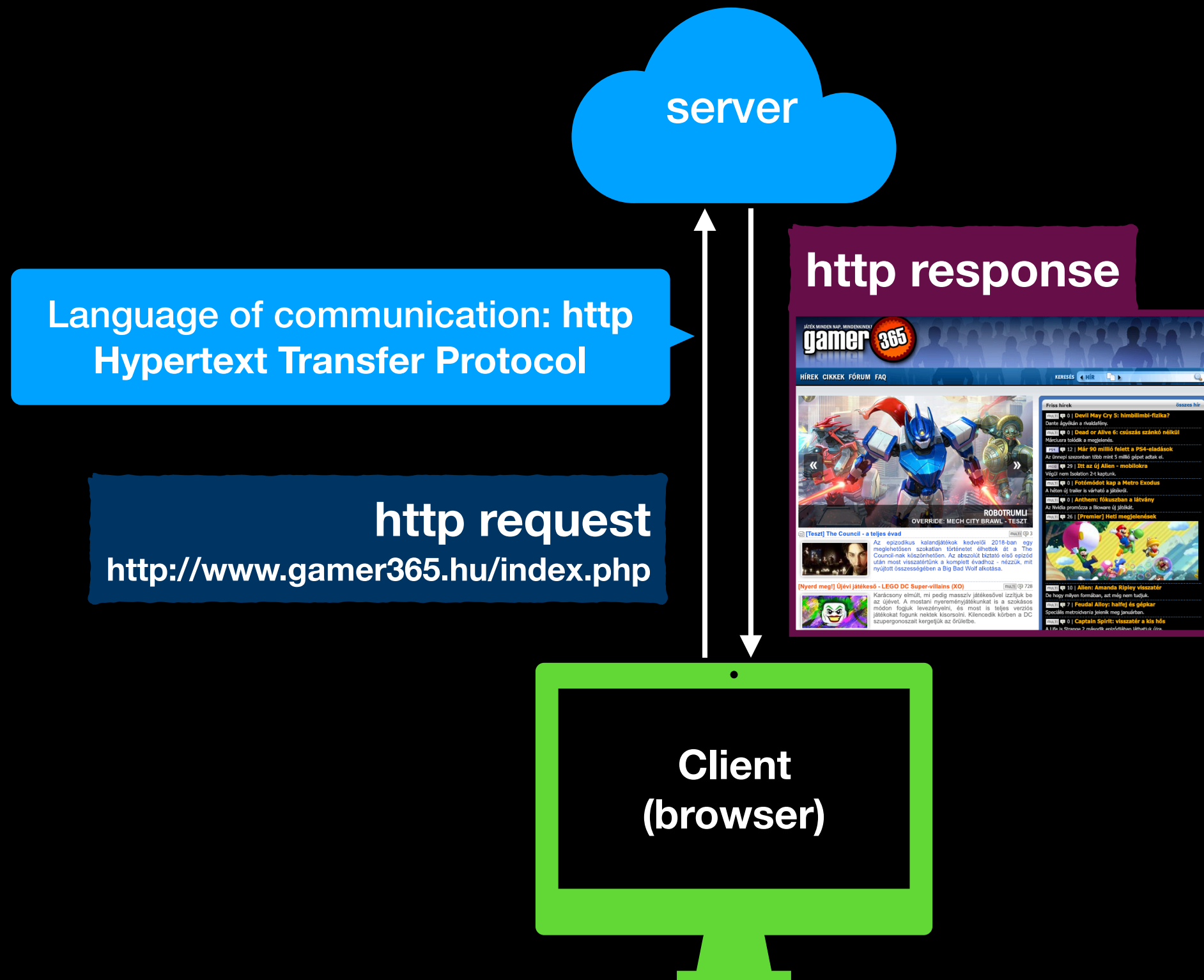# Web development 1

1. About the world wide web
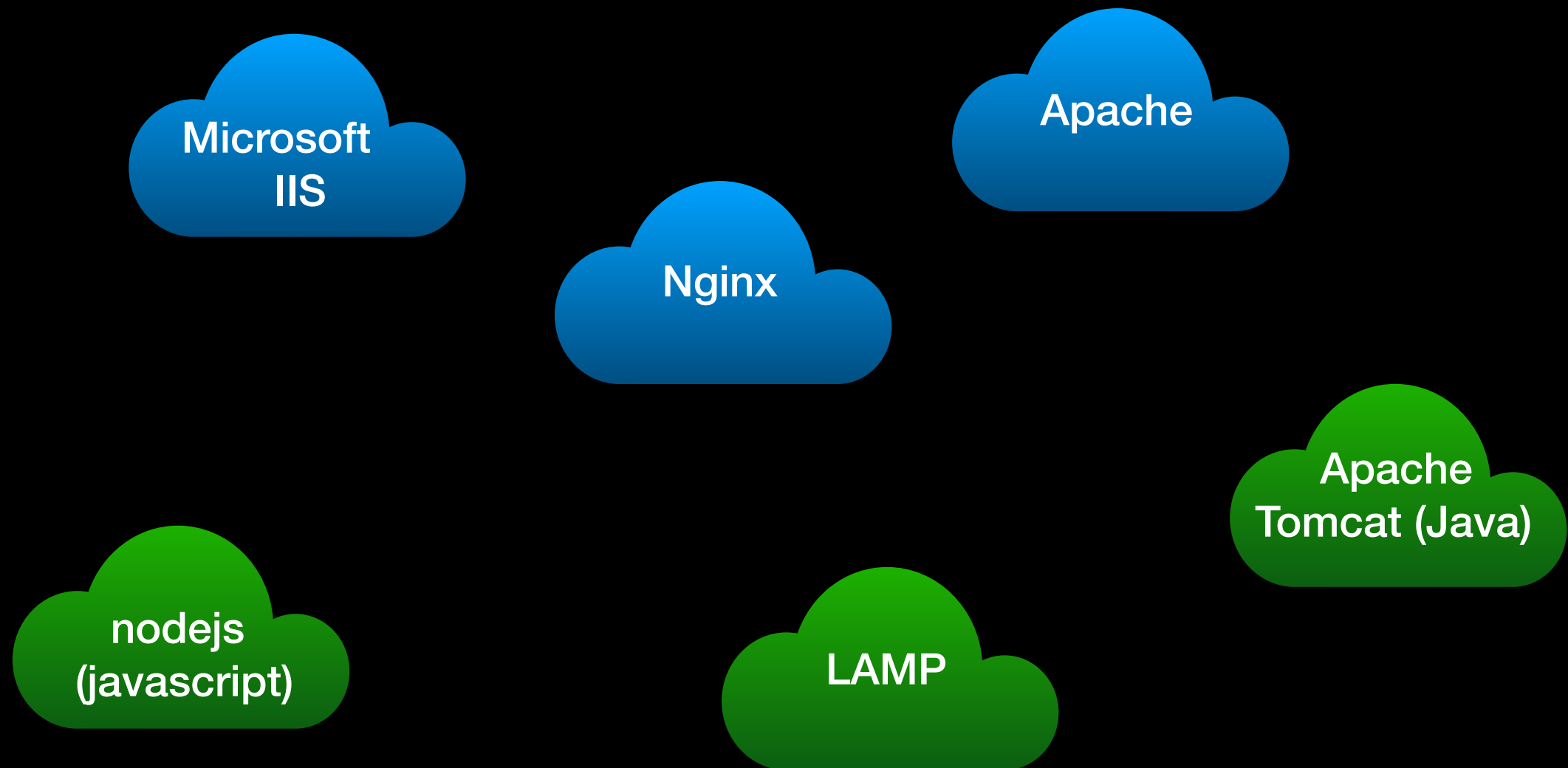
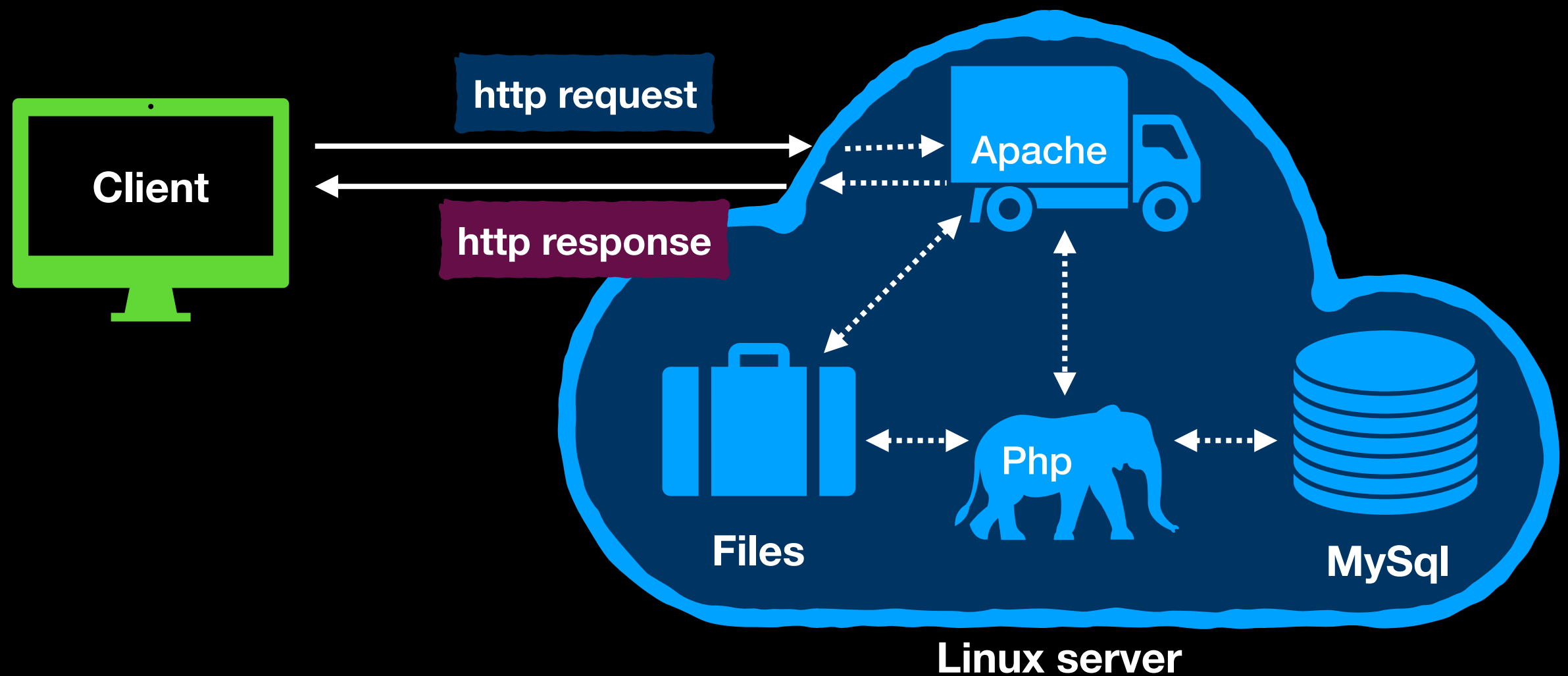# World Wide Web

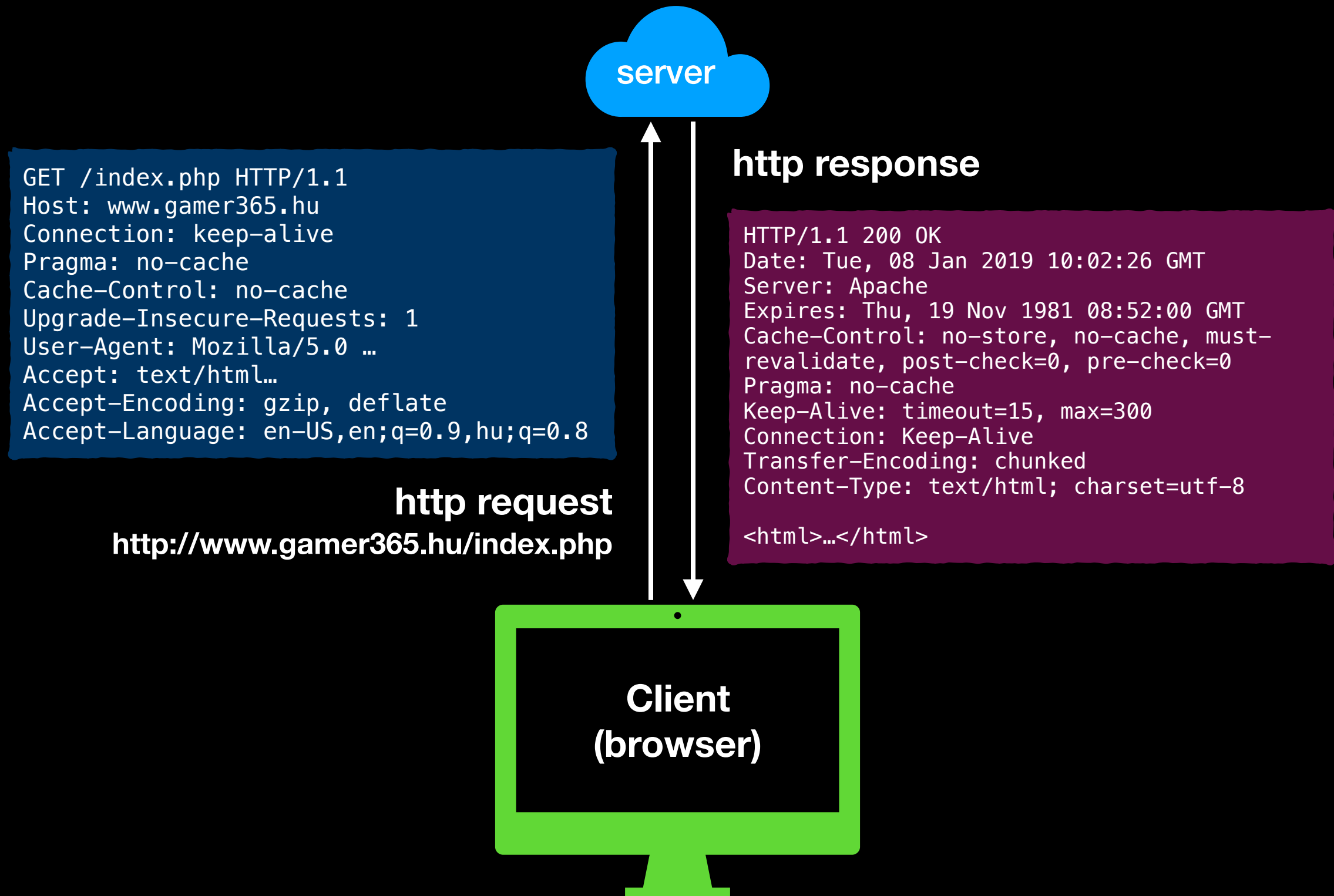# How it works?

Server architectures

Microsoft IIS

Apache

Nginx

Apache Tomcat (Java)

nodejs (javascript)

LAMP

What's happening on the server? (on a common LAMP stack)

HTTP message

server

http response

GET /index.php HTTP/1.1
Host: www.gamer365.hu
Connection: keep-alive
Pragma: no-cache
Cache-Control: no-cache
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 …
Accept: text/html…
Accept-Encoding: gzip, deflate
Accept-Language: en-US,en;q=0.9,hu;q=0.8

HTTP/1.1 200 OK
Date: Tue, 08 Jan 2019 10:02:26 GMT
Server: Apache
Expires: Thu, 19 Nov 1981 08:52:00 GMT
Cache-Control: no-store, no-cache, must-
revalidate, post-check=0, pre-check=0
Pragma: no-cache
Keep-Alive: timeout=15, max=300
Connection: Keep-Alive
Transfer-Encoding: chunked
Content-Type: text/html; charset=utf-8

<html>…</html>

http request
http://www.gamer365.hu/index.php

**Client
(browser)**

Download a complete website

Client

server

request: http://www.gamer365.hu

response: html document

HTML contains references for images

request: http://www.gamer365.hu/img/logo.png

response: png image

And StyleSheets

request: http://www.gamer365.hu/css/page.css

response: stylesheet document

And JavaScripts

request: http://www.gamer365.hu/js/app.js

response: javascript document

…215 requests…

JavaScript app requests data

request: http://www.gamer365.hu/article/123/comments

response: json document

Basic URL anatomy
Uniform resource locator

http://www.gamer365.hu/img/logo.png

Protocol	Host	Resource path	Resource

Resource

http://127.0.0.1/my.html

Protocol	Host	Resource

http://www.gamer365.hu/article.php?id=12&big=1

Protocol	Host	Resource	Query string

Full URL anatomy

Protocol

Host

Resource

Query string

http://root:abc@xy.hu:8080/z.php?id=1#article

userinfo (user:password)

Port

Fragment

https://en.wikipedia.org/wiki/URL
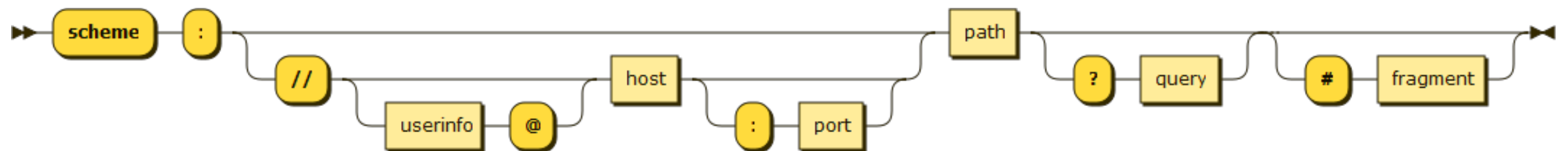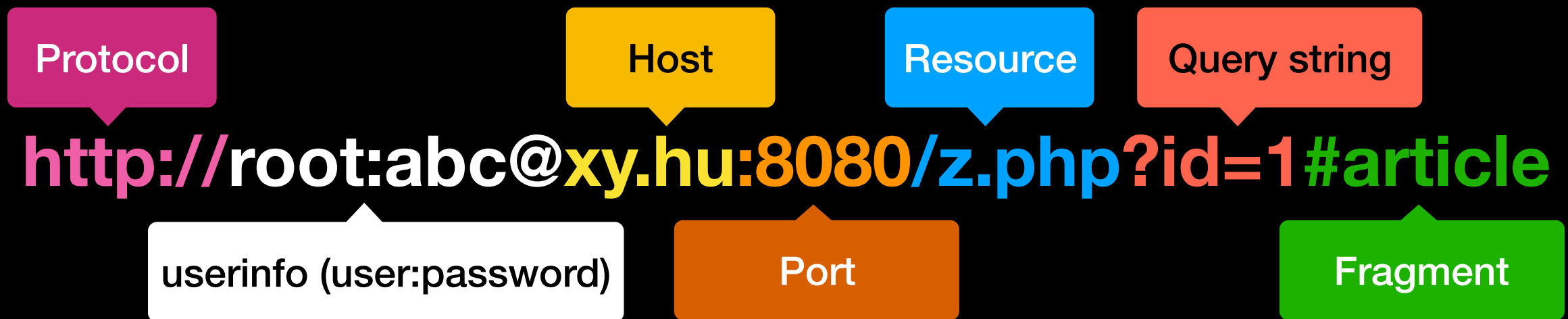
HTTP request

http method   Resource   Protocol

```
GET /index.php HTTP/1.1
Host: www.gamer365.hu          Host
Connection: keep-alive
Pragma: no-cache
Cache-Control: no-cache
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 …
Accept: text/html…
Accept-Encoding: gzip, deflate
Accept-Language: en-US,en;q=0.9,hu;q=0.8
```

GET   POST   PUT   DELETE   HEAD

PATCH TRACE CONNECT   OPTIONS

https://developer.mozilla.org/en-US/docs/Web/HTTP/Methods

HTTP response

Status code

```
HTTP/1.1 200 OK
Date: Tue, 08 Jan 2019 10:02:26 GMT
Server: Apache
Expires: Thu, 19 Nov 1981 08:52:00 GMT
Cache-Control: no-store, no-cache, must-
revalidate, post-check=0, pre-check=0
Pragma: no-cache
Keep-Alive: timeout=15, max=300
Connection: Keep-Alive
Transfer-Encoding: chunked
Content-Type: text/html; charset=utf-8

<html>...</html>
```

Content type

Double line break separates the response header and the content

Character encoding

Content

Status codes

1xx Informational
The request was received, continuing process

2xx Successful
The request was successfully received, understood, and accepted

3xx Redirection
Further action needs to be taken in order to complete the request

4xx Client Error
The request contains bad syntax or cannot be fulfilled

5xx Server Error
The server failed to fulfill an apparently valid request

https://en.wikipedia.org/wiki/List_of_HTTP_status_codes

Programming the browser