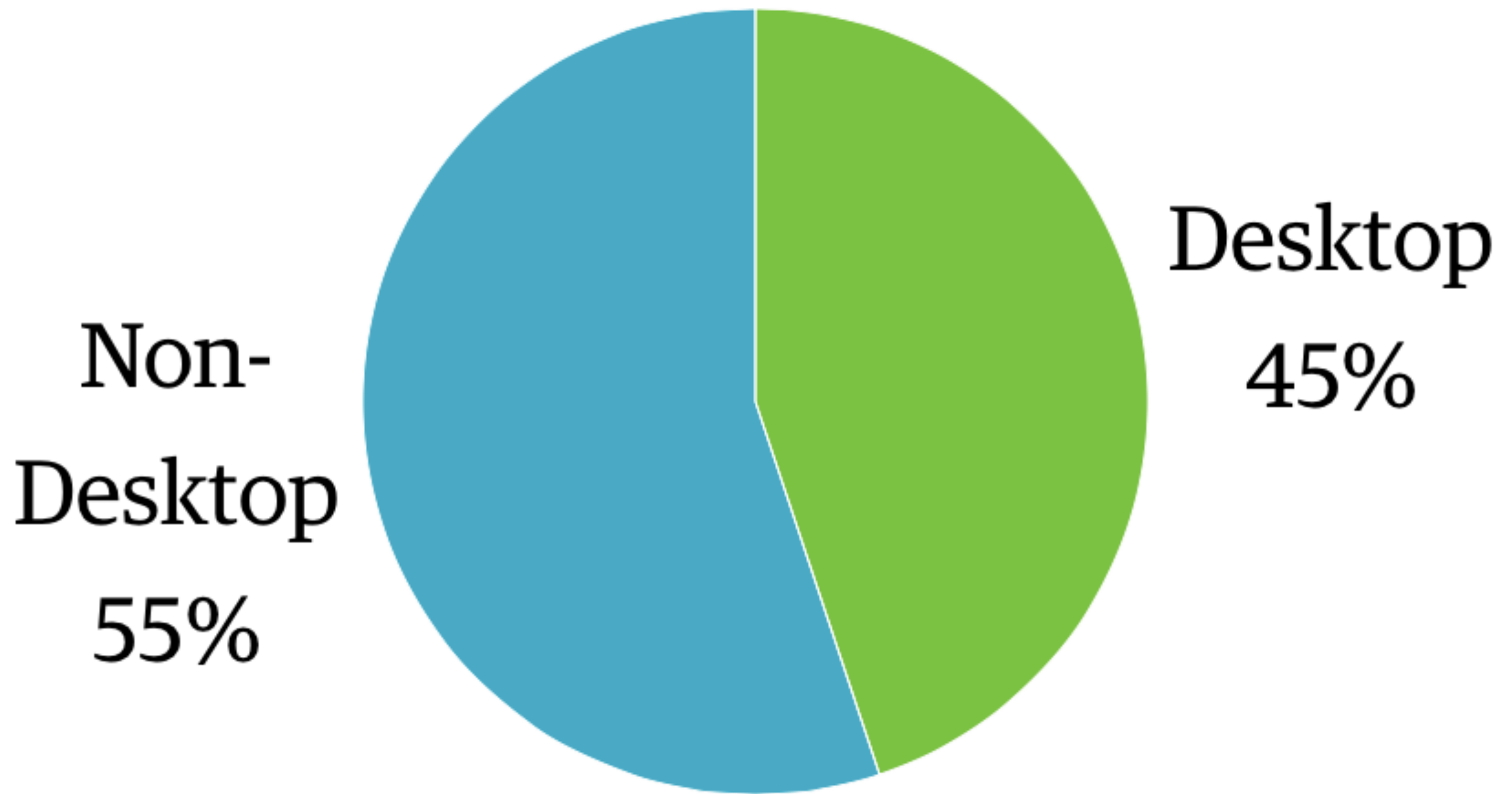


Mobile CI at Etsy

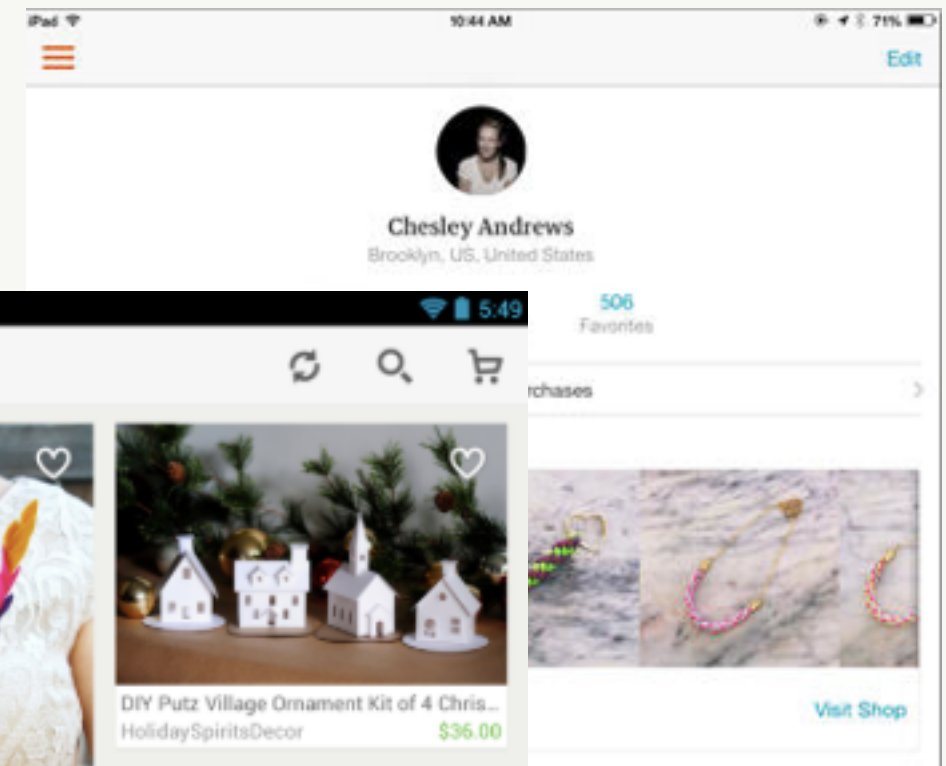
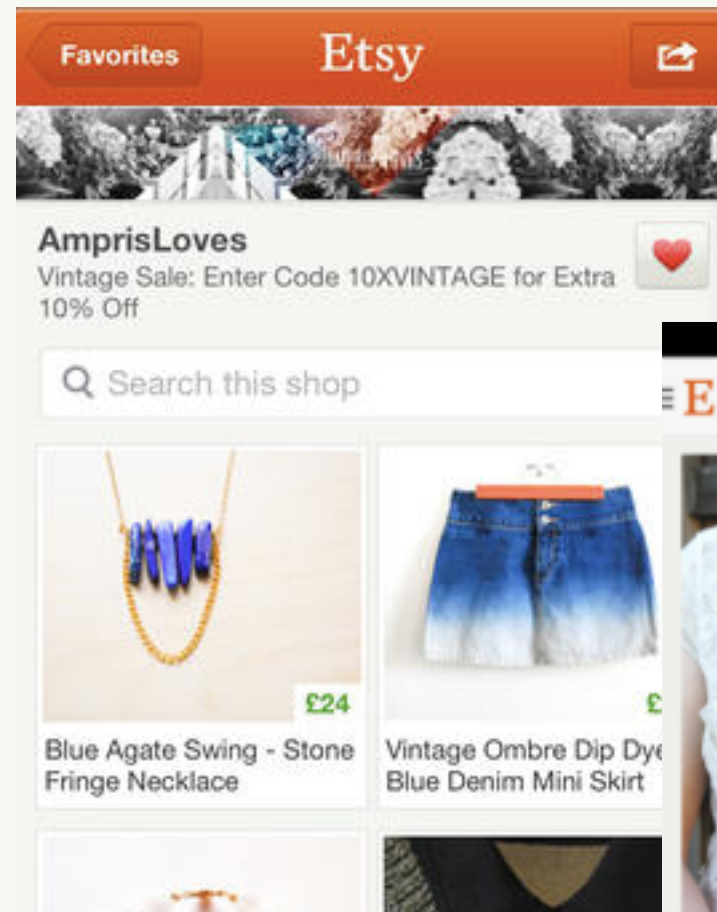
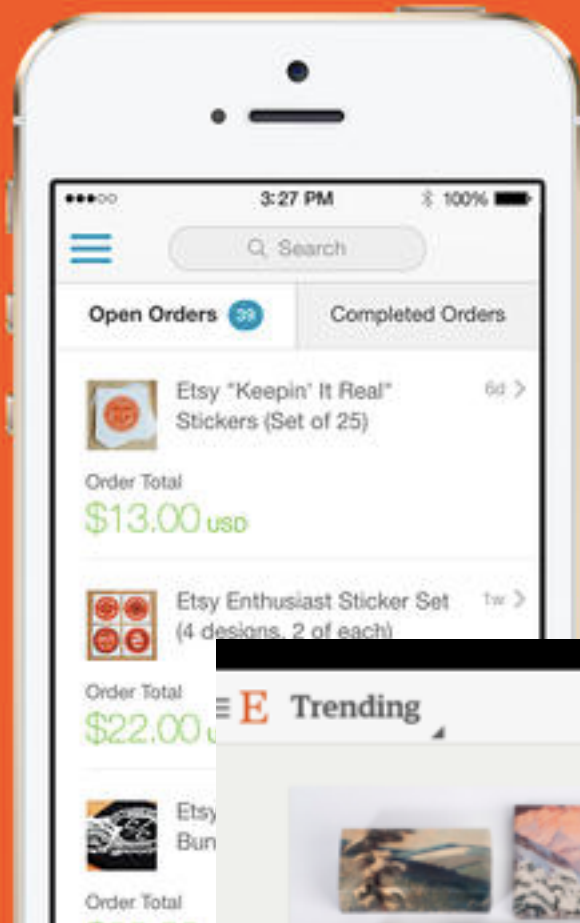
Daniel Schauenberg

dschauenberg@etsy.com

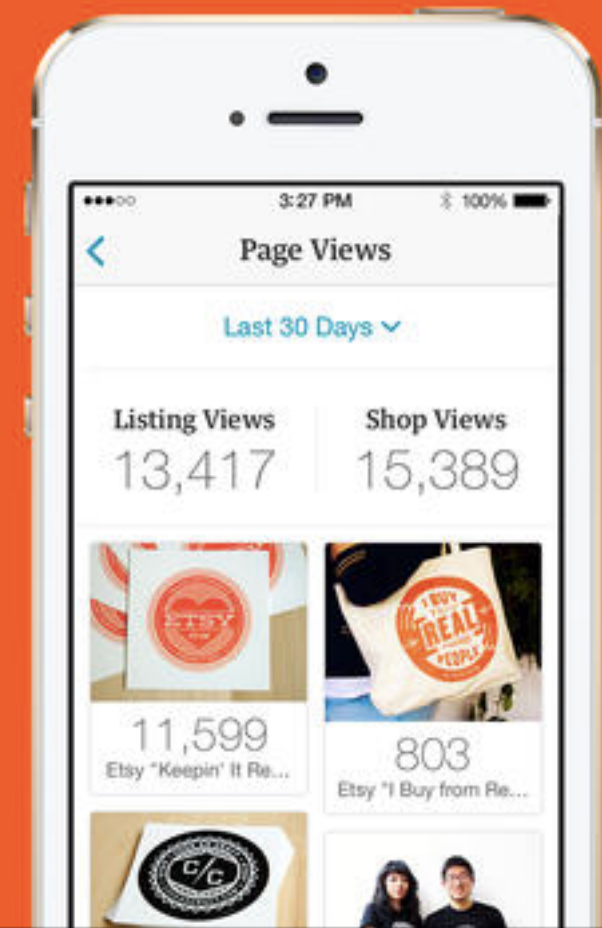
Etsy



Manage orders.



Get up-to-date stats.





Etsy

Customize

Hey, Nassim!

The native apps team releases internal builds with new features every day. Just like we all use the admin version of Etsy.com, we'd appreciate it if you can use the internal version.

Download**Ask for help****Later**

Explore



Search



You



Your Shop



Cart

**“Every commit
should build the
mainline on an
integration
machine”**

GitHub Enterprise

- All code in on-premise git repos
- Development on master branch
- Pull Requests as code reviews
- command line tool
- Jenkins GitHub pull request builder plugin

Code Reviews

Discussion

Commits 1



Files Changed 1



nkammah opened this pull request 13 hours ago

Edit

Actually fix tab toolbar insets

 jgedarovich is assigned 

No milestone 

Actually fix tab toolbar insets

✓ Good to merge — oclint passed. Good job! ([Details](#))



The Bobs

- > 350 LXC virtualized hosts
- 14 per physical hosts
- Spread over 3 SSDs
- Most of them attached to try

■ Mobile CI

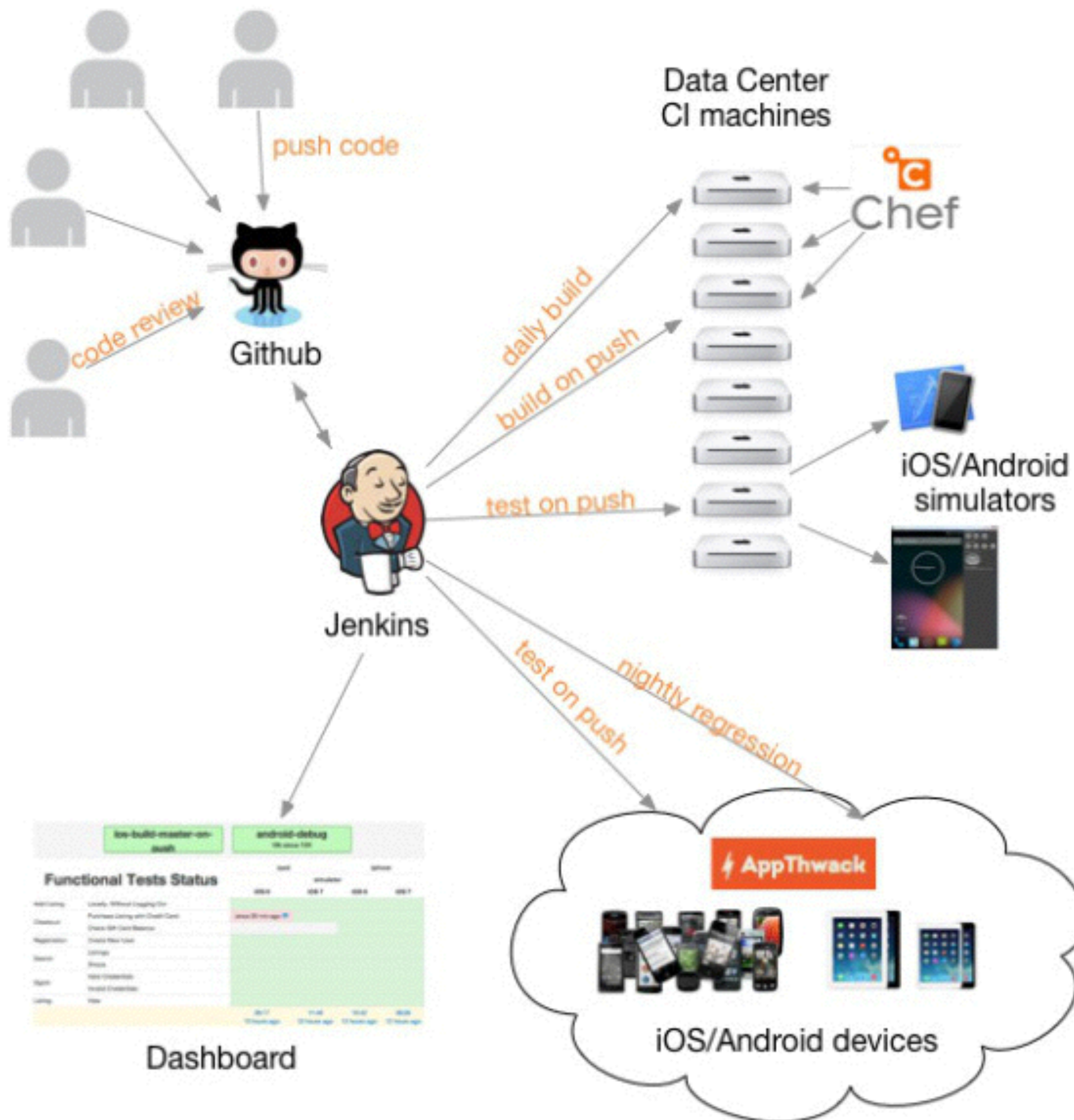
- 25 Mac Minis
- Runs Android and iOS toolchain
- Lint and build
- Unit and functional tests
- Automated with Chef



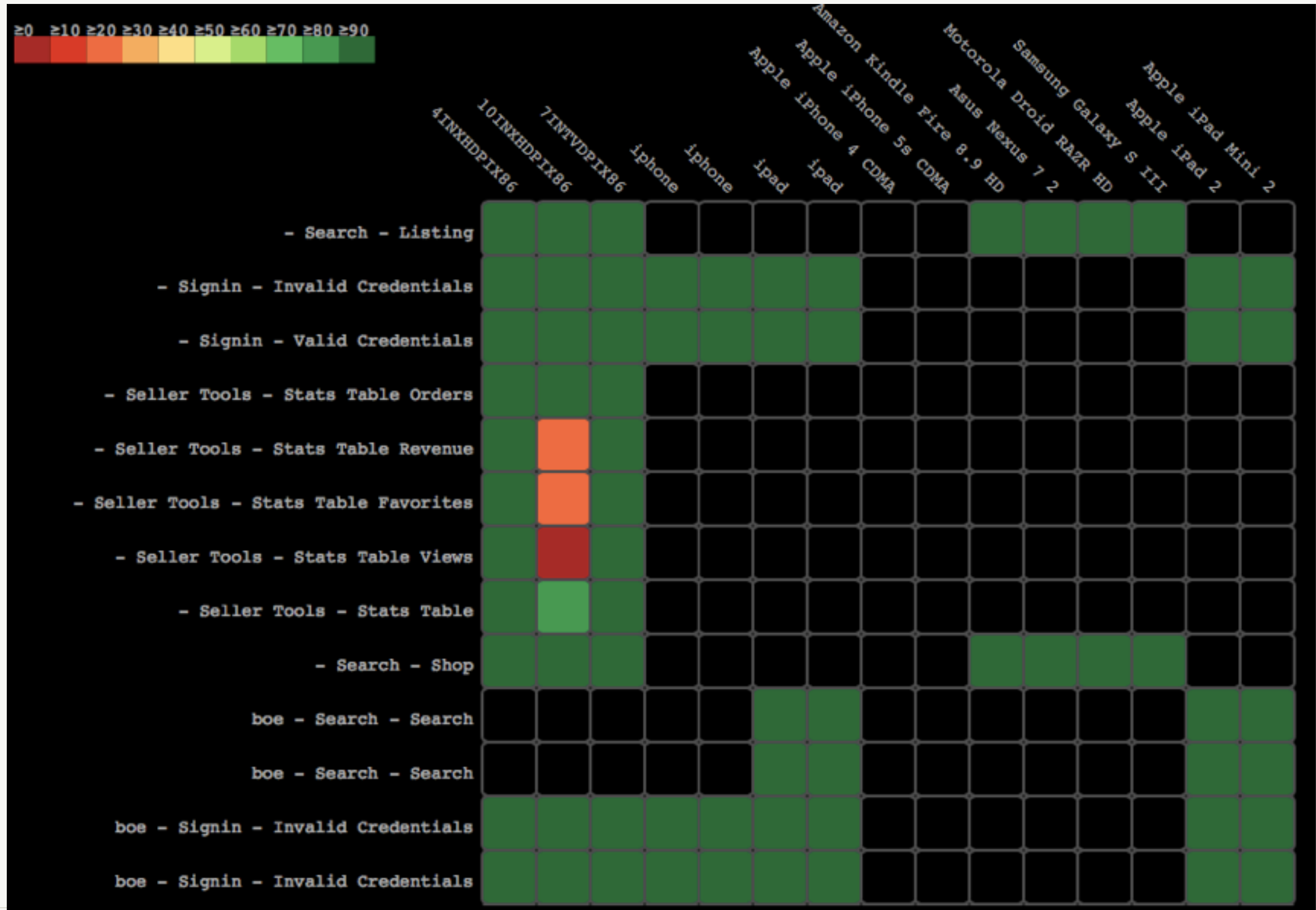
CHEFTM

CODE CAN





Put a dashboard on it



Summary and Future

- Big improvement for visibility and testability
- Repeatable tests
- Expand testing (e.g. physical devices)
- Improve automation
- Deployment!

<http://codeascraft.com>

<http://codeascraft.com/2014/02/28/etsys-journey-to-continuous-integration-for-mobile-apps/>

<http://codeascraft.com/2013/08/09/mobile-device-lab/>

<https://www.etsy.com/careers>

Mobile CI at Etsy

Daniel Schauenberg

dschauenberg@etsy.com

Wunderlist: the high Volume, Multi-Master, Cross-Platform, Distributed Database System

@chadfowler



Wunderlist

HELLO WORLD!!!!!!!!!!!!!!!!!!!!!!

build a todo list application

Web

Images

Videos

Shopping

Ne

About 228,000,000 results (0.97 seconds)

Why it's hard

- Sync
- Scale
- Real-time

Sync

Add an item in "GOTO Amsterdam"...

- ☐ TODO is the new Hello World
- ☐ What's Hard?
- ☐ What does Wunderlist do?
- ☐ How would you implement sync for one device and one user

☐

How would you implement sync for one device and one user

★

☐

Set due date

☐

Remind me

☐

KISS - Full download, full uploading

☐

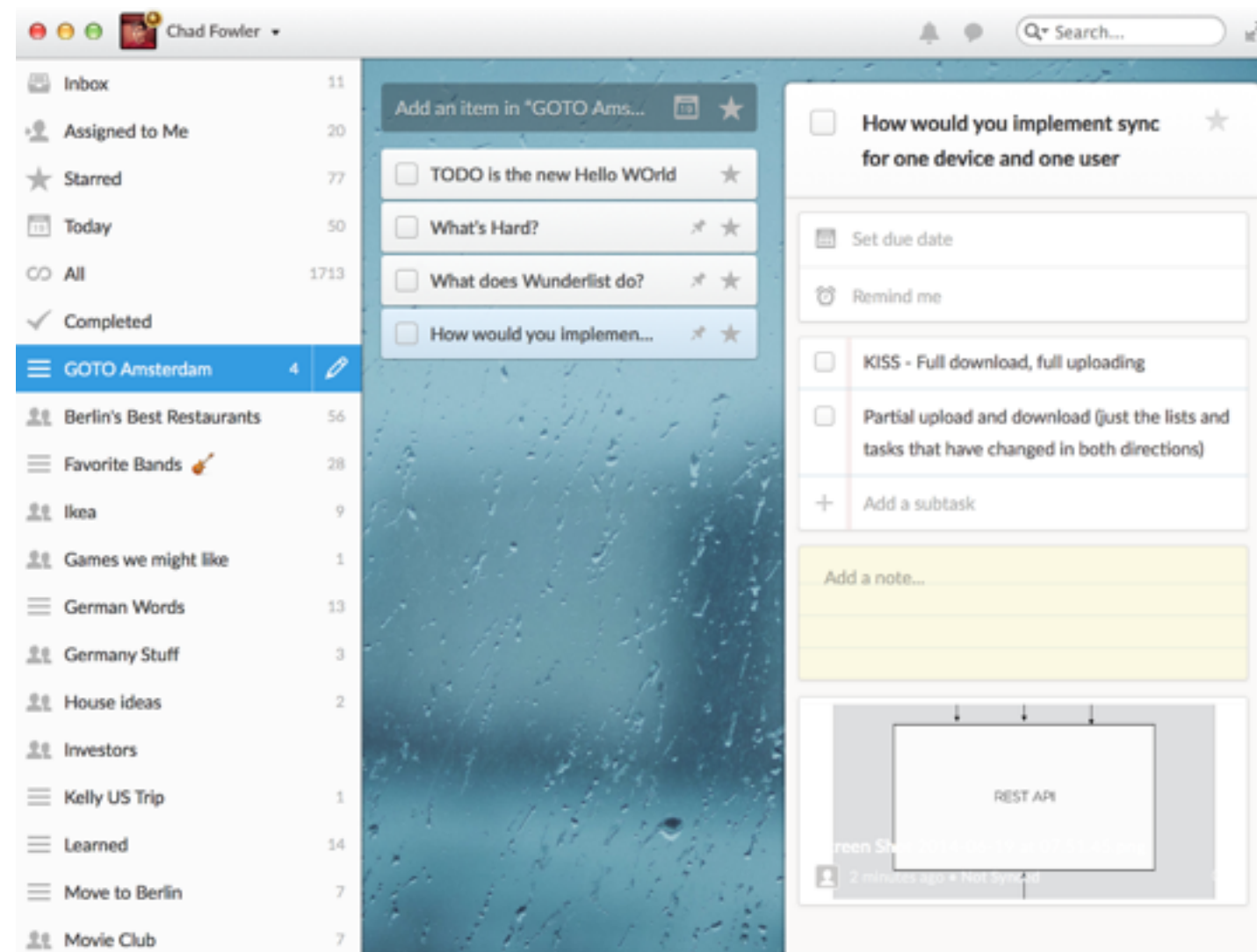
Partial upload and download (just the lists and tasks that have changed in both directions)

☐

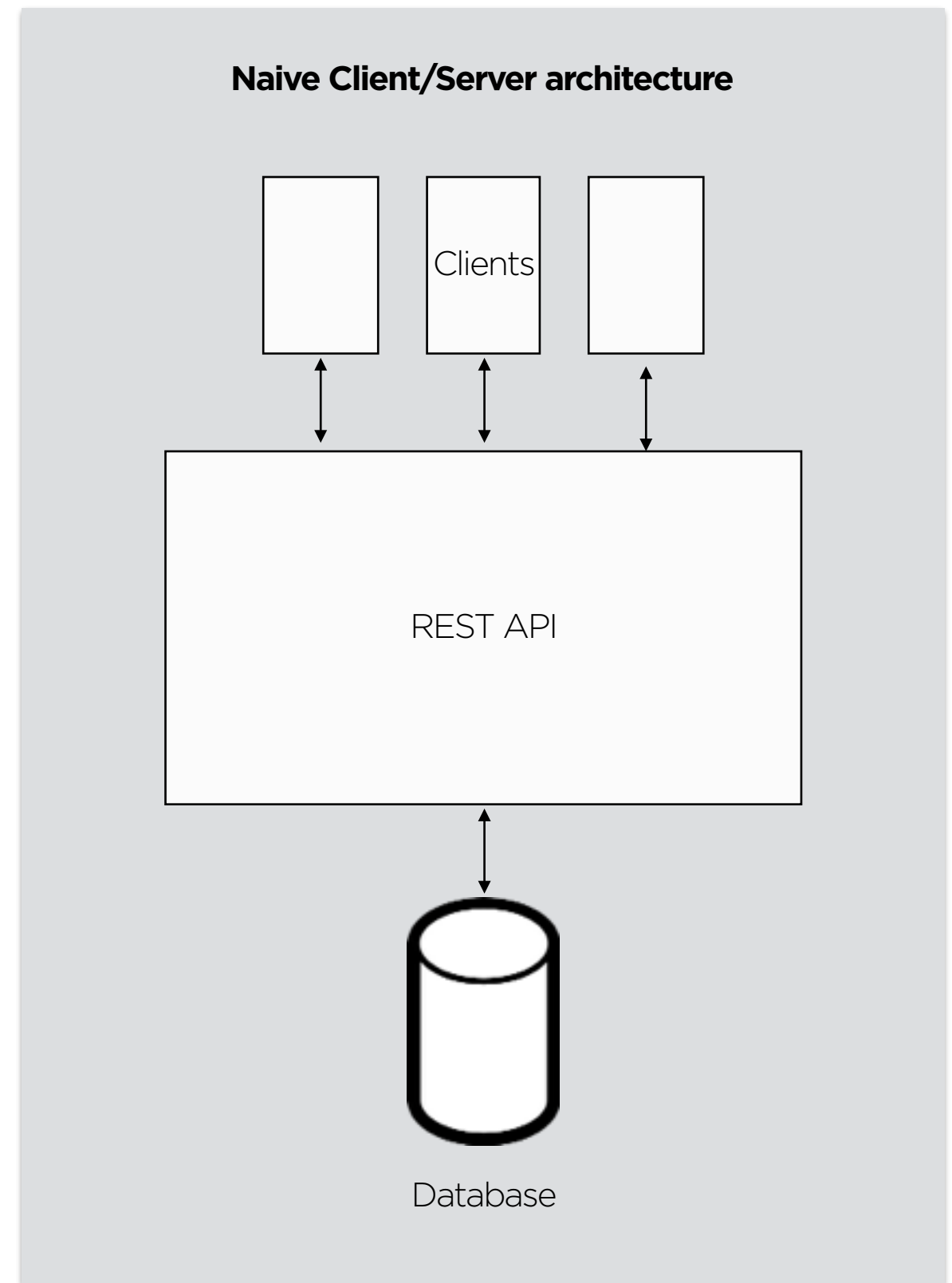
Add a subtask

Add a note...

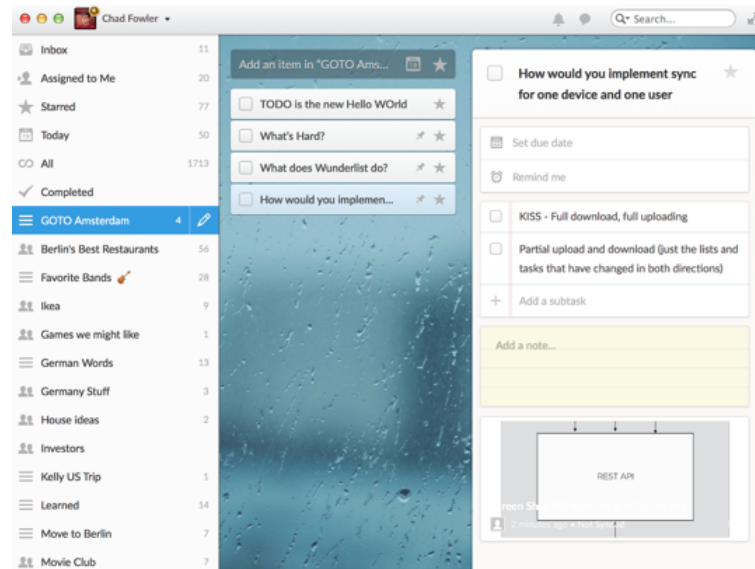
One user.
One device.



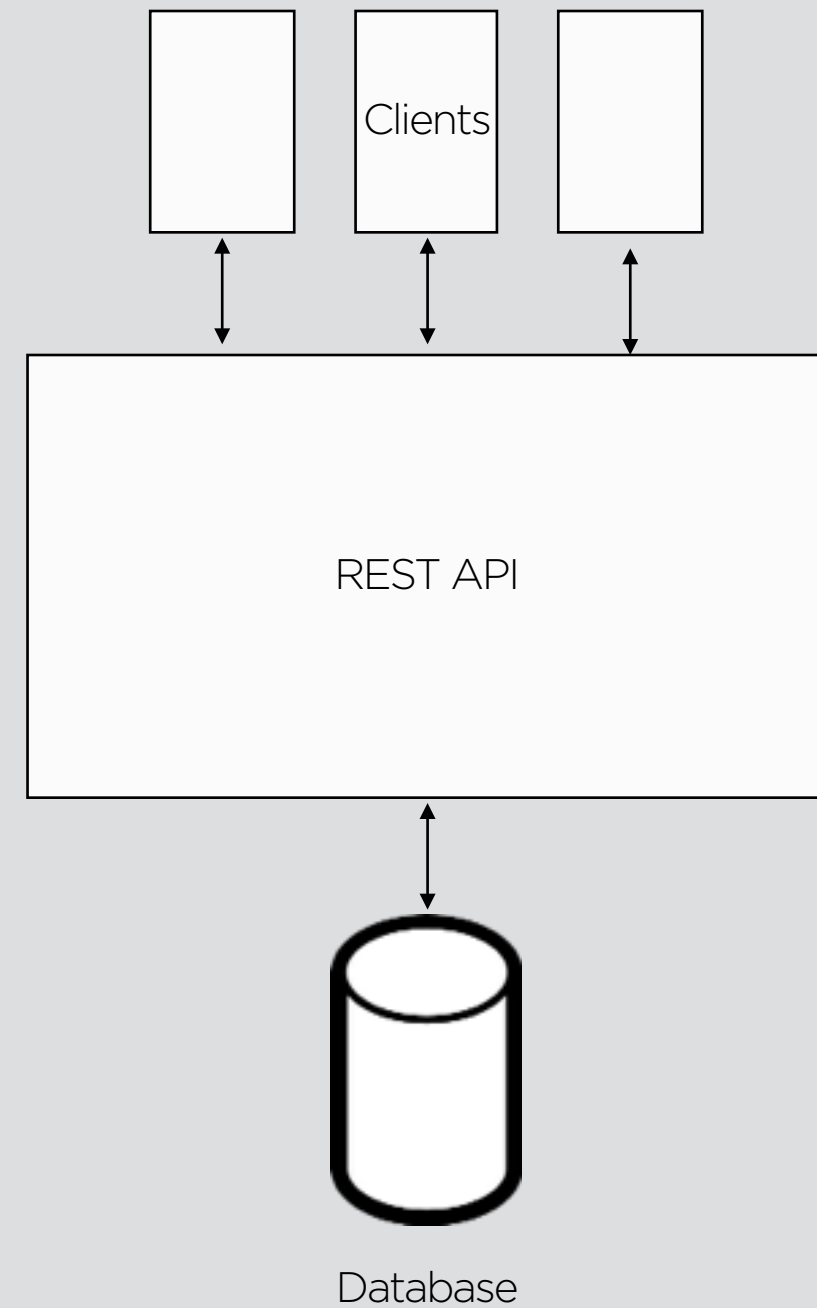
KISS



One user.
Multiple devices.



Naive Client/Server architecture



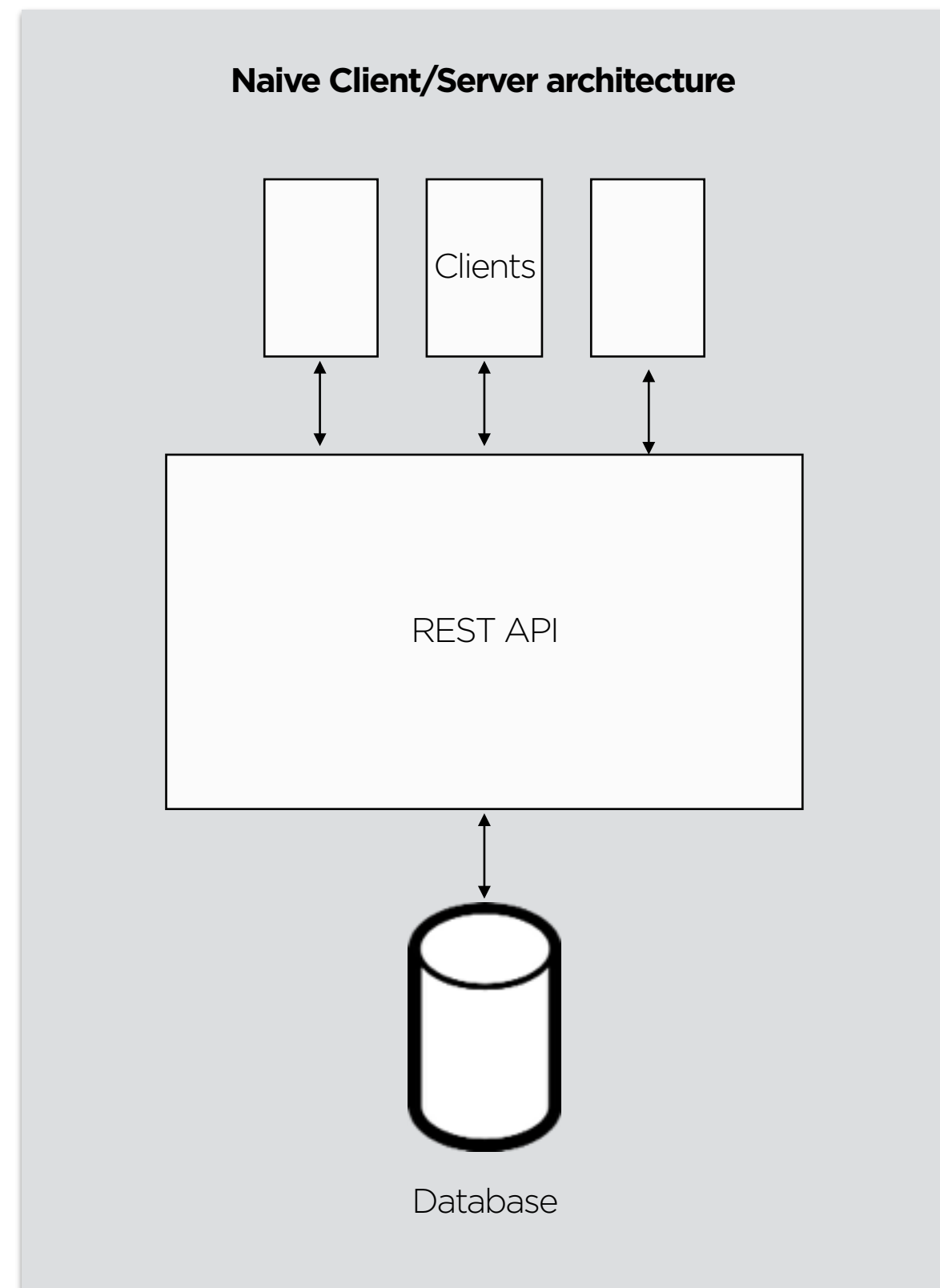
Too much data? Only
sync things that
changed.

How do we know what
changed? Server
timestamp.

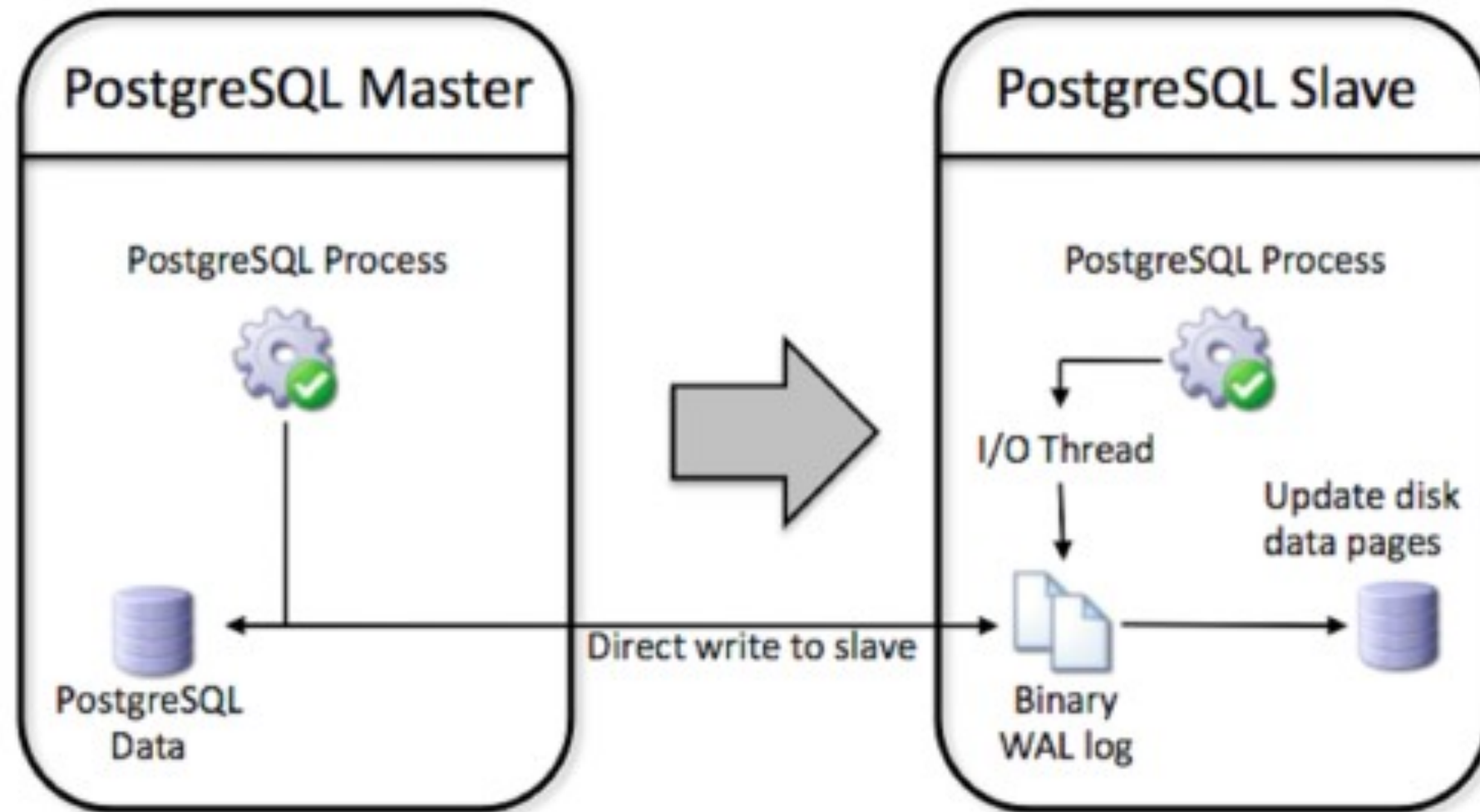
How
char

what
rver

Millions of users.
Multiple devices.



Timestamps don't work unless you only have one computer



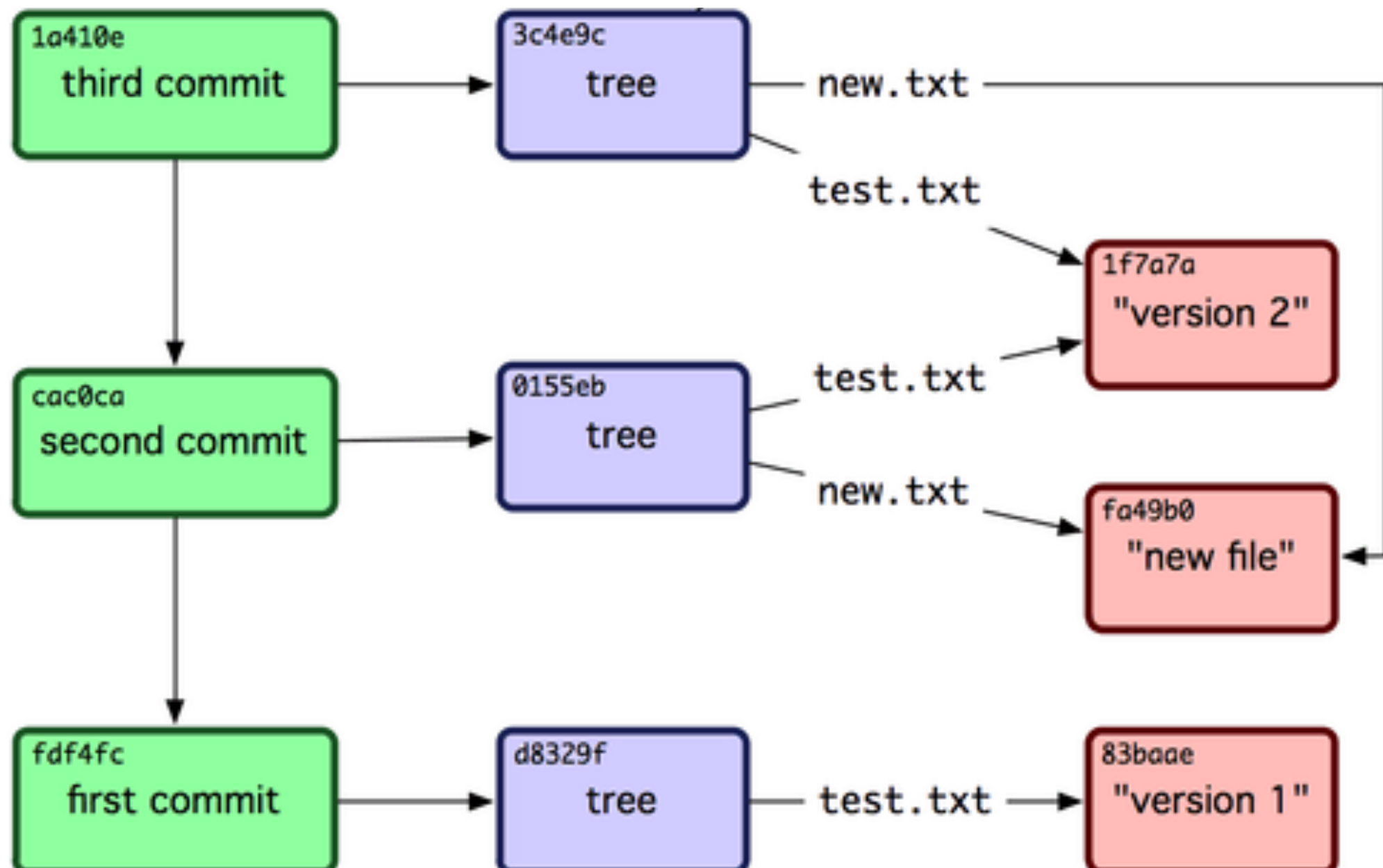
Possible Solutions/ Inspiration

- Operational Transformation (Google Wave)
- Vector Clocks (ala Riak, etc.)
- LDAP/LDIF

WWGD?



git



Changes form a tree

Merge on clients

Scale



Polling

Things to Kill

- Monoliths
- Caching
- Auto-Sharding
- Smart stuff

Solution: Simplicity

- “Stupid” is a good word
- Optimize the stupid thing
- Solve simple problems. Defer difficult problems.

Small is Simple

- Small apps
- Small data
- Small traffic

root

user

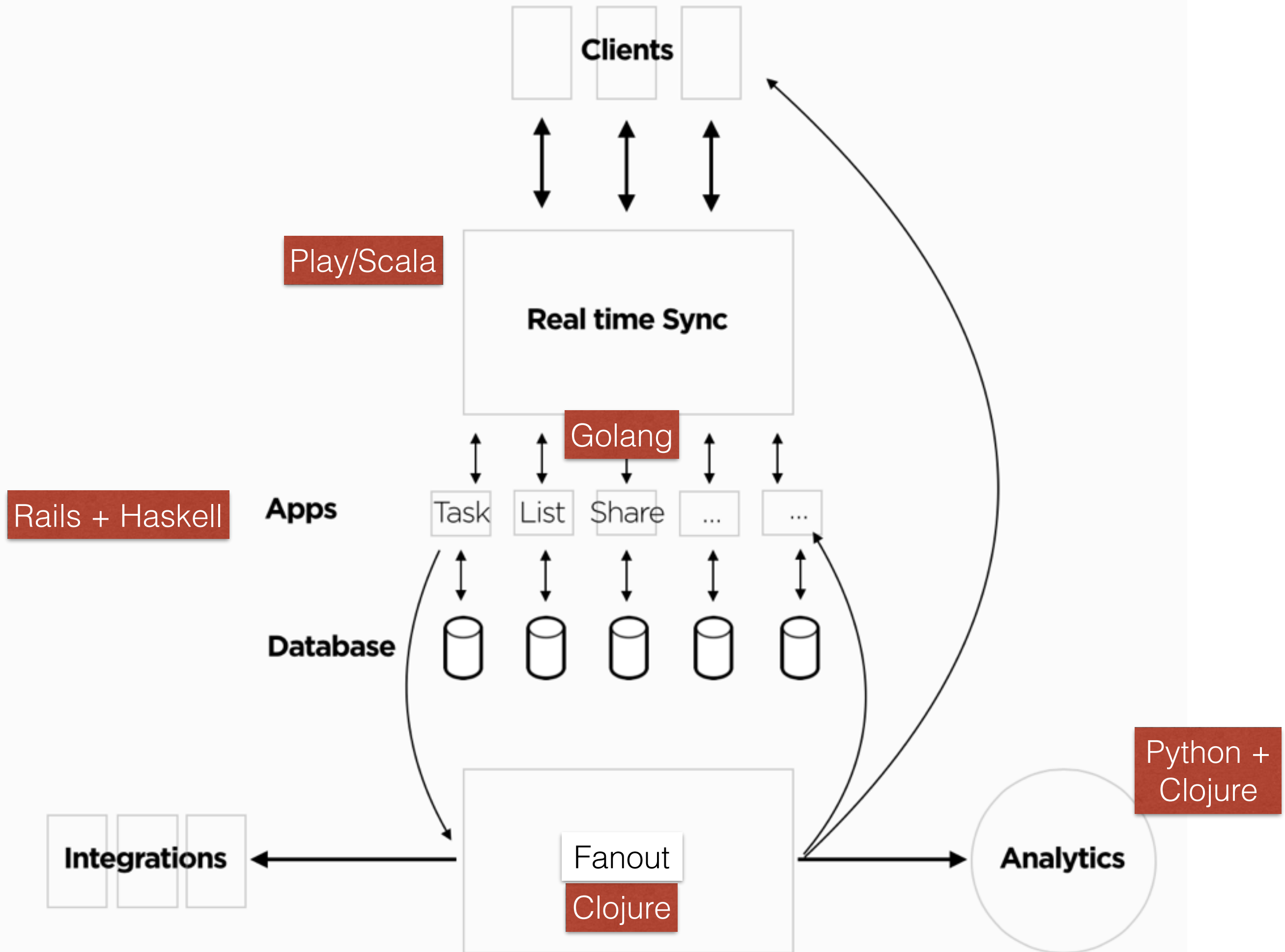
lists

tasks



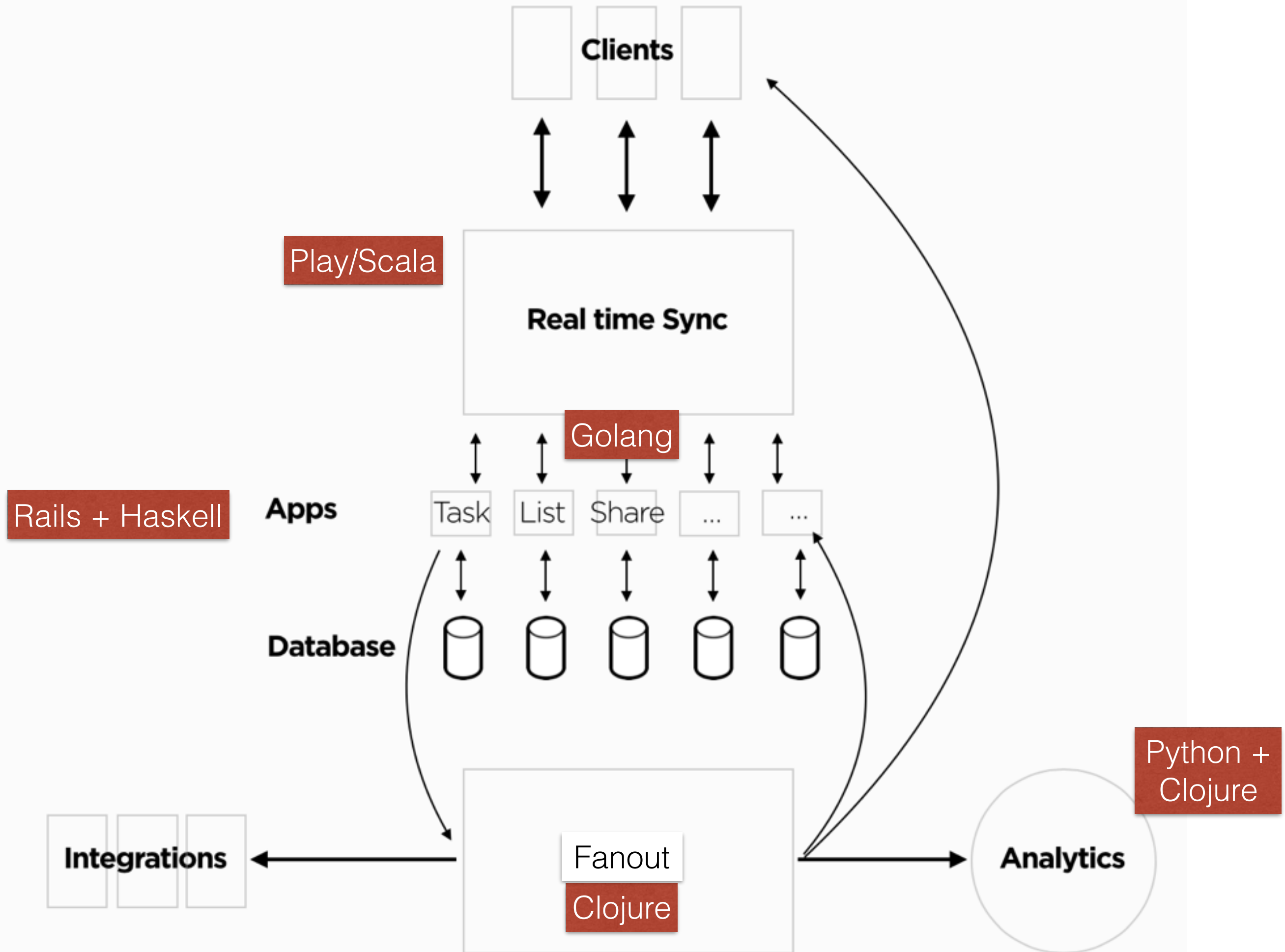
...and so on

Real-time



We love Play Framework

```
def ws = WebSocket.using[String] { request =>
  val in = Iteratee.foreach[String](println).map { _ =>
    println("Disconnected")
  }
  val out = Enumerator("Hello from the server!") (in, out)
}
```



Please evaluate
this talk via the
mobile app!



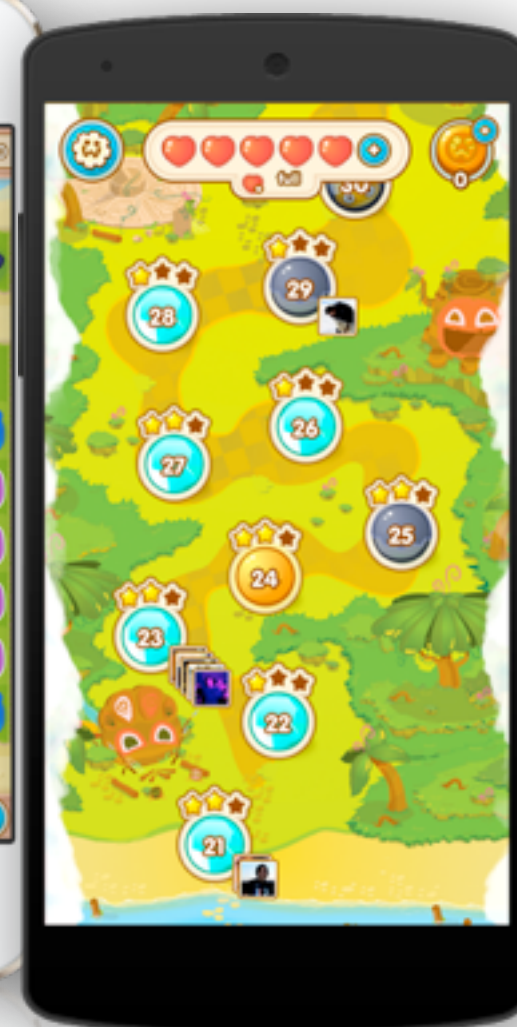
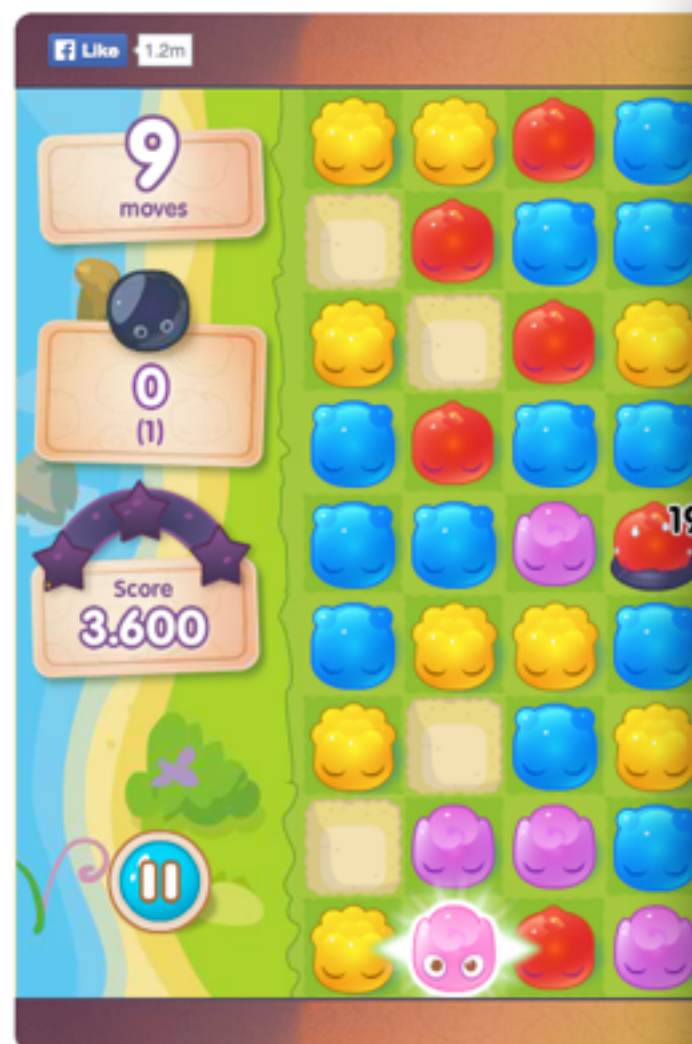
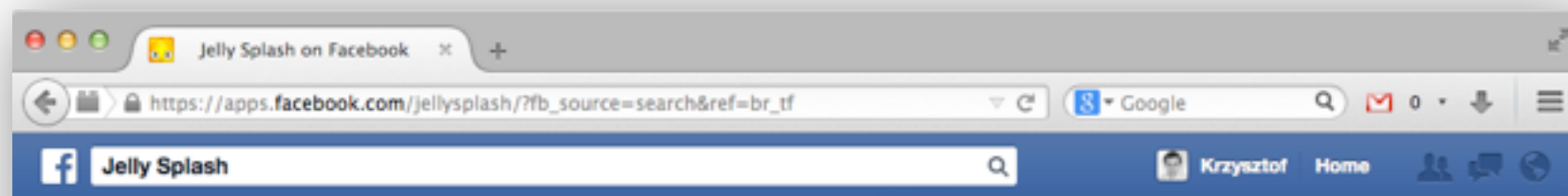
There should be Service for that

Jesper Richter-Reichhelm
@jrrei





Wooga





Data



AB Tests
Analytics

Errors for Jelly Splash Flash Last 30 Minutes (Ending now)



Errors

First II	Last II	Severity II	Reason and Action II	Count Affected Users II	Count Total II
05/14/2014 20:28	05/14/2014 20:58	error	com.adobe.serialization.json.JSONParseError action missing	18	18
05/14/2014 20:14	05/14/2014 20:50	error	Error Error	96	363
05/14/2014 20:14	05/14/2014 20:50	error	com.adobe.serialization.json.JSONParseError action missing	18	18
11/11/2014 11:11	11/11/2014 11:11	severity II	Reason and Action II	Count Affected Users II	Count Total II

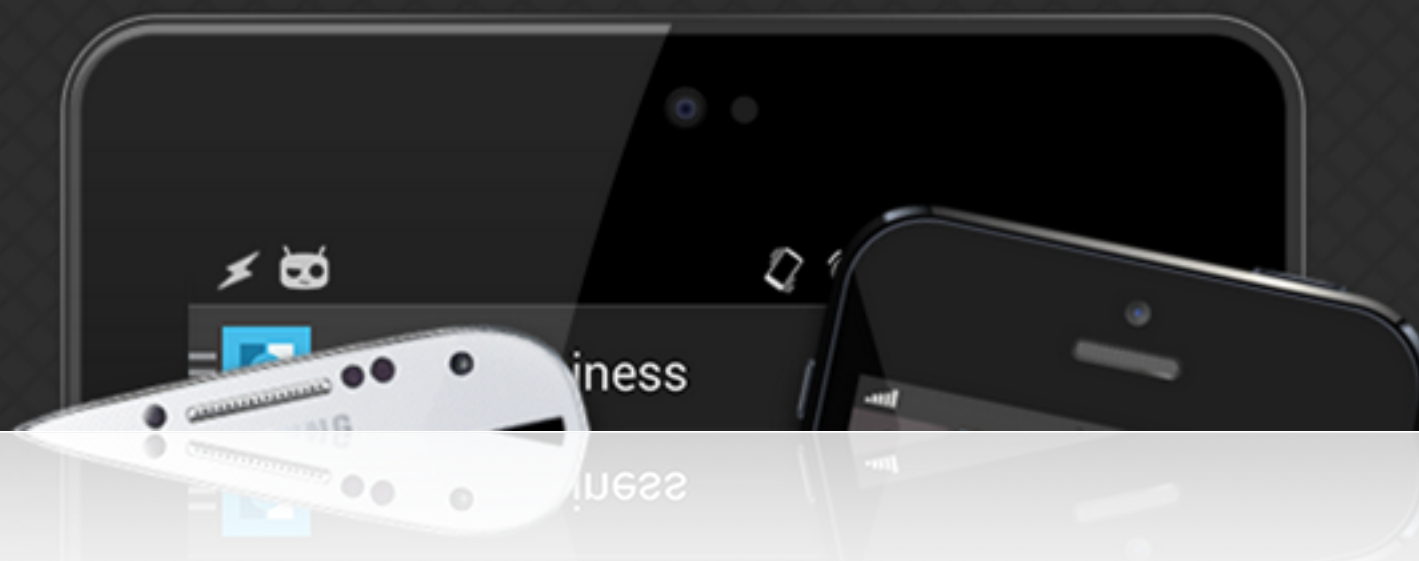


A photograph of a server rack containing several IBM xSeries 336 servers. The servers are stacked vertically, and the word "Data" is overlaid in large, bold, black font in the center of the image. The servers have "eServer" and "IBM" logos, and "xSeries 336" labels. A yellow warning sign is visible on the left side of the rack.

Data

THE SHORTEST PATH BETWEEN YOU AND YOUR APPS

We help enterprises, agencies, and developers launch
successful and engaging apps on our platform

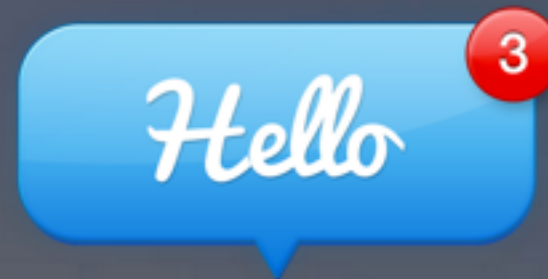
[Customers on Kinvey](#)[Learn More](#)

The perfect solution for your apps

Focus on creating a great user experience and stop worrying about server maintenance and complex infrastructure.



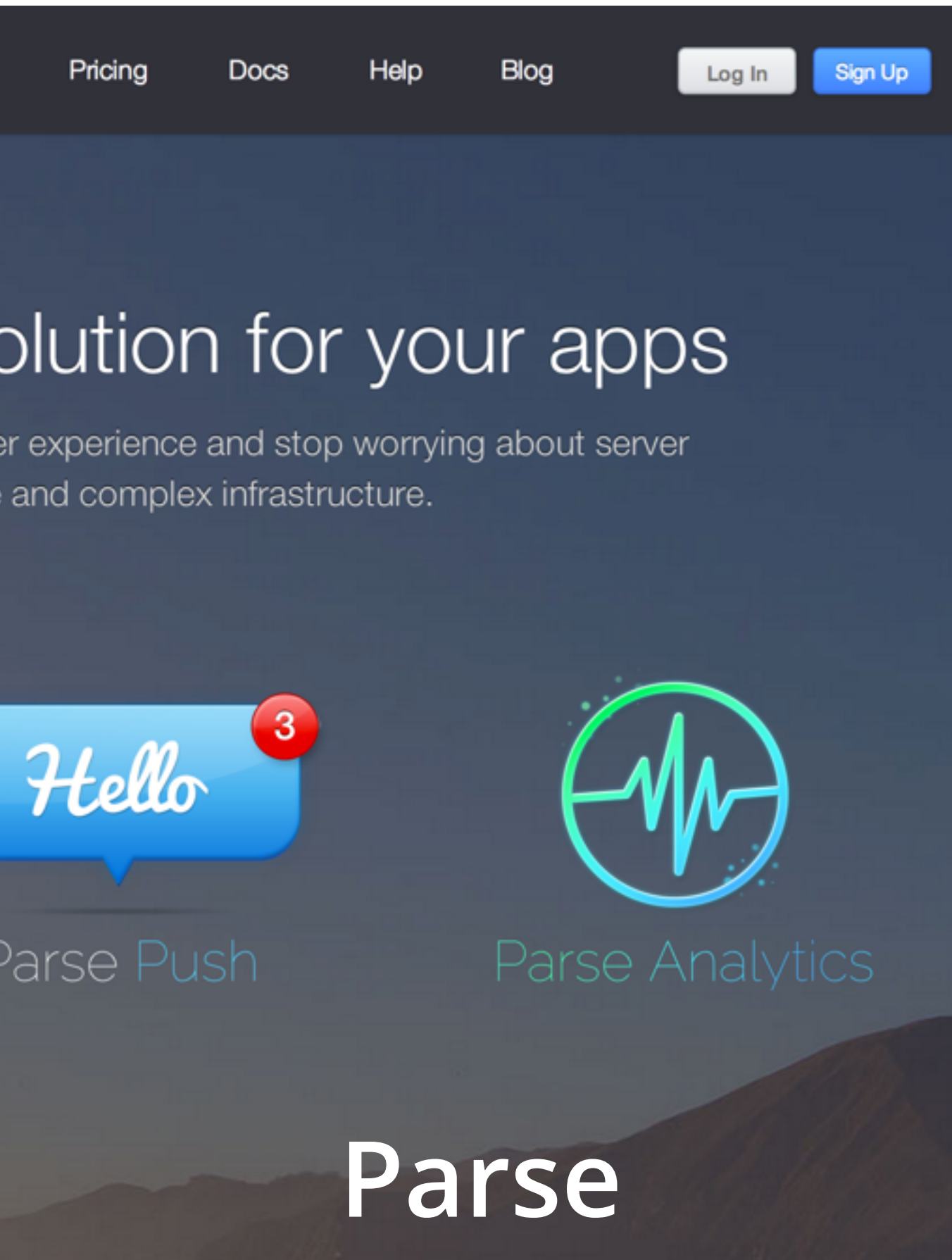
Parse Core



Parse Push



Parse Analytics



No consistency

No environments

No configuration



Simple Backend Services



K/V Store w/ Etags

Config service

Authorisation

Backend Services

PUT /scores/TF2L85FaEudCJLvoiTWnJ4mBsKm HTTP/1.1

Host: ~~sbs.mega.com~~

Accept: */*

X-SBS-DATE: Wed, 14 May 2014 10:39:34 -0000

X-SBS-ID: test_id

Authorization: SBS Kmor33Zl8skqQkqhrPLAh99KcSO:wL8X16zzASlPvReIPvnHU6RFdI8=

Content-Type: application/json

X-SBS-USER-ID: TF2L85FaEudCJLvoiTWnJ4mBsKm

Content-Length: 35

{"format_version":1,"my_score":234}

{„format_version“:1,„my_score“:234}

Content-Length: 35

X-SBS-USER-ID: TF2L85FaEudCJLvoiTWnJ4mBsKm

HTTP/1.1 204 No Content

Server: nginx/1.1.19

Date: Wed, 14 May 2014 10:39:35 GMT

Connection: close

~~Status: 204 No Content~~

ETag: "1iYTOZQUoL6P2E07EyPnsd"

~~X-SBS-DATE: Wed, 14 May 2014 10:39:35 -0000~~

X-SBS-SIGNATURE: Niu8dcDcwJTbJpIsxGmSCYLBY6k=

""

""

X-SBS-SIGNATURE: Niu8dcDcwJTbJpIsxGmSCYLBY6k=



Manage Jelly Splash iOS

Config Service

AB Tests

K/V Store

Error Analytics

Facebook OpenGraph

Landing Page

Payment Validation

User Service soon

Social Service soon

CDN Service soon

Production

Hello, **Jesper Richter-Reichhelm** / Game: **Current Game:** Jelly Splash iOS

Configurations on Production

SBS-ID
L0UuXYPi64CBxP0eHk7rbD7w2SS

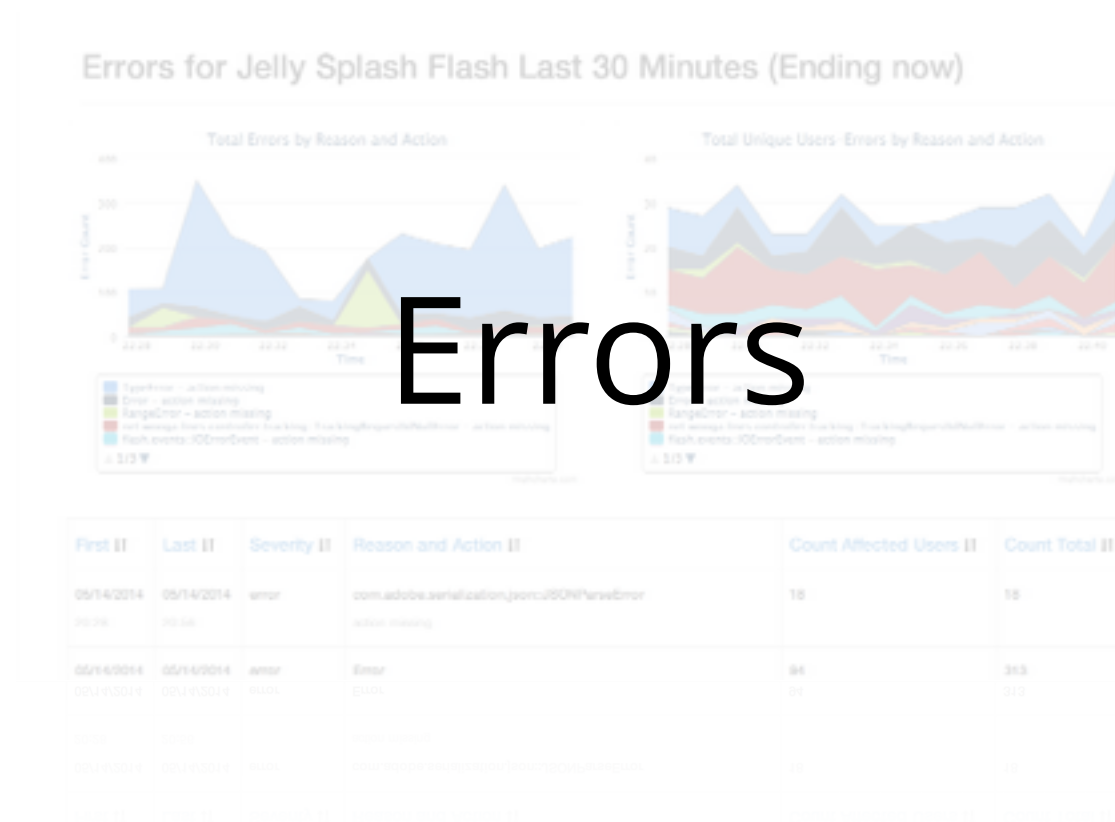
Configuration Name ▼	Version	Last deployed	Size	
whatsnew_config_b	2	6 months ago	0.21 Kb	QShow
remote_config	11	6 months ago	1.43 Kb	QShow
feature_switching	9	about 1 month ago	0.07 Kb	QShow
remote_config_version	16	about 1 month ago	0.02 Kb	QShow
stargate_requirements	11	2 months ago	0.17 Kb	QShow
hard_currency	2	about 1 month ago	0.18 Kb	QShow
video_ads_config	3	about 1 month ago	0.03 Kb	QShow
level_overrides	5	16 days ago	45.74 Kb	QShow



Data

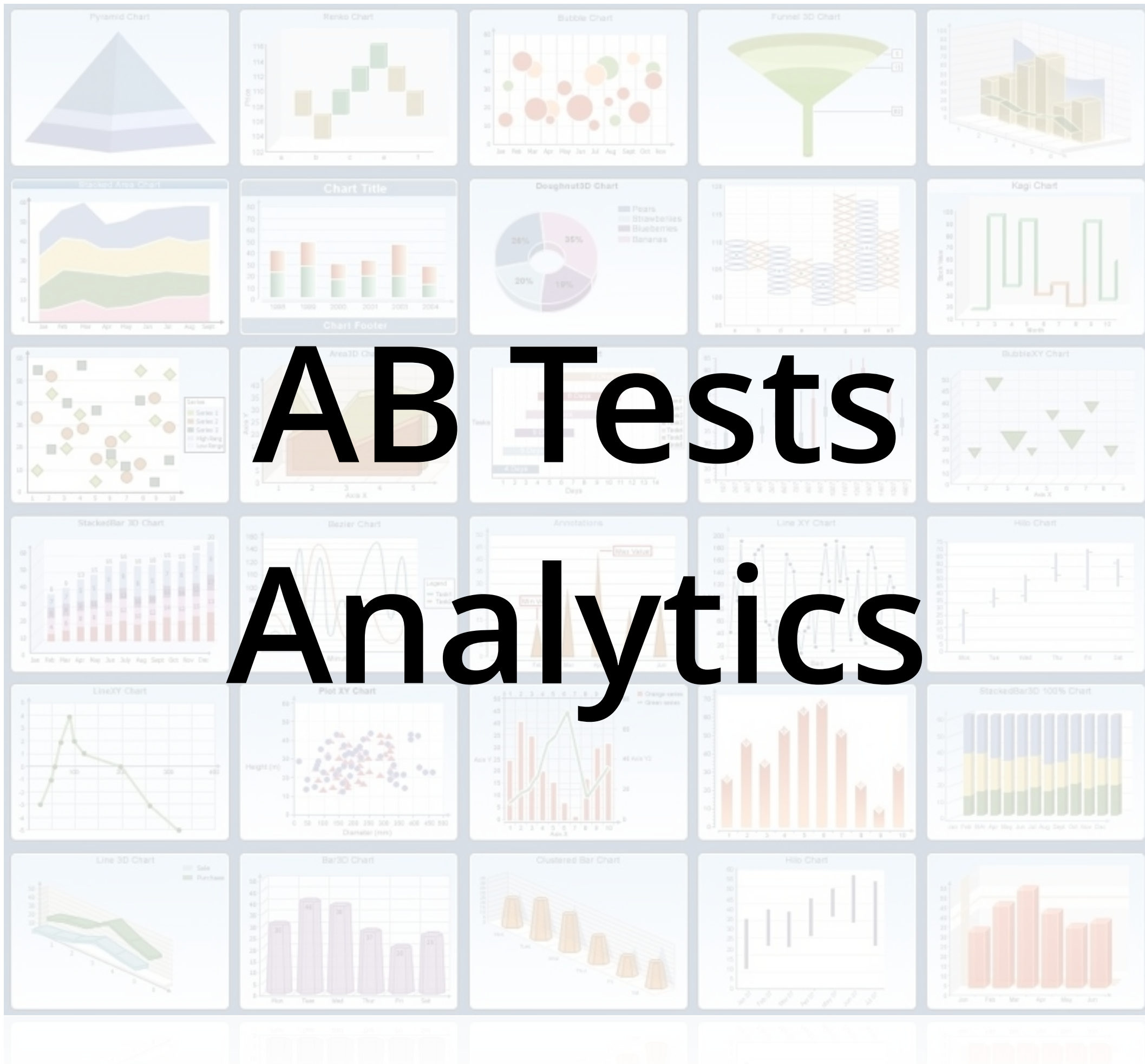


AB Tests Analytics



Errors

AB Tests Analytics



The platform to run your digital business

Omniata provides all the tools you need to understand and delight your consumers based on data.

[Join Beta](#)


What our customers are saying

What our customers are saying

Omniata

Home Press About Us Join Beta

Customers Features Contact Us



Good features

Pretty opaque

No integration



our customers are saying

IL CH2FOW612 916 2911U8



Simple Backend Services



Weekend Services

AB Tests

Analytics

Dashboards

Reporting



Manage Jelly Splash iOS

Config Service

AB Tests

K/V Store

Error Analytics

Facebook OpenGraph

Landing Page

Payment Validation

User Service soon

Social Service soon

CDN Service soon

A/B Tests / 008_moves_limit_2 / moves_edited_1

Hello, **Jesper Richter-Reichhelm** / Game: **Current Game:** Jelly Splash iOS

Changes for 'moves_edited_1'

Danger

You are editing on the *Live* environment. Any change will affect live users instantly. Do not make changes unless you know what you are doing :)

Config	Path	Replacement	
level_overrides	0023	{"moveLimitObjec ...	Edit Delete
level_overrides	0025	{"moveLimitObjec ...	Edit Delete
level_overrides	0026	{"moveLimitObjec ...	Edit Delete
level_overrides	0030	{"moveLimitObjec ...	Edit Delete
level_overrides	0033	{"moveLimitObjec ...	Edit Delete
level_overrides	0040	{"moveLimitObjec ...	Edit Delete

Add New Change:

level_overrides

Enter path...

Diff

Full

Compare to Environment:

CI

level_overrides

```
• 0023
  ◦ moveLimitObjective
    ▪ moveLimit 18 19
  ◦ levelMasteryScore2 60000 65000
  ◦ levelMasteryScore3 70000 75000
• 0025
  ◦ moveLimitObjective
    ▪ moveLimit 13 14
  ◦ levelMasteryScore2 35000 40000
  ◦ levelMasteryScore3 45000 50000
• 0026
  ◦ moveLimitObjective
    ▪ moveLimit 13 14
  ◦ levelMasteryScore2 50000 55000
  ◦ levelMasteryScore3 65000 70000
• 0030
  ◦ moveLimitObjective
    ▪ moveLimit 15 16
  ◦ levelMasteryScore2 45000 50000
  ◦ levelMasteryScore3 50000 55000
• 0033
  ◦ moveLimitObjective
    ▪ moveLimit 22 21
```

See All Tests

Diamond Dash

- ? Improved Requests Security
- ? Higher XP
- ? Missions
- ? Structured Requests
- + Missions Difficulty
- + Missions Special Levels
- = Extra Bar
- = Error Tracking
- + Happy Hour
- UI as Before GT
- = Fullscreen Mode
- + Rounded Prices
- + Friend Diamond
- + Global Tournament

[show more](#)

Diamond Dash Android

- ? Extratime
- ? MoPub interstitials
- ? spellbook
- + Friend Passed notification
- + Adcolony Video Advertising
- + lucky game

Diamond Dash iOS

- ? Daily Spin Prizes
- ? In App Purchases Pop-up
- ? Starter Packs + Cash Offers II
- ? Missions Difficulty
- ? Missions
- ? Missions Special Levels
- = End of Round + Friend Diamond S
- + Starter Packs + Cash Offers
- = Share Screens
- = New Intro Screen Text
- + New Rate us Flow
- = Level Offer UI
- + Plasma Burst
- = Mopub Interstitials
- New Boost Shop
- + Friend Diamond

[show more](#)[show more](#)[+ Friend Diamond](#)

Jelly Splash Flash

- ? Structured Requests 2nd try
- ? Overlapping friends on map
- ? Like us - Popup - 2nd try
- ? Continue & Share with checkmark
- ? Churn Prediction
- ? Help friends with keys
- ? Split World map
- ? Easier Level 23,40,75
- Loading - Parallel
- + Tom's Tutorial Changes
- ? JS2PP Crosspromo - Quiz
- = Like us - Popup
- Jelly Friends TAB
- = Migration
- + Moving Jelly Eyes
- Continue & Share
- + Moving Jelly Eyes
- = Migration

PP - Daily Puzzle (Flash)

Description

Summary

Bookings

DAU

01d Retention

01d Retention - offset

03d Retention

03d Retention - offset

07d Retention

07d Retention - offset

14d Retention

14d Retention - offset

30d Retention

30d Retention - offset

60d Retention

60d Retention - offset

ARPPU

ARPU

Average Sessions

Bookings New Users

Buyer Conversion

Buyers

DAU New Users

DAU Old Users

New Buyer Conversion

New Buyers

PP - Average Scenes Played

PP - Cash related bookings

PP - Cash spent on energy

PP - Invites Sent

Outcome:

+ Test was succesful.

Idea:

We aimed at an early retention feature like the daily spin that rewards the user if she returns on a daily basis. She will get a puzzle every day to complete. The feature starts in session 2 only.

There are 30 rewards in line that rotate, they are the same for every user and reset once the user didn't come back to the game.

New users will see scenes to puzzle from chapter 5 onwards, mid-range users will start with scenes 3 chapters ahead and last chapter players would get early scenes.

This feature is live on IOS already, there we saw an up to 4% increase in DAU.

Test Groups:

A: Control Group (50%)

B: Daily Puzzle (50%)

Goals:

Goal is to improve retention and showcase future content.

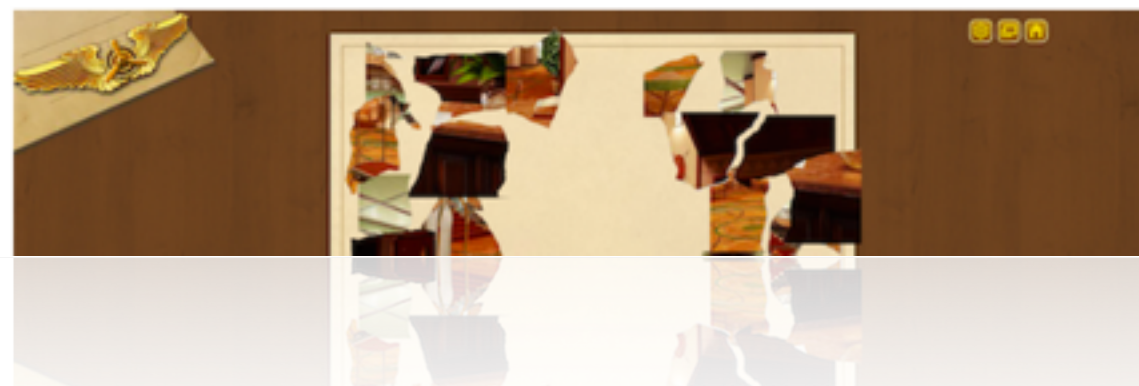
Conclusion:

The DAU increase of more than 7% (significant) and even 11% in the last Testdays lead us to the conclusion that we put the feature live 100%, we will tweak the rewards in a second ab-test to optimize bookings related metrics.

Daily Puzzle Pop-up



Daily Puzzle Screen



PP - Daily Puzzle (Flash)

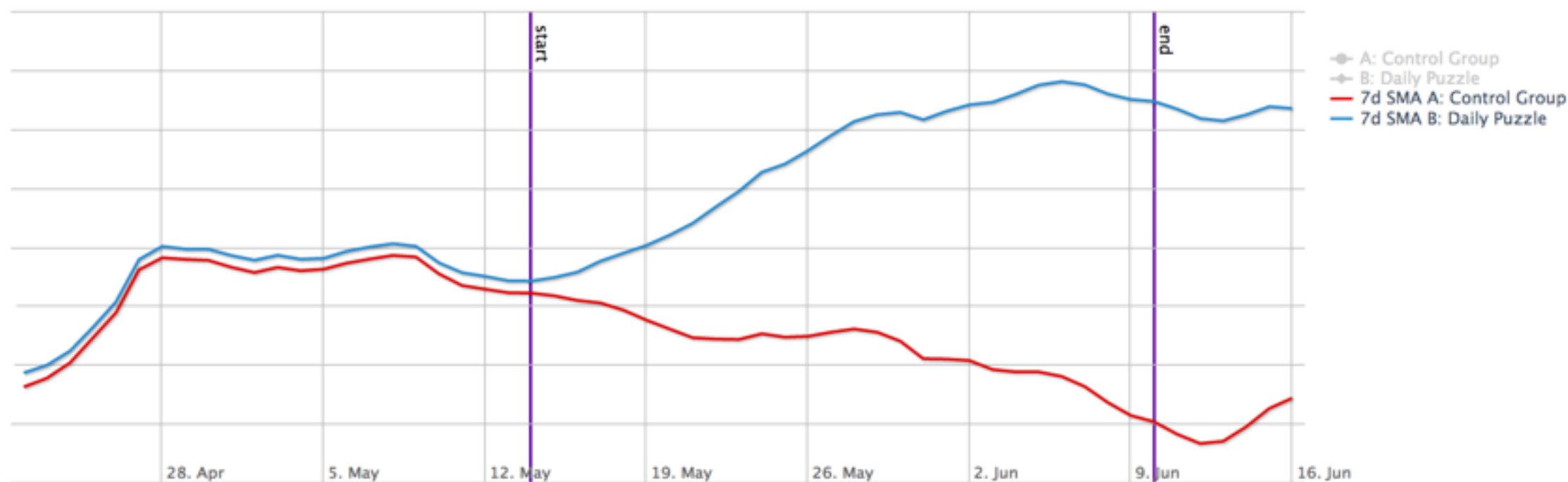
Description Summary Bookings **DAU** 01d Retention 01d Retention - offset 03d Retention 03d Retention - offset 07d Retention
07d Retention - offset 14d Retention 14d Retention - offset 30d Retention 30d Retention - offset 60d Retention 60d Retention - offset ARPPU
ARPU Average Sessions Bookings New Users Buyer Conversion Buyers DAU New Users DAU Old Users New Buyer Conversion New Buyers
PP - Average Scenes Played PP - Cash related bookings PP - Cash spent on energy PP - Invites Sent

DAU

Daily Active Users

This report is normalized. All values are scaled up to show how the numbers would look like if the test/control group would include 100% of our players.

DAU – Daily Puzzle (Flash)



Tip: Zoom in by clicking and dragging mouse from start to end in the graph. Show or hide groups by clicking on them in the legend.

Significance

Tip: Zoom in by clicking and dragging mouse from start to end in the graph. Show or hide groups by clicking on them in the legend.

PP - Daily Puzzle (Flash)

Description **Summary** Bookings DAU 01d Retention 01d Retention - offset 03d Retention 03d Retention - offset 07d Retention 07d Retention - offset 14d Retention 14d Retention - offset 30d Retention 30d Retention - offset 60d Retention 60d Retention - offset ARPPU ARPU Average Sessions Bookings New Users Buyer Conversion Buyers DAU New Users DAU Old Users New Buyer Conversion New Buyers PP - Average Scenes Played PP - Cash related bookings PP - Cash spent on energy PP - Invites Sent

There were no significant differences between the test and control groups before the test start

Report/Testgroup	B: Daily Puzzle
Bookings	
DAU	+7.3%
01d Retention	+0.2pp
01d Retention - offset	
03d Retention	+0.4pp
03d Retention - offset	+0.5pp
07d Retention	+0.5pp
07d Retention - offset	+0.5pp
14d Retention	+0.6pp
14d Retention - offset	+0.8pp
30d Retention	+0.7pp
30d Retention - offset	Waiting for data
60d Retention	+0.8pp
60d Retention - offset	+0.8pp
30d Retention - offset	Waiting for data

Identifier:

ABtest_093_daily_puzzle_flash

Game: Pearl's Peril

Start: 2014-05-14

Stop: 2014-06-10

Outcome: +

Private: false

Mod Base: 37

Editors: Annelie Biernat

Control Groups:

A: Control Group: 48.65%

Test Groups:

B: Daily Puzzle: 48.65%

Categories: Usability

Signed in!



Wooga Dashboards



Business Intelligence

Show

Show Public

Edit



Diamond Dash Android

Show

Show Public

Edit



Diamond Dash Flash

Show

Show Public

Edit



Diamond Dash iOS

Show

Show Public

Edit



Farm Tales

Show

Show Public

Edit

Show

Show Public

Edit

DAU

Bookings

New Users by Source

New User Funnel

Underwater World

Missions and Level-Ups

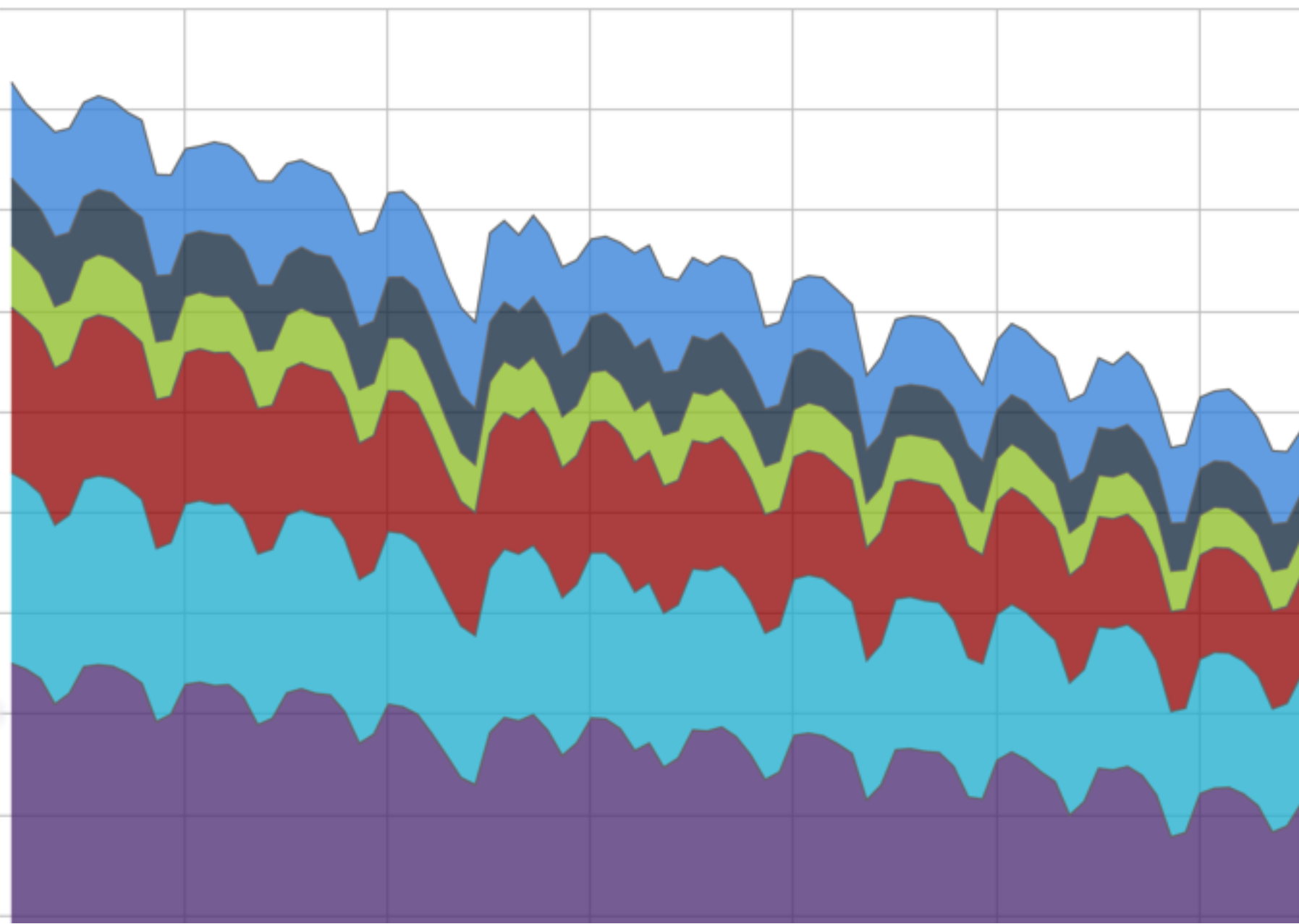
Garden Expansions and Functional Items

Performance

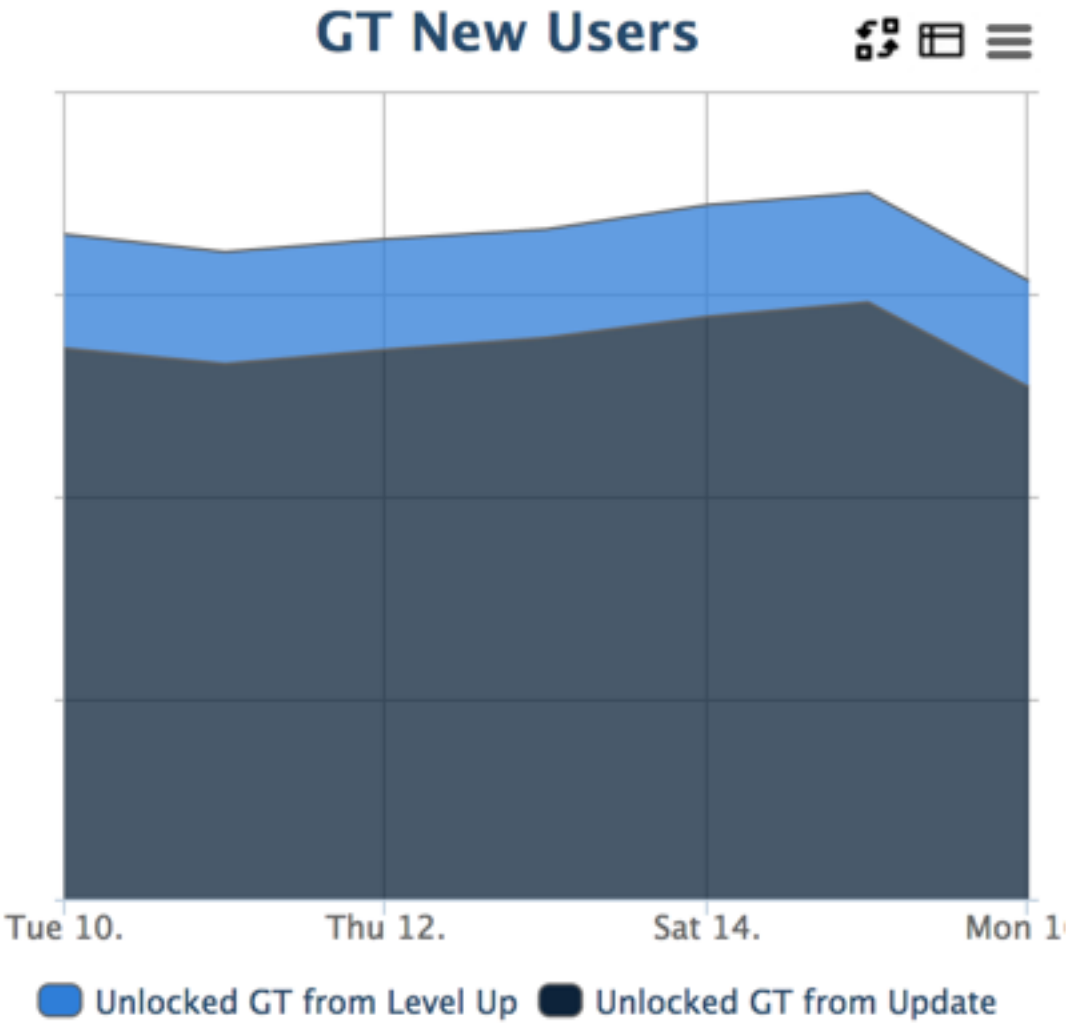
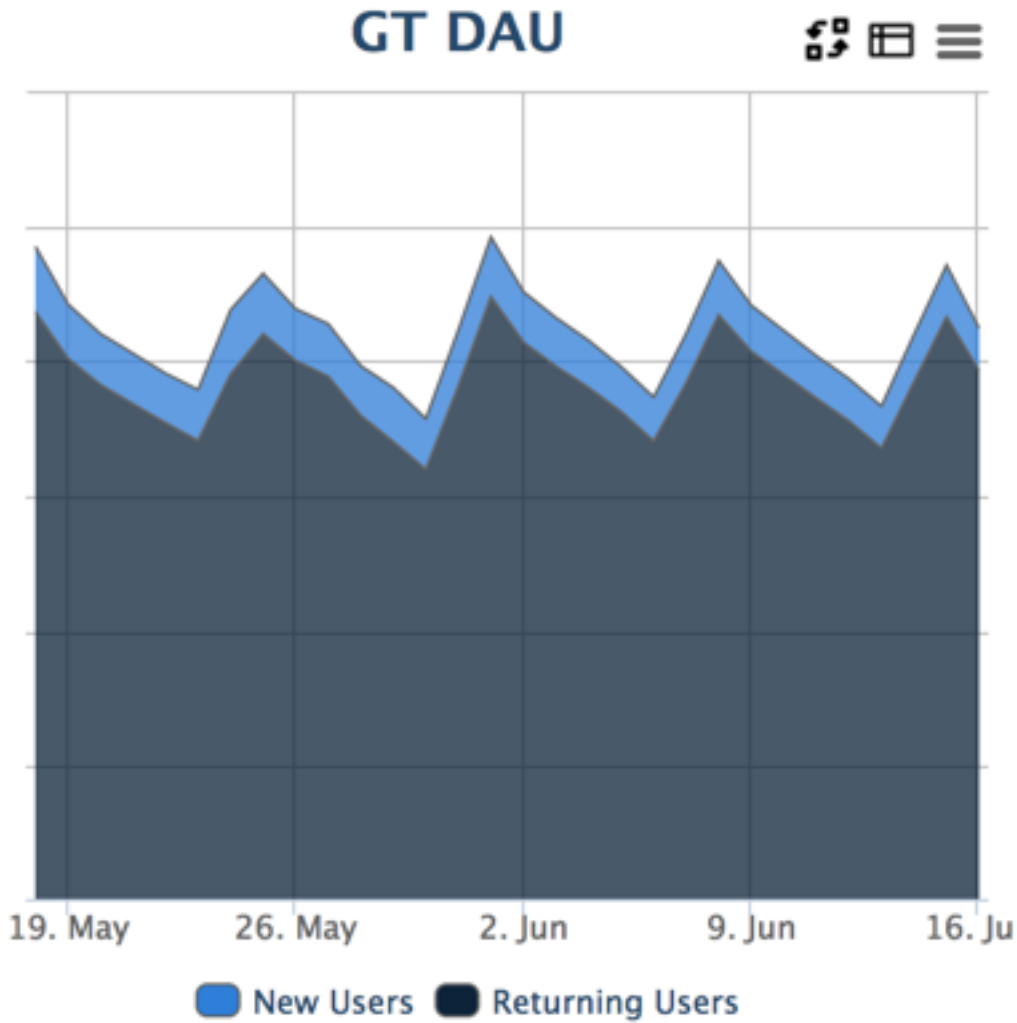
DAU by Levels



- Level 1 to 10
- Level 11 to 20
- Level 21 to 30
- Level 31 to 50
- Level 51 to 70
- Level 71 to 90
- Level 91 plus
- No Level



- Overview
- DAU
- New Users
- Bookings
- Video Ads
- Boosts and Diamonds
- Retention
- Notifications
- Invites
- Daily Spin
- Posts
- Players
- Played Rounds
- Level Offer
- New Payer Promotion
- Subscription
- Buyers
- Performance
- Churn
- Balancing (Scoring)
- Balancing
- Global Tournament
- Special Offers
- Mix
- Missions



Bookings by Tournament

Bookings by League

DAU

AppStore ▾

Bookings ▾

Buyers

DAU

Misc ▾

New Users

Retention ▾

January 1, 2011 - December 31, 2012 ▾

Mobile Games ▾

4 Flash Games selected ▾

Filter by

none ▾

Group by

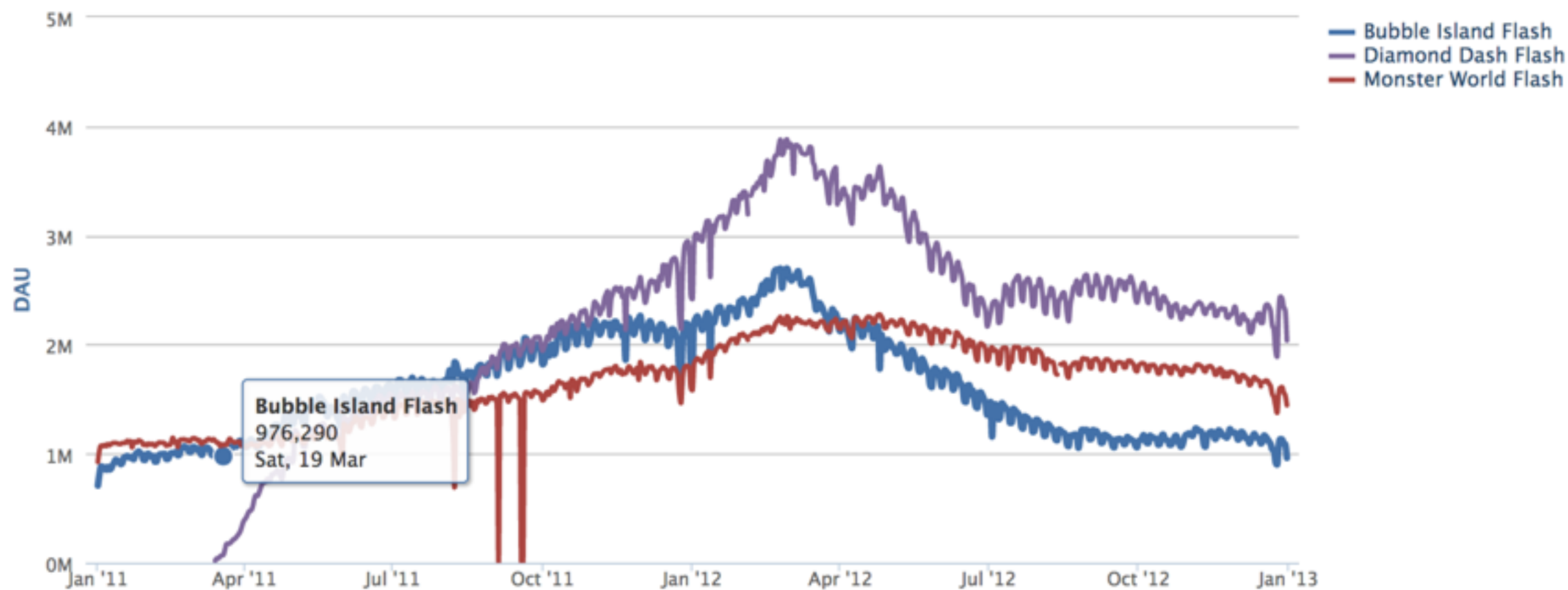
day ▾

Download



games ▾

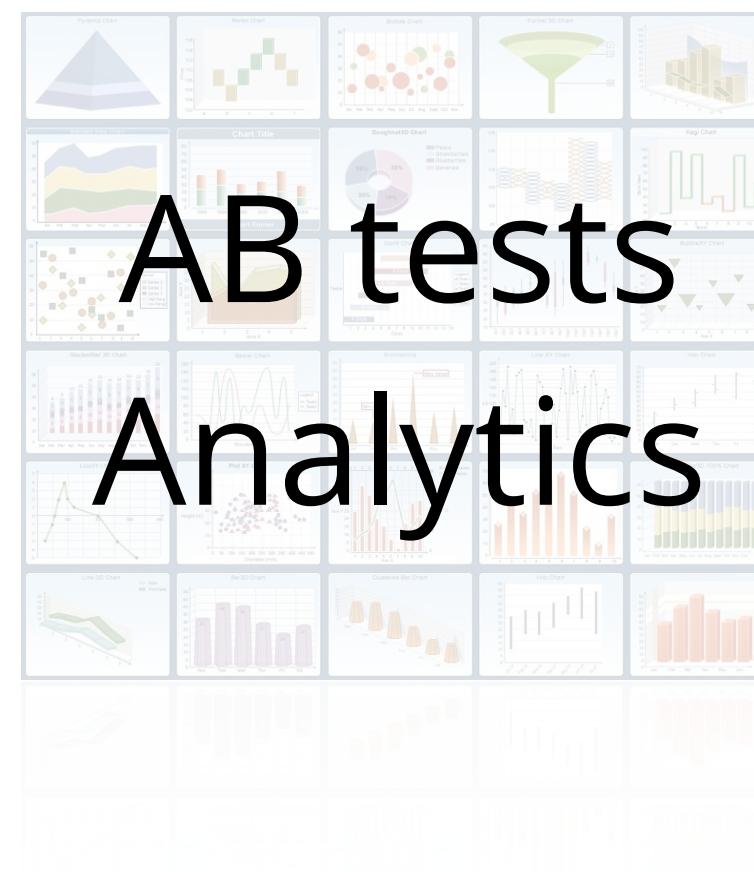
DAU



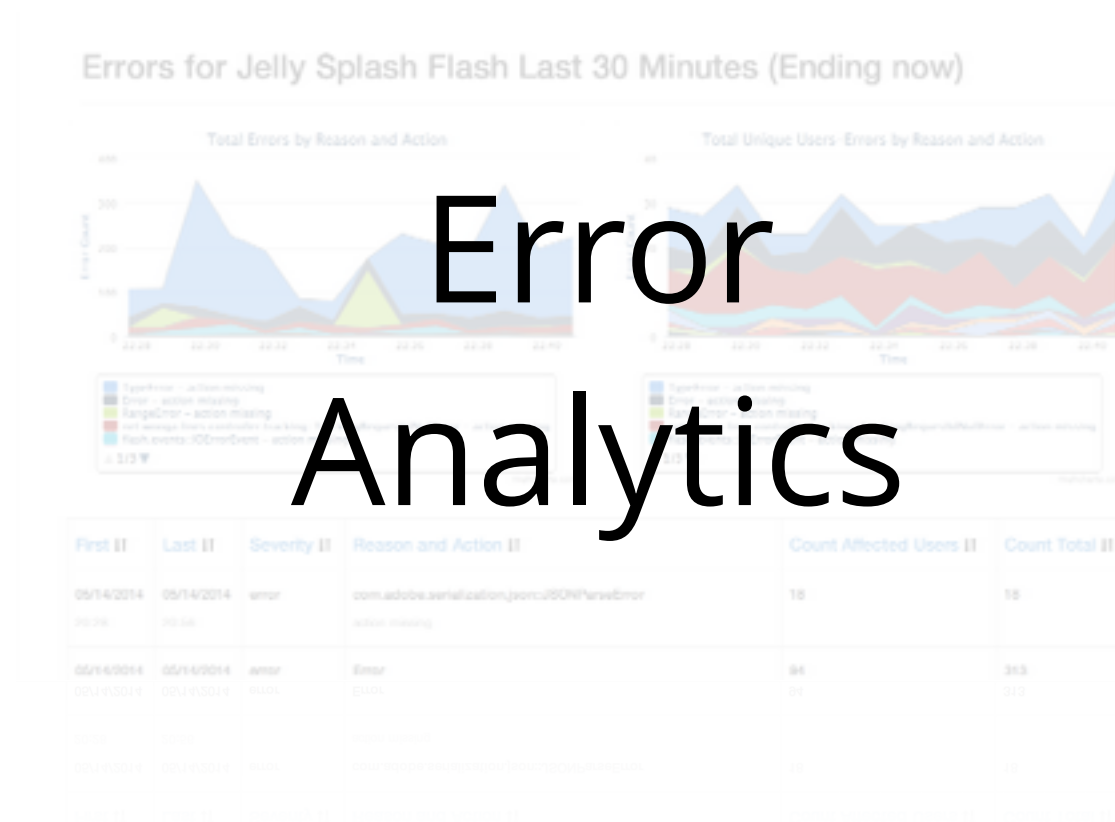
	Bubble Island Flash	Diamond Dash Flash	Monster World Flash
0011 04 04	306 000		033 330
	Bubble Island Flash	Diamond Dash Flash	Monster World Flash



Data

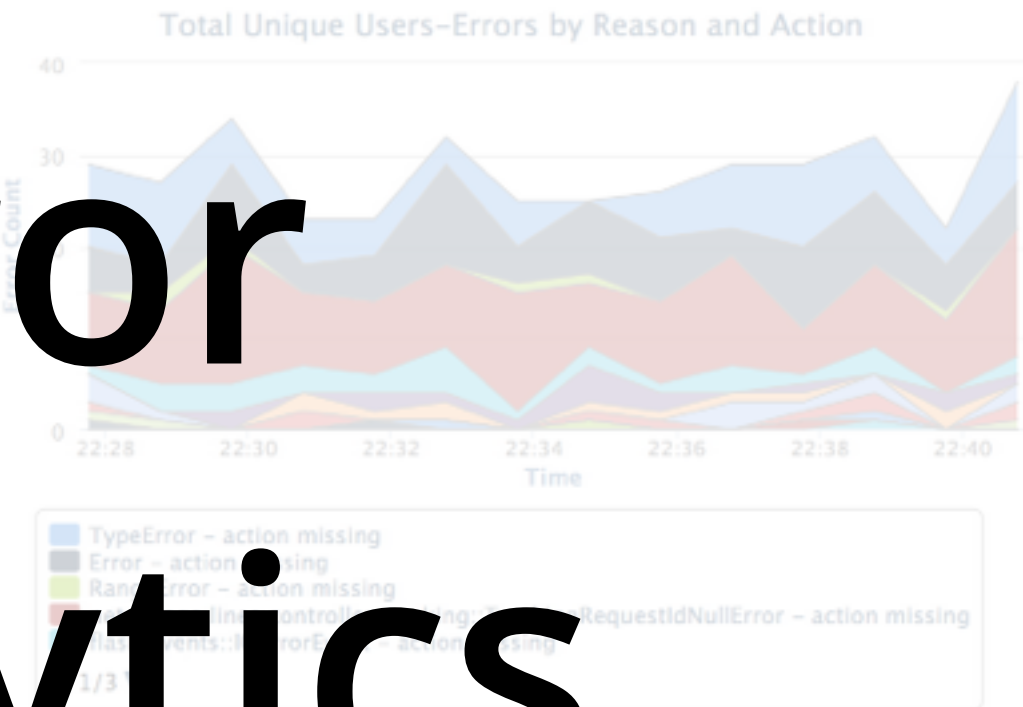
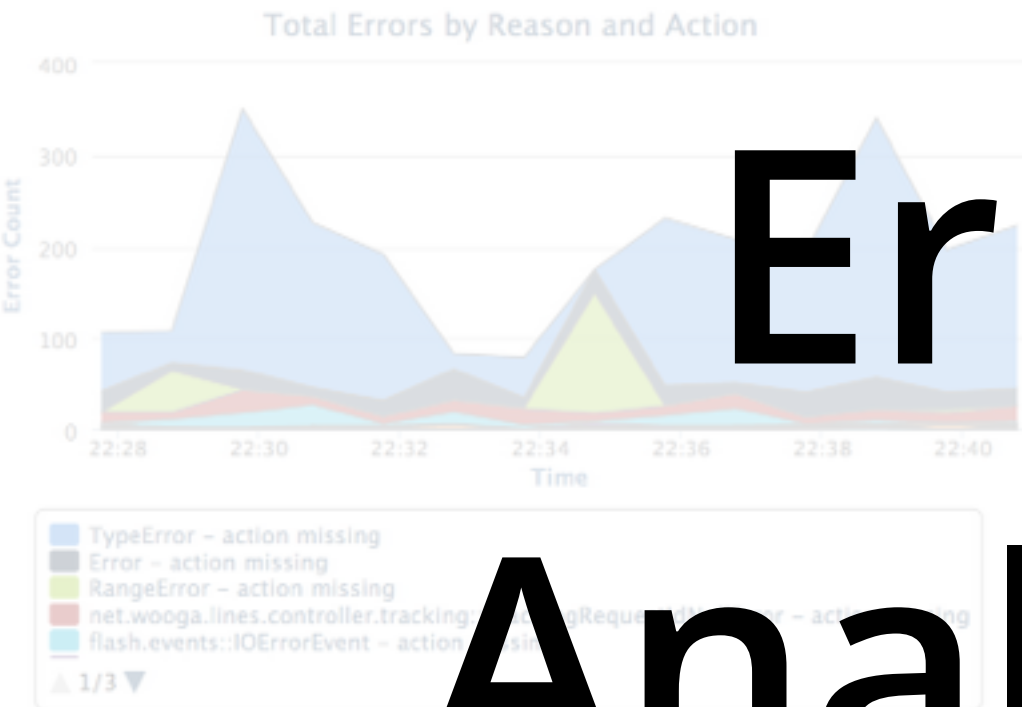


AB tests
Analytics



Error
Analytics

Errors for Jelly Splash Flash Last 30 Minutes (Ending now)



Error Analytics

First ⬆⬆	Last ⬆⬆	Severity ⬆⬆	Reason and Action ⬆⬆	Count Affected Users ⬆⬆	Count Total ⬆⬆
05/14/2014 20:28	05/14/2014 20:56	error	com.adobe.serialization.json::JSONParseError action missing	18	18
05/14/2014 20:28	05/14/2014 20:56	error	Error Error	94	313
05/14/2014 20:28	05/14/2014 20:56	error	com.adobe.serialization.json::JSONParseError action missing	18	18



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Distribution

Distribution



Crash Reports

Crash Reports

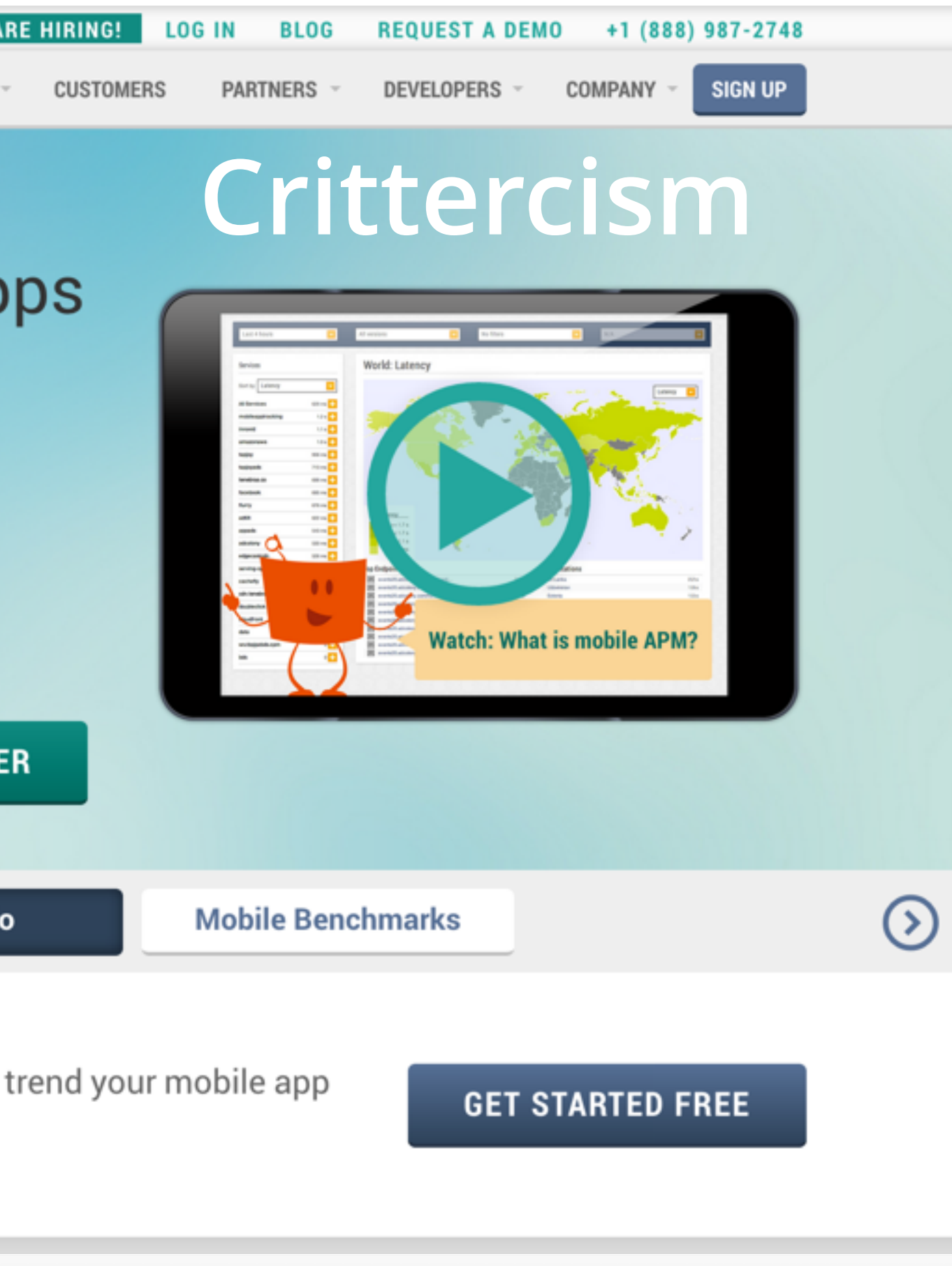
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Crittercism

Good feature set

Quite expensive

No* segmentation



Simple Backend Services



Weekend Services

Real time

Crash reports

Segmentation

Normalisation



Pearl's Peril Flash

Change settings...

Config Service

AB Tests

K/V Store

Error Analytics

Facebook OpenGraph

Landing Page

Payment Validation

User Service soon

Social Service soon

CDN Service soon

Users

Games

Sblds

Environments

Environments

Hello, **Jesper Richter-Reichhelm** | Current Game: Pearl's Peril Flash

Create game

Join more games

Error Analytics

Errors

Compare

Search

Search

Last 30 Minutes

Production

[Home](#) / Errors

Version



2014.25.1

0.86 %

Filter

Reset

Error Name	Errors	Users	%	Occurrence over time
TypeError	349	266	0.45	
Error	177	142	0.24	
IsoltemError	49	44	0.07	
IsoTooltipError	34	29	0.05	
FreeSlotError	204	25	0.04	
SecurityError	31	18	0.03	
RangeError	215	13	0.02	
JSONError	6	6	0.01	
TournamentStartError	6	5	0.01	
SceneAssetError	10	5	0.01	
SyntaxError	3	3	0.01	
ArgumentError	3	3	0.01	
ReferenceError	1	1	0.00	

First

Previous

1

Next

Last

First

Previous

1

Next

Last



Pearl's Peril Flash

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0.45

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Errors

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%

Occurrence over time

TypeError

349

266

0.45

Error

177

142

0.24

IsoltemError

49

44

0.07

CDN Service

Users

Games

Sbslds

Environments

SceneAssetError

10

5

0.01

SyntaxError

3

3

0.01

ArgumentError

3

3

0.01

ReferenceError

1

1

0.00

First

Previous

1

Next

Last



Pearl's Peril Flash

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Error Analytics

Errors

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Last 30 Minutes ▾

Production ▾

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Filter 1

Version

2014.25.1

Filter 2

Version

2014.25.2

Error	% Users	Errors	% Users	Errors	% Change
Error	0.00	0	0.41	391	+0.41 ↑
TypeError	0.00	0	0.22	215	+0.22 ↑
FreeSlotError	0.00	0	0.10	99	+0.10 ↑
IsoTooltipError	0.00	0	0.09	89	+0.09 ↑
IsoltemError	0.00	0	0.08	81	+0.08 ↑
TournamentStartError	0.00	0	0.03	30	+0.03 ↑
SecurityError	0.00	0	0.03	25	+0.03 ↑
SceneAssetError	0.00	0	0.01	14	+0.01 ↑
JSONError	0.00	0	0.01	12	+0.01 ↑
RangeError	0.00	0	0.01	11	+0.01 ↑
ArgumentError	0.00	0	0.01	11	+0.01 ↑
JSONParseError	0.00	0	0.00	3	

JSONParseError

0.00

0

0.00

3

+0.01

↑

ArgumentError

0.00

0

0.01

11

+0.01

↑



Simple Backend Services

Questions?

@jriri

<http://wooga.com/jobs>

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this talk via the
mobile app!

