



Serving Files through HTTP

Agenda?

- ❑ ~30 minutes
- ❑ Recording
- ❑ No background information
- ❑ No code snippet
- ❑ No network level

Efe Öge

- ❑ Backend Developer @Hipo
- ❑ Blogging @ efe.me
- ❑ Github @efe

What is file?

GET instagram.com

Status	Method	Domain	File	Size	Duration
200	GET	www.instagram.com	/	47.97 KB	271 ms
200	POST	graph.instagram.com	logging_client_events		0 min
200	GET	www.instagram.com	3a018d2d2208.css	122.84 KB	28 ms
200	GET	www.instagram.com	0608d619060.css	241 B	28 ms
200	GET	www.instagram.com	1037f6871e20.css	149.90 KB	44 ms
200	GET	www.instagram.com	8f36896ac244.css	5.64 KB	28 ms
200	GET	www.instagram.com	c9f1f5a3b076.js	253.05 KB	59 ms
200	GET	www.instagram.com	34c3b78199687.js	203.36 KB	55 ms
200	GET	www.instagram.com	e37810f0476f.js	750 KB	77 ms
200	GET	www.instagram.com	9725d46f225e.js	187.71 KB	53 ms
200	GET	www.instagram.com	059116d66c2d.js	277 B	28 ms
200	GET	www.instagram.com	f47c39a0d92f.js	1.60 MB	106 ms
200	GET	www.instagram.com	d4642492e9e1.js	22.49 KB	57 ms
200	GET	www.instagram.com	f47c39a0d92f.js	1.60 MB	69 ms
200	GET	www.instagram.com	d4642492e9e1.js	22.49 KB	50 ms
200	GET	www.instagram.com	68d998a28c8b.png	33.90 KB	61 ms
200	GET	www.instagram.com	36b3ae2d91ed.ico	5.30 KB	62 ms
200	GET	www.instagram.com	d4642492e9e1.js	22.49 KB	27 ms
200	GET	www.instagram.com	4194d755d49f.js	53.49 KB	29 ms
200	GET	connect.facebook.net	en_US	3.19 KB	25 ms
200	GET	connect.facebook.net	en_US?hash=41398508f7aa23ae38b2b	203.19 KB	37 ms
200	GET	www.instagram.com	914d46673849.jpg	105.44 KB	37 ms
200	GET	www.instagram.com	177140221987.jpg	74.94 KB	47 ms
200	GET	www.instagram.com	f12c097d681e.jpg	49.73 KB	61 ms
200	GET	www.instagram.com	b27d10859298.jpg	57.29 KB	62 ms
200	GET	www.instagram.com	5d0416989308.jpg	78.40 KB	67 ms
200	POST	www.instagram.com	/api/batch_fetch_web/	159 B	365 ms
200	GET	www.instagram.com	9364879b26fa.png	395.16 KB	89 ms

37 requests 6.16 MB / 2.07 MB transferred Finish: 22.64 s DOMContentLoaded: 5.82 ms load: 1.82 s

File types?

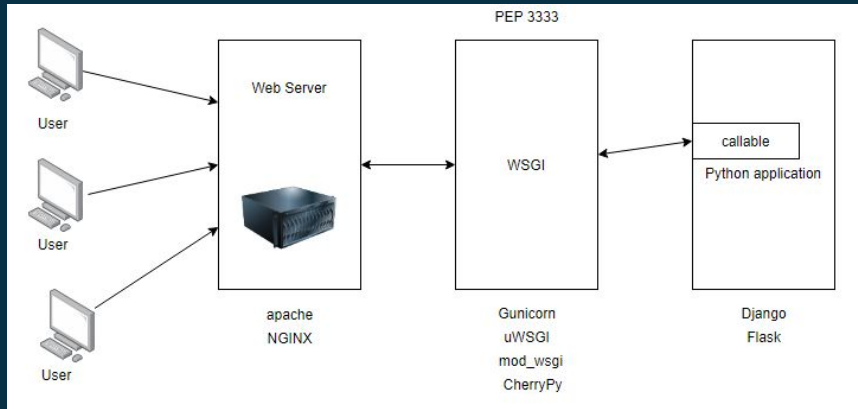
- ❏ `.css, .js` (asset/static)
- ❏ `.png, .jpg, .pdf` (media)
- ❏ `.html`
- ❏ `GET /posts/1/` (xhr)

File headers?

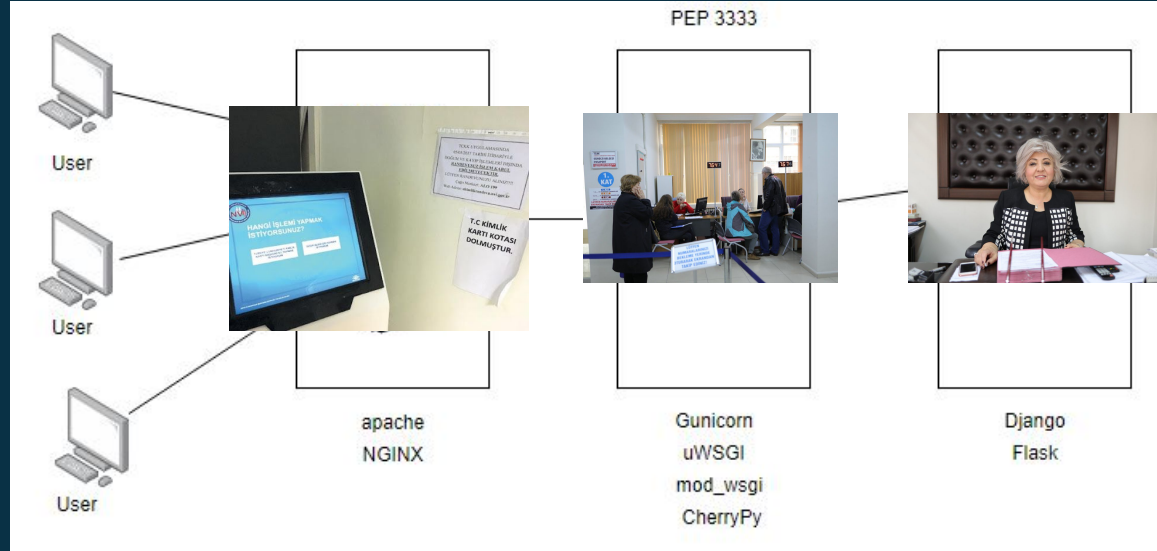
- ❏ Content-Type (text/html)
(#Multipurpose Internet Mail Extensions)
- ❏ Content-Disposition

Request-Response Cycle

- ❑ Python Web Server Gateway Interface (Python WSGI)
- ❑ <https://www.python.org/dev/peps/pep-3333/>
- ❑ WSGI for Web Developers Talk by Ryan Wilson-Perkin



Nüfus Müdürlüğü



**“Repond
early as
possible”**

Mini Q&A



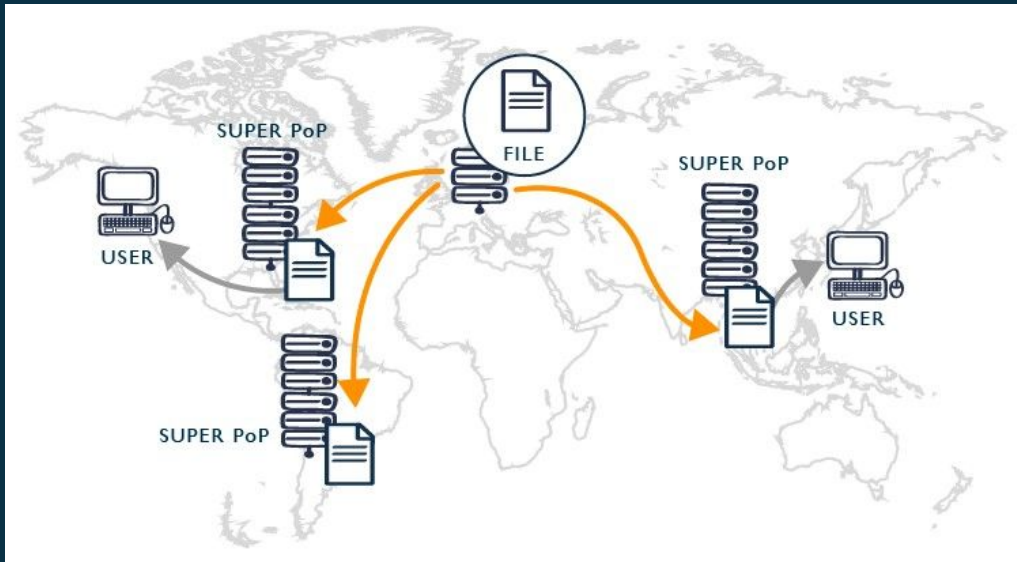
Solutions?

- ❑ Object storage
- ❑ Content delivery network

Object storage

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

Content Delivery Network (CDN)



Tips & Tricks

- ❑ Use your domain
- ❑ Use presigned url
- ❑ Cross check permissions
- ❑ Separate asset/media buckets

Caching?

- ❑ Cache-Control
- ❑ Pragma
- ❑ ETag
- ❑ Last-Modified
- ❑ Vary

Compression?

- ❑ `gzip`
- ❑ `brotli`

Authentication

❏ Hipo/yedieimin

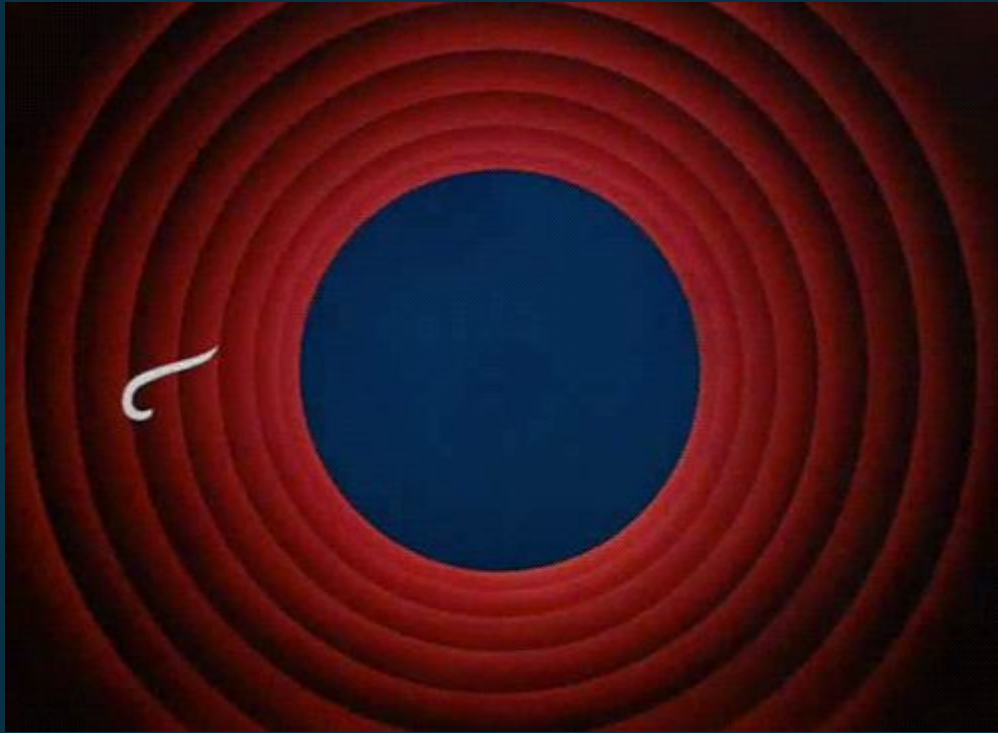
How yedemin works?

- ❑ GET posts/1/
- ❑ Create “key” and append end of the url.
 - ❑ files/bogazici.jpg?key=<key>
 - ❑ Key is specific for “bogazici.jpg” and the current user.
- ❑ GET files/bogazici.jpg?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. 🎉

Recap

- ❑ File
 - ❑ Type
 - ❑ Header
- ❑ Request-Response Cycle
- ❑ Outsource Solutions
 - ❑ Object storage
 - ❑ Content delivery network
- ❑ Performance
 - ❑ Caching
 - ❑ Compression
- ❑ Authentication
 - ❑ yediemin



Q&A



