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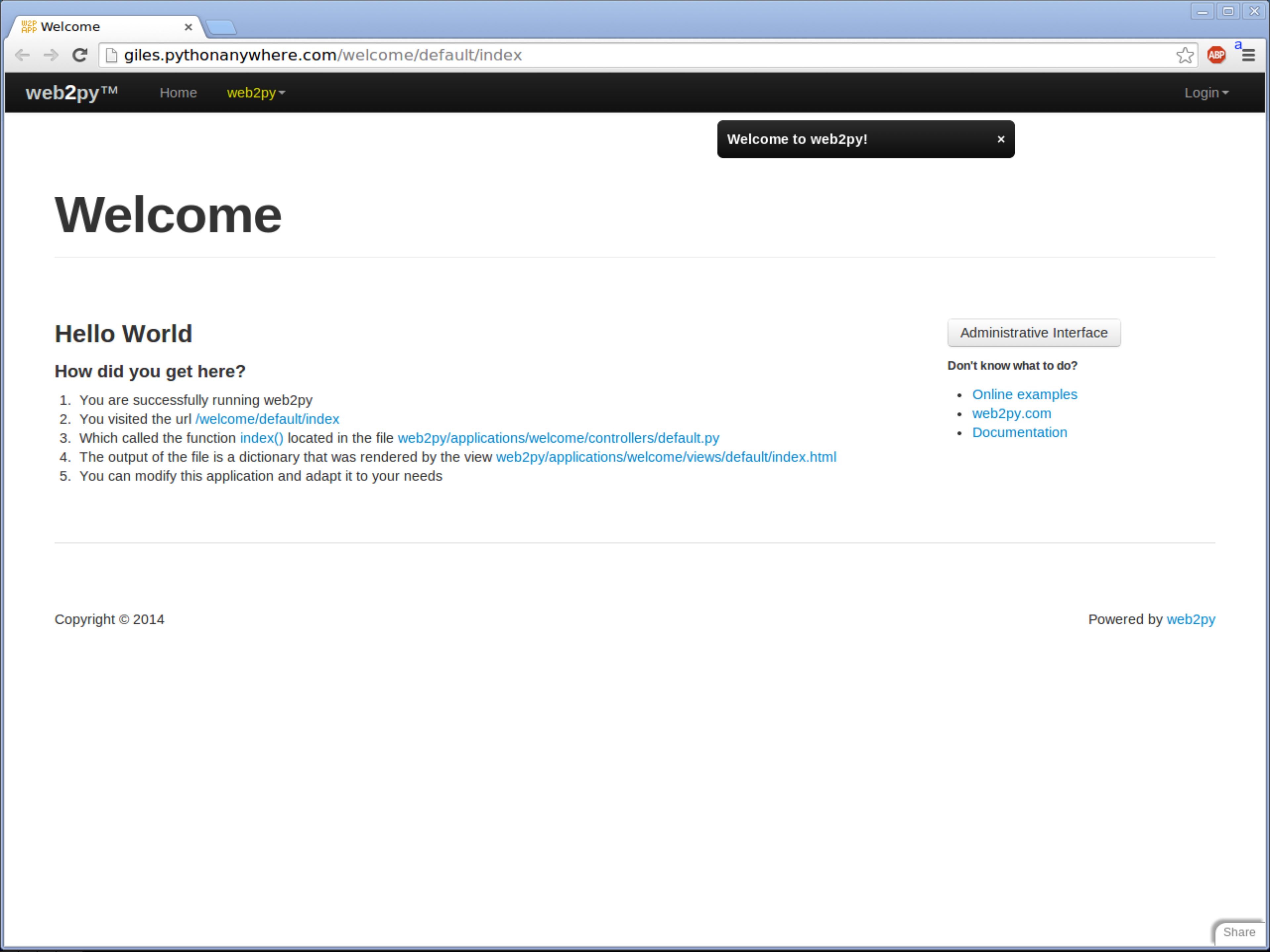
An HTTP request's journey through a platform-as-a-service

Giles Thomas, EuroPython 2014, Berlin

Introducing Web Platform Docs

Tim Berners-Lee
Web Developer



Welcome to web2py!

Welcome

Hello World

How did you get here?

1. You are successfully running web2py
2. You visited the url /welcome/default/index
3. Which called the function index() located in the file web2py/applications/welcome/controllers/default.py
4. The output of the file is a dictionary that was rendered by the view web2py/applications/welcome/views/default/index.html
5. You can modify this application and adapt it to your needs

Don't know what to do?

- Online examples
- web2py.com
- Documentation

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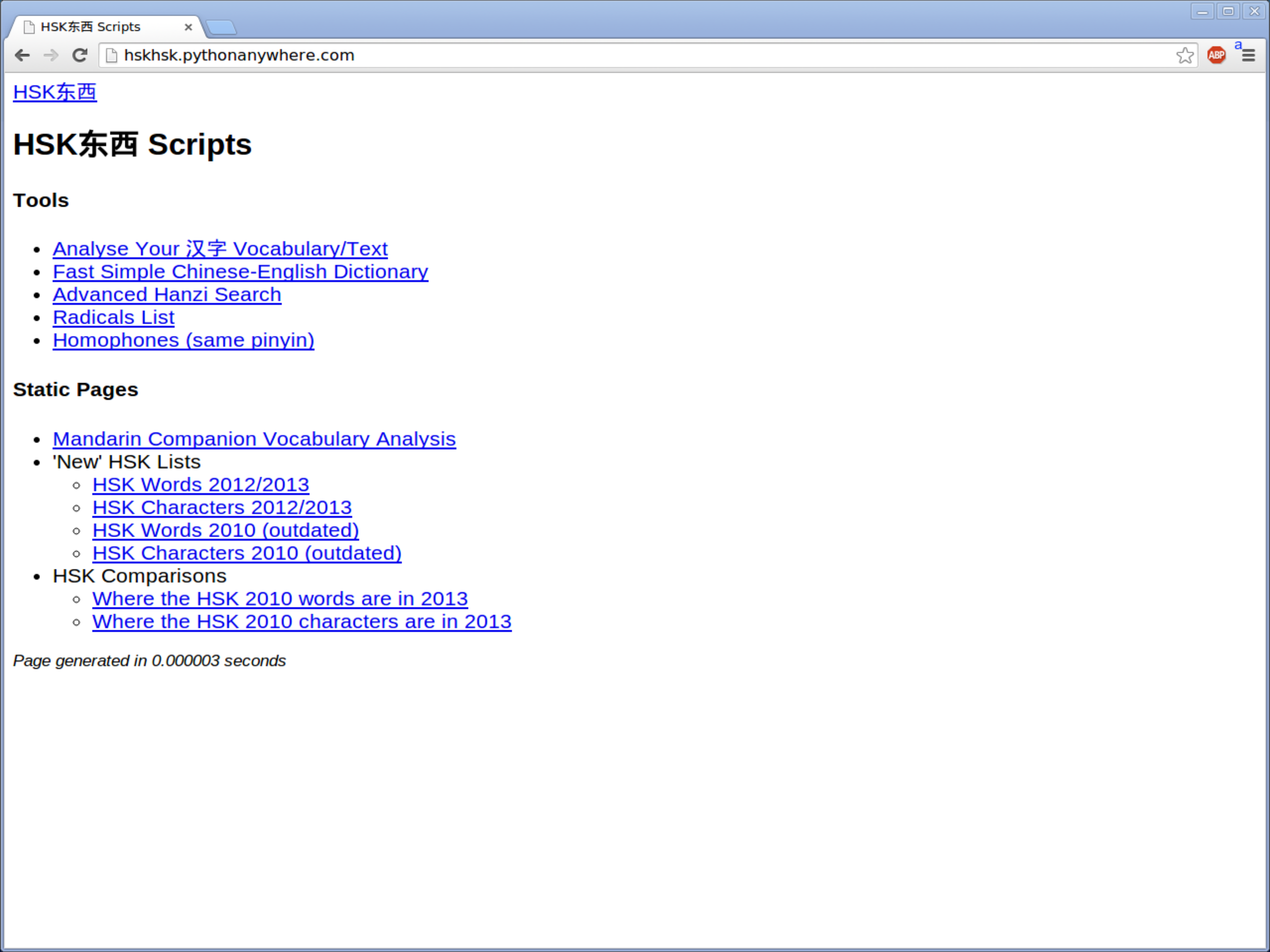

HSK东西

HSK东西 Scripts

Tools

- Analyse Your 汉字 Vocabulary/Text
- Fast Simple Chinese-English Dictionary
- Advanced Hanzi Search
- Radicals List
- Homophones (same pinyin)

Static Pages

- Mandarin Companion Vocabulary Analysis
- 'New' HSK Lists
  - HSK Words 2012/2013
  - HSK Characters 2012/2013
  - HSK Words 2010 (outdated)
  - HSK Characters 2010 (outdated)
- HSK Comparisons
  - Where the HSK 2010 words are in 2013
  - Where the HSK 2010 characters are in 2013

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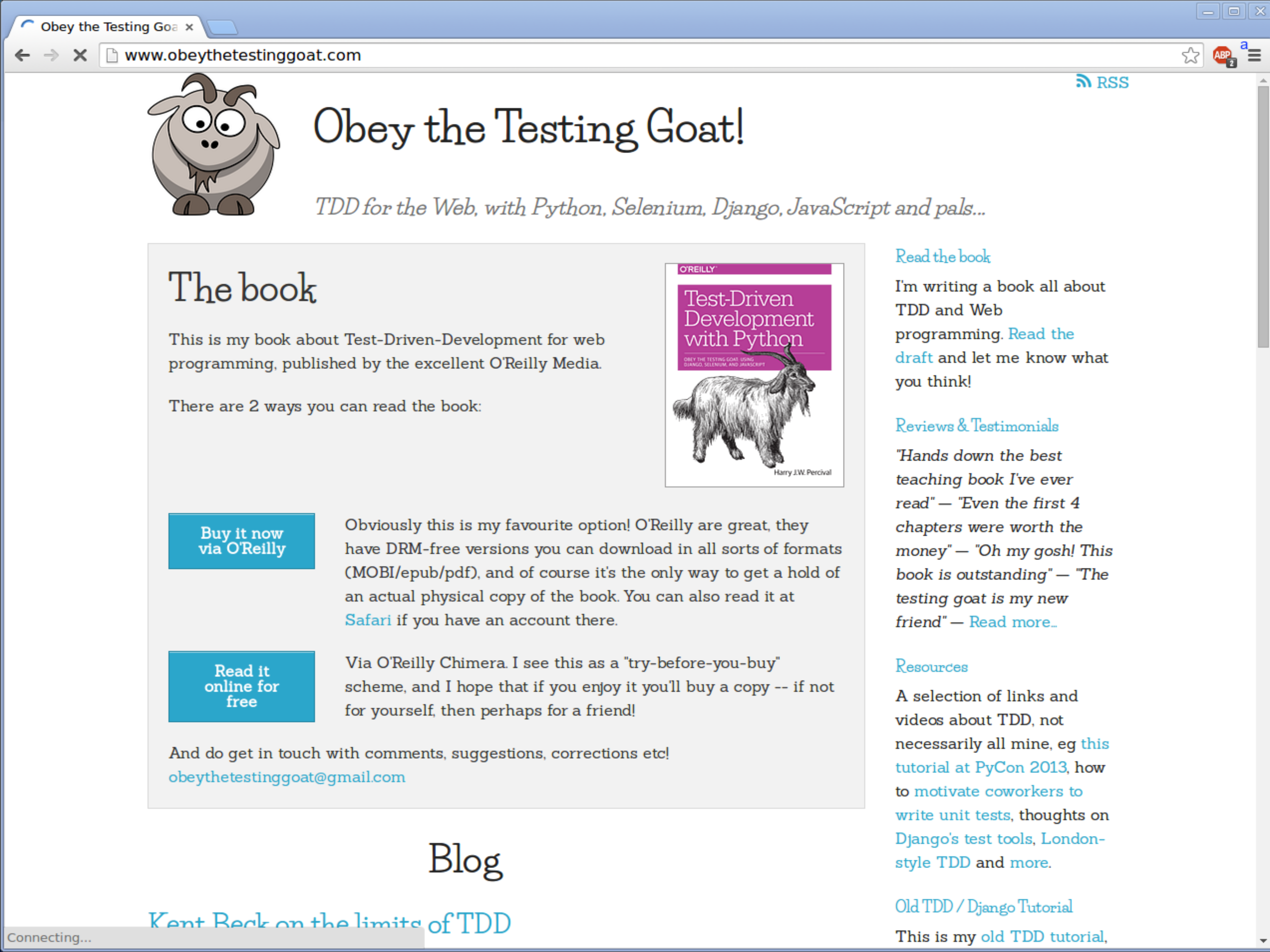
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RSS
Connecting...

Obey the Testing Goat!

TDD for the Web, with Python, Selenium, Django, JavaScript and pals...

The book

This is my book about Test-Driven-Development for web programming, published by the excellent O'Reilly Media.

There are 2 ways you can read the book:

O'REILLY
Test-Driven Development with Python
OBEY THE TESTING GOAT: USING DJANGO, SELENIUM, AND JAVASCRIPT
Harry J.W. Percival

Buy it now via O'Reilly

Obviously this is my favourite option! O'Reilly are great, they have DRM-free versions you can download in all sorts of formats (MOBI/epub/pdf), and of course it's the only way to get a hold of an actual physical copy of the book. You can also read it at Safari if you have an account there.

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Via O'Reilly Chimera. I see this as a "try-before-you-buy" scheme, and I hope that if you enjoy it you'll buy a copy -- if not for yourself, then perhaps for a friend!

And do get in touch with comments, suggestions, corrections etc! obeythetestinggoat@gmail.com

Blog

Kent Beck on the limits of TDD

Read the book

I'm writing a book all about TDD and Web programming. Read the draft and let me know what you think!

Reviews & Testimonials

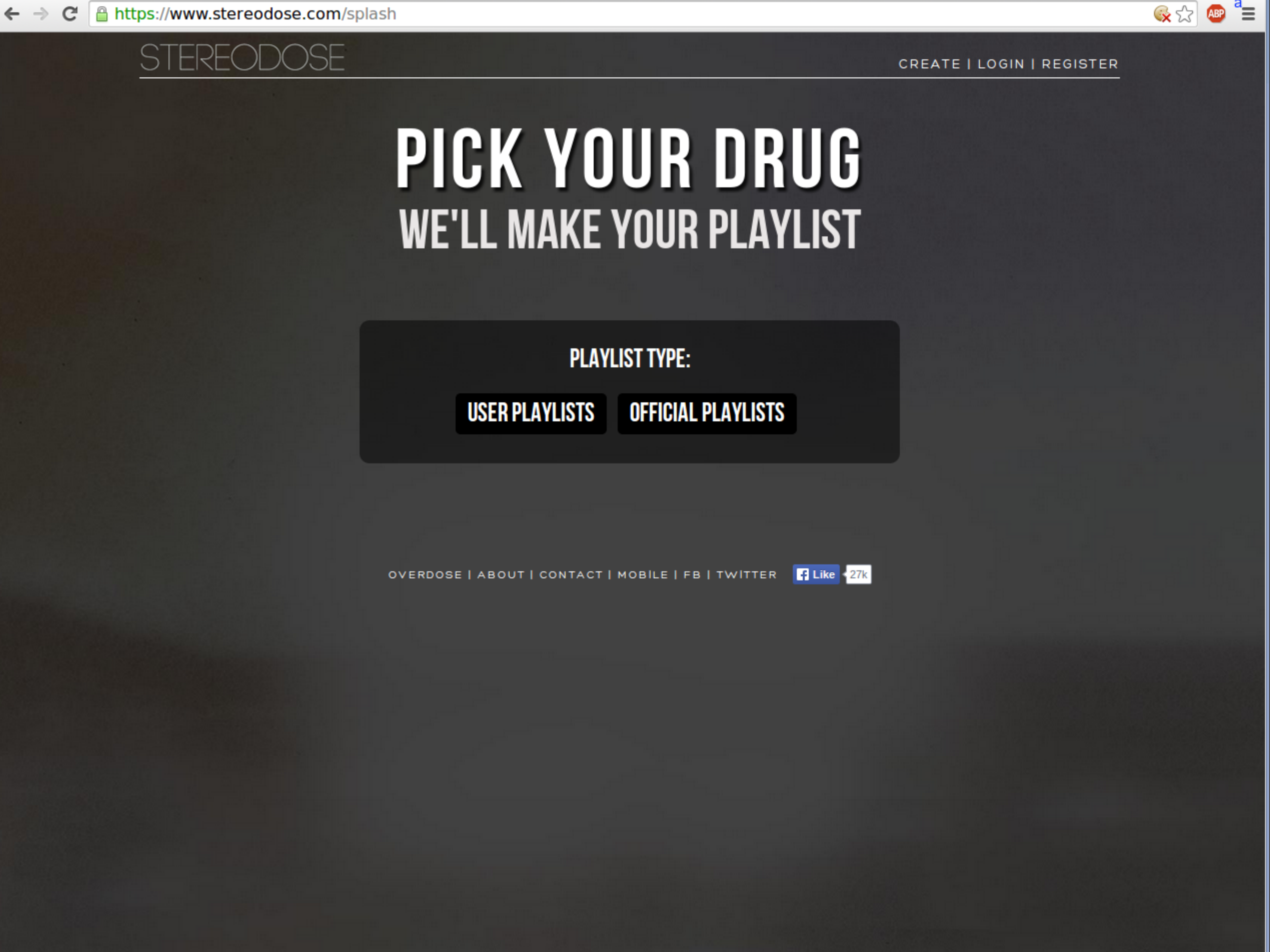
"Hands down the best teaching book I've ever read" — "Even the first 4 chapters were worth the money" — "Oh my gosh! This book is outstanding" — "The testing goat is my new friend" — Read more...

Resources

A selection of links and videos about TDD, not necessarily all mine, eg this tutorial at PyCon 2013, how to motivate coworkers to write unit tests, thoughts on Django's test tools, London-style TDD and more.

Old TDD / Django Tutorial

This is my old TDD tutorial,


https://www.stereodose.com/splash
STEREODOSE
CREATE | LOGIN | REGISTER

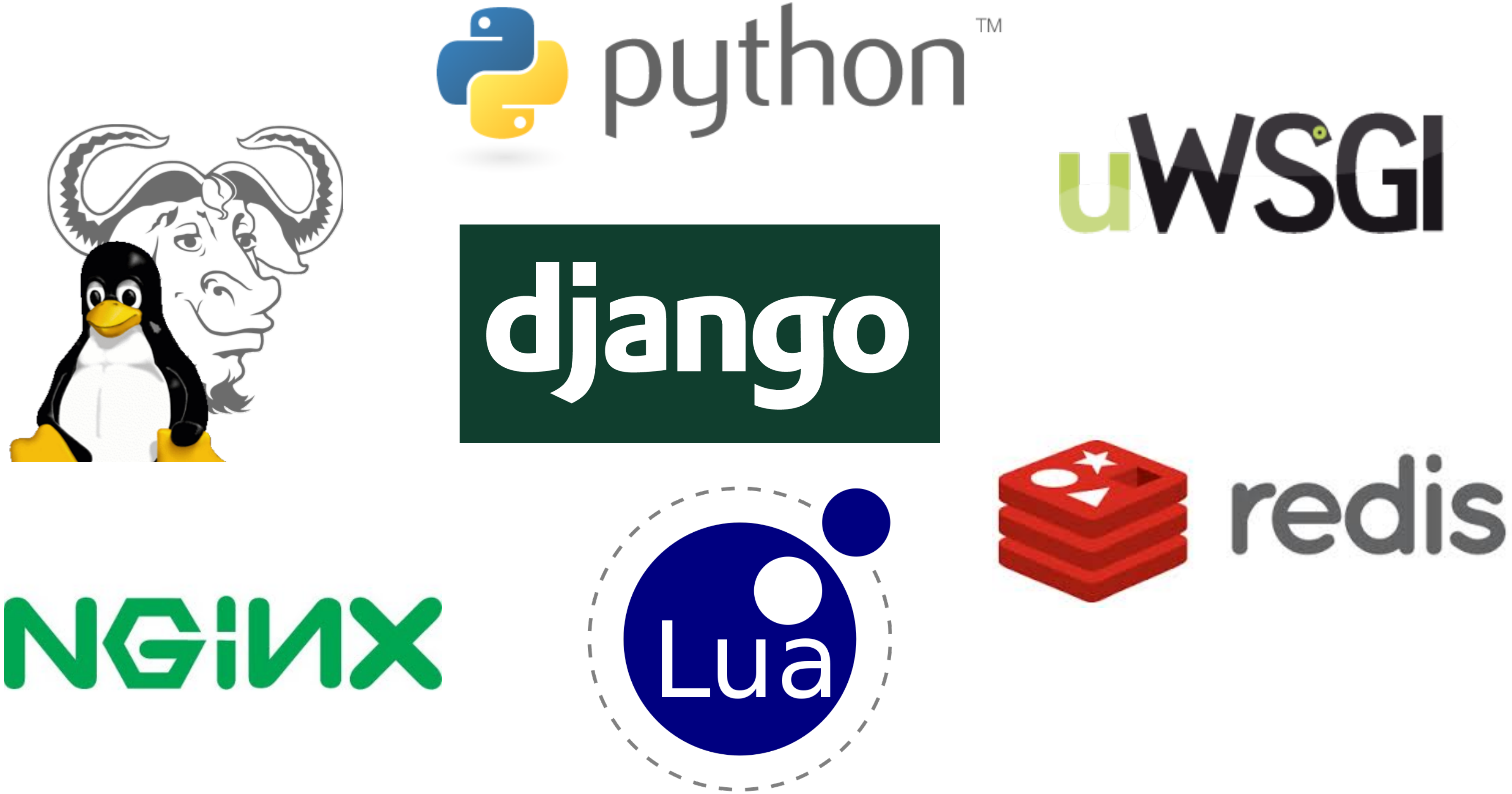
PICK YOUR DRUG

WE'LL MAKE YOUR PLAYLIST

PLAYLIST TYPE:

USER PLAYLISTS
OFFICIAL PLAYLISTS
OVERDOSE | ABOUT | CONTACT | MOBILE | FB | TWITTER
Like
27k

>>> the stack



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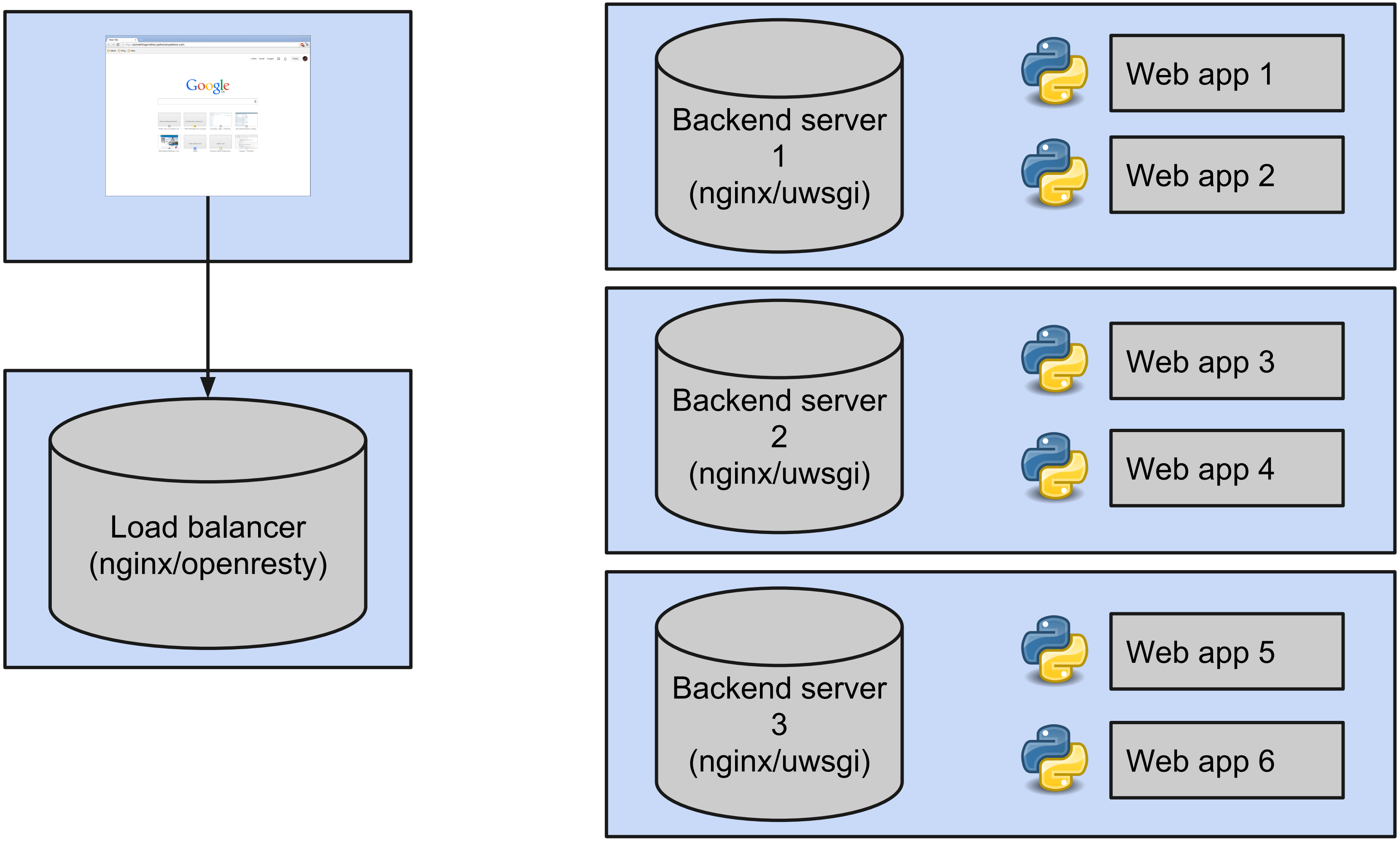
>>> http request, part 1



Load balancer (nginx/openresty)

Backend server 1 (nginx/uwsgi)

Web app 1

Web app 2

Backend server 2 (nginx/uwsgi)

Web app 3

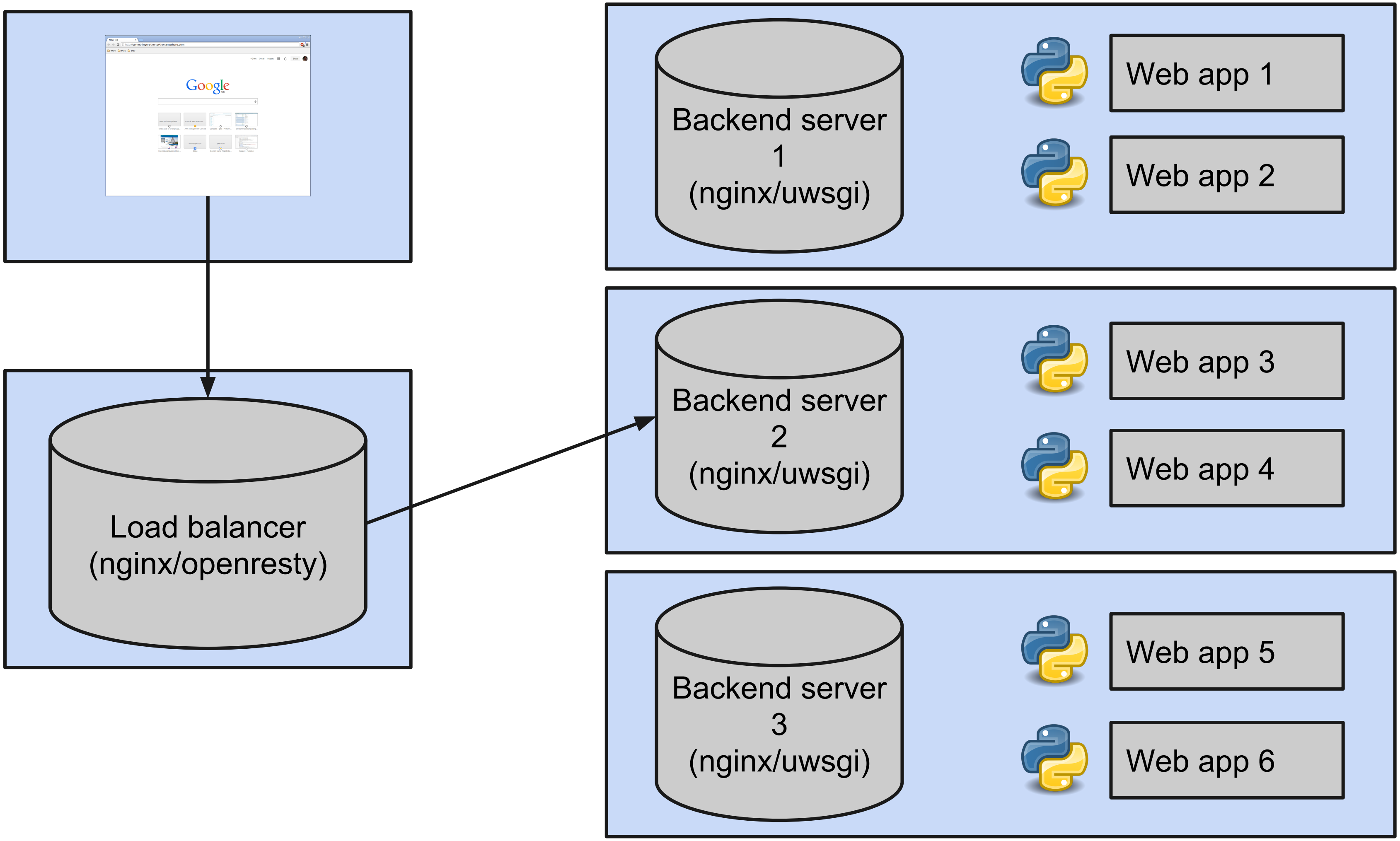
Web app 4

Backend server 3 (nginx/uwsgi)

Web app 5

Web app 6

>>> http request, part 2


Google
Load balancer (nginx/openresty)
Backend server 1 (nginx/uwsgi)
Web app 1
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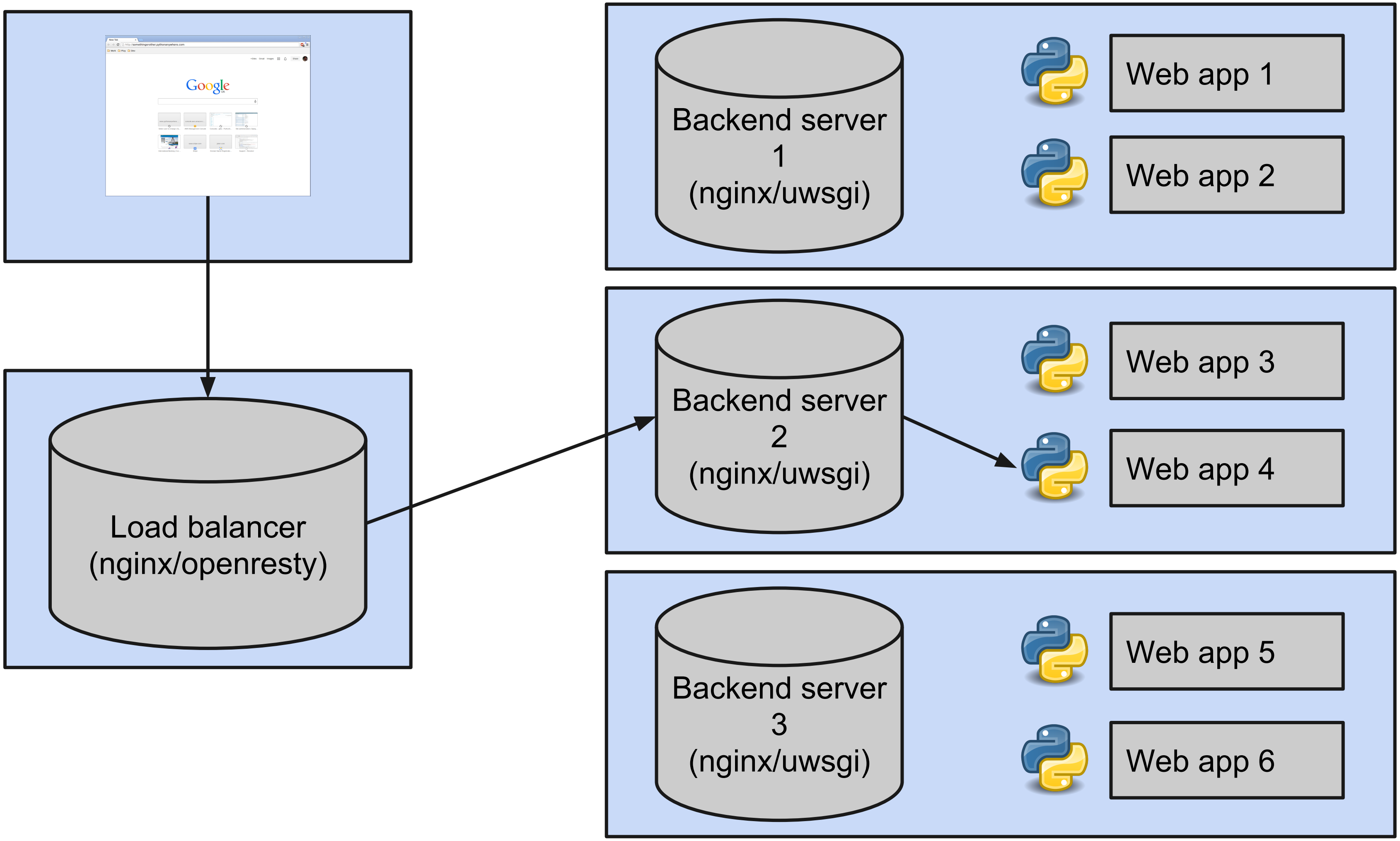
>>> http request, part 3



Load balancer
(nginx/openresty)

Backend server
1
(nginx/uwsgi)

Web app 1

Web app 2

Backend server
2
(nginx/uwsgi)

Web app 3

Web app 4

Backend server
3
(nginx/uwsgi)

Web app 5

Web app 6

>>> loadbalancer - nginx

```
http {
    # ...
    init_by_lua_file /etc/nginx/init_backends.lua;
    # …

    server {
        listen 80;
        listen 443 ssl;
        # ...
        location / {
            set $route_host $http_host;
            set $backend_ip '';
            access_by_lua_file /xxx/get_backend_ip.lua;
            proxy_pass $backend_ip;

            #...
        }
    }
}
```

>>> loadbalancer - lua

```
canonicalHost = string.lower(ngx.var.route_host)

local hash = 5381
local limit = (2 ^ 32)
for i = 1, #canonicalHost do
   local c = canonicalHost:sub(i,i)
   hash = ((hash * 33) % limit) + string.byte(c)
end

serverNo = (hash % #web_server_ips) + 1

ngx.var.web_server_ip = ngx.var.scheme.."://"..web_server_ips[serverNo]
```

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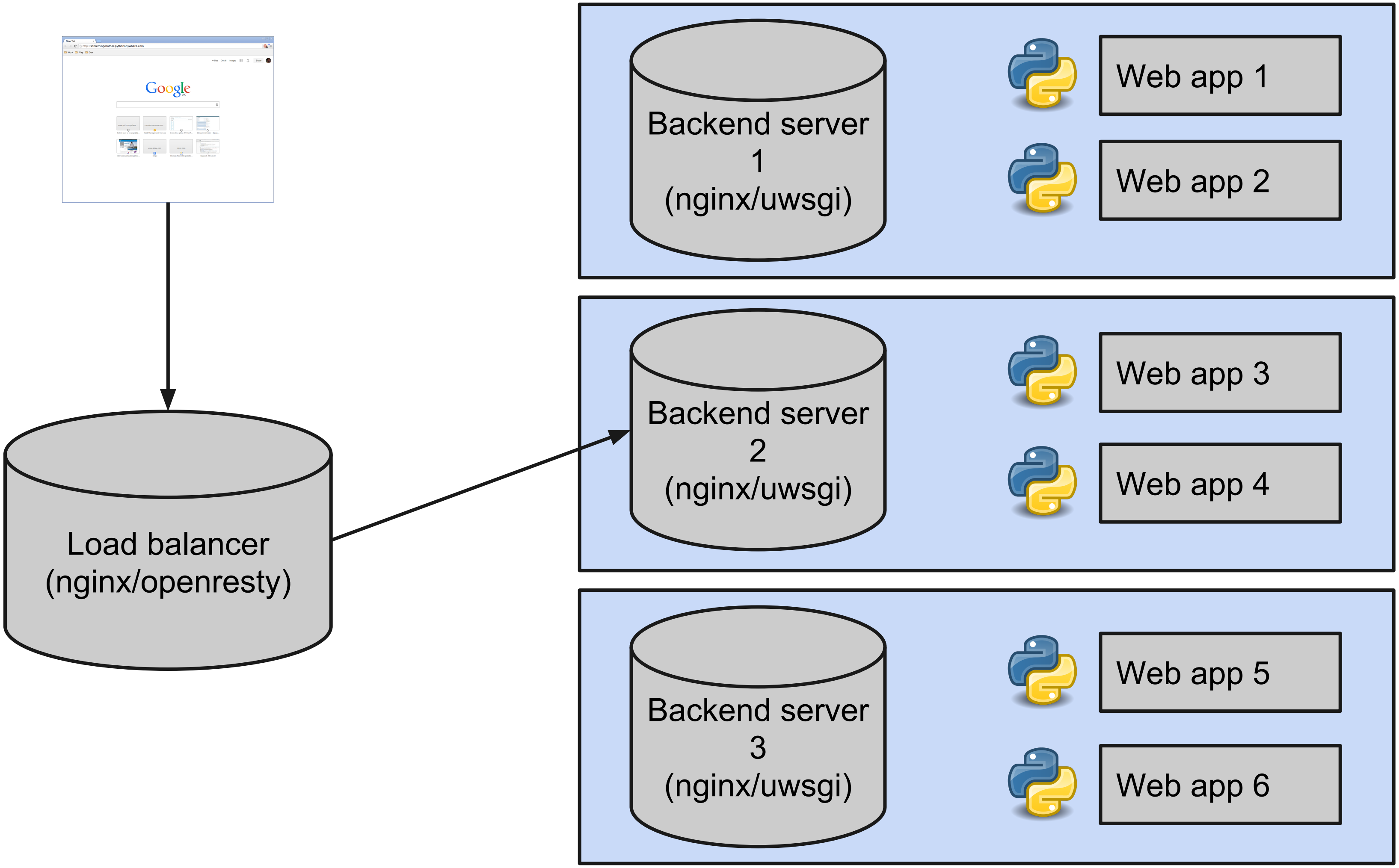
>>> http request, part 2



Backend server 1 (nginx/uwsgi)

Web app 1

Web app 2

Backend server 2 (nginx/uwsgi)

Web app 3

Web app 4

Load balancer (nginx/openresty)

Backend server 3 (nginx/uwsgi)

Web app 5

Web app 6

>>> the backends, nginx

```
server {
    listen       80;
    listen       443 ssl;
    server_name  ~(?<domain>.+)$;

    location / {
        include uwsgi_params;
        uwsgi_pass unix:/var/sockets/$domain/socket;
    }

}
```

>>> the backends, uWSGI

```
[uwsgi]
# The socket that nginx is talking to
socket = /var/sockets/www.obeythetestinggoat.com/socket

# Run the web app
file = /path/to/obeythetestinggoat.com/source/application.py

# shutdown app (but not master) after 26hrs of no hits
idle=93600
```

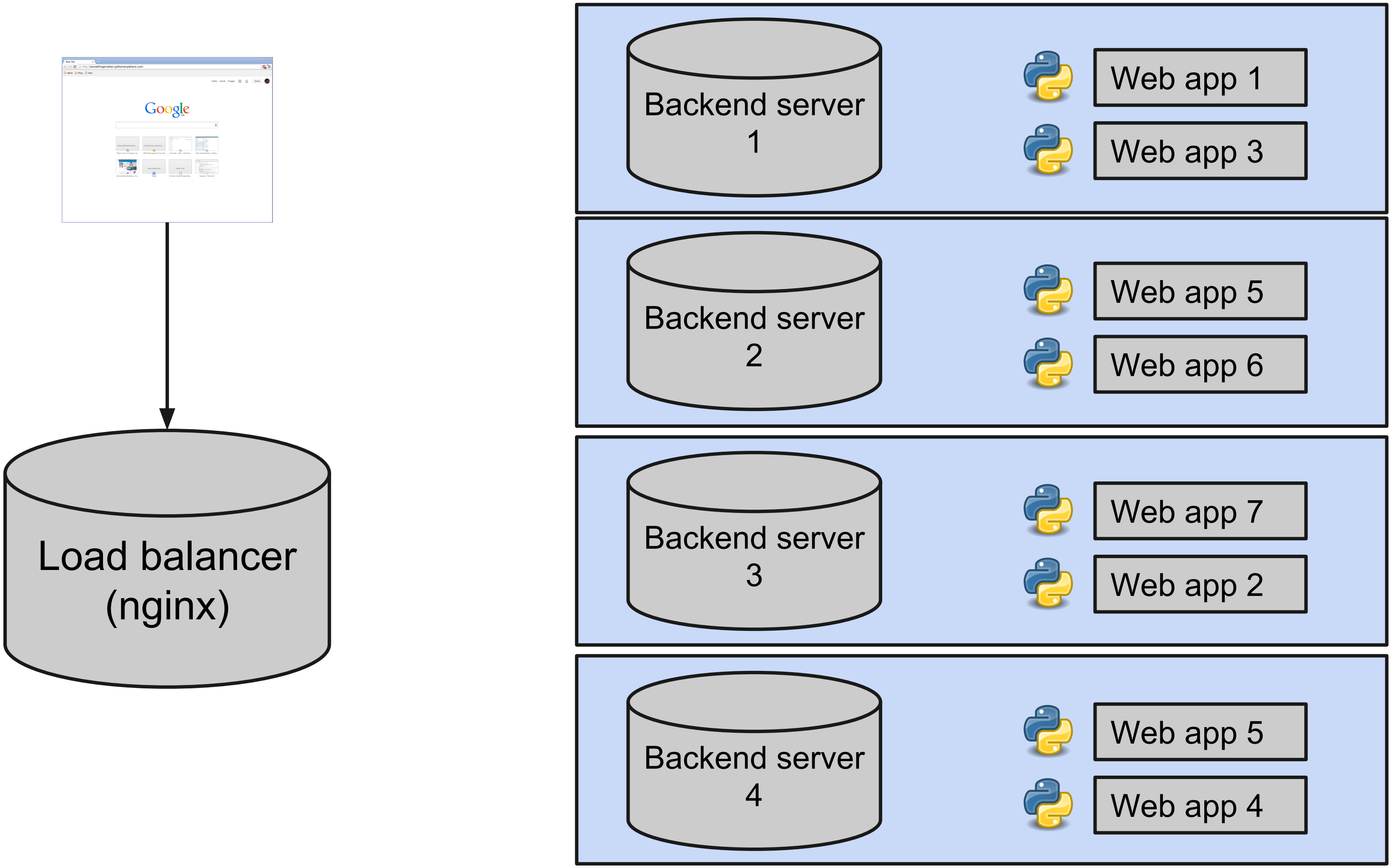
>>> starting a web app

```
server {
    listen       80;
    listen       443 ssl;
    server_name  ~(?<domain>.+)$;

    location / {
        error_page 502 = @fallback;
        include uwsgi_params;
        uwsgi_pass unix:/var/sockets/$domain/socket;
    }

    location @fallback {
        if (-f /etc/uwsgi/vassals/$domain.ini) {
            rewrite ^ /xxx/502-backend.html;
        }
        proxy_pass https:
//localhost/initialize_webapp/$scheme/$domain/$uri?$query_string;
    }
}
```

>>> scaling



Load balancer (nginx)

Backend server 1

Web app 1

Web app 3

Backend server 2

Web app 5

Web app 6

Backend server 3

Web app 7

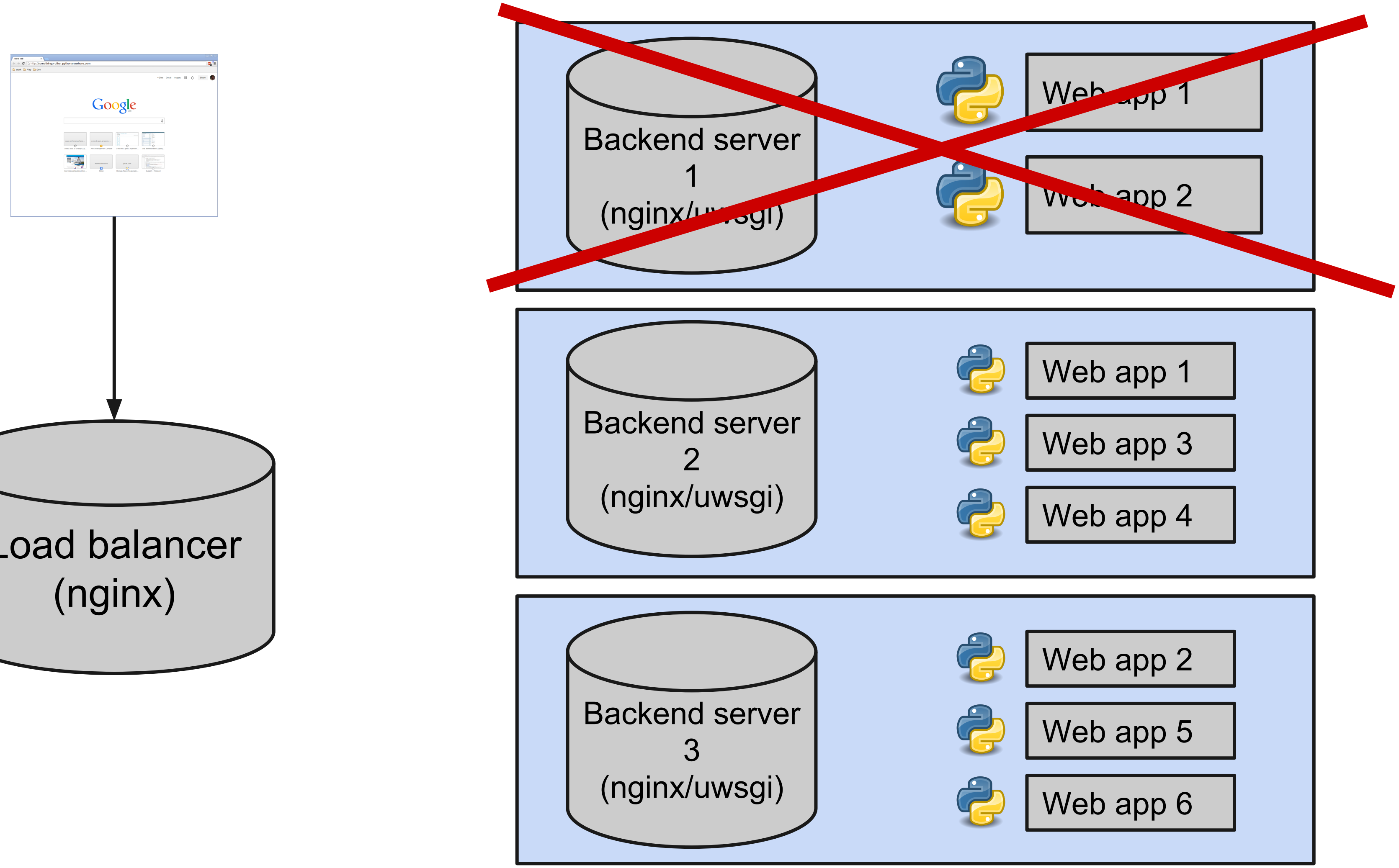
Web app 2

Backend server 4

Web app 5

Web app 4

>>> resilience



Load balancer (nginx)

~~Backend server 1 (nginx/uwsgi)~~

~~Web app 1~~

~~Web app 2~~

Backend server 2 (nginx/uwsgi)

Web app 1

Web app 3

Web app 4

Backend server 3 (nginx/uwsgi)

Web app 2

Web app 5

Web app 6

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>>> Questions?

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Harry Percival @hjwp