automation and quality assurance
- It plays a vital role to integrate the automated testing with Dev team for CI
- Don’t focus on tools! Focus on problem solving
- Invest your time in continuous improvement
- Incorporate “quick-wins” approach into your everyday work
- Explore and investigate!

Thanks!

Any questions?

You can find me at:

/ paciadawid

/ @dawid_py