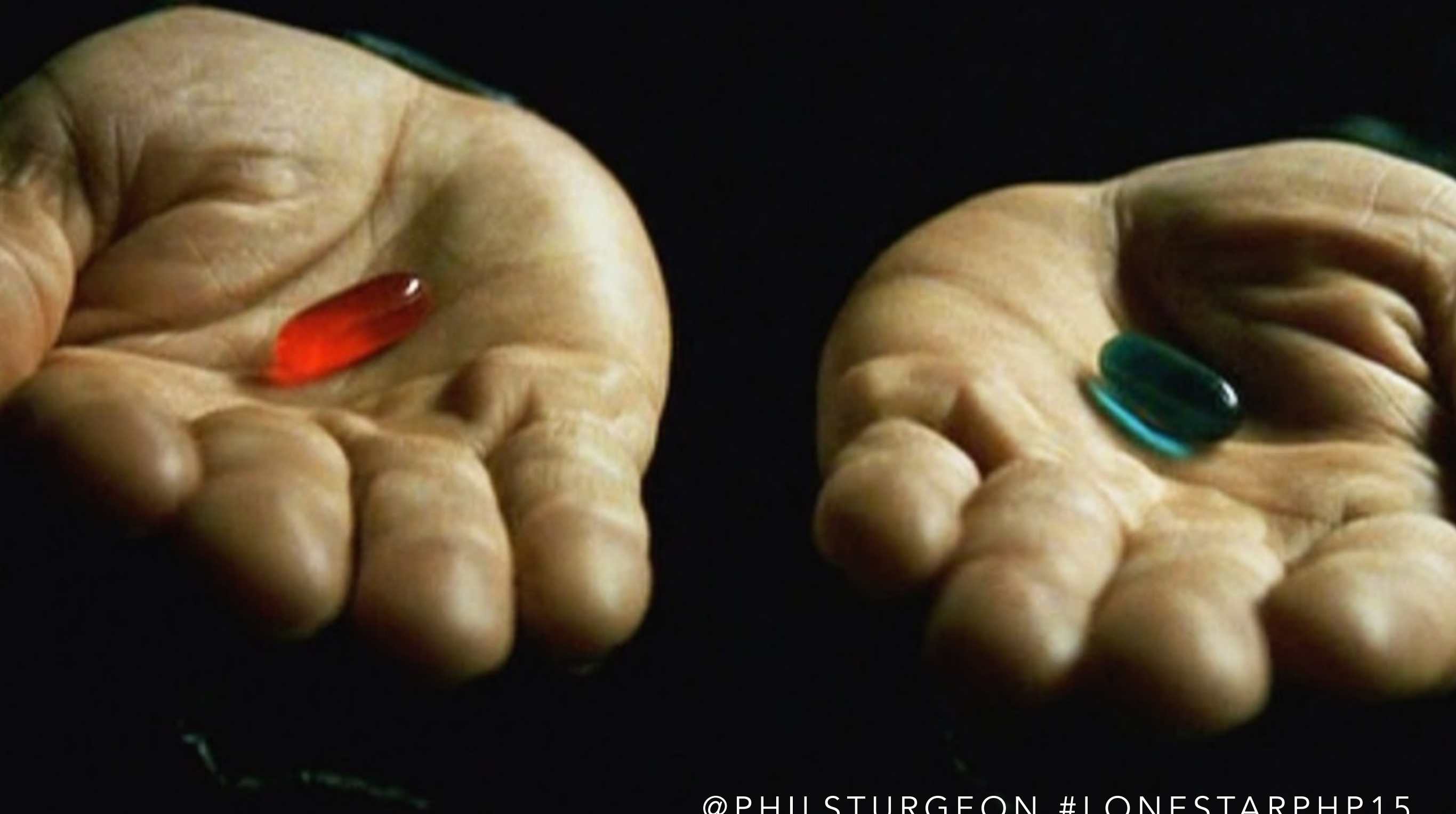


GETTING THINGS WRONG FOR FUN AND PROFIT

API PAIN-POINTS



@PHILSTURGEON #LONESTARPHP15







CMS - The Content Management

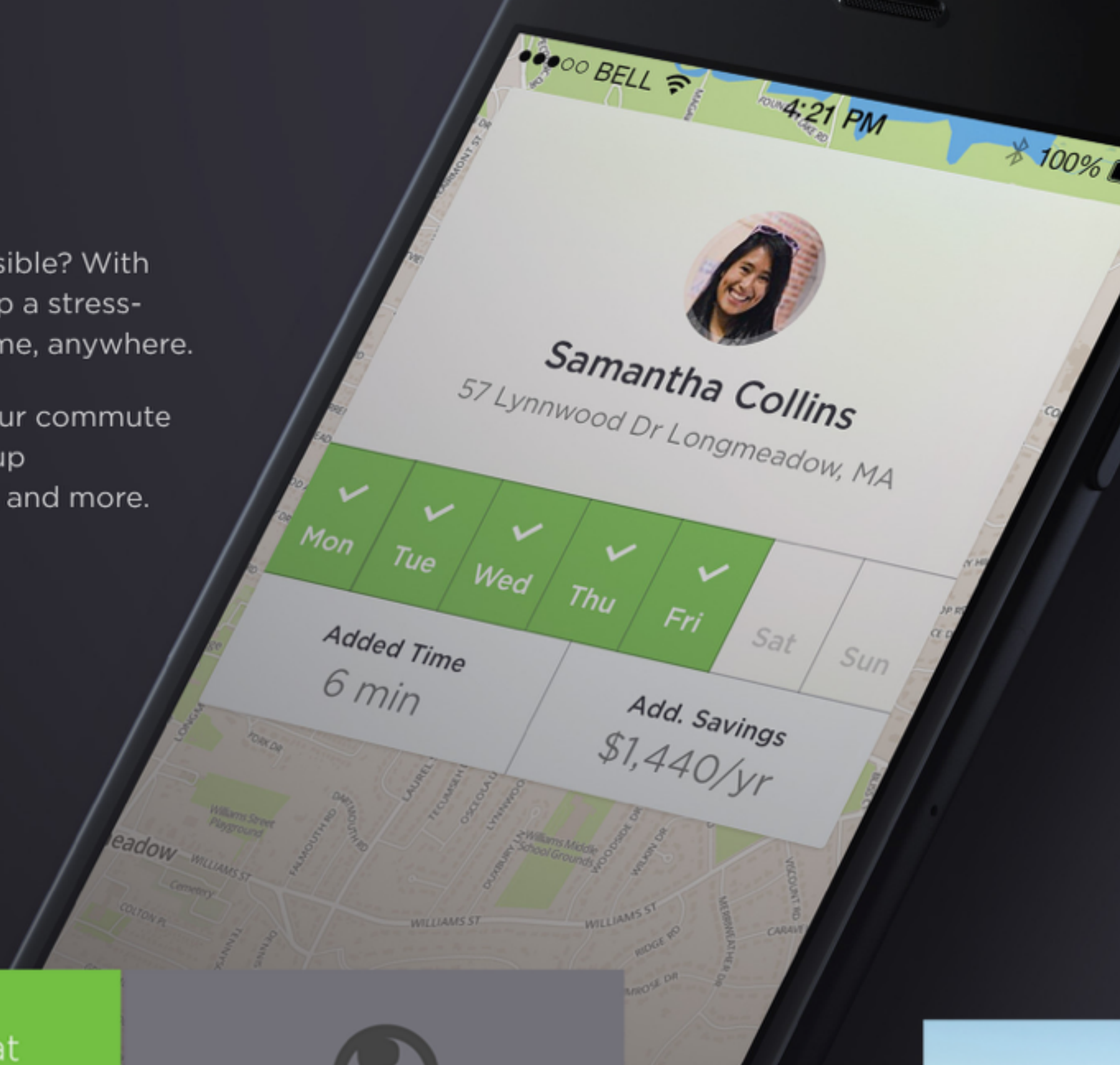
Ride on the go.

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



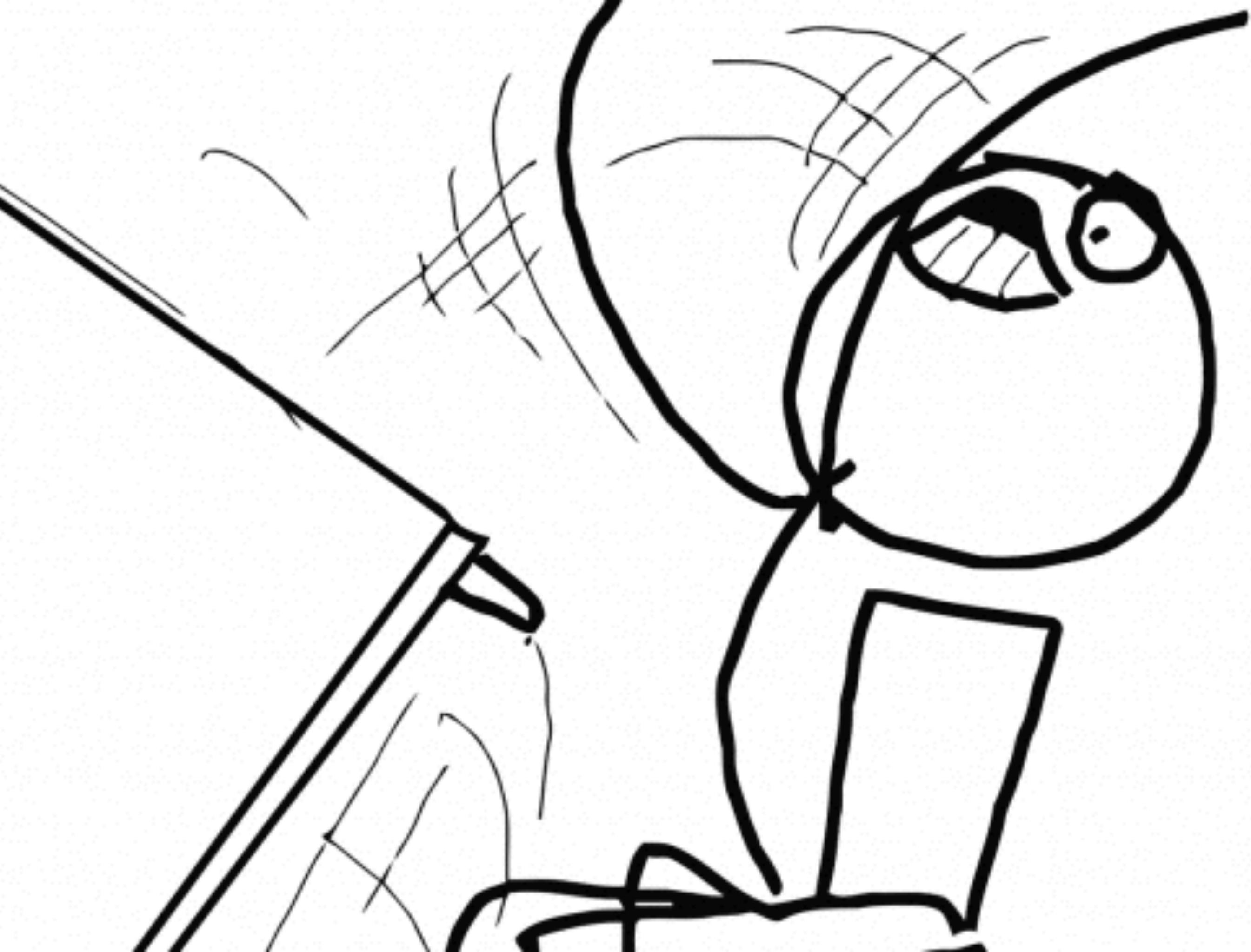
14,324t

Carbon Emissions Saved per Year





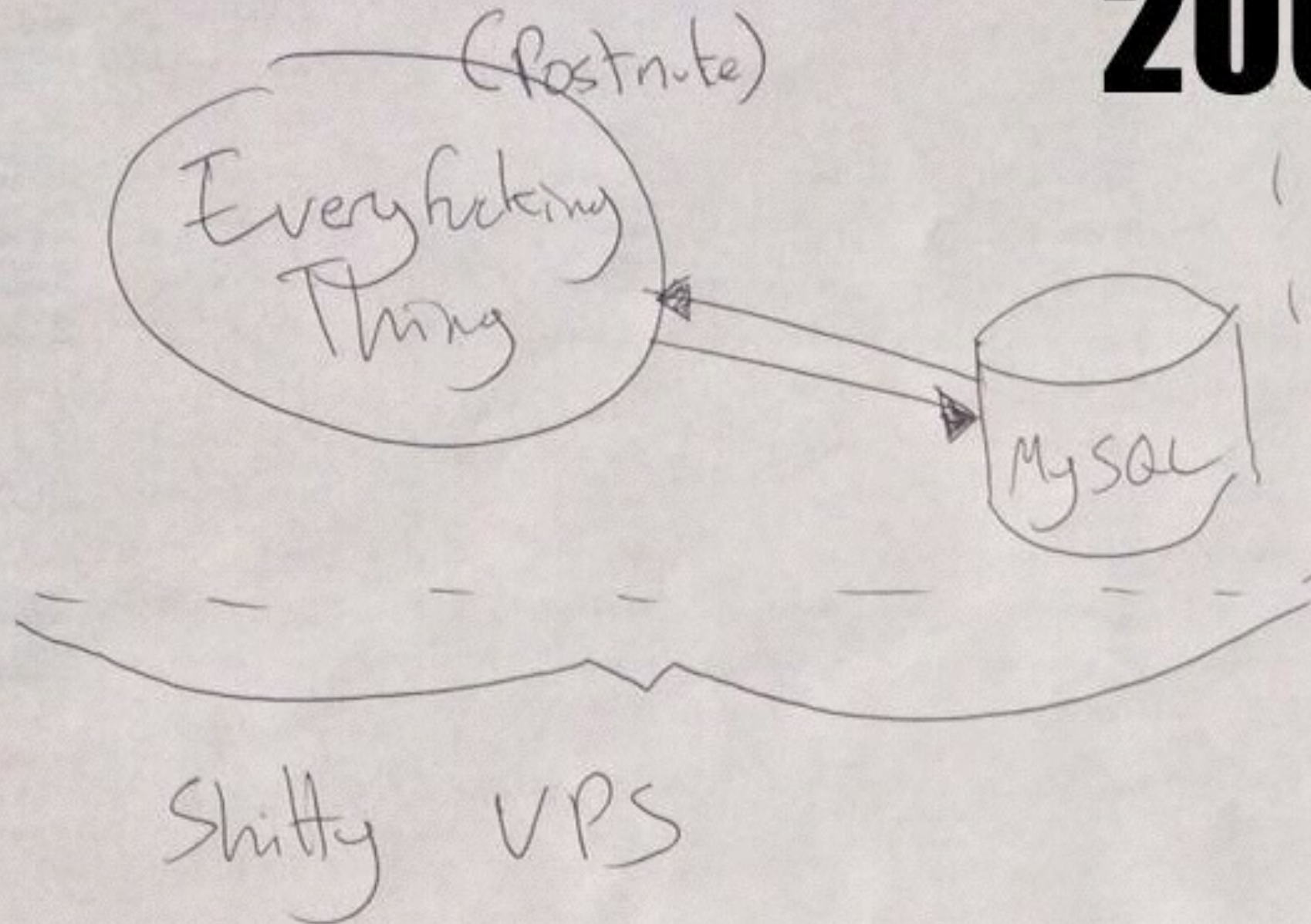
**KAPTURE
BADASS
MOMENTS**



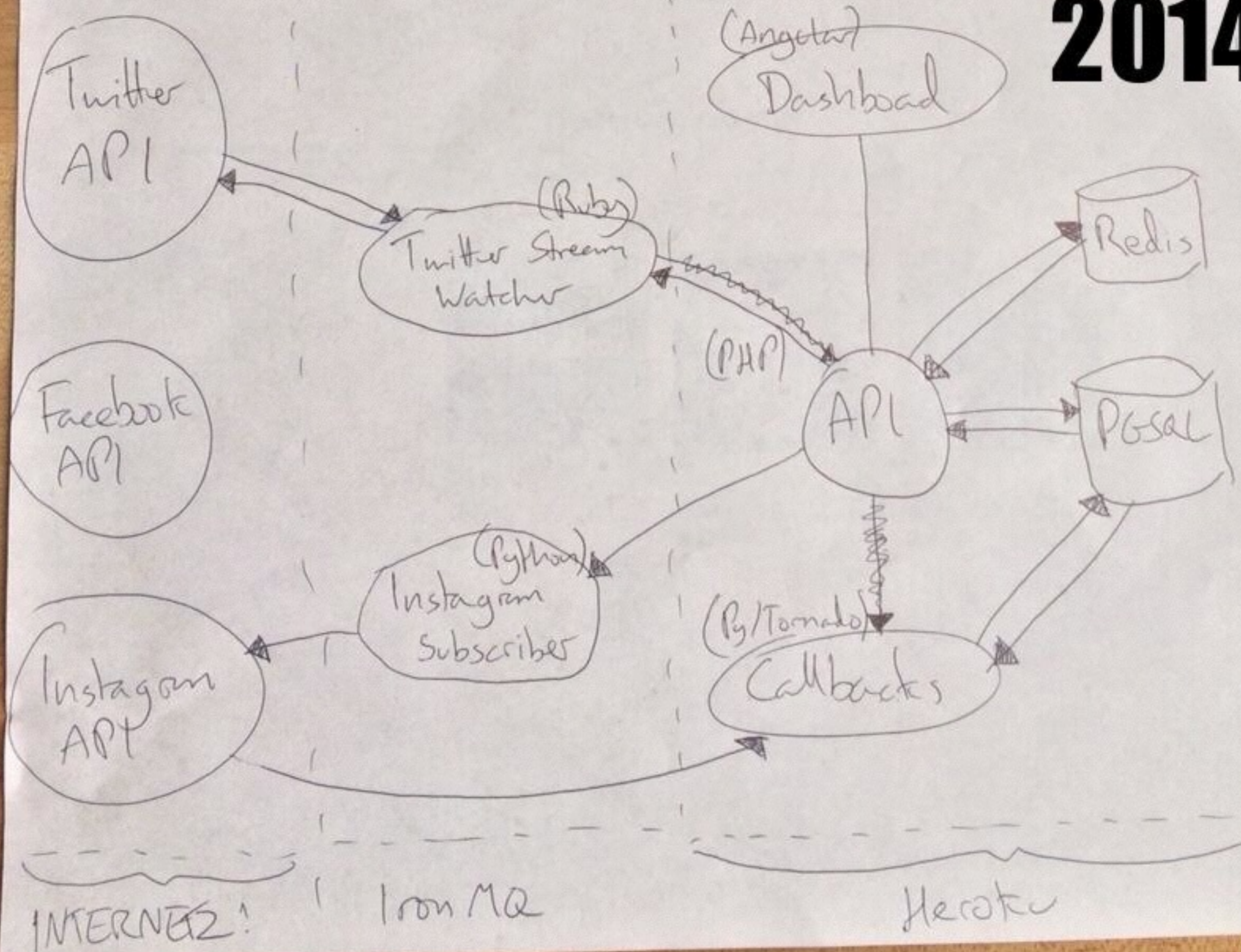
OLD SCHOOL

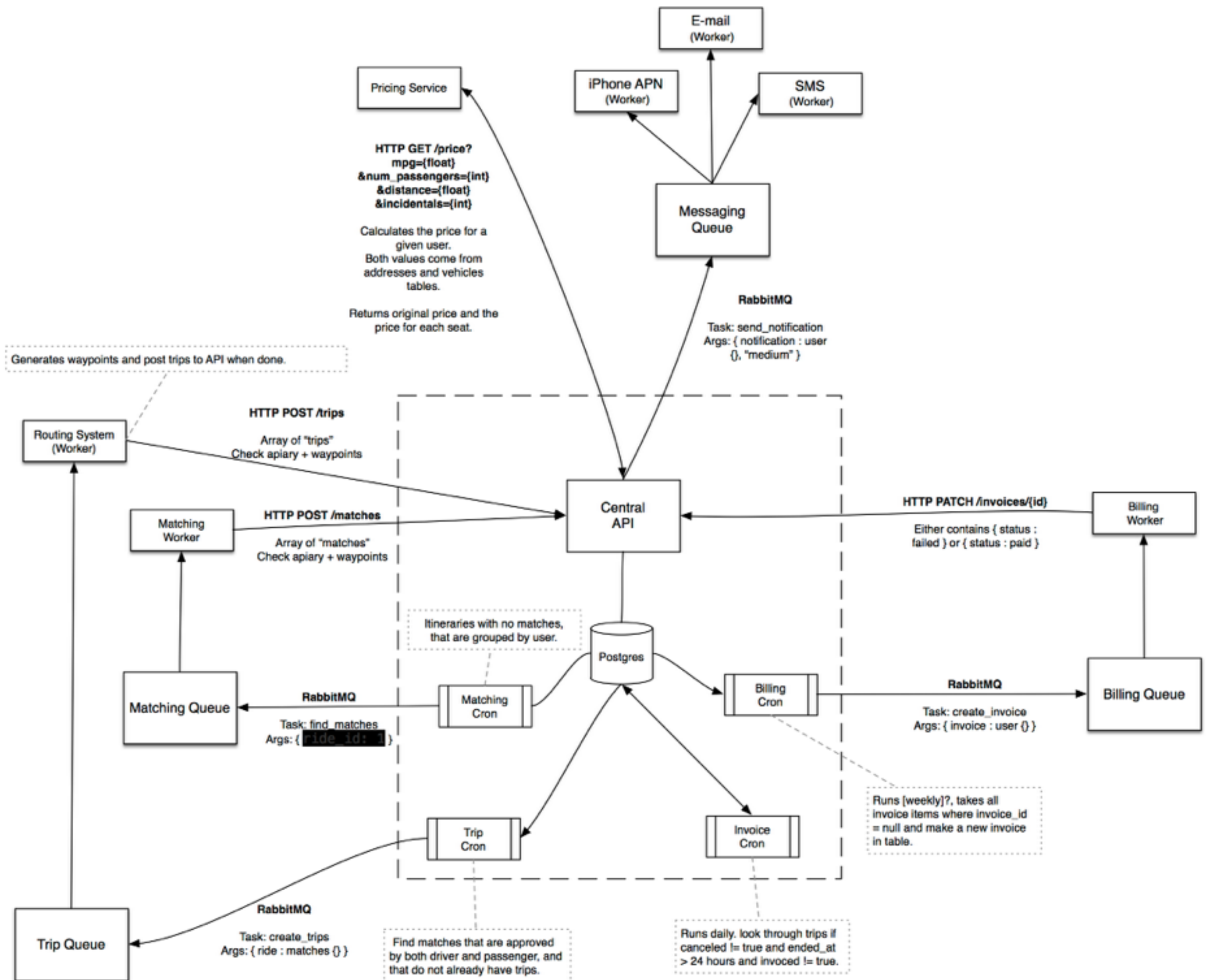
ARCHITECTURE

2004



2014





A wooden sign with the text "Rest here" is mounted on a brick wall. The sign is made of dark wood and has the words "Rest here" painted in a bright yellow, sans-serif font. The wall is constructed of dark bricks with light-colored mortar. Below the sign, there are two wide, flat stone steps. The overall scene is outdoors, and the lighting is natural.

Rest here

LEAVE YOUR CUSTOMERS ALONE

DATABASE SEEDING



NAMING THINGS IS HARD

ENDPOINT THEORY



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

WHICH METHODS

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

HONESTLY

HTTP VERBS MATTER



Jamie Hannaford

@jamiehannaford



@philsturgeson 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 vr5HmMkz1xKE70W1y4MibiJUusZwZC25NOVBEx3BD1
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 vr5HmMkz1xKE70W1y4MibiJUusZwZC25NOVBEx
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

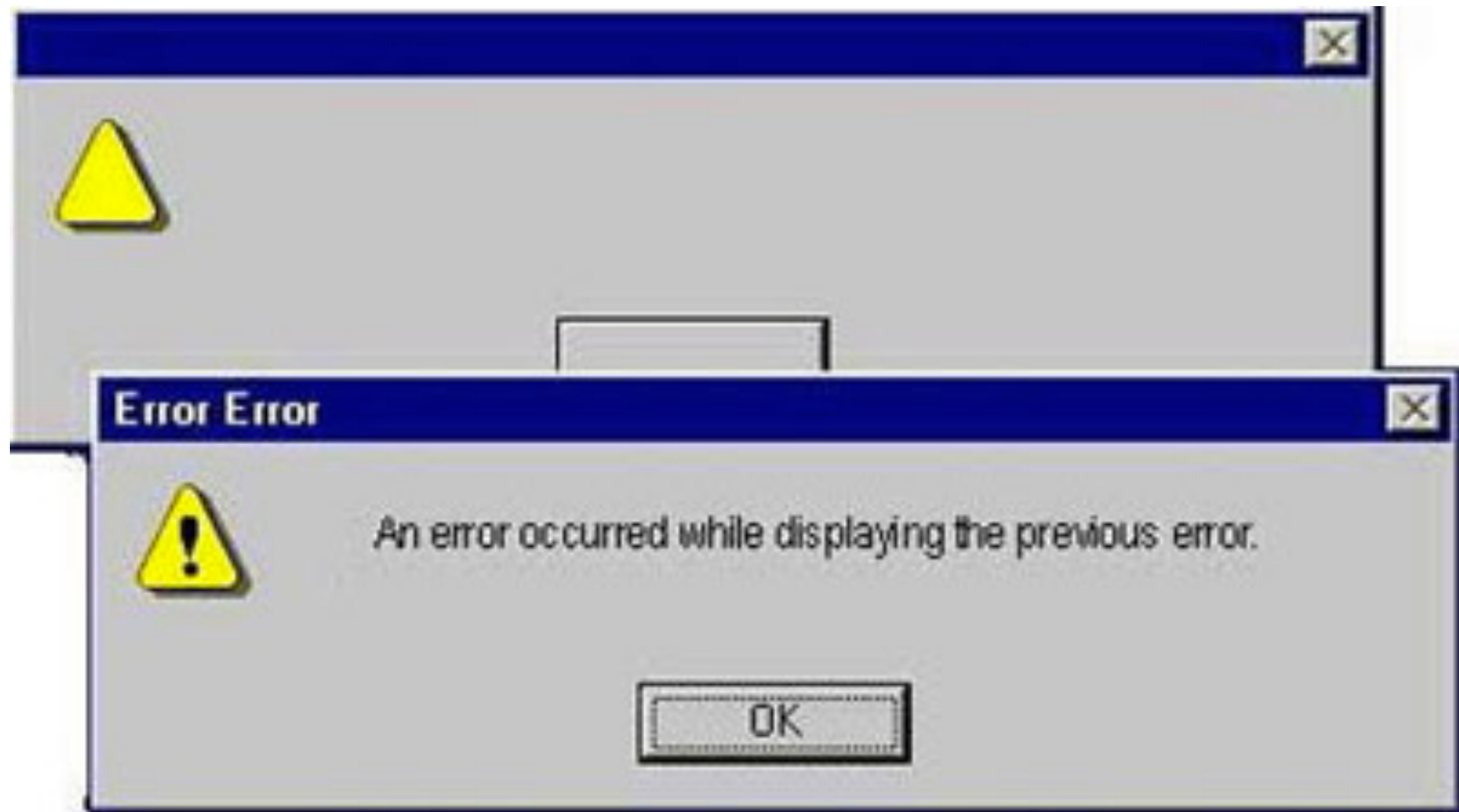
```
json_decode(file_get_contents('php://input'));
```

Proper in Laravel

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

BEING WRONG CORRECTLY

ERROR MESSAGES



**Returns an
error**



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 API's 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

The background image shows a stage performance with several people in costumes. A large black rectangle is overlaid on the center of the image, containing the text 'return Places::all();'.

```
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.torpdibbert",
    "phone": "(029)331-0729x4259",
    "links": [
      {
        "rel": "self",
```



```
  "etag": "\"ag-oqvH8dumDXQP6JcFz5Tsa_OA/xCKV1b:",
- "pageInfo": {
  "totalResults": 1,
  "resultsPerPage": 1
},
- "items": [
- {
  "kind": "youtube#video",
  "etag": "\"ag-oqvH8dumDXQP6JcFz5Tsa_OA/sxDD",
  "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,
    ];
}
```

fractal.thephpleague.com

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

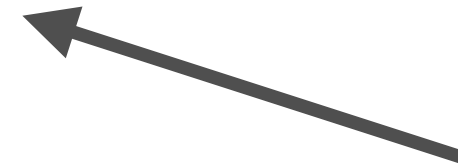
Scenario: Wrong Arguments for user follow

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/opps

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

getpostman.com

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_opps",
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",
25    "is_favorite": false
```

/V1/DOESNT COUNT

VERSIONING

[https://api.example.com/**v1**/places](https://api.example.com/v1/places)

/V1/DOESNT COUNT

VERSIONING

[https://api-**v1**.example.com/places](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

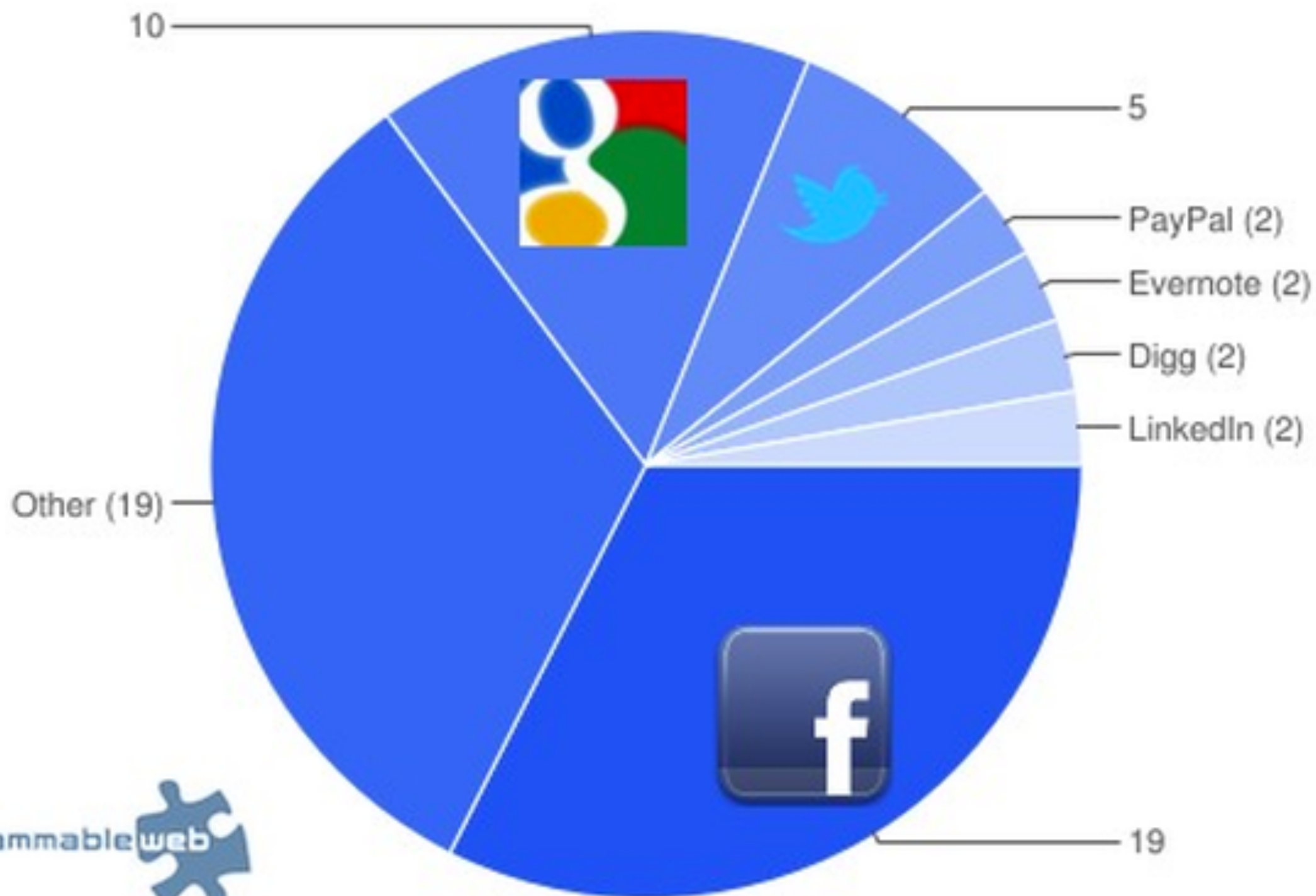
~~Copy Facebook~~

~~Maybe?~~

~~**THIS ONE TIME!**~~

Facebook ruined the one good thing they ever did

API Headaches





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

SMARTER TECH DECISIONS USING APIS

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NORDIC APIS WORLD TOUR 2015

Learn all about the **API Lifecycle** on our **conference tour**.

Find out more

API

Reference

Webhooks

Guides

Libraries

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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developer.github.com/v3/

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

• Foundations

DONT BE THAT GUY

EVERYTHING IS WRONG



troyhunt.com/2014/02/your-api-versioning-is-wrong-which-is.html

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UPDATED 22 DAYS AGO

 Phil Sturgeon

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