

A close-up photograph of two hands, one light-skinned and one dark-skinned, each holding a single capsule pill. The hand on the left holds a red capsule, and the hand on the right holds a green capsule. The background is dark.

GETTING THINGS WRONG FOR FUN AND PROFIT

API PAIN-POINTS

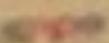
@PHILSTURGEON #LONESTARPHP15





phaseit

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management needs is here -
Open Atrium.

OPEN ATRIUM

CMS - The Content Management

Ride on the go.

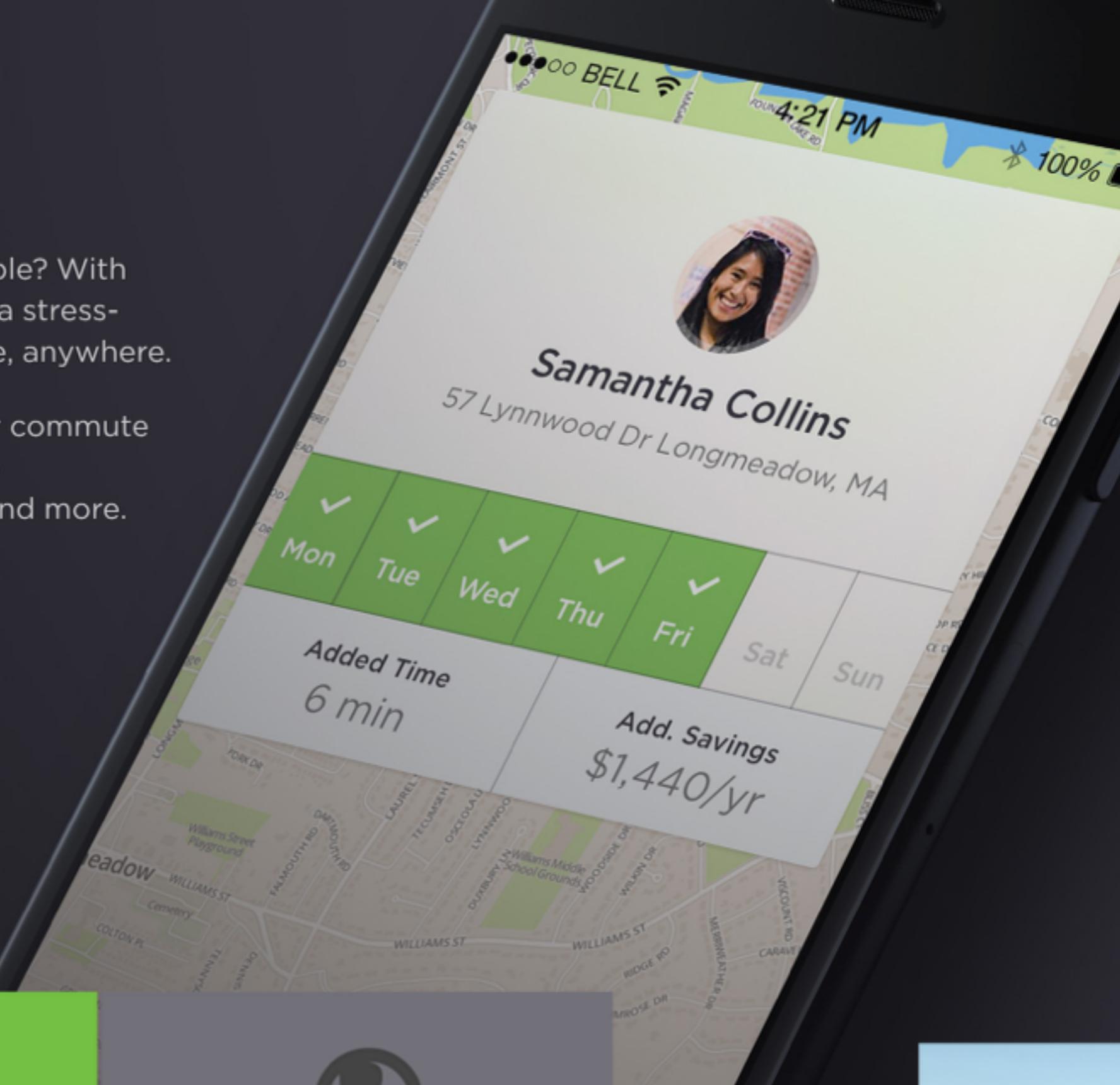
Want the best Ride experience possible? With our Ride App for iOS, you can set up a stress-free, money-saving commute anytime, anywhere.

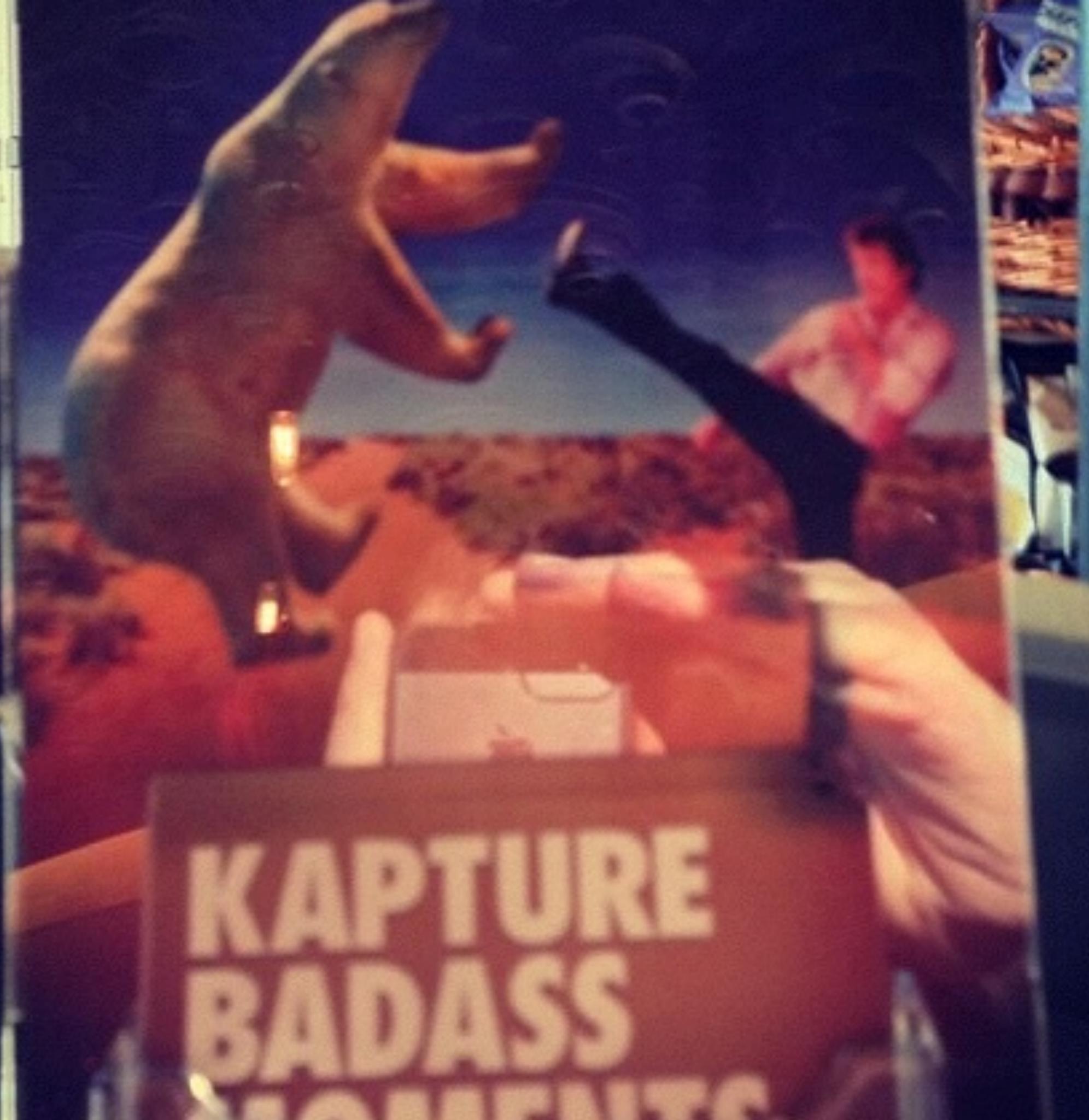
The Ride App puts the details of your commute in your pocket. See your route, set up transactions, say hello to your Ride, and more.

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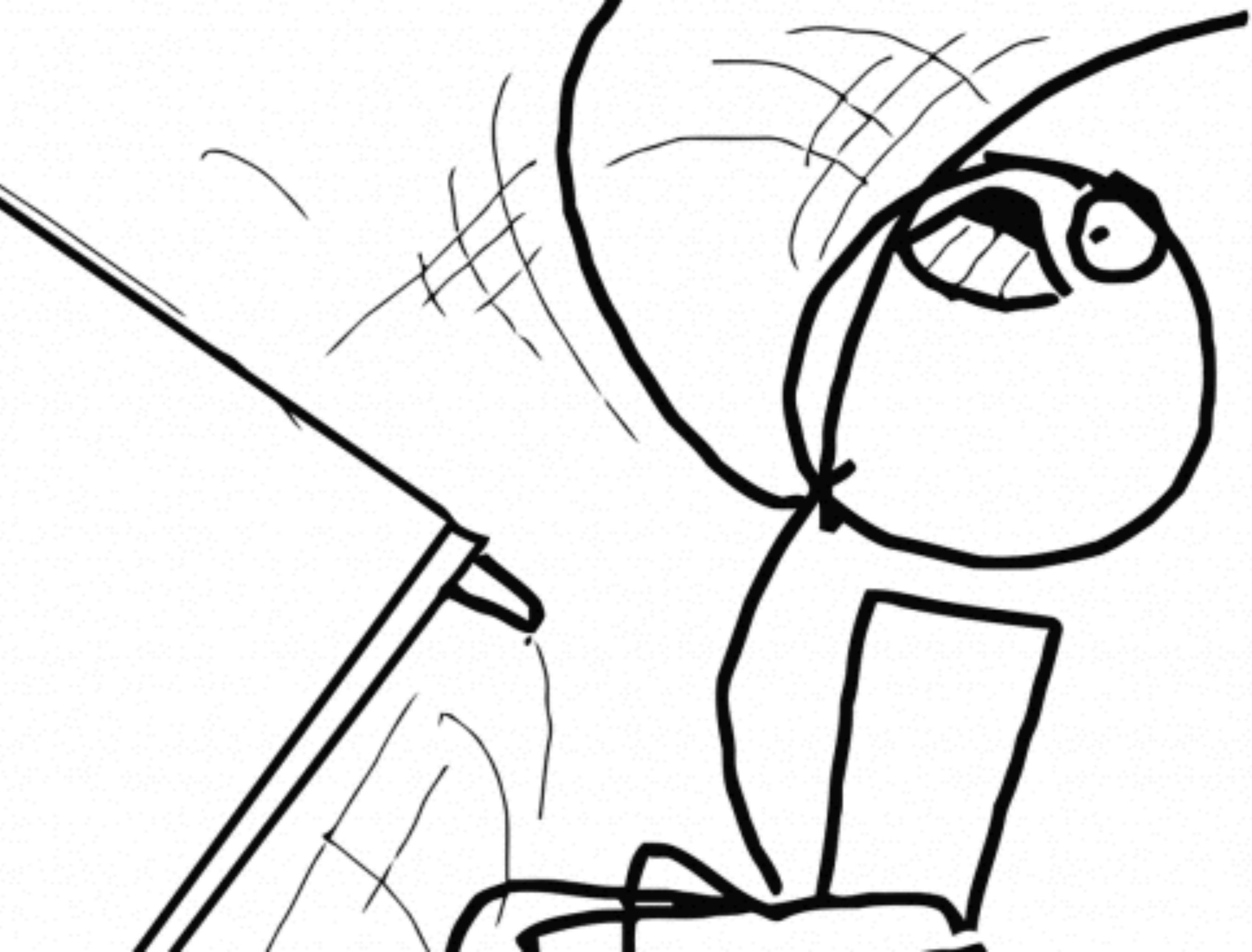
[Learn More](#)

I am able to save at least \$200+ in my monthly commute & I don't have to depend on my 13 year old





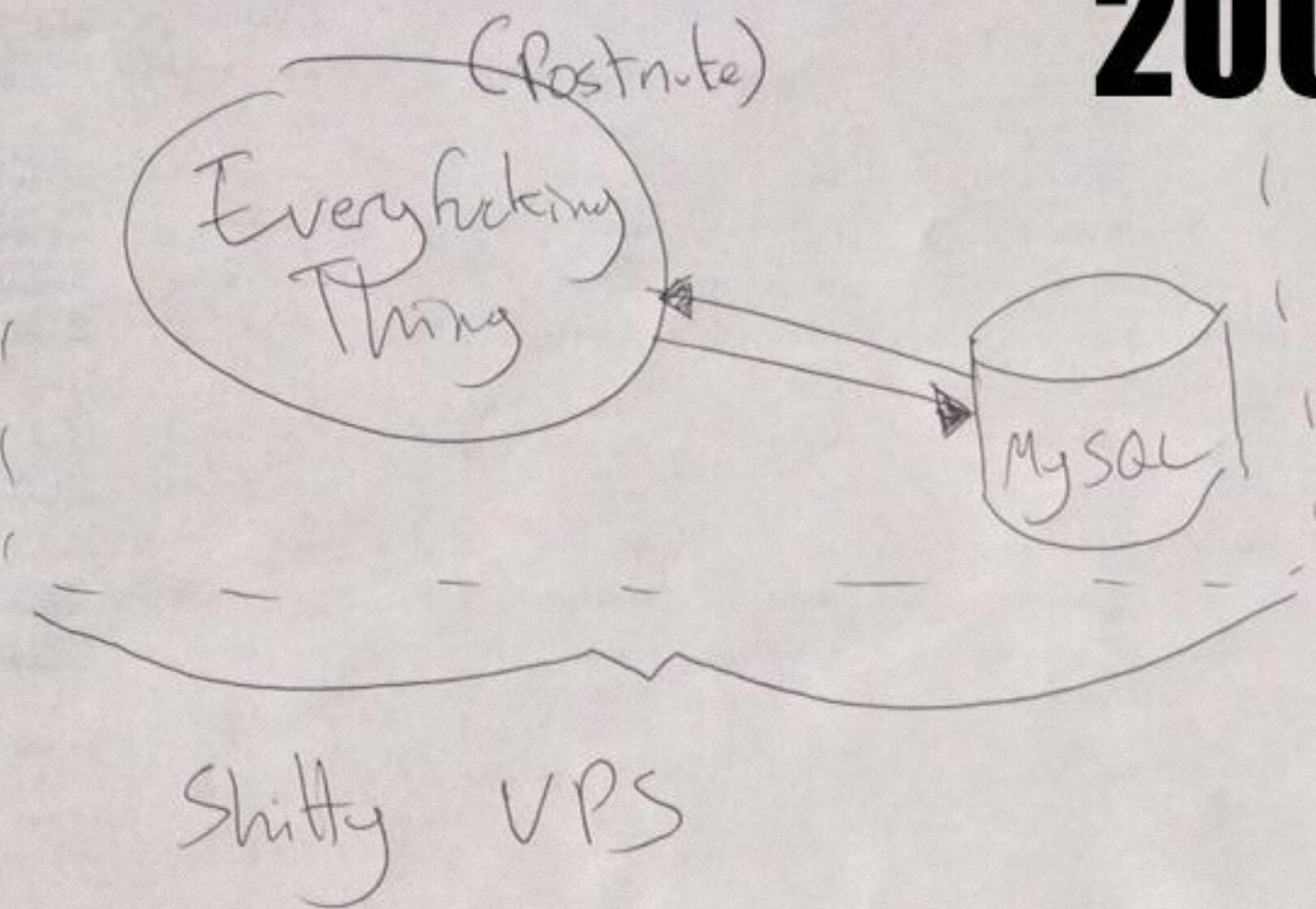
RAPTURE
BADASS
NO PUNINT



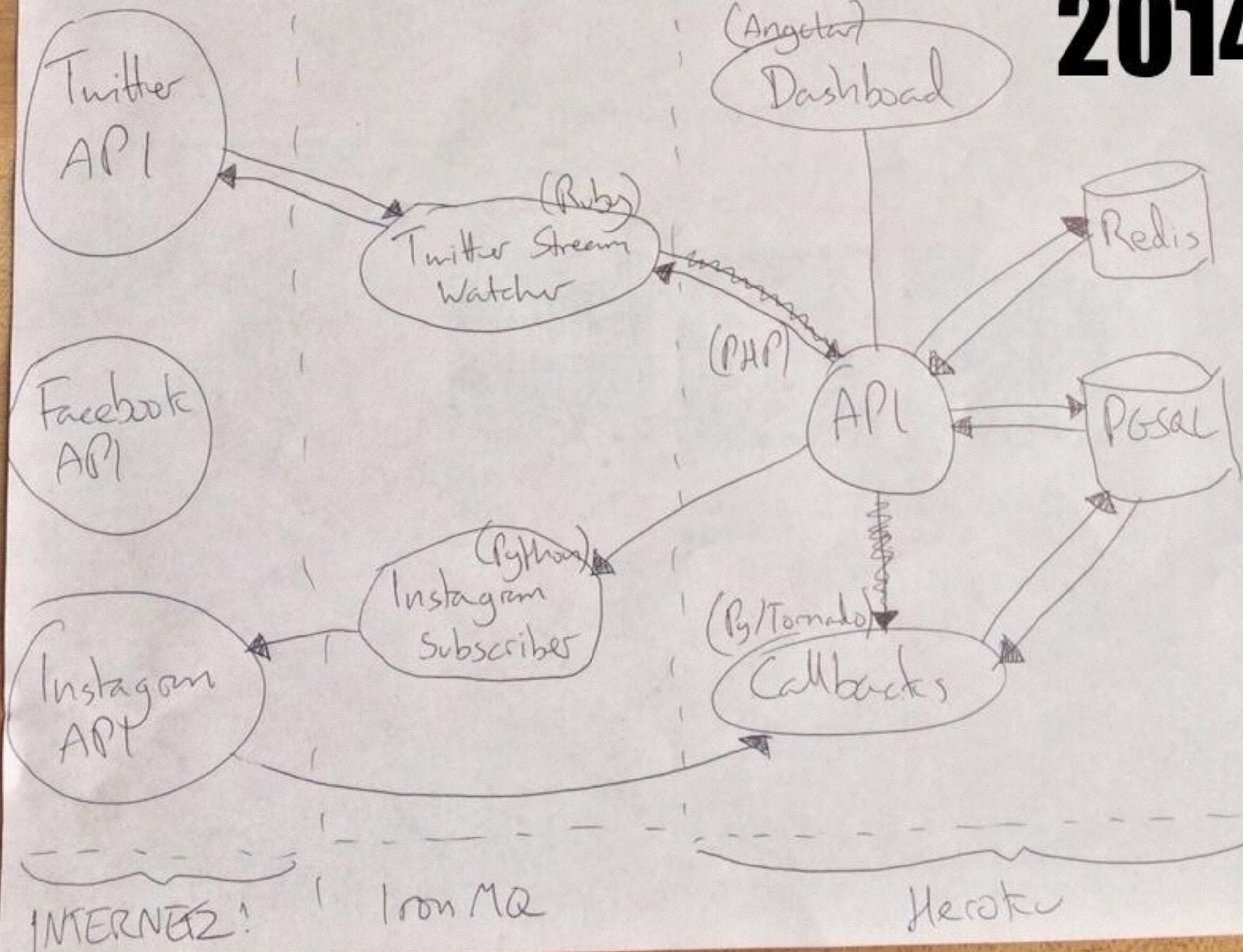
OLD SCHOOL

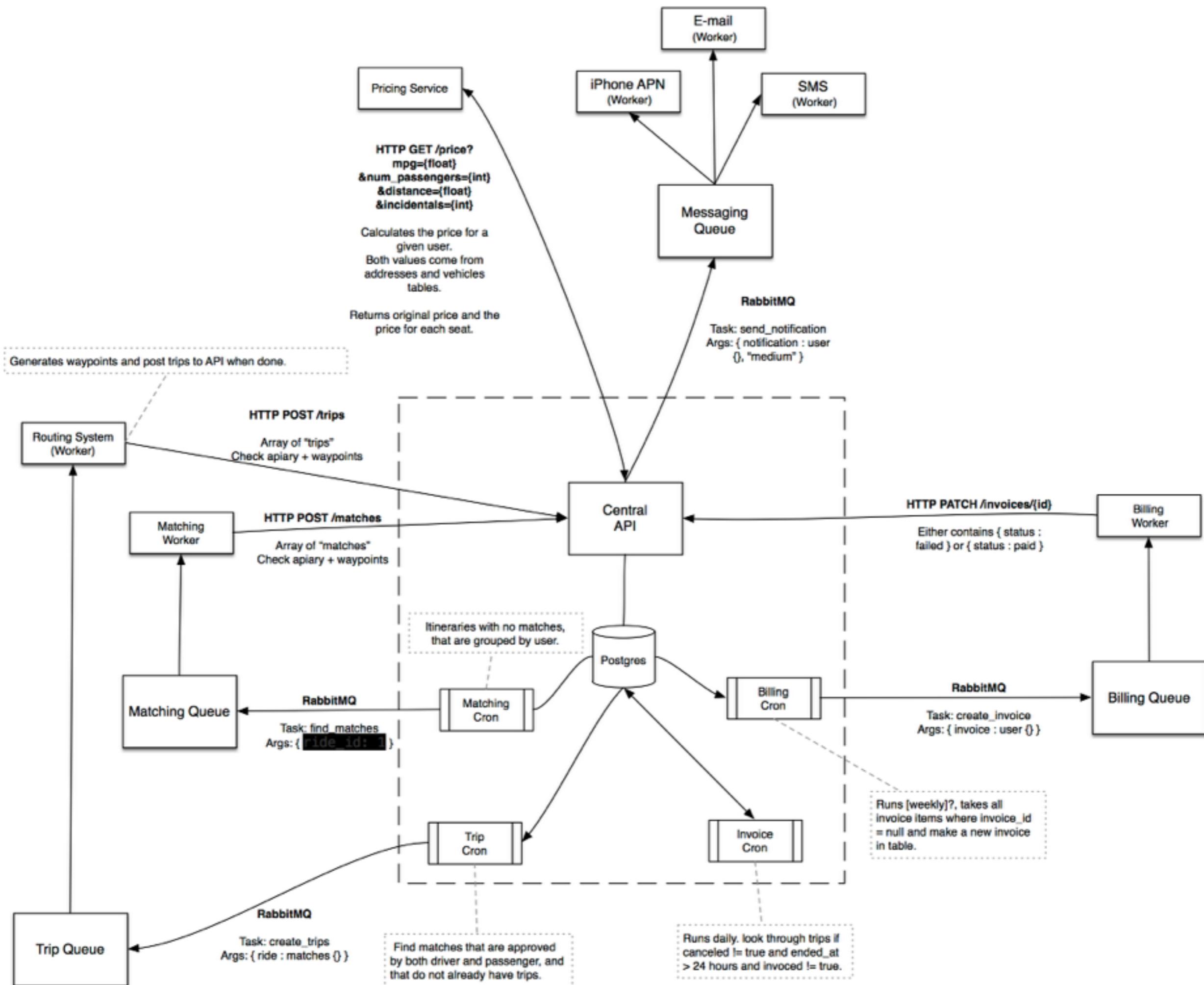
ARCHITECTURE

2004



2014







Rest here



LEAVE YOUR CUSTOMERS ALONE

DATABASE SEEDING

NAMING THINGS IS HARD

ENDPOINT THEORY



HELLO
MY NAME IS

CONSISTENCY IS KING

PLURAL V SINGULAR?

/users

/user/23

CONSISTENCY IS KING

PLURAL V SINGULAR?

/opportunities

/opportunity/43

CONSISTENCY IS KING

PLURAL V SINGULAR?

/people

/person/dave

CONSISTENCY IS KING

PLURAL V SINGULAR?

/places

/places/12

/places/12/checkins

/places/12/checkins/34

/checkins/34

QUERY STRINGS ARE FINE
NO NEED FOR SEO

/users/active/true



/users?active=true

CTRL + S YOUR WEBSITE

AUTO-INCREMENT = BAD

/checkins/1

/checkins/2

/checkins/3

...

/checkins/2369

CTRL + S YOUR WEBSITE

AUTO-INCREMENT = BAD

```
$tiny = new \ZackKitzmiller\Tiny('IDpuU74QNH6B');
```

```
echo $tiny->to(5);  
// E
```

```
echo $tiny->from('E');  
// 5
```

github.com/zackkitzmiller/tiny-php

CTRL + S YOUR WEBSITE

AUTO-INCREMENT = BAD

```
use Rhumsaa\Uuid\Uuid;
```

```
use Rhumsaa\Uuid\Exception;
```

```
$uuid4 = Uuid::uuid4();
```

```
echo $uuid4;
```

```
// 25769c6c-d34d-4bfe-ba98-e0ee856f3e7a
```

github.com/ramsey/uuid

VERB SOUP

WHICH METHODS

List	GET	/users
Read	GET	/users/X
Update	PUT	/users/X
Update	PATCH	/users/X
Create	POST	/users
Delete	DELETE	/users/X
Image	PUT	/users/X/image
Images	POST	/users/X/images
Favourites	GET	/users/X/images

HONESTLY

HTTP VERBS MATTER



Jamie Hannaford
@jamiehannaford



@philsturgeon my favorite WTF story is using a GET verb to delete resources. Which was interesting when Google crawled the API cc/
@glenc

Don't be @jamiehannaford.
That sounds like a bad day.

BEFORE YOU SET OUT

PICK THE RIGHT FORMAT



JUST SEND JSON

FORM PAYLOADS

```
1 POST /checkins HTTP/1.1
2 Host: api.example.com
3 Authorization: Bearer vr5HmMkzIxKE70W1y4MibiJUusZwZC25NOVBEx3BD1
4 Content-Type: application/x-www-form-urlencoded
5
6 checkin[place_id]=1&checkin[message]=This is a bunch of text&checkin[with_friends][]=1&che\
7 ckin[with_friends][]=2&checkin[with_friends][]=3&checkin[with_friends][]=4&checkin[with_fr\
8 iends][]=5
```

**foo=something&bar[baz]=thing
&bar[stuff]=junk&bar=true**

NOT LIKE THAT

HACKY PAYLOADS

```
1 POST /checkins HTTP/1.1
2 Host: api.example.com
3 Authorization: Bearer vr5HmMkz1xKE70W1y4MibiJUusZwZC25NOVBE
4 Content-Type: application/x-www-form-urlencoded
5
6 json={
7     "checkin": {
8         "place_id": 1,
9         "message": "This is a bunch of text.",
10        "with_friends": [1, 2, 3, 4, 5]
11    }
12 }"
```

THNX!

REAL JSON PAYLOADS

```
1 POST /checkins HTTP/1.1
2 Host: api.example.com
3 Authorization: Bearer vr5HmMkzIxKE70W1y4MibiJUusZwZC25NOVBEx
4 Content-Type: application/json
5
6 {
7     "checkin": {
8         "place_id" : 1,
9         "message": "This is a bunch of text.",
10        "with_friends": [1, 2, 3, 4, 5]
11    }
12 }
```

THE HTTP WAY

READING REAL DATA IS EASY

Lazy

```
$_POST['foo'];
```

Proper

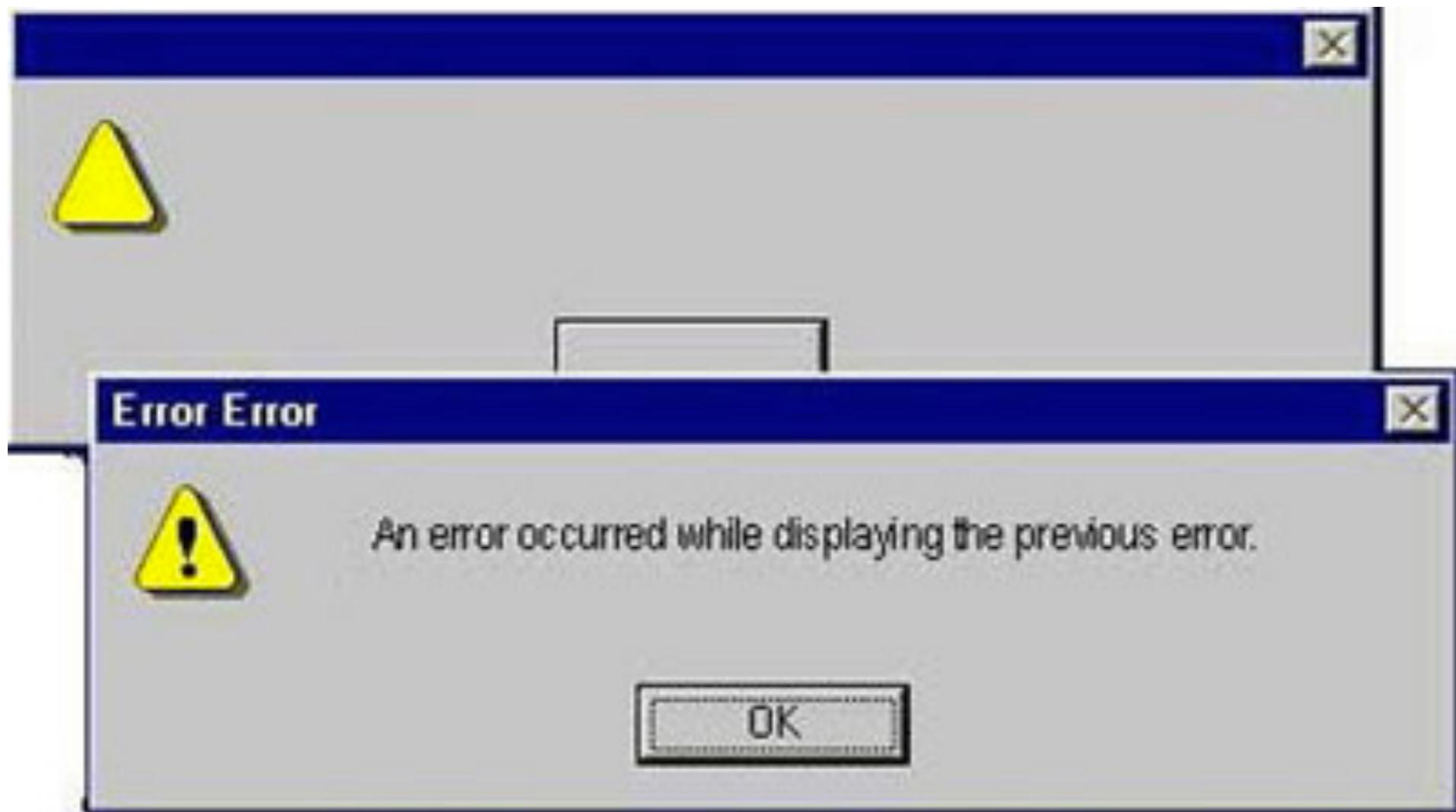
```
json_decode(file_get_contents('php://input'));
```

Proper in Laravel

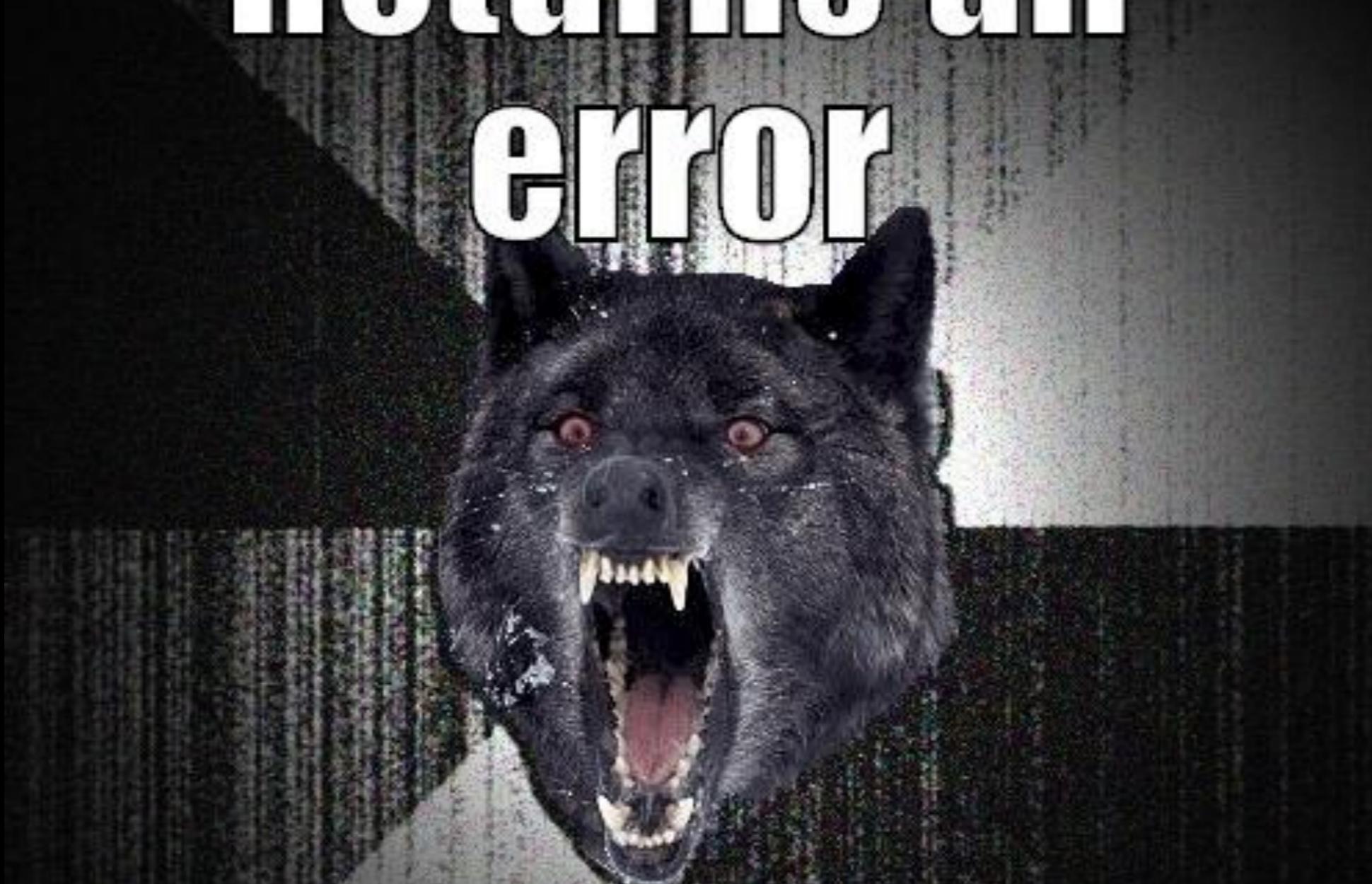
```
Input::json('foo');
```

BEING WRONG CORRECTLY

ERROR MESSAGES



Returns an
error

A close-up photograph of a dark-colored dog, possibly a German Shepherd or Rottweiler mix, with its mouth wide open in a snarl. Its red, glowing eyes are intense and focused forward. The dog's teeth are bared, showing sharp canines. The background is dark and out of focus.

200 OK

KNOW YOUR CODES

200 IS NOT THE ONLY SUCCESS

```
if ($statusCode != 200) {  
    throw new Exception('AAGHH!!');  
}
```

2xx is all about success

3xx is all about redirection

4xx is all about client errors

5xx is all about service errors

200 - Generic everything is OK

201 - Created something OK

202 - Accepted but is being processed async

400 - Bad Request (Validation?)

401 - Unauthorized

403 - Current user is forbidden

404 - That URL is not a valid route

405 - Method Not Allowed

410 - Data has been deleted, deactivated, suspended, etc

500 - Something unexpected happened and it is the APIs fault

503 - API is not here right now, please try again later

418 - I am a Teapot

<http://httpstatus.es/418>

WHAT HAPPENED

CLEAR, HUMAN ERRORS

```
{  
  "error": {  
    "errors": [  
      {  
        "domain": "youtube.parameter",  
        "reason": "missingRequiredParameter",  
        "message": "No filter selected.",  
        "locationType": "parameter",  
        "location": ""  
      }  
    ],  
    "code": 400,  
    "message": "No filter selected."  
  }  
}
```

WHAT HAPPENED

ERRORS SHOULD MAKE SENSE

```
"reason": "missingRequiredParameter",  
"message": "No filter selected.",
```

...

&mine=true

WTF

WHAT HAPPENED

SUPPLEMENT HTTP CODES

```
{  
  "error": {  
    "type": "OAuthException",  
    "message": "Session has expired at unix time  
1385243766. The current unix time is 1385848532"  
  }  
}
```

WHAT HAPPENED

SUPPLEMENT HTTP CODES

```
{  
  "error": {  
    "message": "(#210) Subject must be a page.",  
    "type": "OAuthException",  
    "code": 210  
  }  
}
```

WHAT HAPPENED

SUPPLEMENT HTTP CODES

```
{  
  "error": {  
    "message": "(#210) Subject must be a page.",  
    "type": "OAuthException",  
    "code": 210,  
    "url": "http://developers.facebook.com/errors#210"  
  }  
}
```

USE AN EXISTING FORMAT

ERRORS ARE A SOLVED PROBLEM

jsonapi.org/format/#errors

mnot.net/blog/2013/05/15/http_problem

GET example.com/subfolder/api/
command/john/secret/foo/bar/

OAUTH 2.0



thephpleague.com

github.com/thephpleague/oauth2-server

PASSWORDS, IMPLICIT, SOCIAL LOGINS...

OAUTH 2 CAN DO A LOT

<http://dev.oauth.example.com>

form-data

x-www-form-urlencoded

raw

access_token

CAAFqJEMWsJIBAAxqvLRwNZC04Jhi



client_id

DHdbhLEdrhsGSDFRertet



client_secret

MuBCltPolbGRuPp5TzSM



grant_type

social



network

facebook



Key

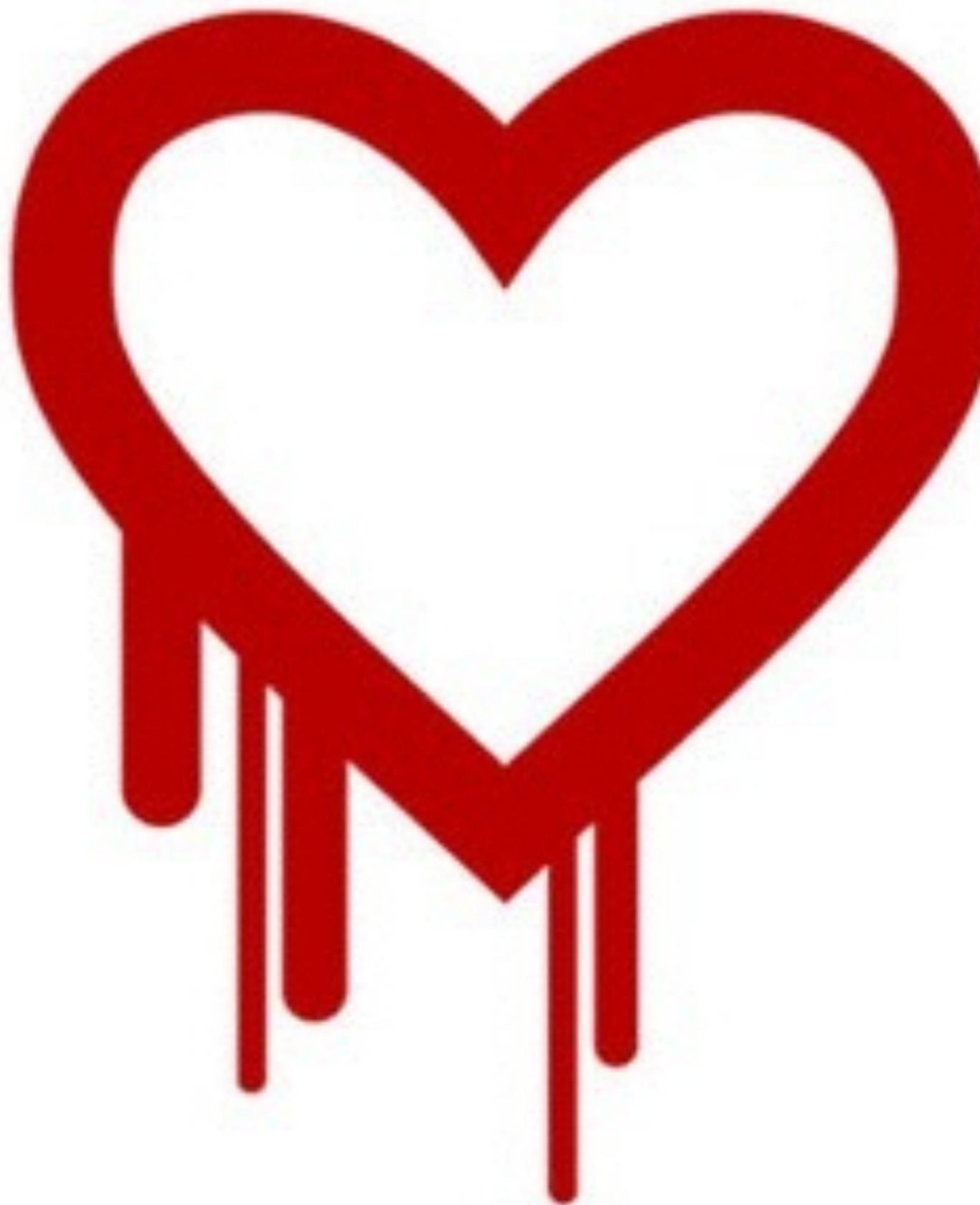
Value

USE SSL



EXCEPT FOR...

LOL



SERIOUSLY
FACEBOOK... YOU B#%@* DS!!!

Refresh Tokens?

Lol

STILL SERIOUSLY
YOUTUBE... YOU SEMI-B#%@*DS!!!

Refresh Tokens?

Kinda

DONT LET USERS BEHIND THE CURTAIN

PRESENTATION LAYER



DONT LET USERS BEHIND THE CURTAIN

PRESENTATION LAYER

```
return Places::all();
```

```
"data": [
  {
    "id": "1",
    "name": "Mireille Rodriguez",
    "lat": "-84.147236",
    "lon": "49.254065",
    "address1": "12106 Omari Wells Apt.",
    "address2": "",
    "city": "East Romanberg",
    "state": "VT",
    "zip": "20129",
    "is_foo": "1",
    "website": "http://www.torpdbbert.com",
    "phone": "(029)331-0729x4259",
    "links": [
      {
        "rel": "self",
        "href": "http://www.torpdbbert.com/1"
      }
    ]
  }
]
```

```
"etag": "\"ag-oqvH8dumDXQP6JcFz5Tsa_OA/xCKV1bX",
- "pageInfo": {
    "totalResults": 1,
    "resultsPerPage": 1
},
- "items": [
- {
    "kind": "youtube#video",
    "etag": "\"ag-oqvH8dumDXQP6JcFz5Tsa_OA/sxDDe",
    "id": "R4OmUFaZxog",
    - "statistics": {
        "viewCount": "2",
        "likeCount": "0",
        "dislikeCount": "0",
        "favoriteCount": "0",
        "commentCount": "0"
    }
}
```

TRANSFORMERS... ASSEMBLE!

```
public function transform(Book $book)
{
    return [
        'id' => (int) $book->id,
        'title' => $book->title,
        'year' => $book->yr,
        'created' => (string) $book->created_at,
    ];
}
```

STOP YOUR IPHONE DEV COMPLAINING

FLEXIBLE RESPONSES

GET /checkins/dsfXte
?include=place,user,activity

DATA GROWS FAST

PAGINATE

```
{  
  "data": [  
    ...  
  ],  
  "cursors": {  
    "after": "MTI=",  
    "next_url": "https://api.example.com/places  
?cursor=MTI%3"  
  }  
}
```

PAGINATION DDOS

DEFINE A LIMIT RANGE

```
if ($limit < 1 || $limit > 100) {  
    $limit = 100;  
}
```

IF YOU LOVE YOUR JOB

AUTOMATE TESTING



PHPUNIT + BEHAT



Scenario: Find a merchant

When I request "**GET /moments/1**"

Then I get a "**200**" response

And scope into the "**data**" property

And the properties exist:

!!!!

id

title

year

created

!!!!

Scenario: Try to find an `checkin`

When I request "**GET /checkins/nope**"

Then I get a "**404**" response

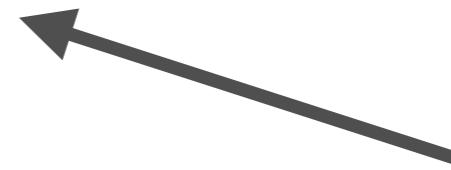
Scenario: Wrong Arguments for user follow

Given I have the payload:

```
"""
```

```
{"is_following": "foo"}
```

```
"""
```



Not a boolean

When I request "PUT /users/1"

Then I get a "400" response

Places

Place List

Create new place

Places

Get place

Modify place

Delete place

Place Images

Set place image

Delete place image

<https://api.example.com>

apiblueprint.org

CREATE NEW PLACE

POST /places

Request

Response 201

PLACES

Manage an existing place.

GET /places/{id}

Parameters

id integer (required)

The unique identifier of a place

Response 200

Response 404

PUT /places/{id}

Parameters



github.com/apiaryio/dredd

GET http://dev.api.kaptu.re/merchants/5

GET http://dev.api.kaptu.re/me/friends

GET http://dev.api.kaptu.re/me/rewards

GET http://dev.api.kaptu.re/moments

POST http://dev.api.kaptu.re/moments

PUT http://dev.api.kaptu.re/moments/692/image

GET http://dev.api.kaptu.re/ops

GET http://dev.api.kaptu.re/ops/search?lat=40.7641&lon=-73.9866&q=bamboo

GET http://dev.api.kaptu.re/stats

GET http://dev.api.kaptu.re/users/1,2,3

POST http://dev.oauth.kaptu.re/refresh

POST http://dev.oauth.kaptu.re/

Normal

Basic Auth

Digest Auth

OAuth 1.0

No enviro

http://dev-api.kaptu.re/places/2?include=current_opp,pre

Send

Preview

Add to collection

Body

Cookies (3)

Headers (11)

STATUS 200 OK

TIME 9

Pretty

Raw

Preview



JSON



```

1   {
2     "embeds": [
3       "merchant",
4       "moments",
5       "current_opp",
6       "previous_ops",
7       "image"
8     ],
9     "data": {
10       "id": 2,
11       "name": "Mohr PLC",
12       "lat": -36.6391182,
13       "lon": -71.5096207,
14       "address1": "3816 Bruce Island",
15       "address2": "",
16       "city": "ThaliaLand",
17       "state": "SC",
18       "zip": "",
19       "website": "http://www.rolfsonkoep",
20       "phone": "1-237-411-9728",
21       "created_at": "2013-12-20 20:51:43",
22       "facebook_id": null,
23       "business_hours": "",
24       "last_kaptured_at": "2013-12-20 20:51:43",
25       "is_favorite": false
}

```

/V1/DOESNT COUNT

VERSIONING

<https://api.example.com/v1/places>

/V1/DOESNT COUNT

VERSIONING

<https://api-v1.example.com/places>

/V1/DOESNT COUNT

VERSIONING

Accept: application/vnd.example+json; version=**1**

Accept: application/vnd.example+json; version=**2**

/V1/DOESNT COUNT

VERSIONING

Accept: application/vnd.example.**user**+json; version=1

Accept: application/vnd.example.**user**+json; version=2

/V1/DOESNT COUNT

VERSIONING

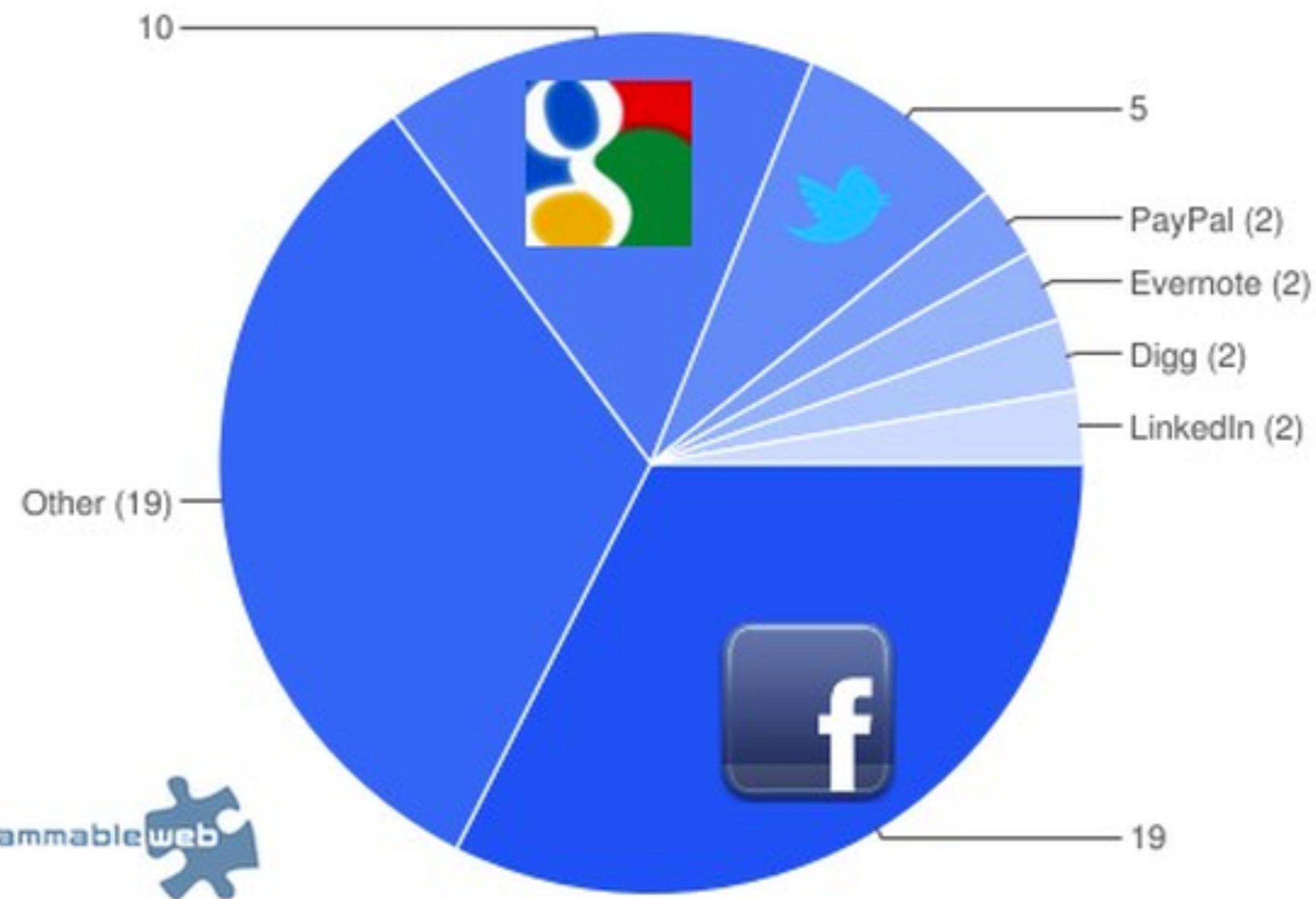
Copy Facebook

Maybe?

THIS ONE TIME!

Facebook ruined the one good thing they ever did

API Headaches



WORLD TOUR '15



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Blog



API Lifecycle Analysis Stage: Preparing Your Prelaunch API Strategy

BY BILL DOERRFELD - APRIL 2, 2015

The API is a unique animal. With it comes an active product lifecycle that's tethered between internal evolution and third party fluctuation. To explore the API lifecycle, we set the stage for a five part blog series within Envisioning The Entire API Lifecycle. Read more

SHARE THE KNOWLEDGE ➔



analysis, Analysis Stage, API business model, api business models, API lifecycle, api strategy, John Musser, market research

0 Comments



Reactions to Using The Twilio API

BY BRUNO PEDRO - MARCH 30, 2015

Missed Part One? Check out our Twilio API integration walkthrough here. Within the API space Developer Experience (DX) matters more than ever. The best way to gauge an API's usability is through actual

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Find out more

nordicapis.com

Overview

This describes the resources that make up the official GitHub API v3. If you have any problems or requests please contact [support](#).

- i. [Current Version](#)
- ii. [Schema](#)
- iii. [Parameters](#)
- iv. [Root Endpoint](#)
- v. [Client Errors](#)
- vi. [HTTP Redirects](#)
- vii. [HTTP Verbs](#)
- viii. [Authentication](#)
- ix. [Hypermedia](#)
- x. [Pagination](#)
- xi. [Rate Limiting](#)
- xii. [User Agent Required](#)
- xiii. [Conditional requests](#)
- xiv. [Cross Origin Resource Sharing](#)
- xv. [JSON-P Callbacks](#)
- xvi. [Timezones](#)

▼ Overview

[Media Types](#)[OAuth](#)[OAuth Authorizations API](#)[Other Authentication Methods](#)[Troubleshooting](#)[Versions](#)

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HTTP API Design Guide

Introduction

This guide describes a set of HTTP+JSON API design practices, originally extracted from work on the [Heroku Platform API](#).

This guide informs additions to that API and also guides new internal APIs at Heroku. We hope it's also of interest to API designers outside of Heroku.

Our goals here are consistency and focusing on business logic while avoiding design bikeshedding. We're looking for a *good, consistent, well-documented way* to design APIs, not necessarily *the only/ideal way*.

We assume you're familiar with the basics of HTTP+JSON APIs and won't cover all of the fundamentals of those in this guide.

We welcome [contributions](#) to this guide.

Contents

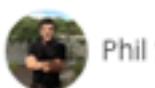
github.com/interagent/http-api-design

DONT BE THAT GUY

EVERYTHING IS WRONG



261 READERS 182 PAGES 35,519 WORDS

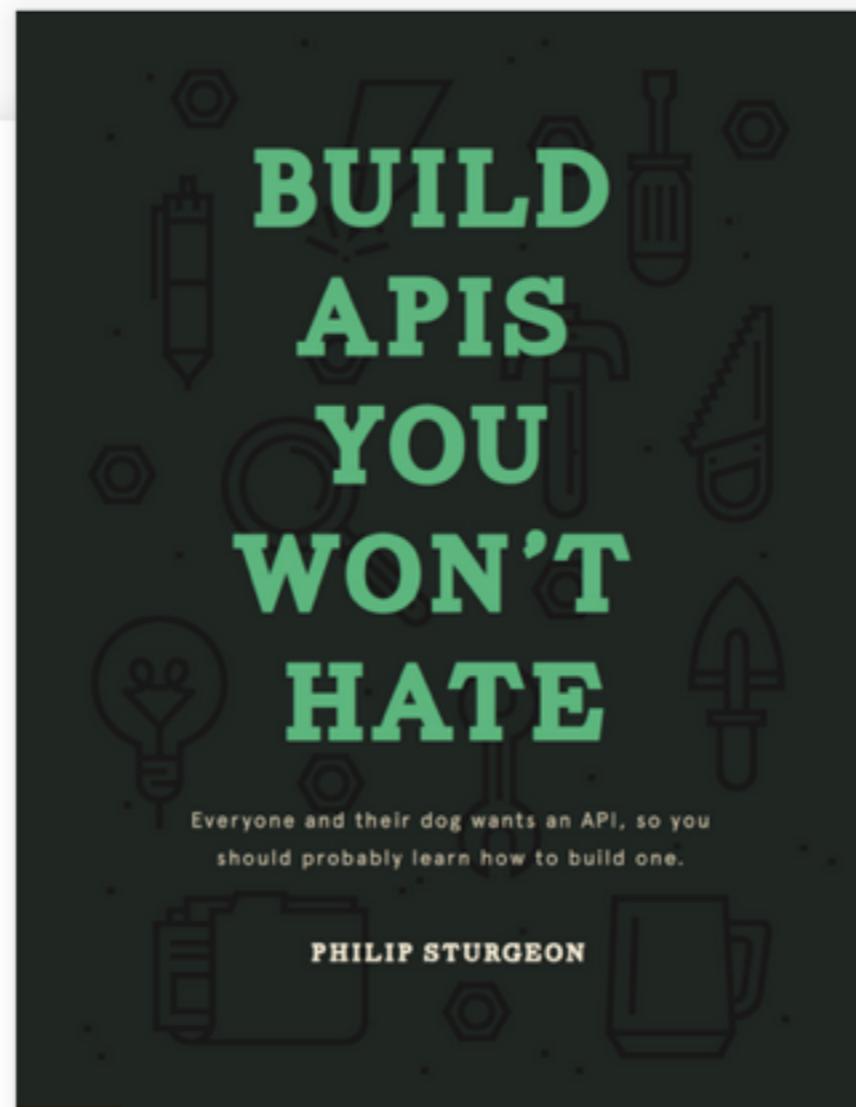


Phil Sturgeon

Build APIs You Won't Hate

Everyone and their dog wants an API, so you should probably learn how to build them.

Tasked with building an API for your company but don't have a clue where to start? Taken over an existing API and hate it? Built your own API and still hate it? This book is for you.

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This book is 100% Complete

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