All about
HTTP and files

Efe Öge

/ɝfɝ oʊge/

- ❏ Senior Backend & Infrastructure Developer @ hipolabs.com
- ❏ PyCon Turkey Co-Organizer
- ❏ Blogging @ efe.me

Agenda?

- ❏ ~30 minutes
- ❏ Q&A at the end
- ❏ Slides @ <u>efe.me</u>

- ❏ No code snippets
- ❏ No network level
- ❏ No background required

What is file on HTTP?

pycon.de

a case study

Network Manager

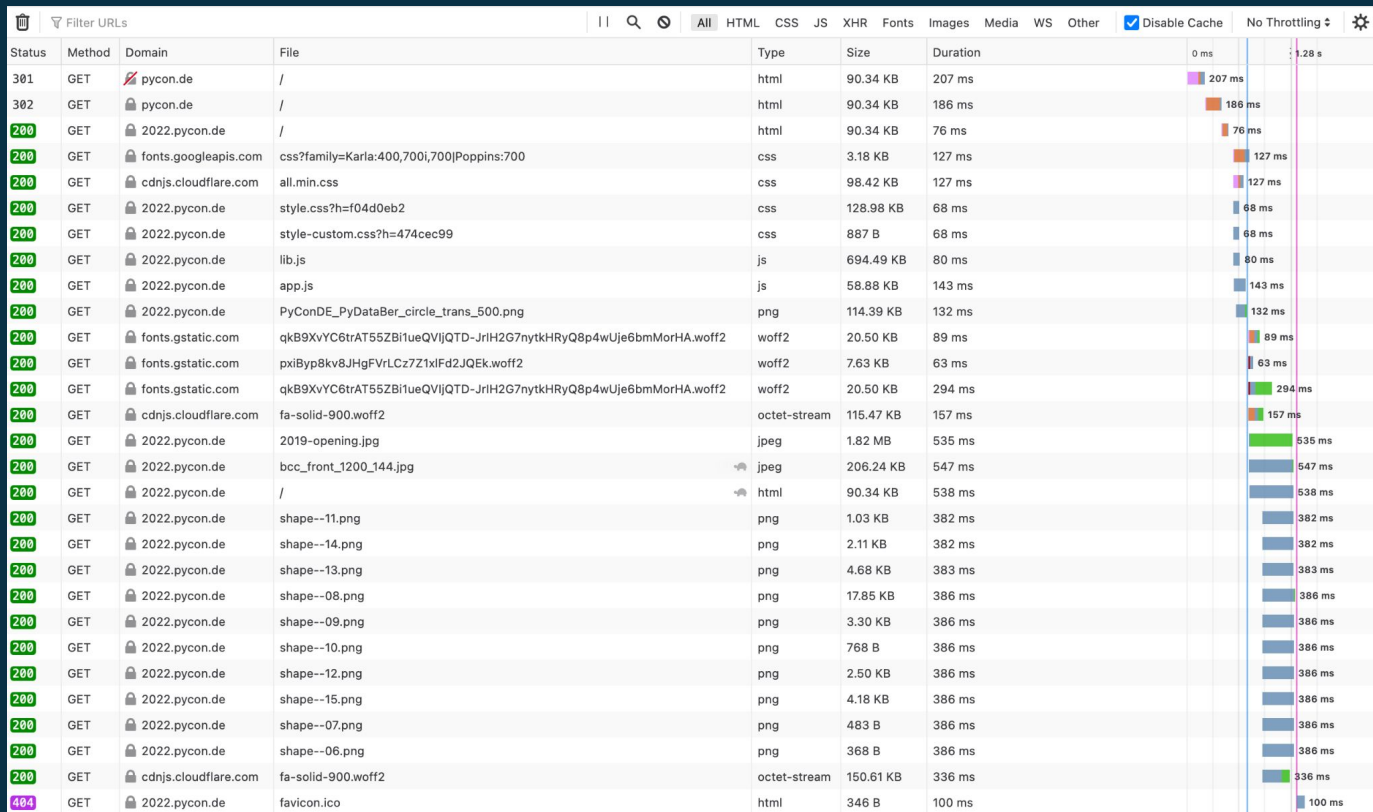Press Ctrl + Shift + E
(Cmd + Opt + E on a Mac)

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Filter URLs

All HTML CSS JS XHR Fonts Images Media WS Other ☑ Disable Cache No Throttling

The First Flow

❏ pycon.de -> **http://**pycon.de (browser)
❏ http://pycon.de -> http**s**://pycon.de
  (http 301 - moved permanently)
❏ https://pycon.de -> https://2022.pycon.de
  (http 302 - moved temporarily)
❏ **https://2022.pycon.de** (http 200 - ok)

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The Timeline

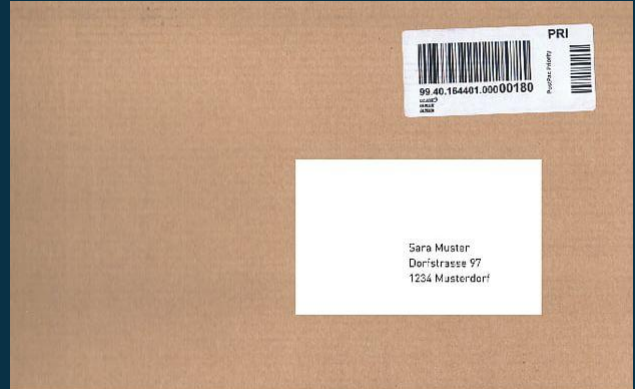| Status	Method	Domain	File	Type	Size	Duration		
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File types?

File types

❏ .html
❏ .css, .js, .woff2 (asset/static)
❏ .png, .jpg, .pdf (media)
❏ ..

.woff2 issue?

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Request Messages

```
GET / HTTP/2
Host: 2022.pycon.de
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10.15; rv:99.0) Gecko/20100101 Firefox/99.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,*/*;q=0.8
Accept-Language: en-US,tr-TR;q=0.8,tr;q=0.5,en;q=0.3
Accept-Encoding: gzip, deflate, br
Connection: keep-alive
Pragma: no-cache
Cache-Control: no-cache
```

Response Messages

```
HTTP/2 200 OK
server: nginx
date: Tue, 12 Apr 2022 14:47:59 GMT
content-type: text/html; charset=UTF-8
vary: Accept-Encoding
last-modified: Tue, 12 Apr 2022 13:44:20 GMT
etag: W/"39f1e009c550c44a108741c80057af2d"
x-cache-status: HIT
content-encoding: gzip
X-Firefox-Spdy: h2
```

Notable HTTP Headers

- ❏ Content-Type
- ❏ Content-Disposition (inline/attachment)
- ❏ Cache
  - ❏ Pragma
  - ❏ Cache-Control
  - ❏ E-Tag
  - ❏ Last-Modified
  - ❏ Expires-at
  - ❏ Vary

A journey of a single request?

Request-Response Cycle
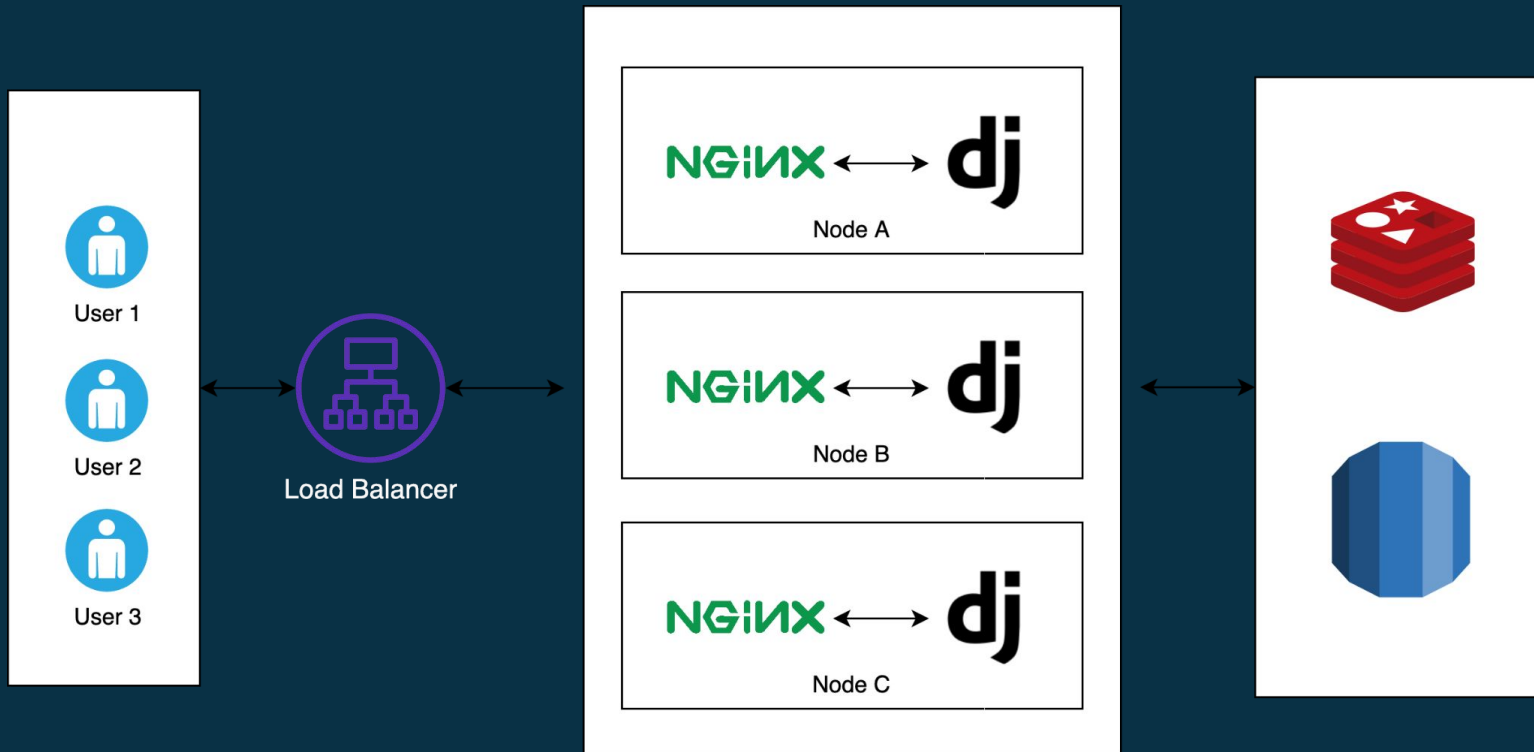
Request-Response Cycle

- ❏ Python Web Server Gateway Interface (Python WSGI)
- ❏ PEP 3333
- ❏ "WSGI for Web Developers Talk" by "Ryan Wilson-Perkin"

Object Storage

Object Storages

- ❏ **AWS (S3),** Google (Cloud Storage), DigitalOcean (Spaces)
- ❏ Sub-solutions by **durability**, **accessibility** purposes
- ❏ Permissions (ex. Presigned URL)
- ❏ Object lock
- ❏ Versioning

Content Delivery Network (CDN)
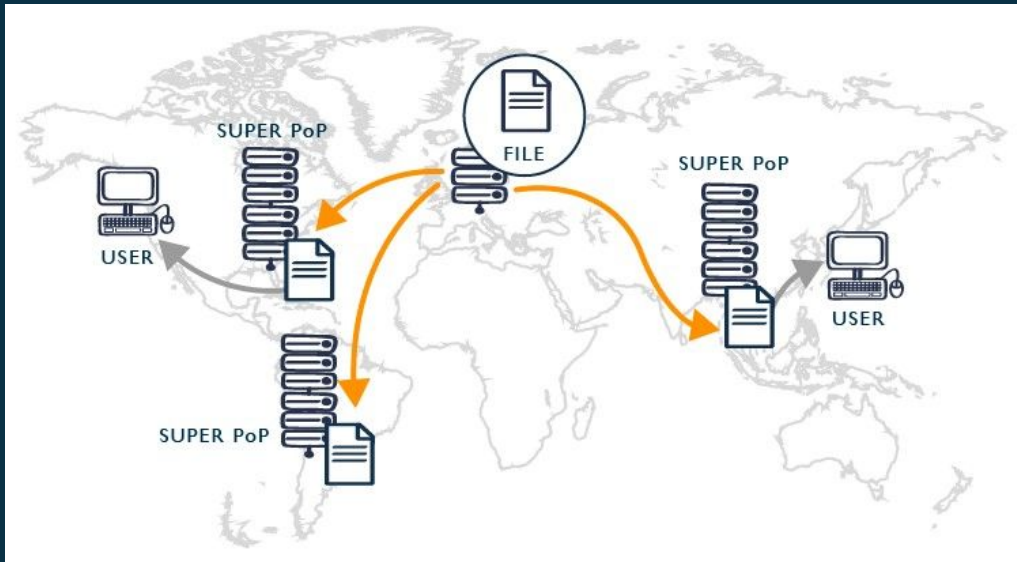
Authentication

- [ ] Hipo/yediemin

How yediemin works?

- ❏ GET posts/1/
- ❏ Create "key" and append end of the url.
  - ❏ files/secret-file.pdf?key=<key>
  - ❏ Key is specific for "secret-file.pdf" and the current user.
- ❏ GET files/secret-file.pdf?key=<key>
  - ❏ Django validates key (for file and user).
  - ❏ Return "empty" response with "X-Accel-Redirect" header.
  - ❏ Nginx internally-redirect to "X-Accel-Redirect" value.

Django just validates, Nginx does the heavy job. 🎉

Questions?

🙋🙋

Thanks!