Serverlessness

Django & Functions as a Service

Tom Dyson, DjangoCon Florence, April 2017

Me

- Torchbox
- Wagtail
- @tomd, @torchbox, @wagtailcms

MailBucket

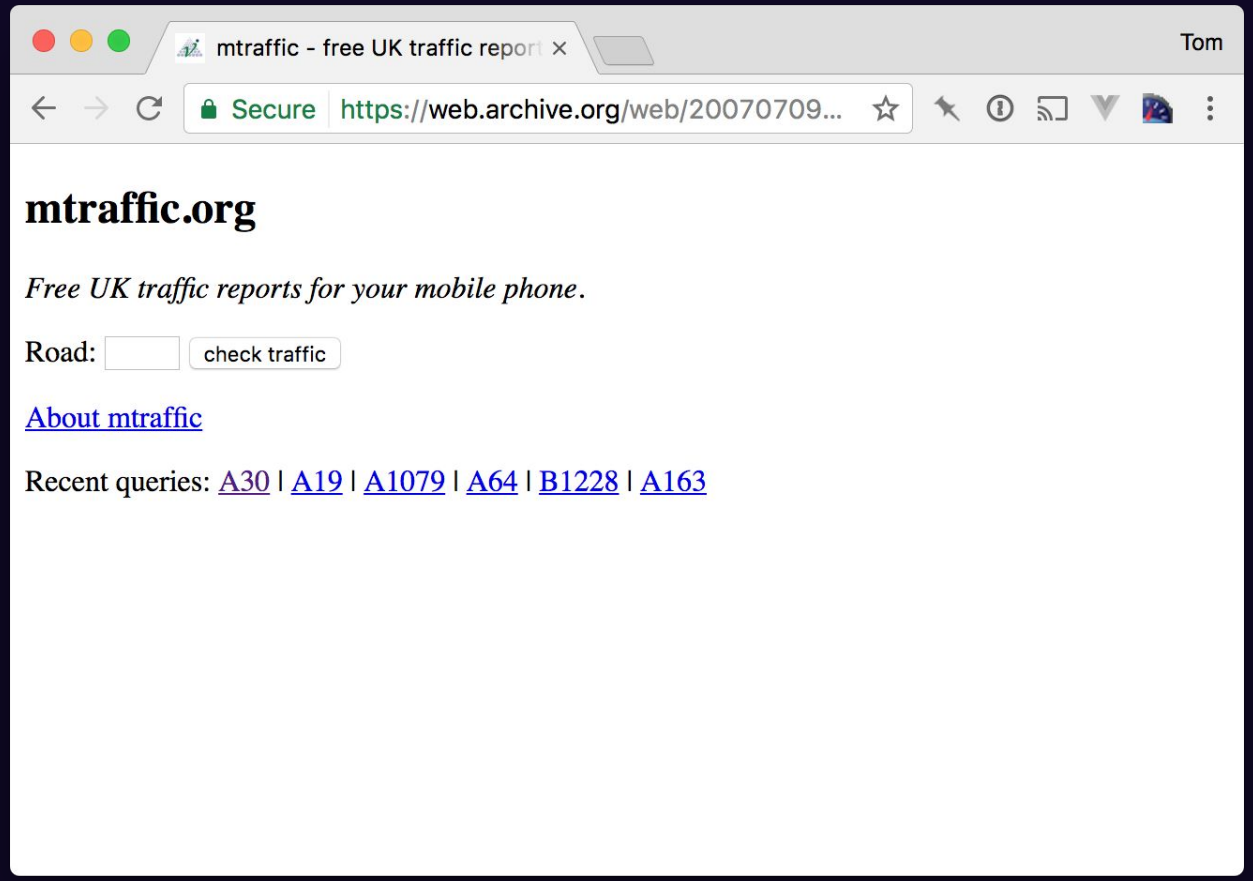
Instructions // To do // Colophon

MailBucket is an experiment in alternative methods of email management. For now its only feature is a public email-to-RSS gateway: forward your email to *slurp*@mailbucket.org and have your news reader pick it up at mailbucket.org/*slurp*.xml (where you choose *slurp*, having checked that it's not already in use).

The service is probably most useful to those who lurk on high-traffic mailing lists, but it could also be used as a rudimentary bridge between applications, with email as the transfer protocol.

The generated RSS feeds are valid and compressed (if your client supports compressed content); they are also public and impermanent, which may be a disadvantage for you.

Existing lists include:
xml-dev
syncato-general
cf-talk
ruby-talk
cocoa-dev
go problems



mtraffic.org

Free UK traffic reports for your mobile phone.

Road: check traffic

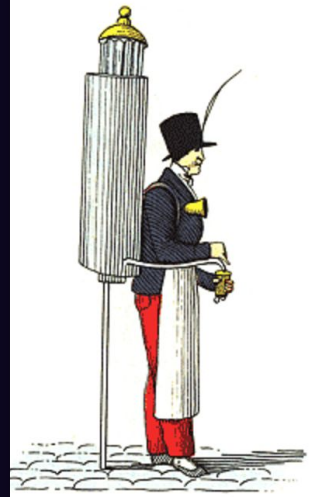
About mtraffic

Recent queries: A30 | A19 | A1079 | A64 | B1228 | A163

WordOff

Tom

Secure https://web.archive.org/web/20081009044904/http://wordoff.o...



wordoff

clean up

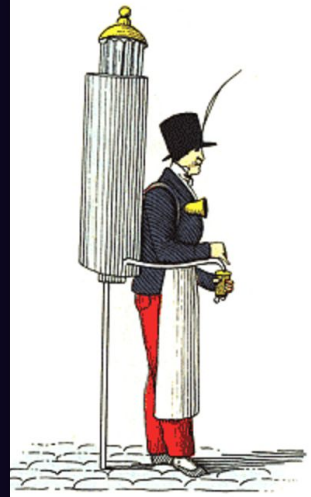
start | about | api | © tom dyson 2008

MsoNormal

WordOff

Tom

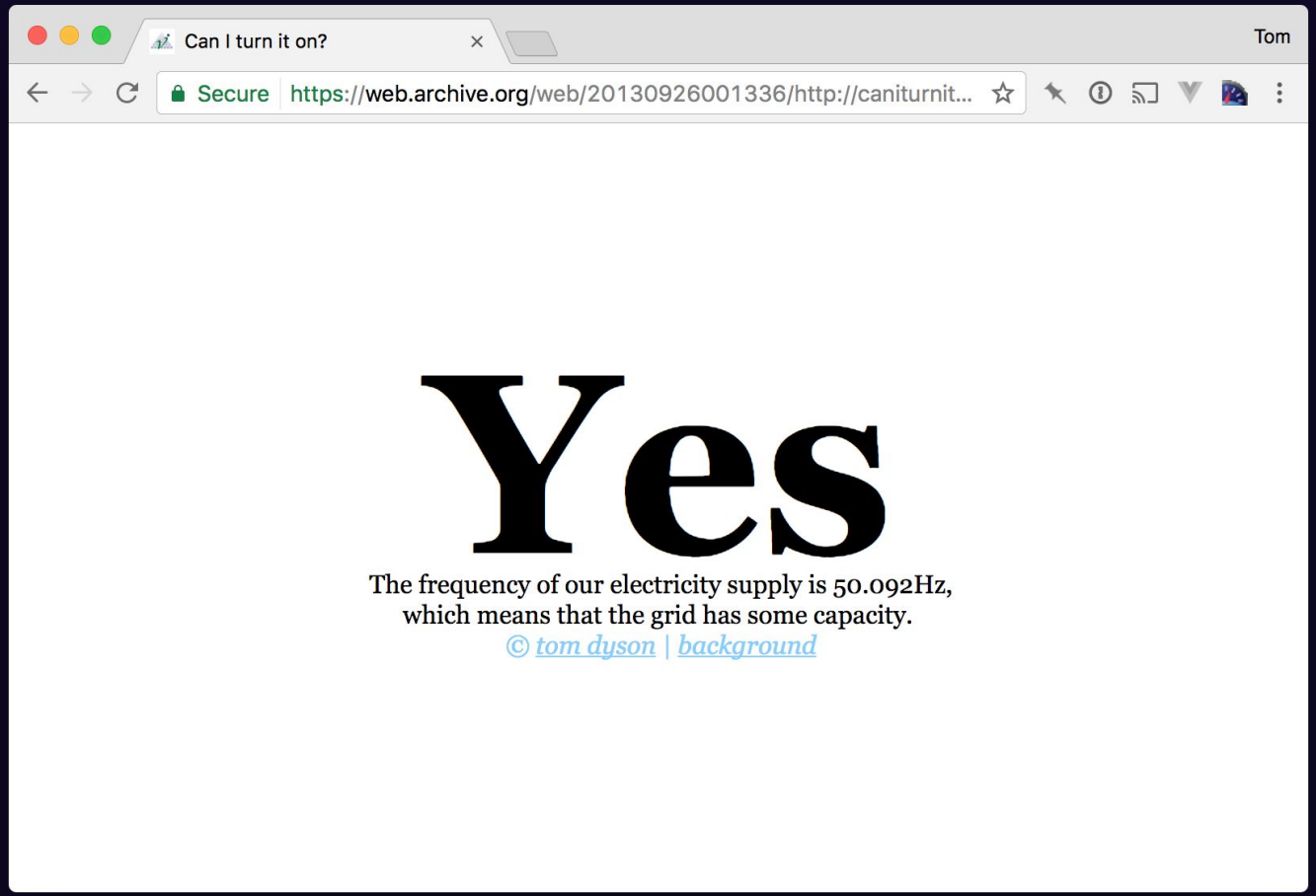
Secure https://web.archive.org/web/20081009044904/http://wordoff.o...



wordoff

clean up

start | about | api | © tom dyson 2008


Can I turn it on?
Tom
Secure
https://web.archive.org/web/20130926001336/http://caniturnit...
Yes
The frequency of our electricity supply is 50.092Hz,
which means that the grid has some capacity.
© tom dyson | background

Making a web app #1

- ➔ Have an idea
- ➔ Write some code
- ➔ Buy a server
- ➔ Install the OS
- ➔ Install a web server

Making a web app #2

- ➔ Install gunicorn
- ➔ Read a blog article
- ➔ Install uwsgi
- ➔ Set up supervisor
- ➔ Set up a firewall

Making a web app #3

- ➔ Set up backups
- ➔ Configure DNS
- ➔ Obtain an SSL certificate
- ➔ Set up monitoring
- ➔ Launch!

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- ➔ Configure DNS
- ➔ SSL certificate
- ➔ Set up monitoring
- ➔ Set up CI & CD
- ➔ Ansible
- ➔ Webpack
- ➔ Launch!

“Serverless”

data centre ↣ shared storage ↣ computer ↣
operating system ↣ hypervisor ↣ container ↣ proxy ↣
router ↣ firewall ↣

“Serverless”

~~“Serverless”~~ “FaaS”

Functions as a Service

github.com/faasbender

```
def my_lovely_function(input):
    output = something_clever(input)
    return output
```

```
$ deploy my_lovely_function.py
```

```
$ curl https://faasbender.com/x
42
```

Abstract!

- ➔ Owned servers
- ➔ ‘Dedicated’ servers
- ➔ VMs in the cloud
- ➔ Containers in the cloud
- ➔ Functions in the cloud

Abstract!

- ➔ Owned servers
- ➔ ‘Dedicated’ servers
- ➔ VMs in the cloud
- ➔ Containers in the cloud
- ➔ Functions in the cloud / cgi?

Scale up

- ➔ Auto scaling
- ➔ Parallelisation

Scale down

- ➔ Turn the lights off when you leave the room

!HTTP events

- ➔ Logs
- ➔ S3 uploads
- ➔ Pub/sub
- ➔ Email
- ➔ Cron

Encourages better design

- ➔ ‘Small pieces, loosely joined’
- ➔ ‘Write less code’

Toolkits

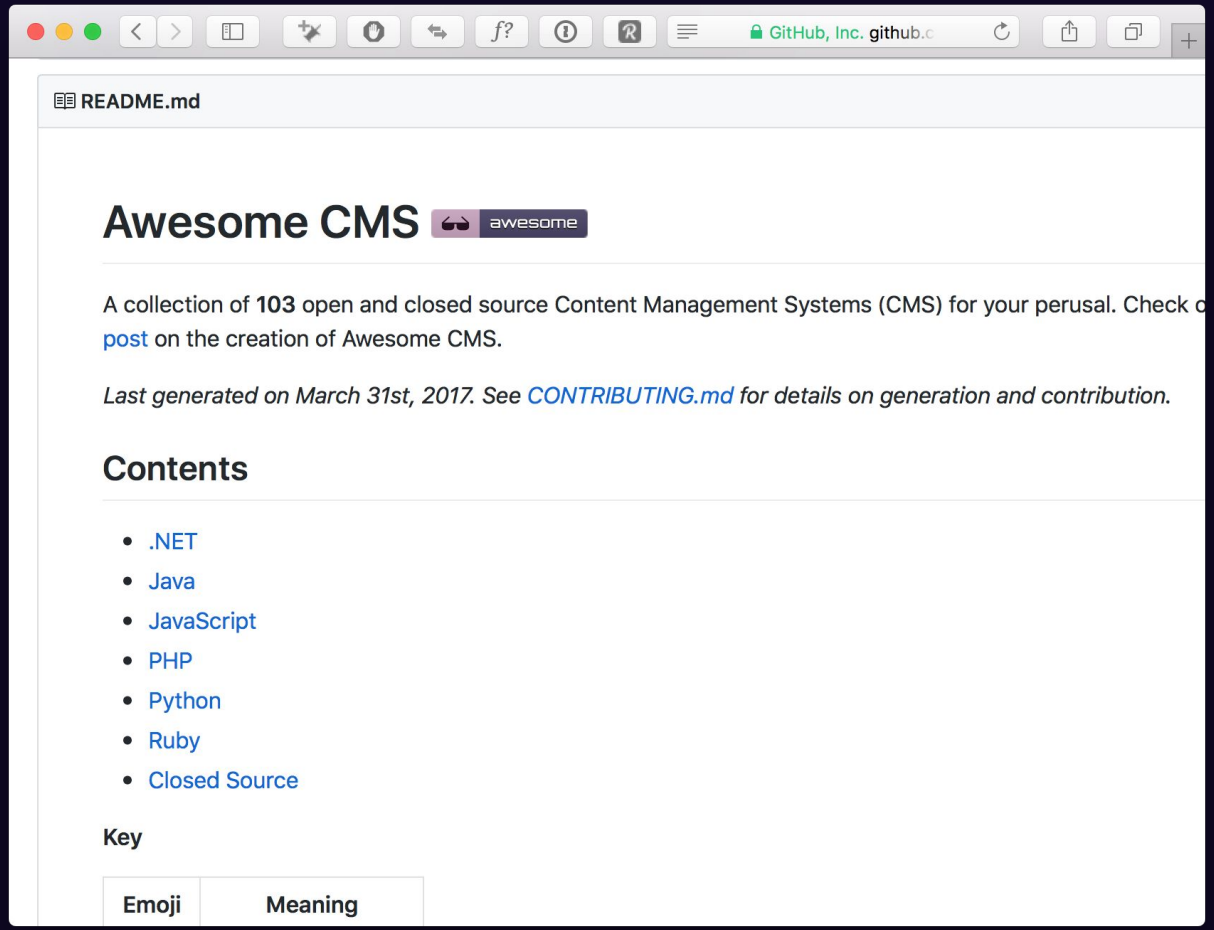
- AWS Lambda
- Google Cloud Functions
- Azure Functions
- Serverless Framework
- Chalice
- Zappa

Toolkits

➔ zeit.co/now

Use cases

- ➔ Thumbnailing
- ➔ Document processing
- ➔ Augmenting static sites
- ➔ Mobile & JS apps
- ➔ Creating APIs
- ➔ Bots

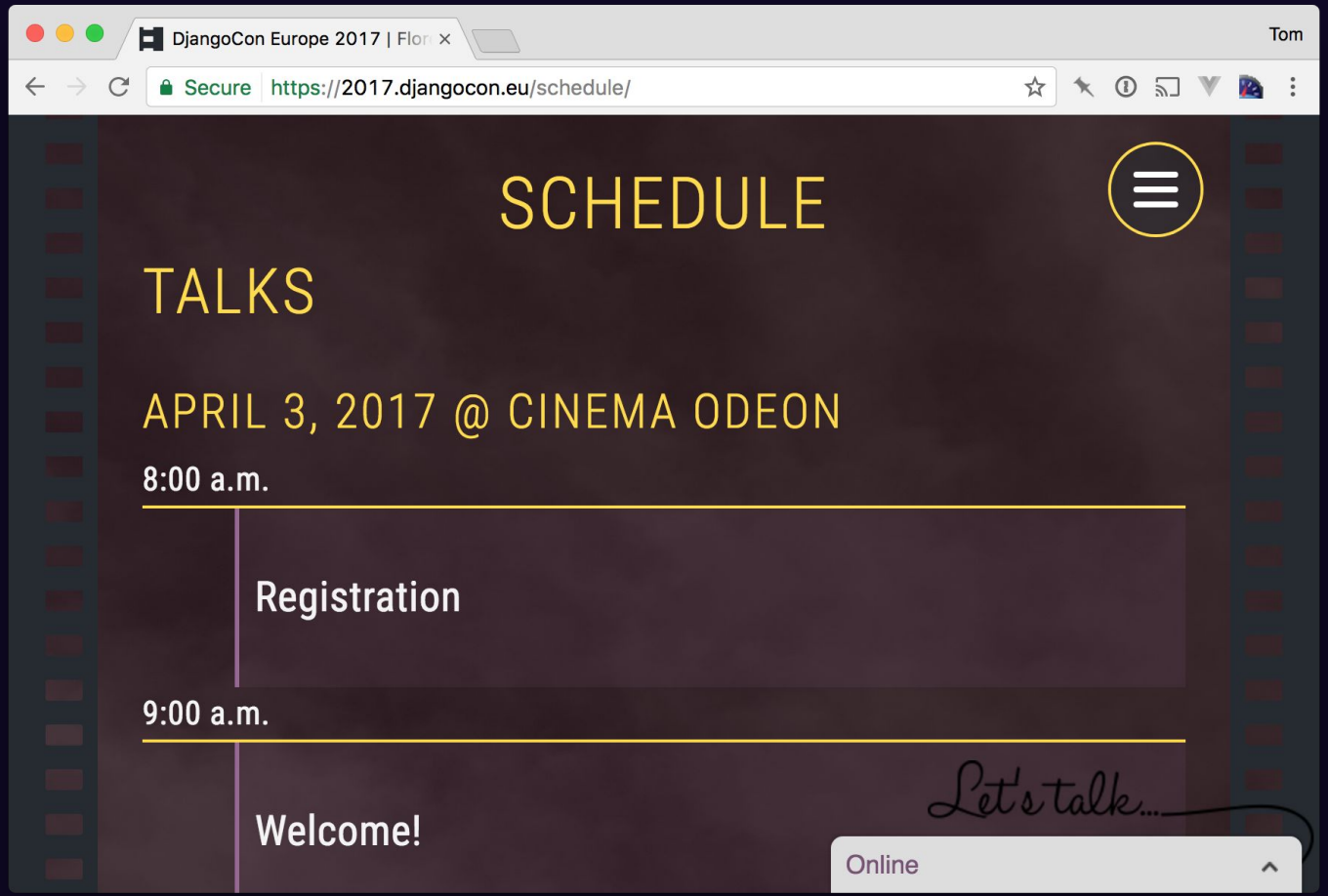

GitHub, Inc. github.c
README.md
Awesome CMS
awesome
A collection of 103 open and closed source Content Management Systems (CMS) for your perusal. Check o
post on the creation of Awesome CMS.
Last generated on March 31st, 2017. See CONTRIBUTING.md for details on generation and contribution.
Contents
.NET
Java
JavaScript
PHP
Python
Ruby
Closed Source
Key
Emoji
Meaning

```
def get_cmss():
    page = urllib2.urlopen("https://github.com/postlight/awesome-cms")
    soup = BeautifulSoup(page.read(), "html.parser")
    p = re.compile('\x85[[0-9,]+')
    cmss = {}
    sorted_cms_list = []
    for cms in soup.find_all('b'):
        title = cms.text
        parent = cms.parent.parent
        try:
            stars = p.findall(str(parent))[0][1:]
```

releases.wagtail.io.s3.amazonaws...

Top CMSs on Github

1. Ghost ☆ 22362 stars
2. KeystoneJS ☆ 9495 stars
3. WordPress ☆ 8945 stars
4. Relax ☆ 7039 stars
5. Grav ☆ 6462 stars
6. October ☆ 5773 stars
7. django CMS ☆ 4801 stars
8. Magento ☆ 4231 stars
9. Wagtail CMS ☆ 4209 stars
10. Pagekit ☆ 4095 stars
11. Prose ☆ 3640 stars
12. Reaction ☆ 3552 stars
13. Refinery CMS ☆ 3440 stars

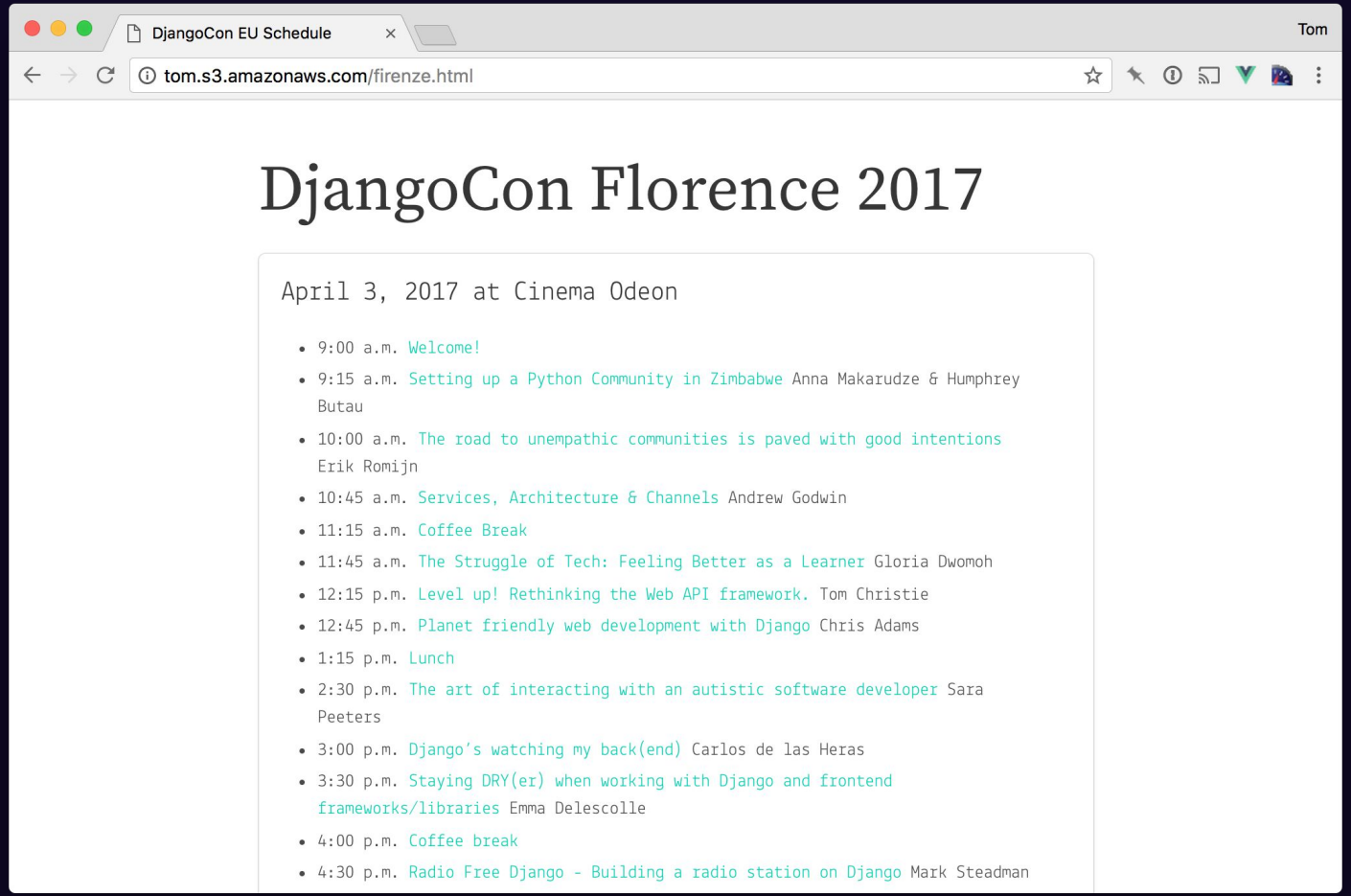

DjangoCon Europe 2017 | Flor
Tom
Secure
https://2017.djangocon.eu/schedule/
SCHEDULE
TALKS
APRIL 3, 2017 @ CINEMA ODEON
8:00 a.m.
Registration
9:00 a.m.
Welcome!
Let's talk...
Online

```
$ pip install chalice
$ chalice new-project sched-scrape
```

```
@app.route('/')
def index():
    events = scrape_schedule()
    return {'events': events}
```

```
$ chalice local
Serving on localhost:8000
```

```
$ chalice deploy
Deploying to: dev
https://2vl5sa6qh9.execute-api.eu-
west-1.amazonaws.com/dev/
```


DjangoCon EU Schedule
Tom
tom.s3.amazonaws.com/firenze.html
DjangoCon Florence 2017
April 3, 2017 at Cinema Odeon
9:00 a.m. Welcome!
9:15 a.m. Setting up a Python Community in Zimbabwe Anna Makarudze & Humphrey Butau
10:00 a.m. The road to unempathic communities is paved with good intentions Erik Romijn
10:45 a.m. Services, Architecture & Channels Andrew Godwin
11:15 a.m. Coffee Break
11:45 a.m. The Struggle of Tech: Feeling Better as a Learner Gloria Dwomoh
12:15 p.m. Level up! Rethinking the Web API framework. Tom Christie
12:45 p.m. Planet friendly web development with Django Chris Adams
1:15 p.m. Lunch
2:30 p.m. The art of interacting with an autistic software developer Sara Peeters
3:00 p.m. Django's watching my back(end) Carlos de las Heras
3:30 p.m. Staying DRY(er) when working with Django and frontend frameworks/libraries Emma Delescolle
4:00 p.m. Coffee break
4:30 p.m. Radio Free Django - Building a radio station on Django Mark Steadman

https://tom.s3.amazonaws.com/firenze.html

/schedule

/schedule tuesday

https://github.com/tomdyson/serverlessness

Serverless Django

Serverless & Django

- ➔ Shrink your Django project
- ➔ Use FaaS to flatten the bumps
- ➔ Move, cautiously, to microservices
- ➔ Consider JAMStack for CMS projects
- ➔ Handle more varied events

Caveats

- ➔ Warm up time
- ➔ Platform maturity
- ➔ No cost cap
- ➔ Persistence

“This is, perhaps, the final state of computing as we know it, with massive clouds abstracting their infrastructure services at such a high level that no one even knows there is an operating system or such things as middleware, databases, or web servers.”

Timothy Prickett Morgan

Thank you

Tom Dyson, DjangoCon Florence, April 2017