



# Versioning strategy for a complex internal API

Konstantin Yakushev



# Konstantin



2014 – Everada – partner API

2015 – Timepad – public API

2016 – Badoo – internal API (apps)

# Plan

Badoo API

Usual public API versioning

Our internal API versioning scheme

Practical considerations



The original, largest and leading  
dating network



# API

Evolving since 2010

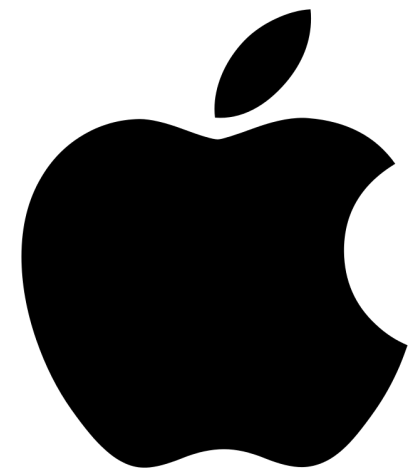
RPC-style non-restful protobuf-based

570 commands

1200 classes

9 releases each week

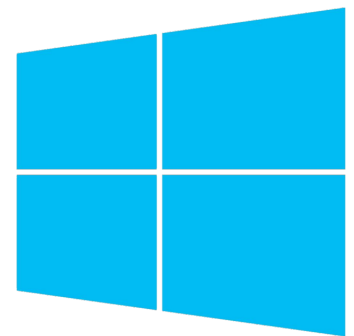
# Badoo versions



~ 5 last versions  
last iOS 7 version



~ 10 last versions  
last Android 2.x version



~ 2 last versions  
last WP7 version



# **Versioning** strategy for a complex internal API

Konstantin Yakushev





# Typical versioning

# Typical versioning

- 1) <http://api.example.com/orders>
- 2) Collect nice-to-have breaking changes
- 3) Announce new version with all of them
- 4) <http://api.example.com/v2/orders>
- 5) Slowly deprecate v1

# Typical versioning

<http://api.example.com/v2/orders>

<http://api.example.com/orders/v2>

<http://api.example.com/orders>

X-Api-Version: 2

<http://api.example.com/orders>

Accepts: application/vnd.example.v2+json



# Typical versioning

- 1) <http://api.example.com/orders>
- 2) Collect nice-to-have breaking changes
- 3) Announce new version with all of them
- 4) <http://api.example.com/v2/orders>
- 5) Slowly deprecate v1

The least important step

# Typical versioning

- 1) <http://api.example.com/orders>
- 2) Collect nice-to-have breaking changes
- 3) Announce new version with all of them
- 4) <http://api.example.com/v2/orders>
- 5) Slowly deprecate v1





There is no v2

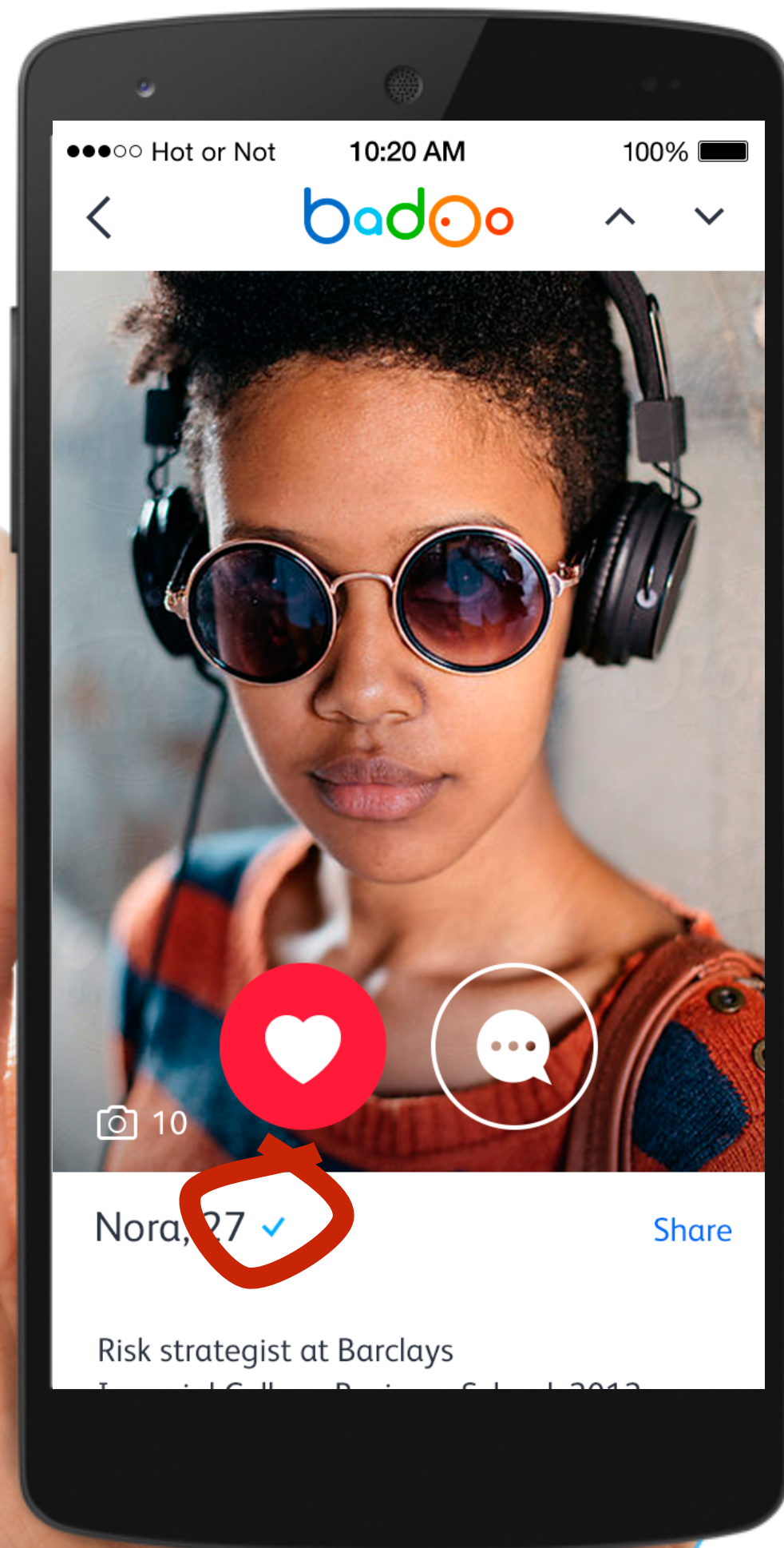




# Continuous versioning

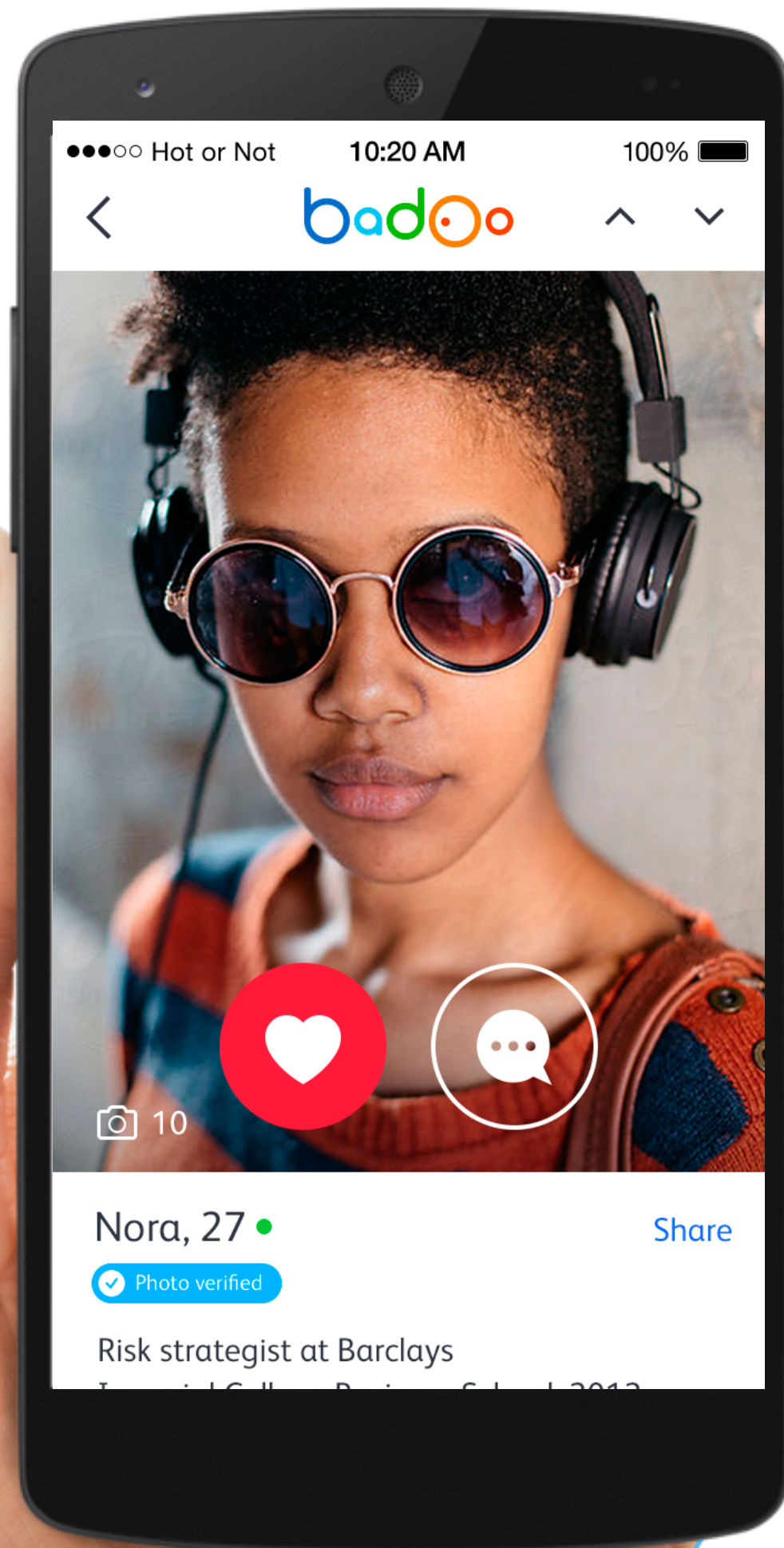
**Problem:**  
**new property**  
**supersedes old**





Verification ✓





Verification 

## Old version

```
user: {  
  is_verified: true | false  
}
```

## New version

```
user: {  
  verification_status: NONE | PARTIAL | FULL  
}
```

## Old version

```
user: {  
  is_verified: true | false  
}
```

## New version

```
user: {  
  is_verified: true | false  
  verification_status: NONE | PARTIAL | FULL  
}
```

## Request

```
user_request: { // like GraphQL
  fields: [verification_status]
}
```

## Response

```
user: {
  verification_status: NONE | PARTIAL | FULL
}
```



## Request

```
user_request: { // like GraphQL
  fields: [is_verified]
}
```

## Response

```
user: {
  is_verified: true | false
}
```

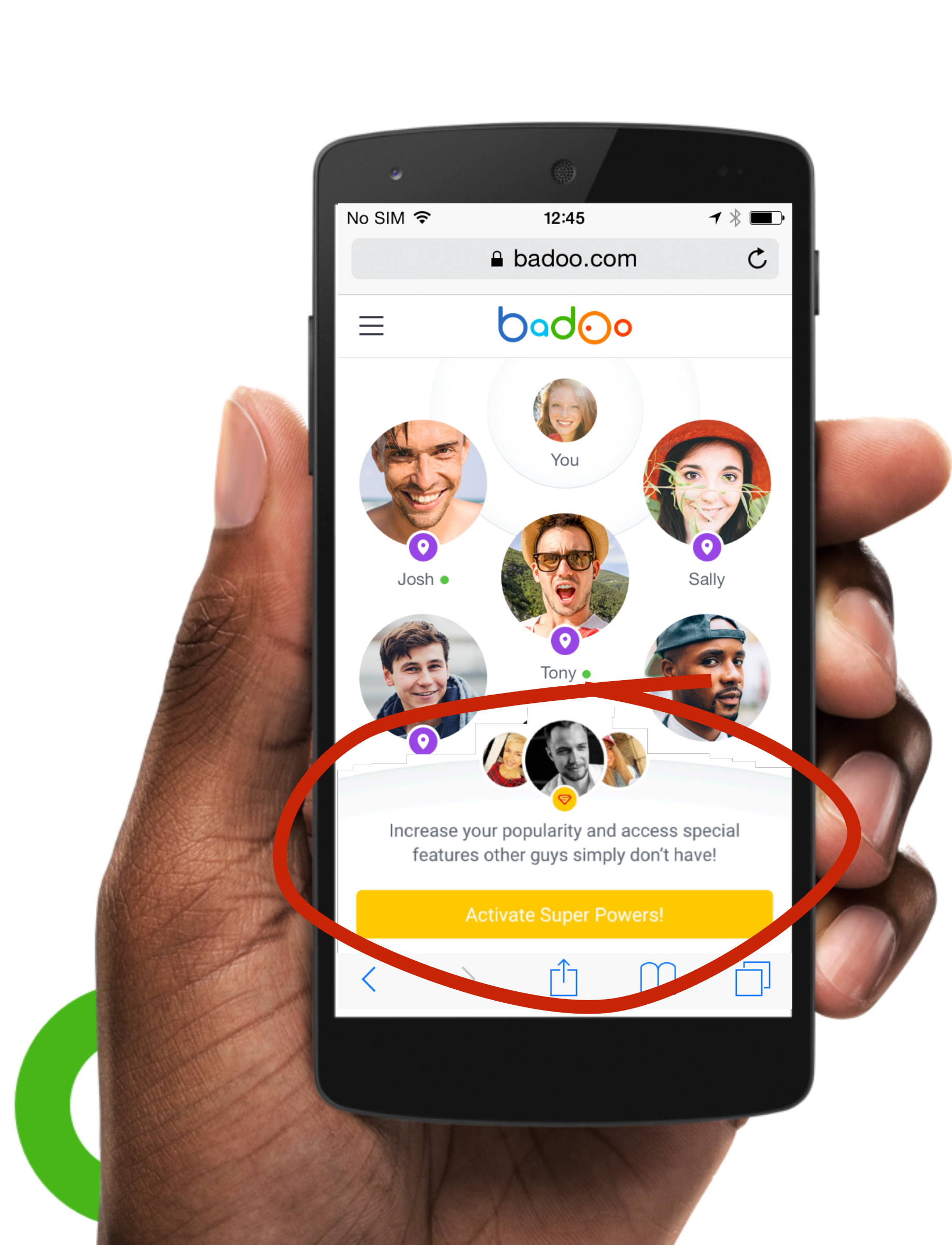
# Problem: new property supersedes old

Add a new field.

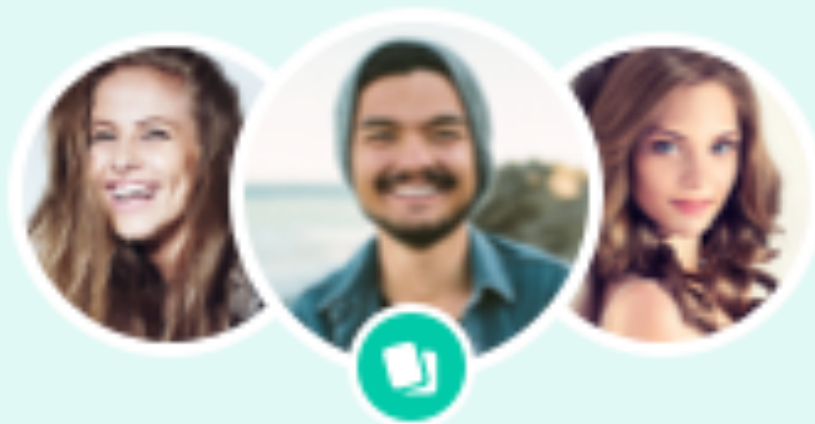
Make clients select which fields they want.

**Problem:  
similar structures  
of different types**

**Badoo has  
34 types  
of banners**



Get extra shows in  
Encounters



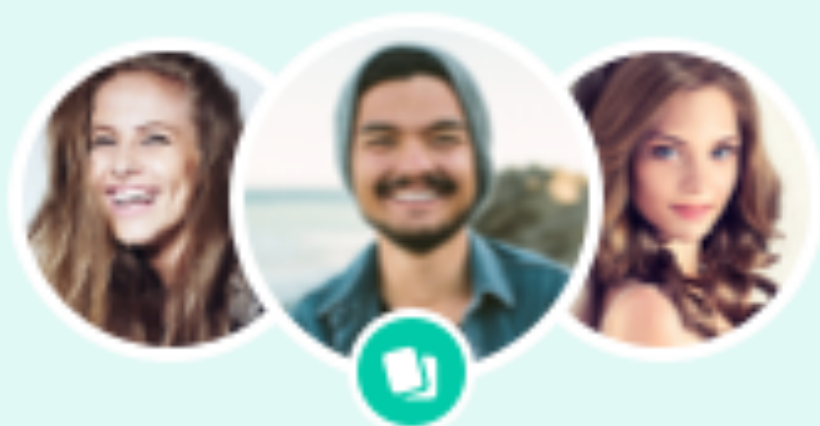
Make it easy for Kate,  
Mary and 124 other girls  
to find you in Encounters!

Add extra shows!

```
banner: {  
  header: "Get extra...",  
  pictures: [<pics>],  
  text: "Make it easy...",  
  buttons: [<button>]  
}
```



### Get extra shows in Encounters



Make it easy for **Kate**,  
**Mary** and **124 other girls**  
to find you in Encounters!

Add extra shows!

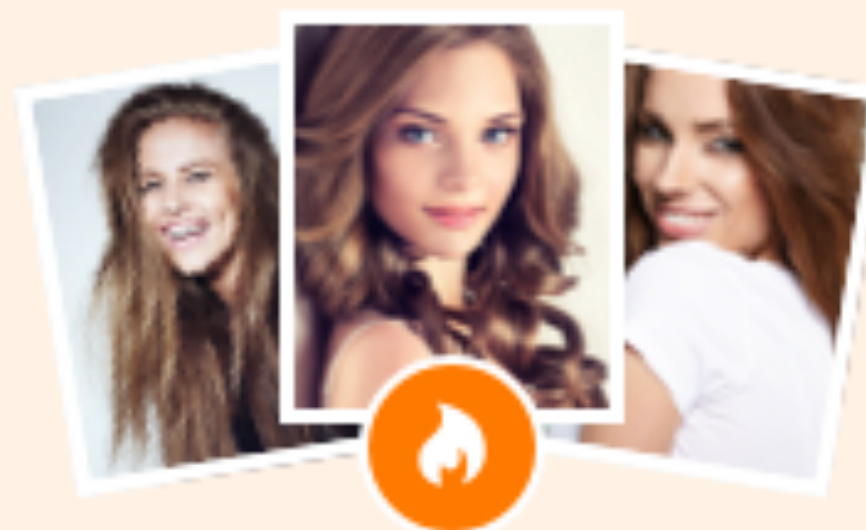
### Get featured now!



Promote your best photo,  
so **Kate**, **Mary** and  
**124 other girls** in London  
will see it.

Let's go!

### Chat with popular users



Get messages read by  
popular **girls** even if their  
inboxes are full, when you  
activate Super Powers.

Get full access

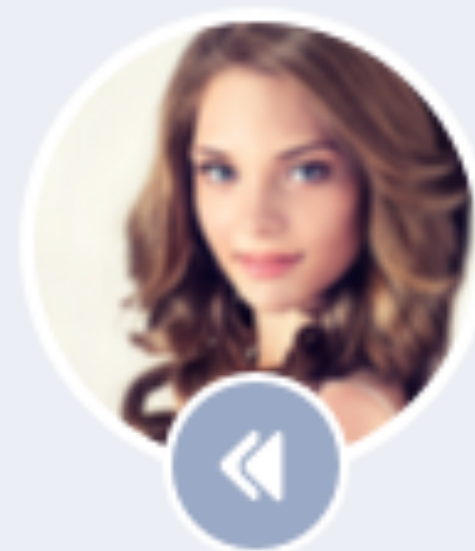
Find out who  
liked you



**124 other girls** liked you.  
Activate Super Powers to  
see who they are.

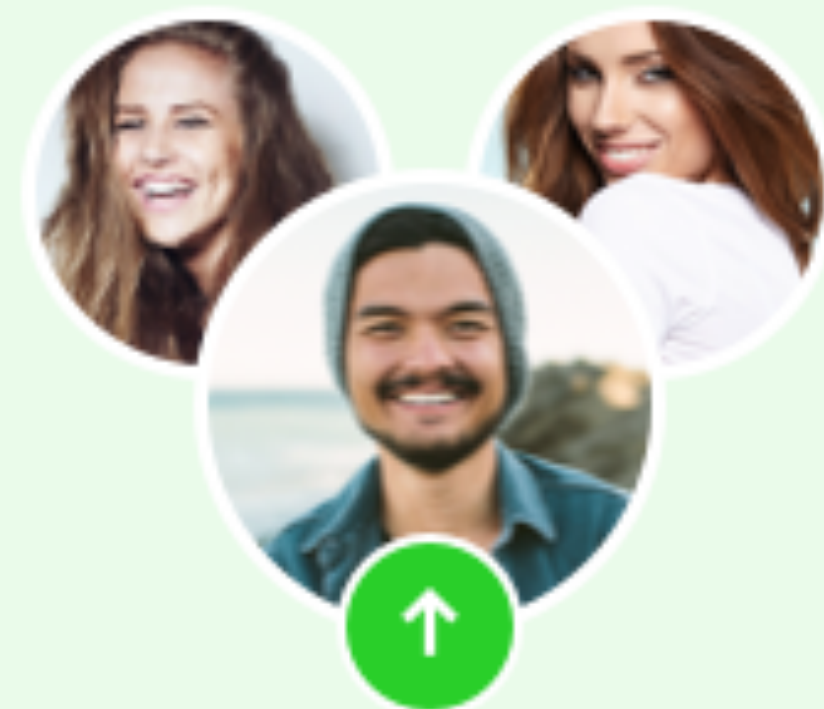
Find out!

Undo 'No' vote



Changed your mind about  
**Kate**? Undo your last 'No'  
vote with Super Powers.

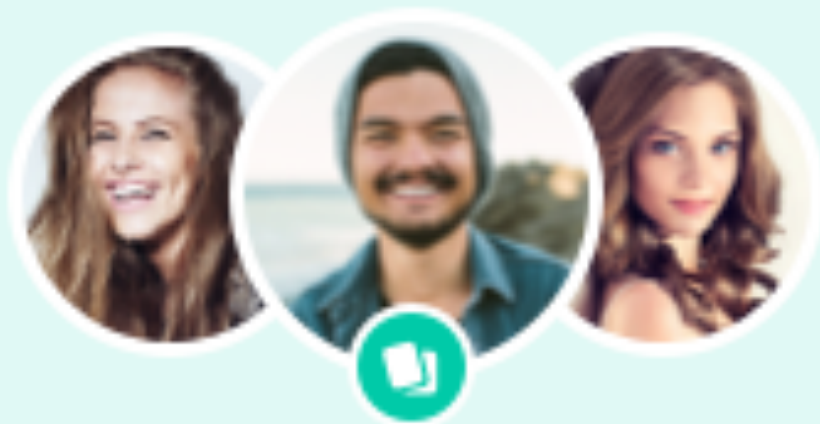
Get Super Powers



Rise up to first place in  
search results, and get  
seen by more **girls** in  
**London**.

Rise up

Get extra shows in  
Encounters



Make it easy for Kate,  
Mary and 124 other girls  
to find you in Encounters!

Add extra shows!

```
banner: {  
  header: "Get extra...",  
  pictures: [<pics>],  
  text: "Make it easy...",  
  buttons: [<button>],  
  type: "EXTRA_SHOWS"  
}
```



## Request

```
user_list_request: {  
  fields: [banners]  
}
```

## Response

```
user_list: {  
  banners: [<unknown banner>]  
}
```

## Request

```
user_list_request: {  
  fields: [banners_v24]  
}
```

## Response

```
user_list: {  
  banners_v24: [<banner>]  
}
```

## Request

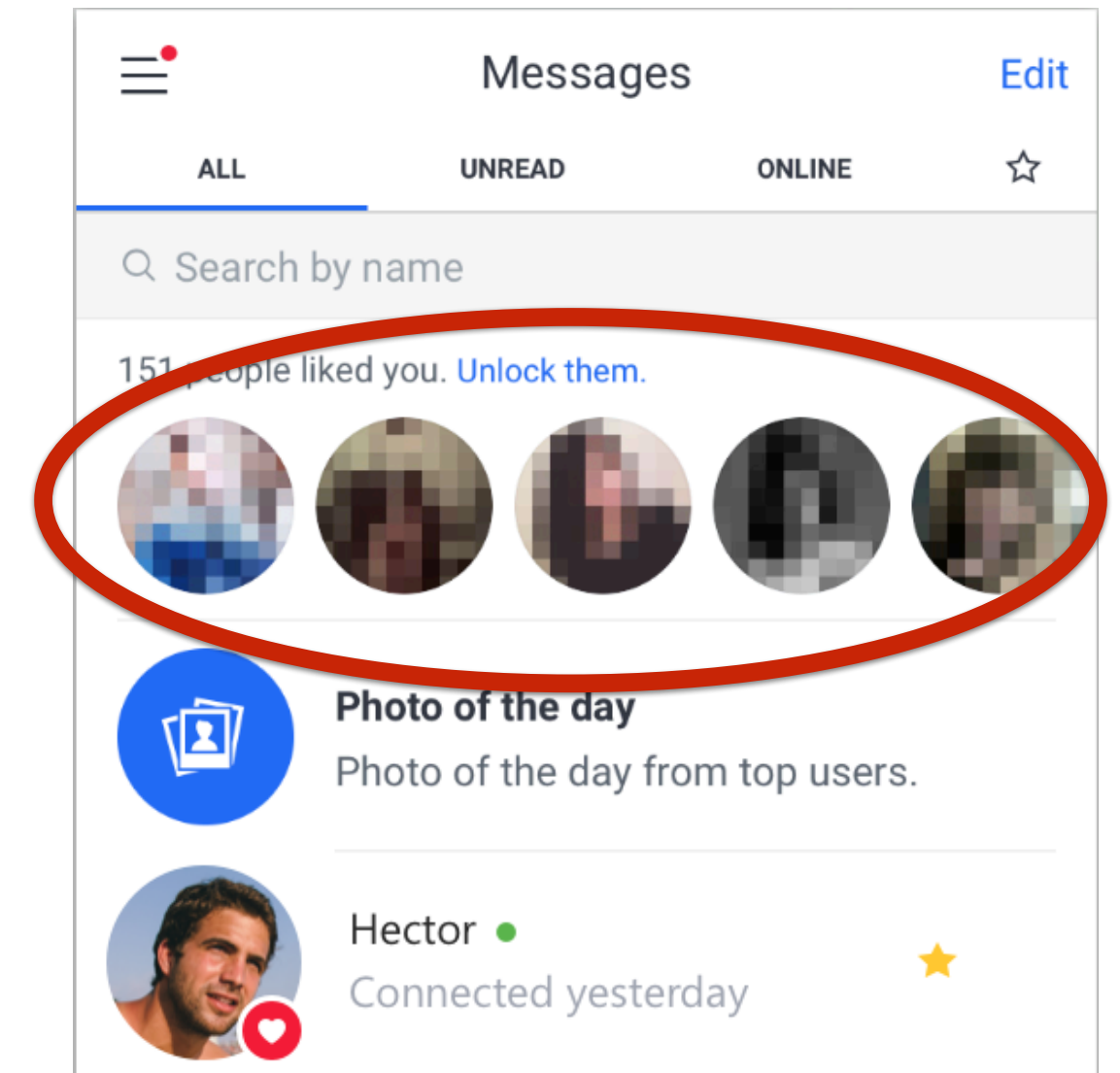
```
user_list_request: {  
  fields: [banners],  
  supported_banners: [EXTRA_SHOWS]  
}
```

## Response

```
user_list: {  
  banners: [<extra shows banner>]  
}
```

# Client specifics

This banner is mobile-only.  
Simply not set as supported  
by desktop web.



# Problem: similar structures of different types

Release a new thing on server whenever.

Make clients send supported types explicitly.

**Problem:  
business logic  
changes**



Konstantin, 25  verified by photo

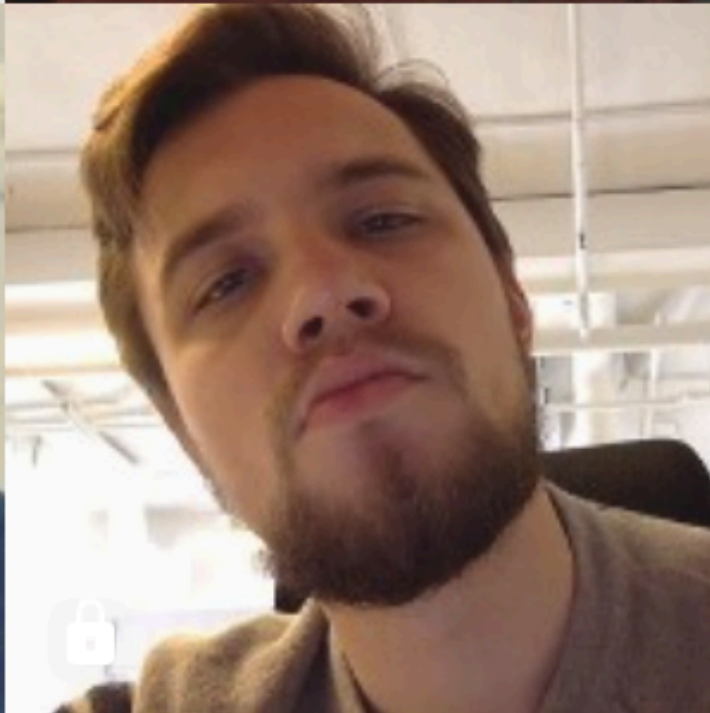
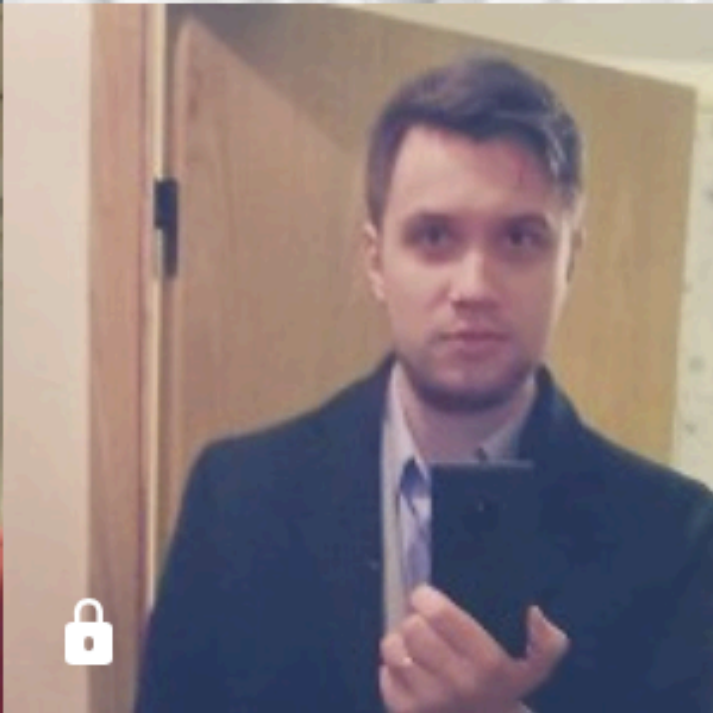
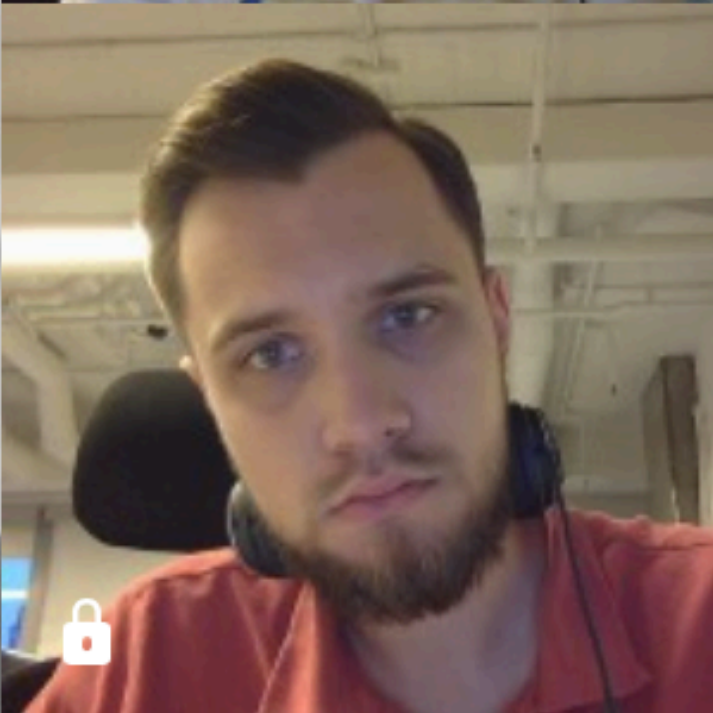
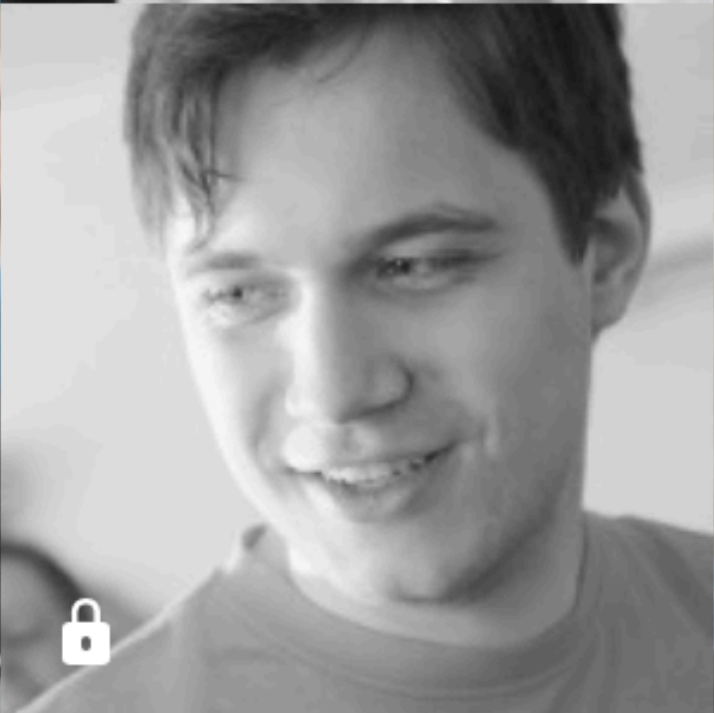
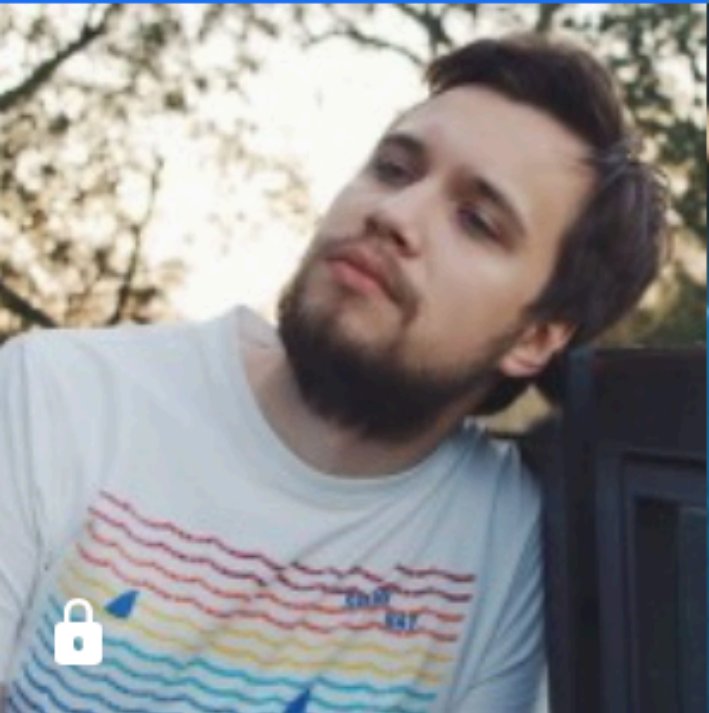
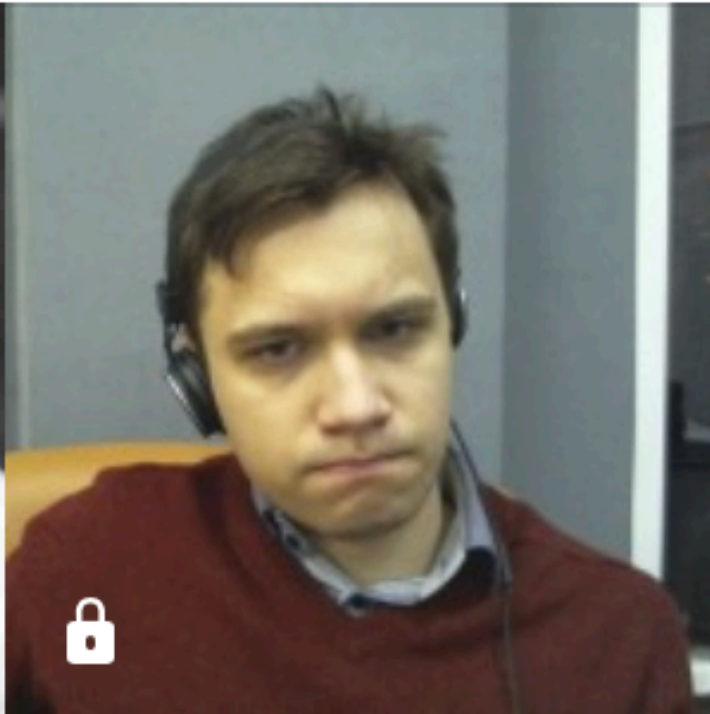
33 your interests



Add photos



Add video



## Request

```
user_request: {  
  fields: [photos]  
}
```

## Response

```
user: {  
  photos: [ <photo 1>, <photo 2> ]  
}
```



Konstantin, 25  verified by photo

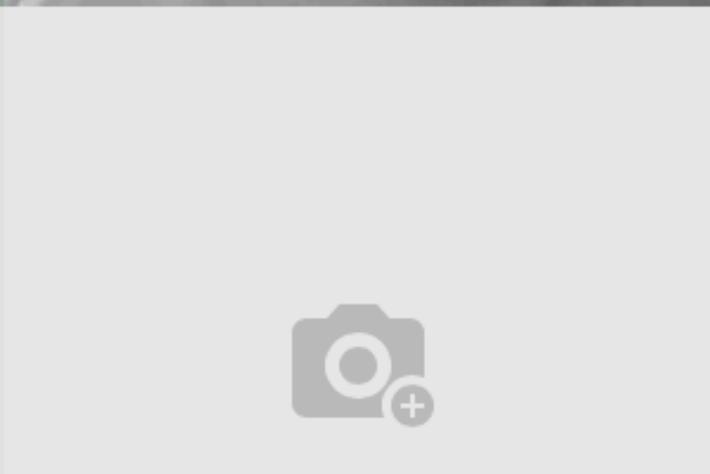
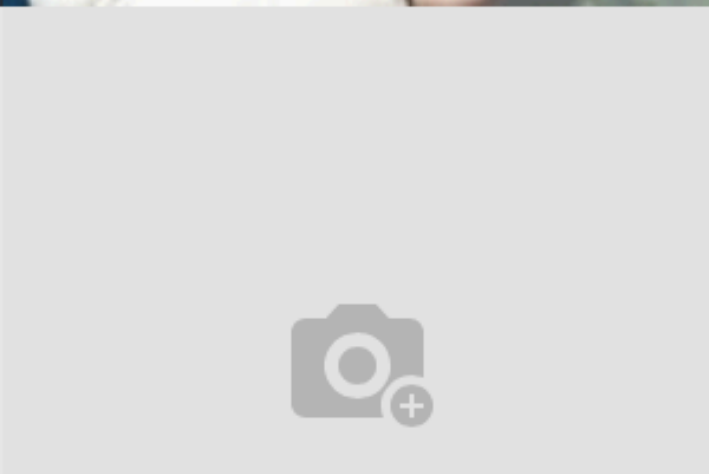
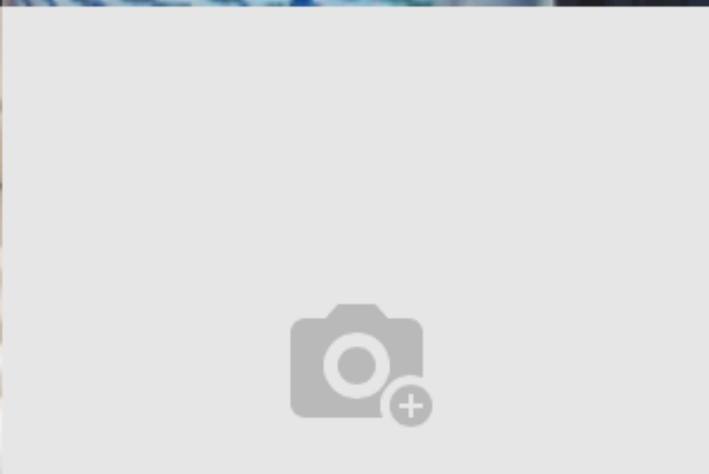
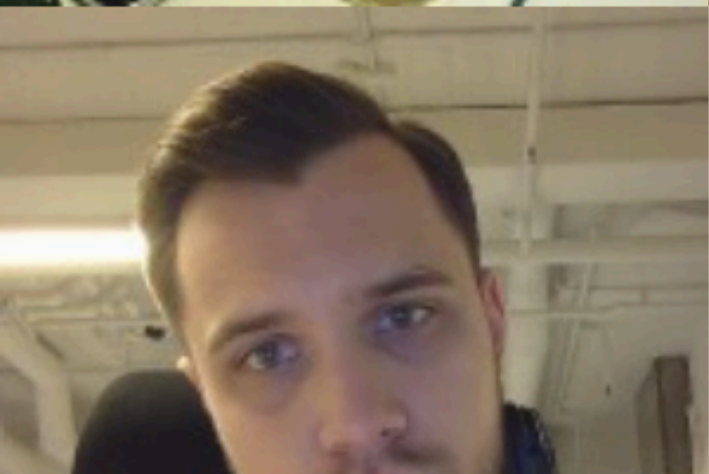
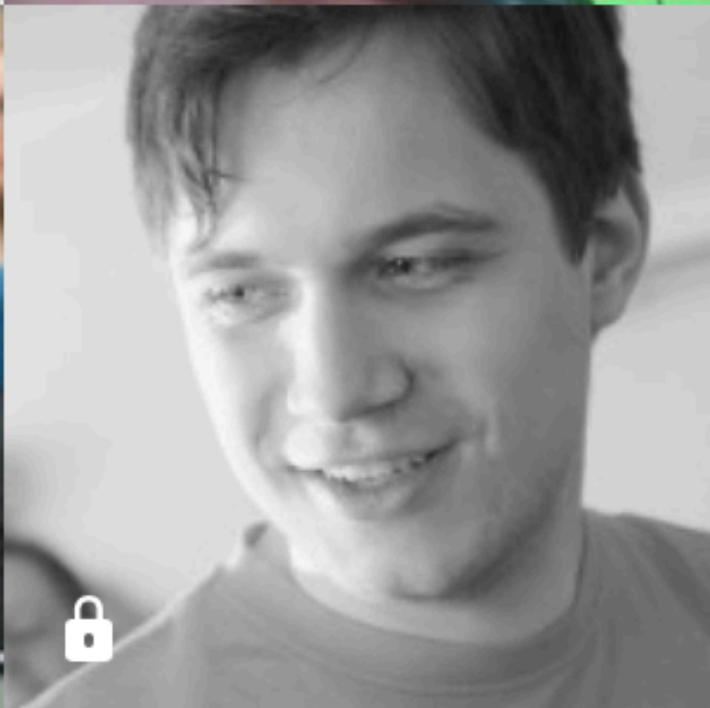
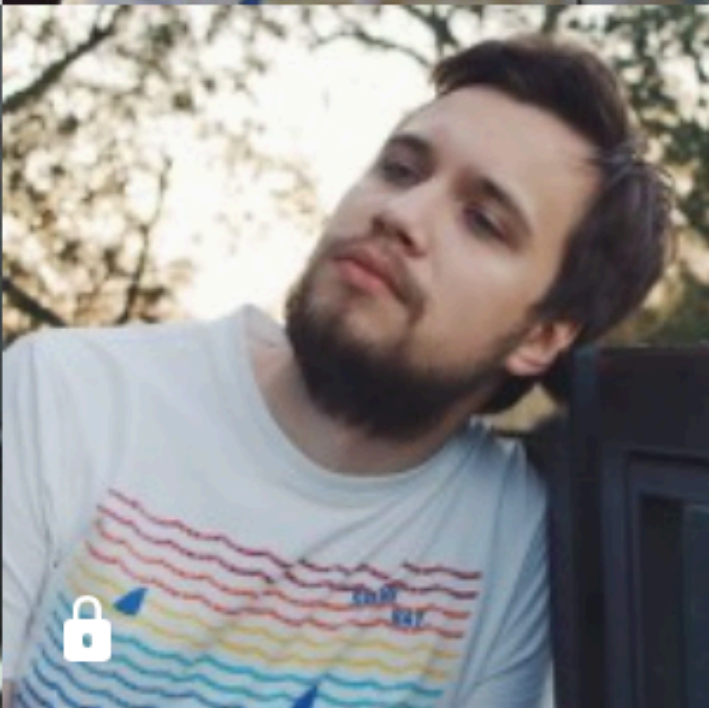
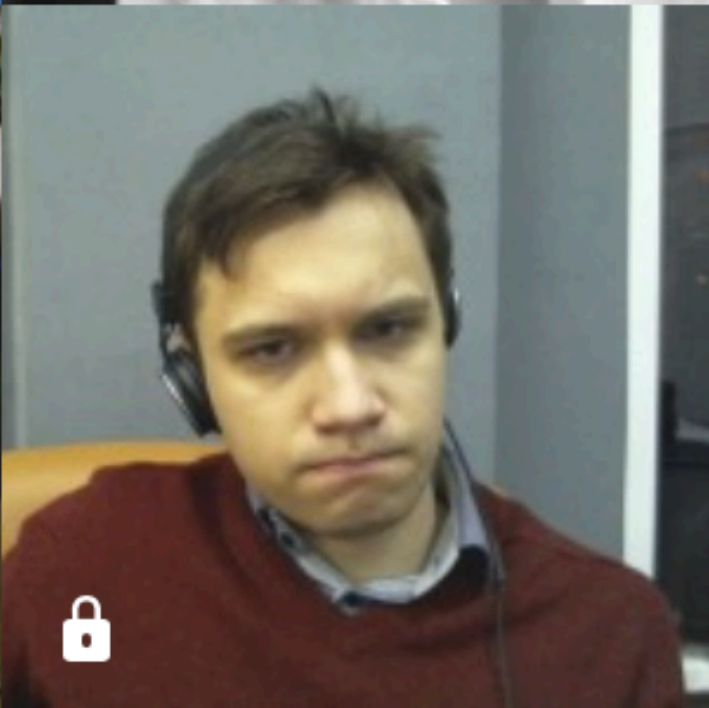
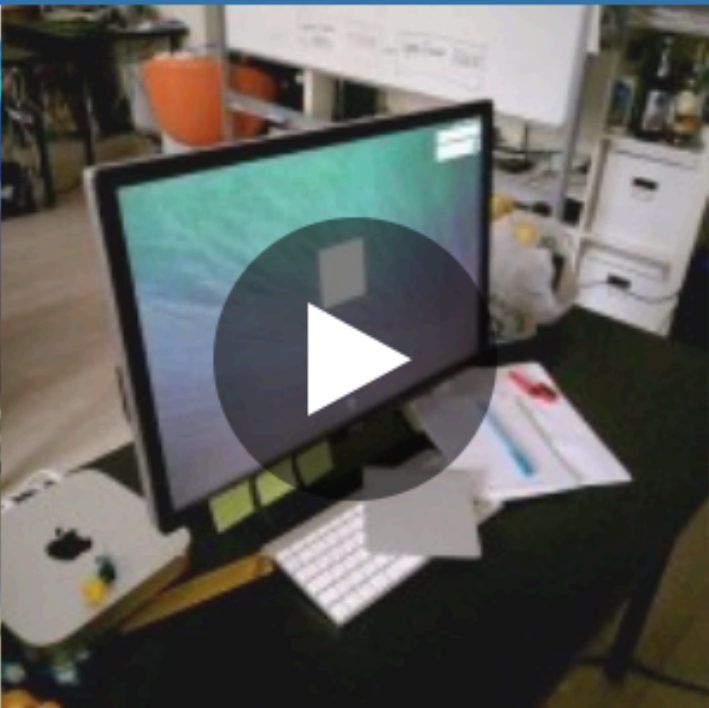
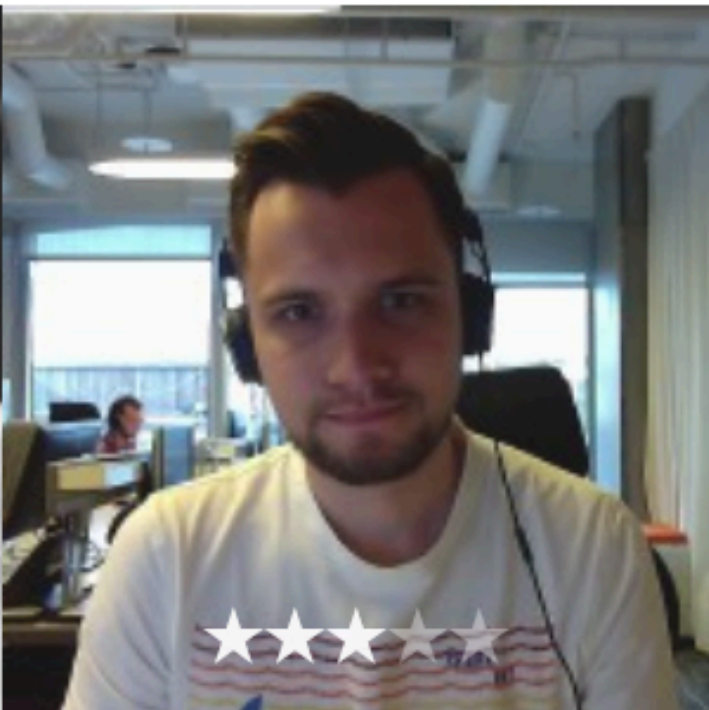
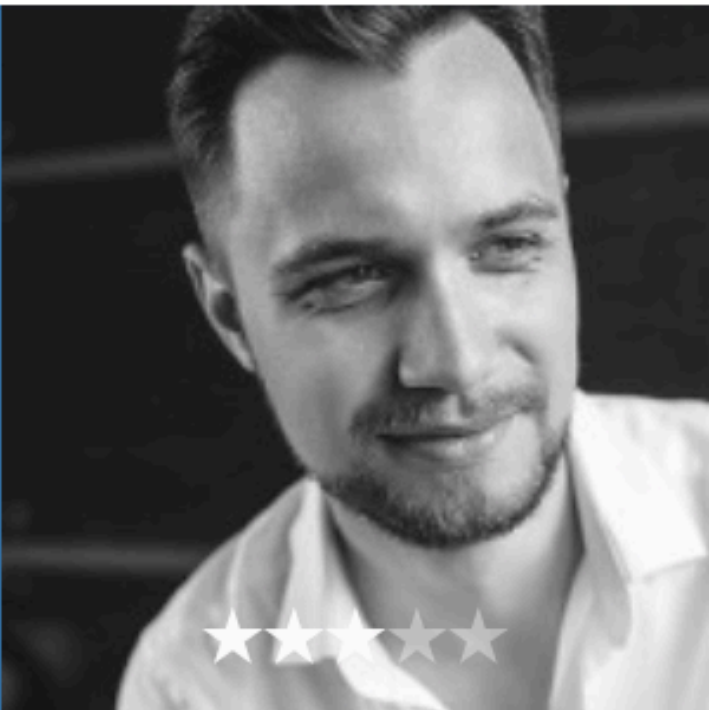
103 friends | 33 your interests



Add photos



Add video





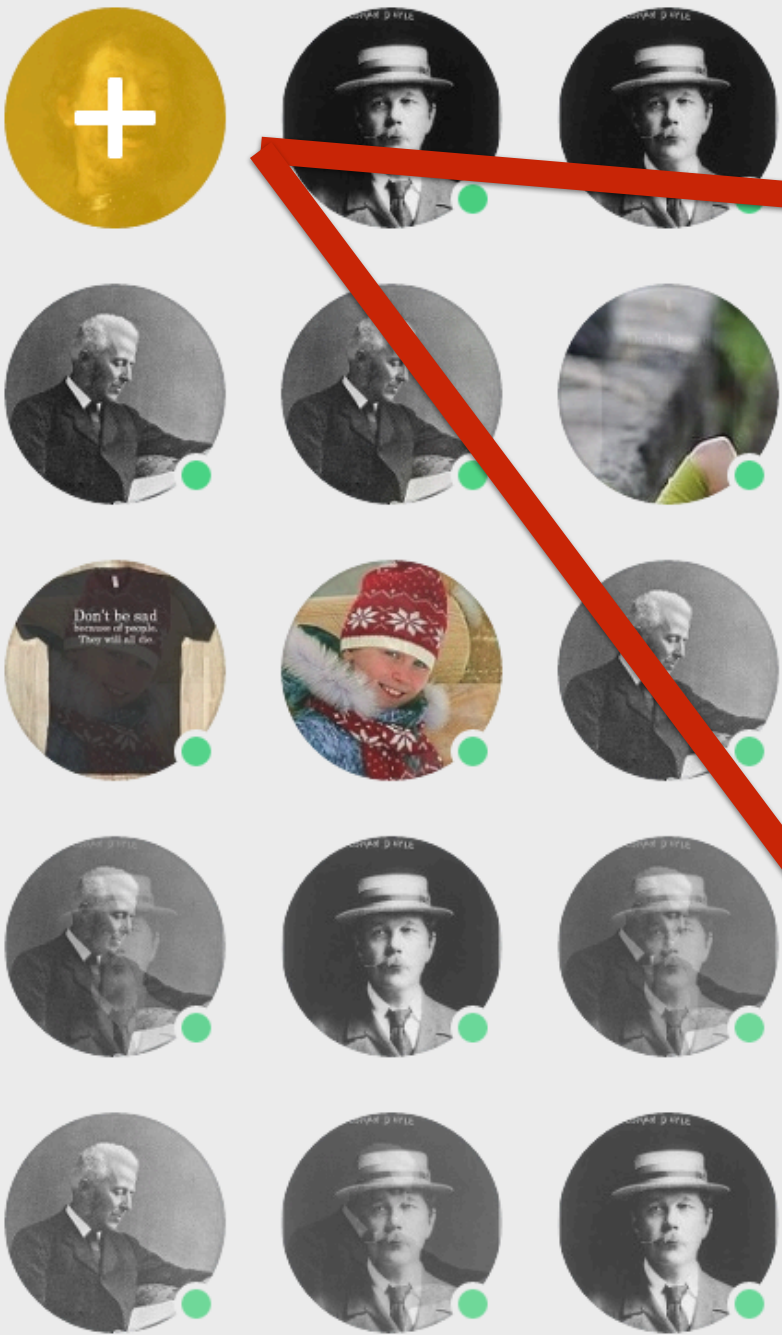
## Request

```
user_request: {  
  fields: [photos],  
  supported_changes: [VIDEOS_IN_PHOTOS]  
}
```

## Response

```
user: {  
  photos: [ <photo 1>, <video 1>, <photo 2>, ...]  
}
```

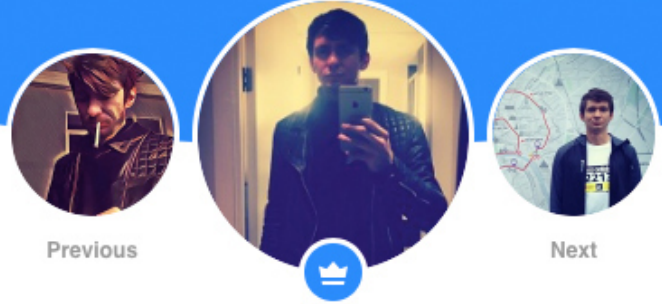
Add me here — Get seen by millions!



Feature your best photo  
so Vadim, Promo and 67 other  
people in Москва will see it.

Get featured now!

This photo will be featured



Previous Next

Get featured now!  
Igor, promote your best photo, so lots of new girls in Moscow will see it!

Let's go!

Make it easy for Дарья, Василиса and 379,536 other girls to find you in Encounters!

Add extra shows!

Get extra shows in Encounters

This service costs 100 credits  
Refill now – the more credits you buy, the cheaper the

1250 credits - 250 free! - £14.99

Card number  
0000 0000 0000 0000

Cardholder name NAME ON THE CARD Expiry date mm / yyyy

Pay by card

Refill my Badoo credits automatically when my balance falls below 200 credits. please uncheck the box

Your Credit card account will be charged £14.99. Service con

Progirbek, 19

Get extra shows in Encounters

This service costs 100 credits  
Refill now – the more credits you buy, the cheaper they are:

1250 credits - 250 free! - £14.99

Card number  
0000 0000 0000 0000

Eight great ways to use your credits:

- Rise up to first place
- Get featured now!
- Get shown more
- Give the perfect gift

# API Refactoring!

**Generalize:** Buttons array instead of one button

**Change global logic:** Supports concrete error types instead of generic error

**Cover screw ups:** All dates are now UTC

# Problem: business logic changes

Do changes behind version flag.

Make client control those flags.

**Problem:  
simultaneous  
release on clients**





# Video calling



# Release plan

Web – releases Sept 3

Android – releases Sept 1

Windows – releases Aug 20

iOS – releases Sept 7

## Request

```
startup_request: {  
  supported_features: [VIDEO_CALLS, GIFS]  
}
```

## Response

```
startup: {  
  allowed_features: [GIFS] // client will turn  
                          // video calls off  
}
```

## Request

```
startup_request: {  
  supported_features: [VIDEO_CALLS, GIFS]  
}
```

## Response

```
startup: {  
  allowed_features: [GIFS, VIDEO_CALLS]  
                    // feature released  
}
```

# Negotiate feature

Simultaneous launch

A/B-tests

Spam-filtering

Split paid/unpaid users

# Problem: simultaneous release on clients

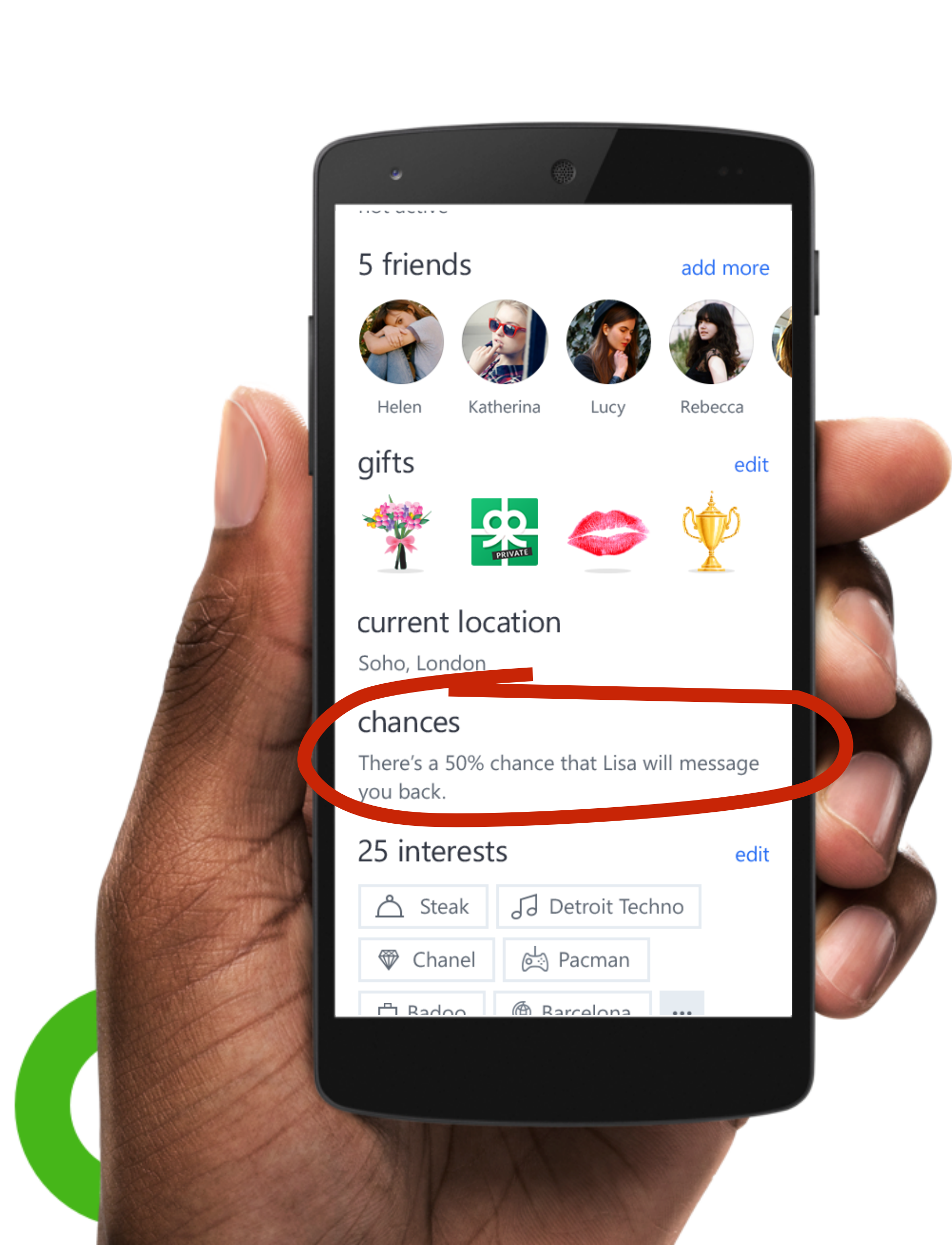
Negotiate feature with server.

Once you see that enough clients support it,  
launch.

**Problem:  
quick experiments**



# What's my chances





## Windows Phone - an experimental platform

By [Vyacheslav Loktik](#) on 09 Aug 2016 - [7 Comments](#)



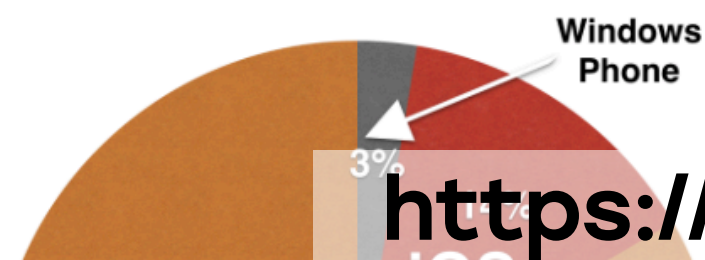
WindowsPhone

In the last three years our team has tripled in numbers, and is now newly focused on becoming the company's experimental platform. In this article I will tell you the story of our team: how our Windows Phone (WP) team became an experimental platform, the problems that we faced and how we solved them.

We have created really useful solutions that have helped us implement 104 new features (including A/B/C/D tests) in the last 6 months, with only 6 people in the team.

**Warning!** Knowledge and solutions from this article might affect your workflow.

## Reborn



<https://bit.ly/badoo-wp>

We're hiring! Join us.

### Recent Posts

- [Masking Bitmaps](#)
- [Top 3 Badoo Android AMA](#)
- [Windows Phone - an experimental platform](#)
- [Segregating Android Phone Models between Docker Containers](#)
- [Shake Detector for Android with RxJava](#)

### Categories

Javascript

Mobile web

iOS

Conferences

Git

QA

Miscellaneous

PHP

Android

Web

CSS

Tutorial

Cucumber

Internship

Objective-C

Python

Swift

Api

Process

## Response on Android

```
user: {  
    verified_status: NONE | PARTIAL | FULL,  
}
```

## Response on Windows

```
user: {  
    verified_status: NONE | PARTIAL | FULL,  
    experimental_chances: 57, // only on windows  
}
```

# Problem: quick experiments

Create a superset experimental API

Use it only on one platform



# Typical versioning

- 1) <http://api.example.com/orders>
- 2) Collect nice-to-have breaking changes
- 3) Announce new version with all of them
- 4) <http://api.example.com/v2/orders>
- 5) Slowly deprecate v1



# Continuous versioning

0. Add new fields for new features
1. Have a list of supported things
2. Cover changes with a change flag
3. Let server control enabling and disabling
4. Create supersets of APIs for experimenting



On practice?

# On practice

**257** feature flags

**161** negotiable features

Apified web client in 2015



# On practice

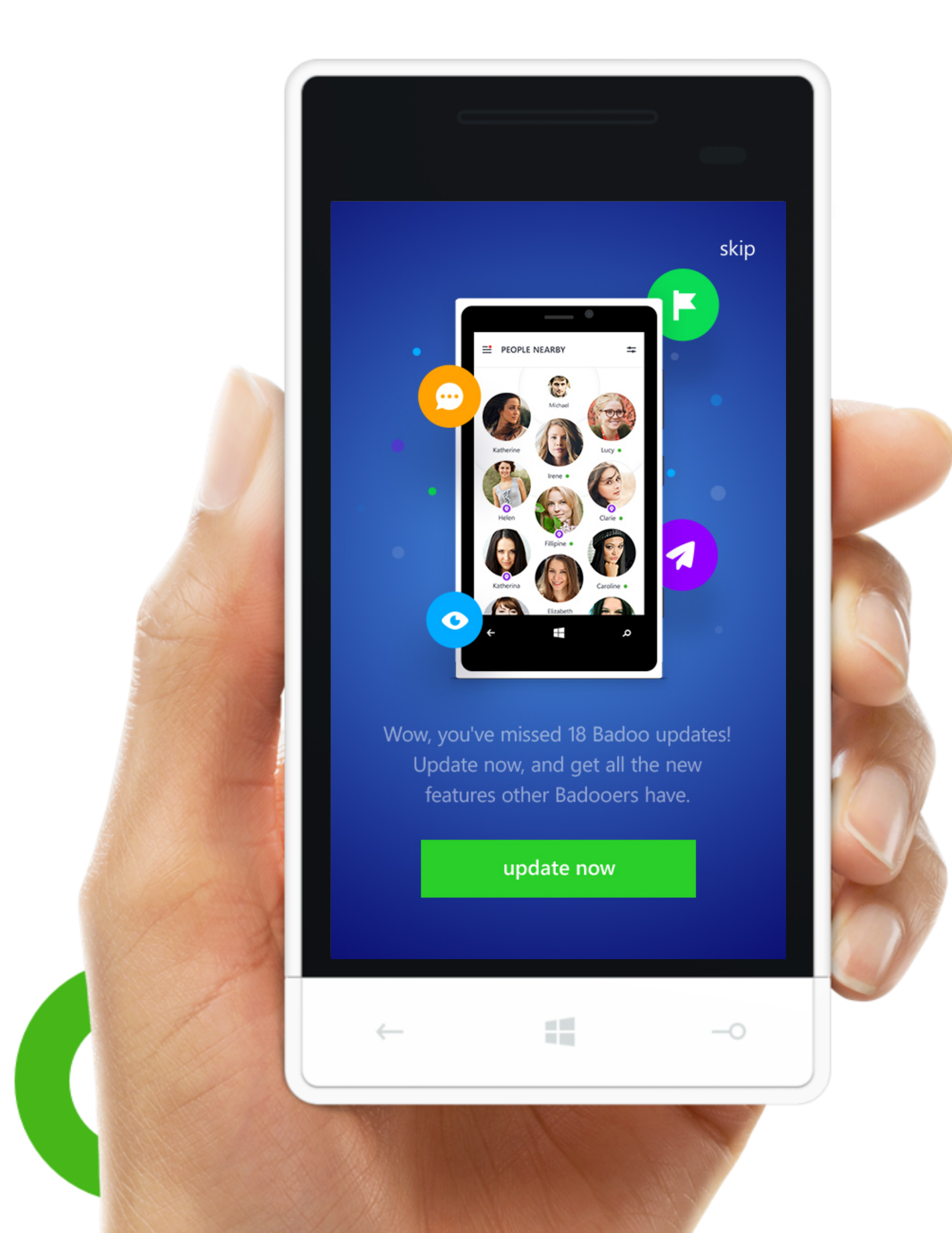
**Architects** can do refactoring all the time

**Client developers** can do only minimal changes

**Product owners** can get exactly what they want

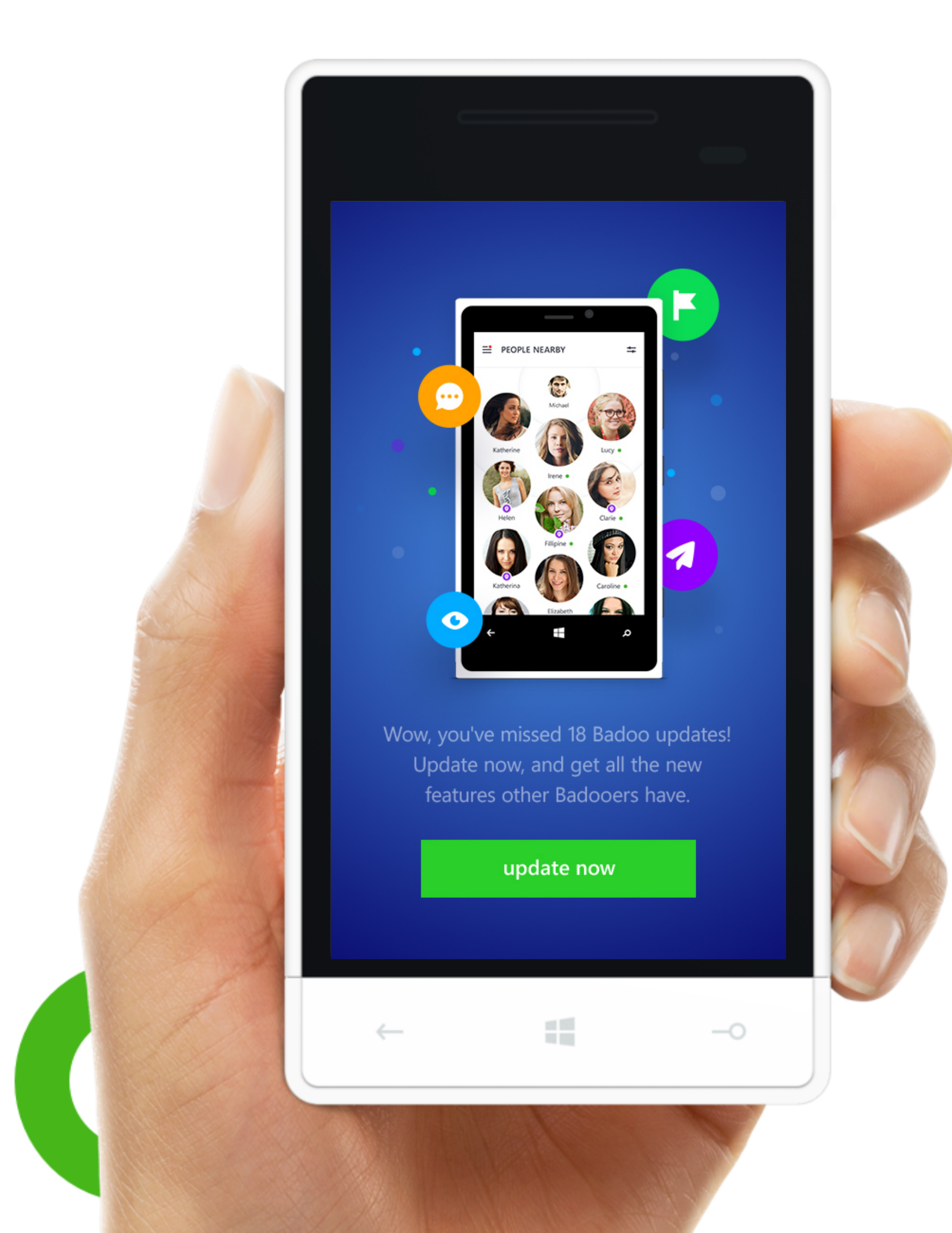
**Backend developers** ...

# Suggest upgrading





# Force upgrading



# Dashboard

	4.44	4.43	4.42	4.41	3.57
VIDEOS_IN_PHOTOS	+	+			
BUTTONS_ARRAY	+	+	+	+	+
ALL_DATES_ARE_UTC					

# On practice

**Architects** can do refactoring all the time

**Client developers** can do only minimal changes

**Product owners** can get exactly what they want

**Backend developers** can still work sanely and easily split in parallel



# Thank you!

<http://no-v2.kojo.ru>

badOo

