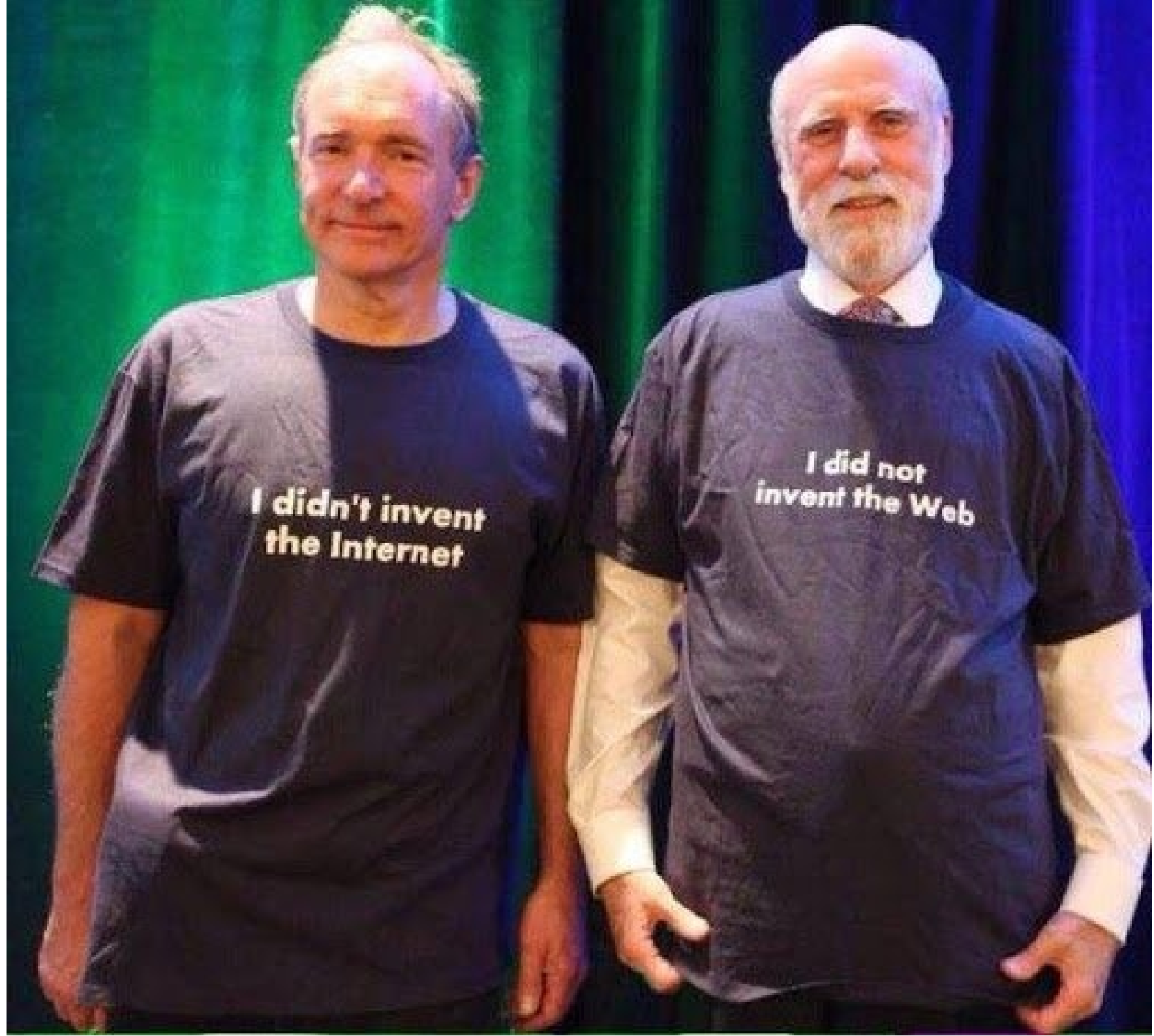


# Internet and the Web



I didn't invent  
the Internet

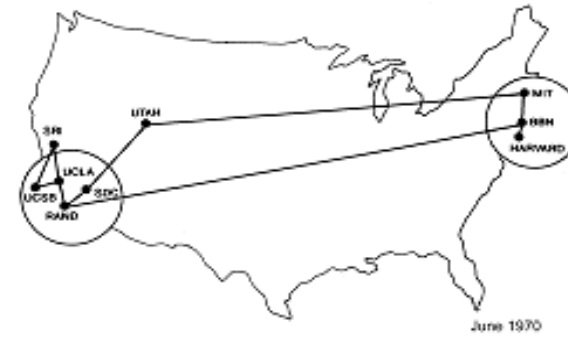
I did not  
invent the Web

# ARPANET goes online with 4 nodes (1969)

Dec 1969



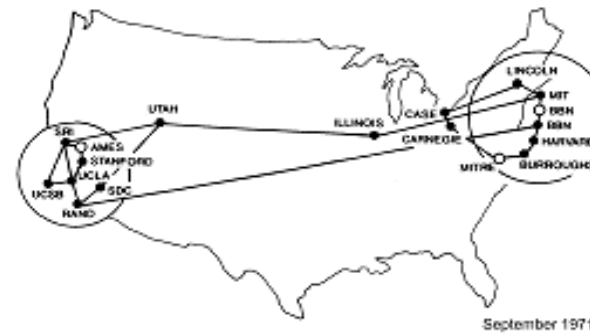
June 1970



Dec 1970



Sept 1971



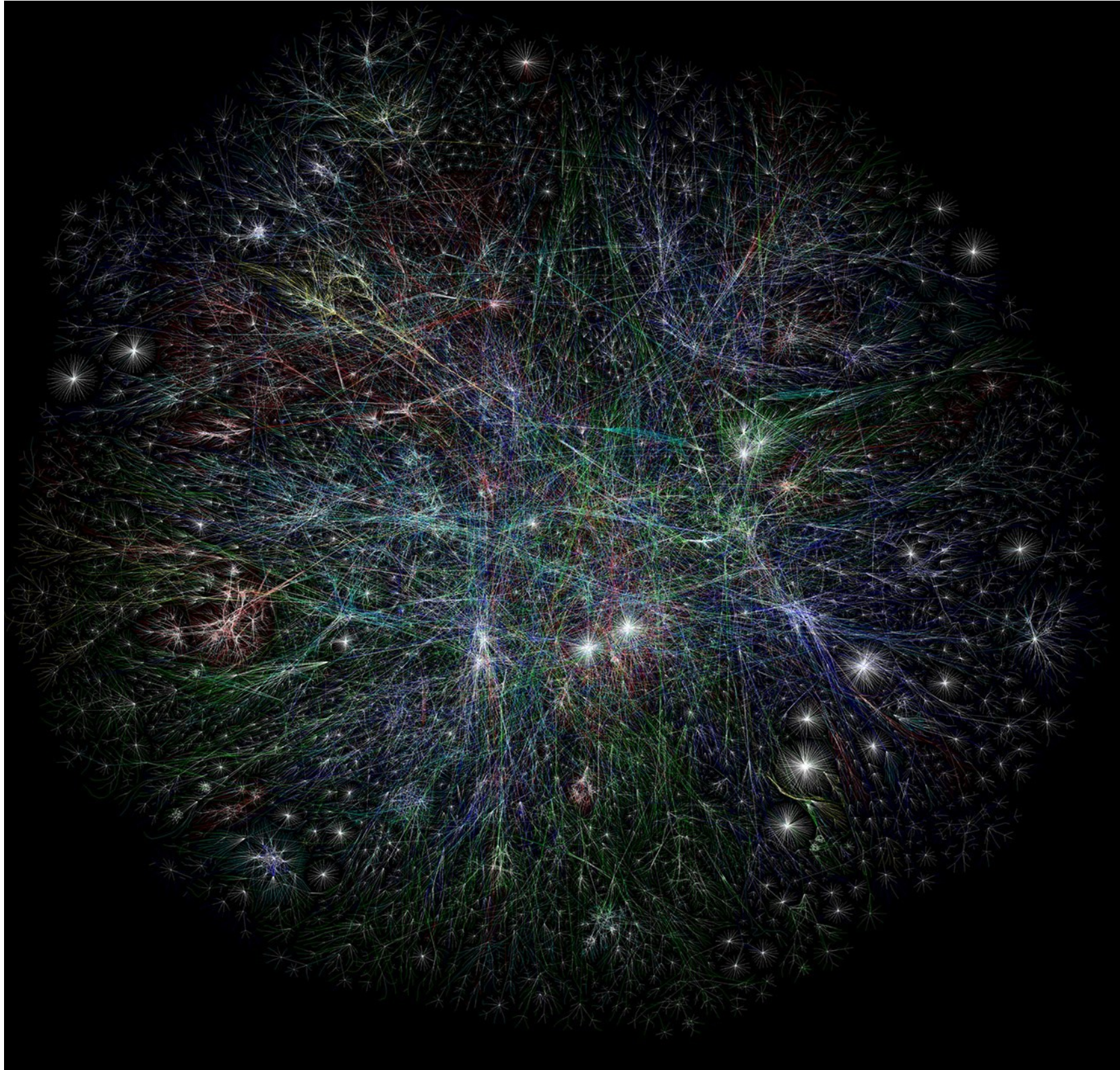
Aug 1972



June 1975

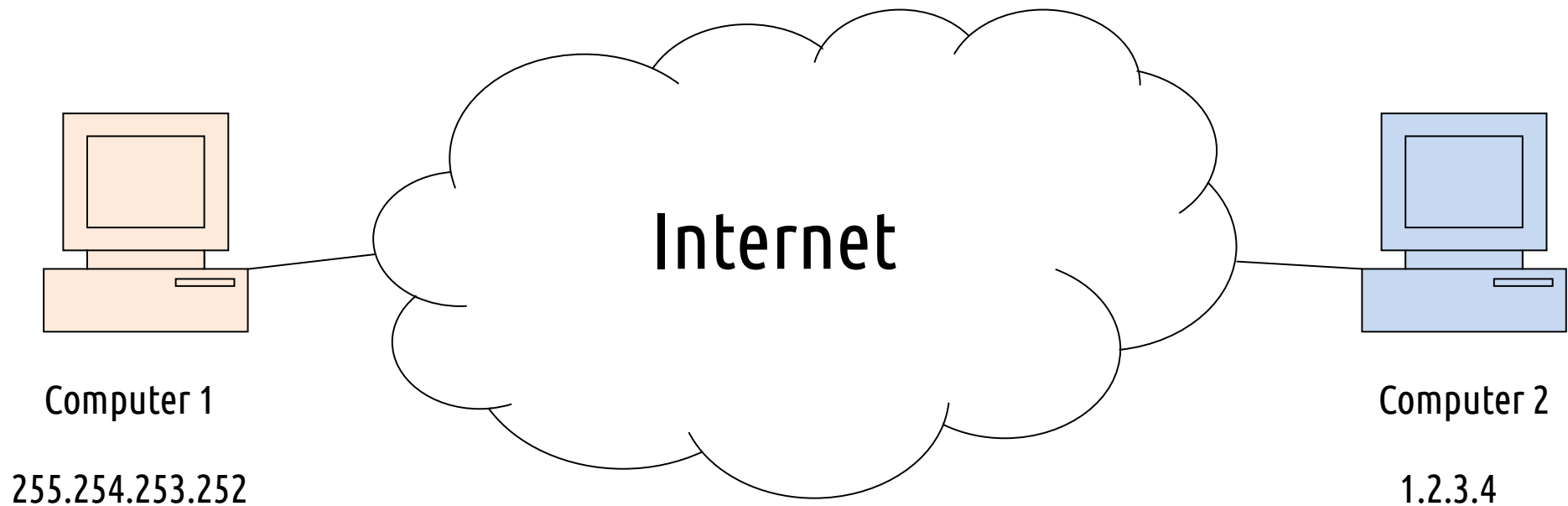






“The **Internet** is a global system of interconnected computer networks that use the standard Internet Protocol Suite (TCP/IP) to serve billions of users worldwide.”

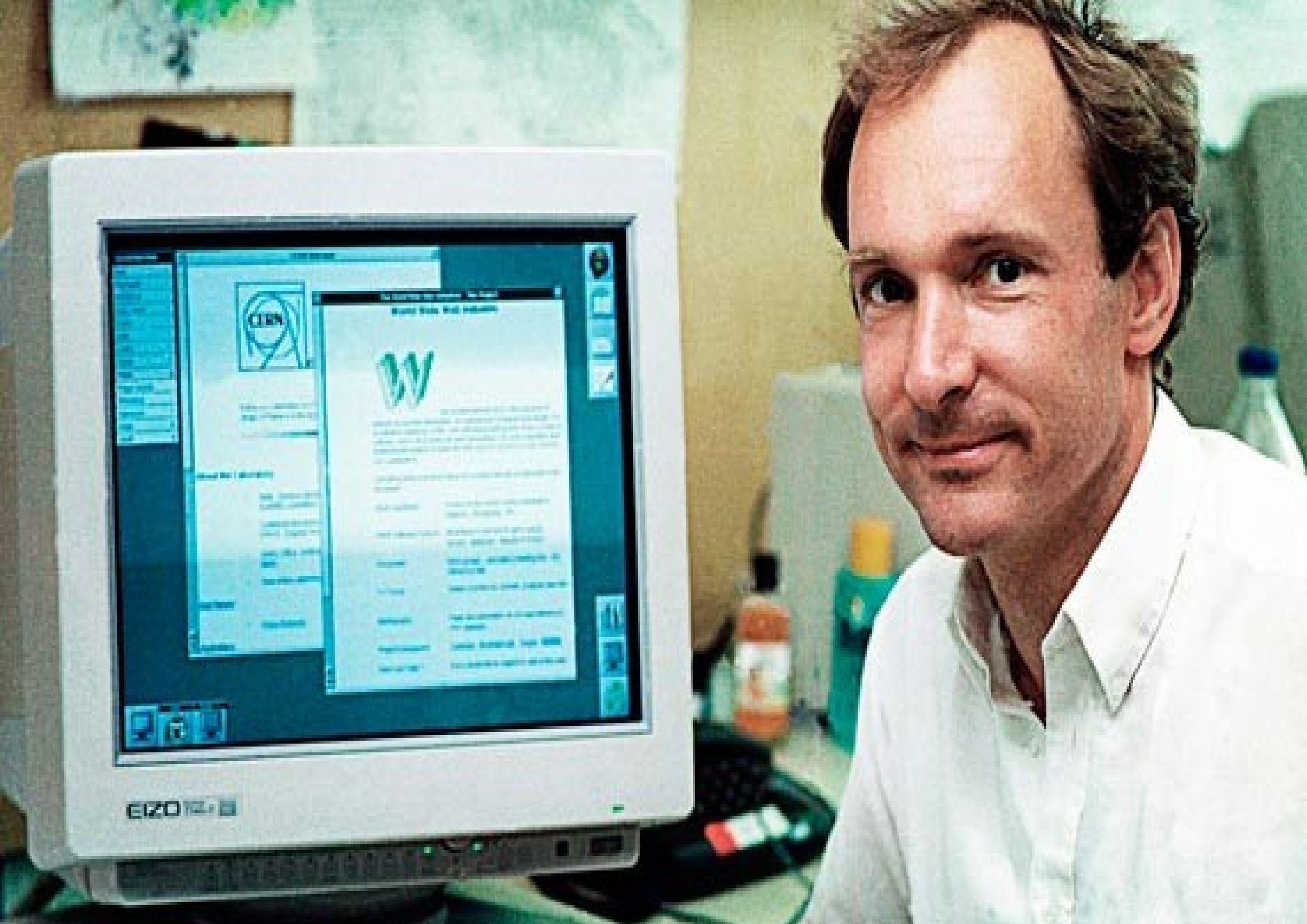
<http://en.wikipedia.org/wiki/Internet>





# Internet Protocol Suite

- Internet Protocol (IP): directs packets to a specific computer using an IP address
- Transmission Control Protocol (TCP): directs packets to a specific application on a computer using a port number.
  - Common port numbers:
    - 22 – ssh
    - 23 – telnet
    - 25 – email
    - 80 – Web



# World Wide Web (WWW)

Tim Berners-Lee and others at CERN developed the **World Wide Web (WWW)**, HTML documents transmitted over the Internet by a web server to web browsers using URIs and HTTP (1<sup>st</sup> web page online on Aug 6, 1991)





# Web Standards

- Uniform Resource Identifiers (**URI**), an universal system to reference internet resources
- Hypertext Transfer Protocol (**HTTP**), specifies how the browser and the server communicate
- Hypertext Markup Language (**HTML**), used to define the structure and content of hypertext documents

# Uniform Resource Locator (URL)

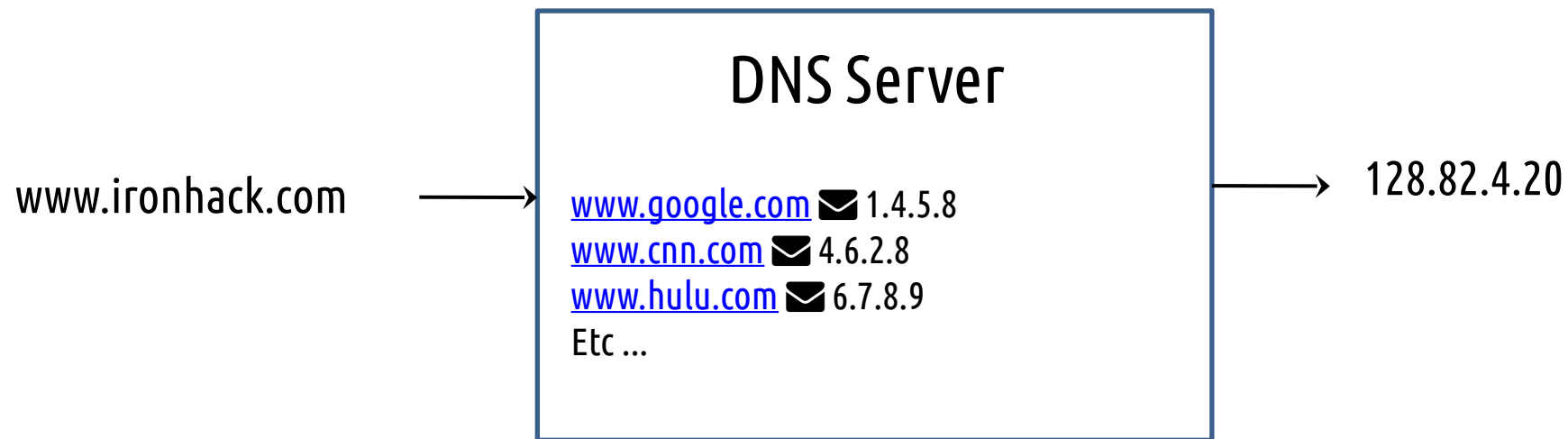
A URL identifies the location of a resource on the Web.

The diagram illustrates the components of the URL `http://john.doe:password@www.example.com:123/forum/questions/?tag=networking&order=newest#top`. Brackets and labels identify the following parts:

- scheme**: `http`
- authority**: `john.doe:password@www.example.com`
  - userinfo**: `john.doe`
  - host**: `www.example.com`
  - port**: `123`
- path**: `/forum/questions/`
- query**: `?tag=networking&order=newest`
- fragment**: `#top`

# Domain Name System (DNS)

DNS is a hierarchical look-up service that converts a given hostname into its equivalent IP address



- DNS servers contact parent servers for missing entries
- Authoritative name servers are responsible for specific domains
- Warning: [DNS cache poisoning](#)

# HTTP: Hypertext Transfer Protocol

Protocol that runs over TCP/IP and governs communication between web browsers and web servers





Nuestra transición a un entorno seguro de aprendizaje a distancia. **Nuestra respuesta al COVID-19.** →

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Inspector Consola **Red** >>

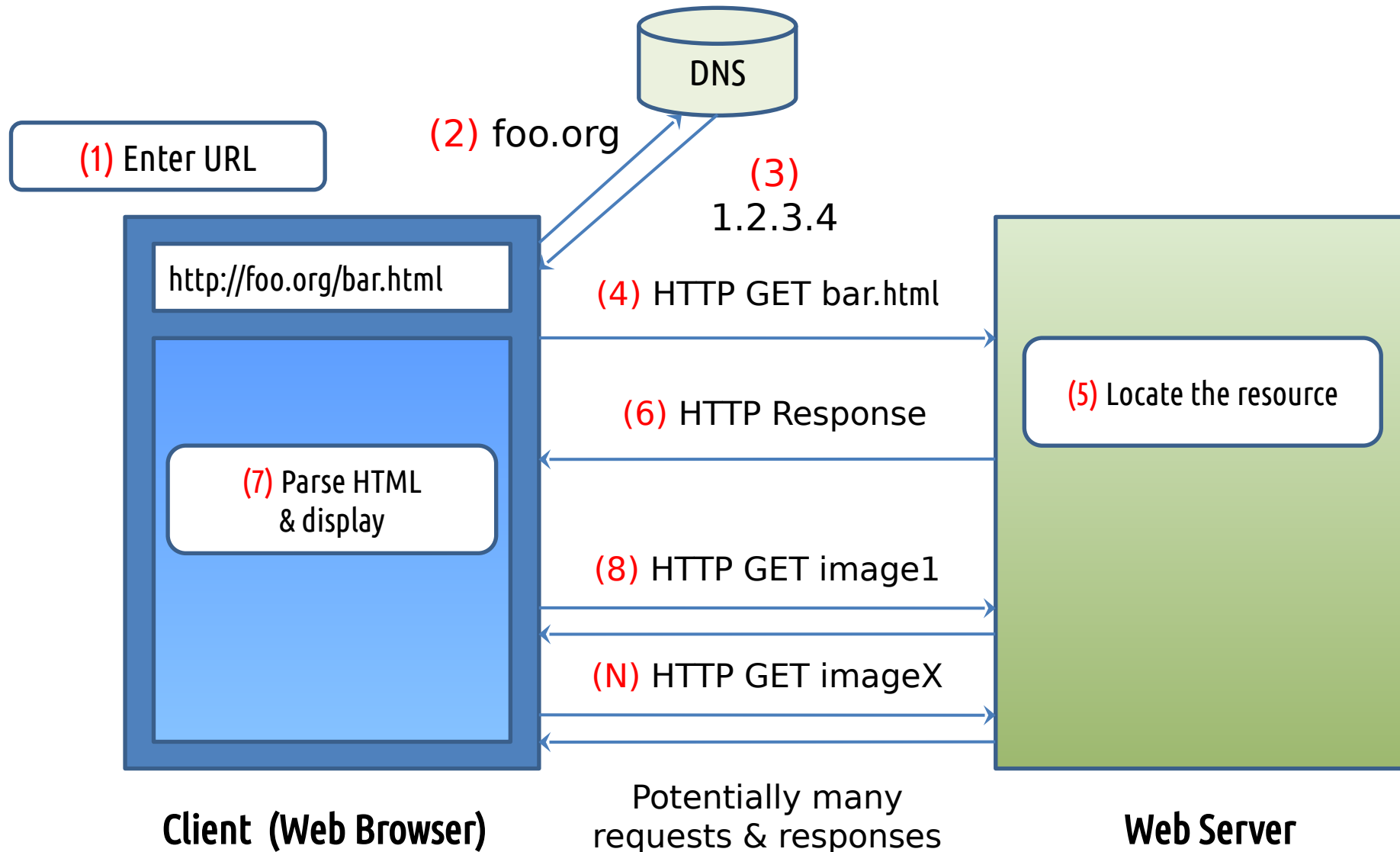
Filtrar las URL || 🔍 ⌂ Desactivar caché Sin limi... ⚙

Todos HTML CSS JS XHR Tipografía Imágenes Medios WS Otros

Es...	M...	Dominio	Archivo	Inici...	Tipo	Transferido
200	GET	heapanalyti...	h?a=1810020855&u=60036713...	hea...	gif	299 B
200	GET	heapanalyti...	h?a=1810020855&u=60036713...	hea...	gif	299 B
200	P...	www.fa...	/tr/	fbev...	plain	3,85 KB
200	P...	www.fa...	/tr/	fbev...	plain	3,66 KB
200	GET	heapanalyti...	h?a=1810020855&u=60036713...	hea...	gif	299 B
200	GET	www.ironh...	Favicon.ico	Favi...	x-i...	cacheado
200	GET	www.ironh...	Favicon.ico	Favi...	x-i...	cacheado

7 solicitudes 29,57 KB / 8,39 KB transferido Finalizado: 16,01 s

# Example: Web Page Request



# Hypertext Transfer Protocol (HTTP)

Protocol that runs over TCP/IP and governs communication between web browsers and web servers

## Client Request

GET / HTTP/1.1

Host: www.unavarra.es

## Server Response

HTTP/1.1 200 OK

Content-Length: 6018

Content-Type: text/html

Content-Location: http://www.unavarra.es/

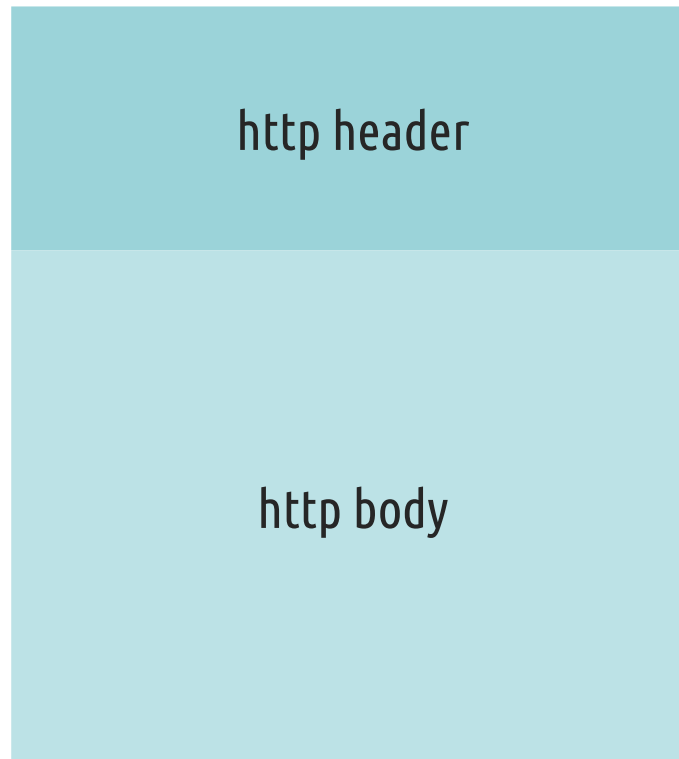
Last-Modified: Mon, 05 Jul 2014 18:49:40 GMT

Server: nginx

# HTTP Request & Response

Contain two parts in request and response

- http header
- http body



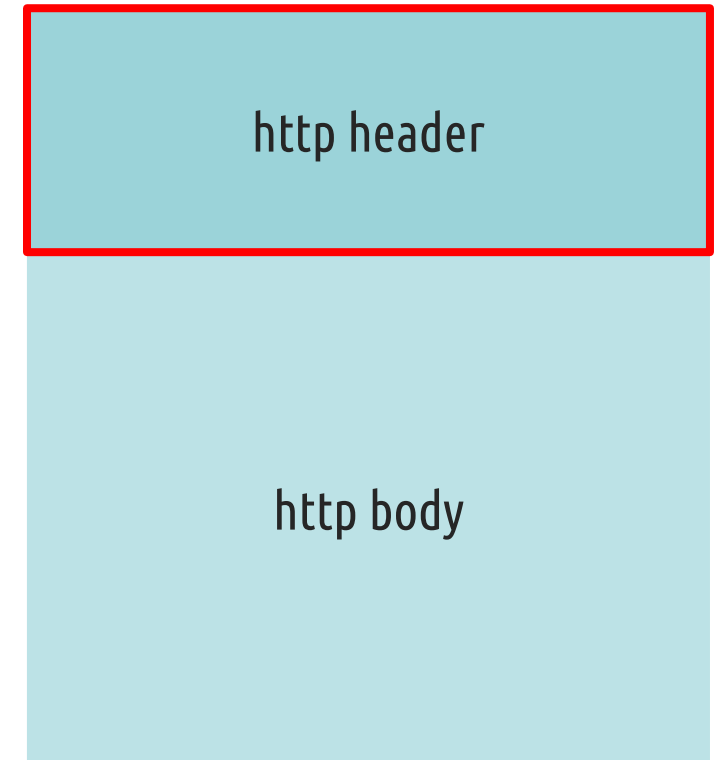
# HTTP Header

## Request fields

- Accept, Accept-Encoding, Accept-Language, Connection, Cookie, Host, Referer, User-Agent, and etc.

## Response fields

- Connection, Content-Type, Date, Server, and etc.





# Common HTTP Request Headers

- Accept: List of MIME types supported
- Accept-Language: List of languages read by the user
- Content-Length: Length in bytes of the request body
- Content-Type: MIME type of the request body
- Cookie: List of cookies stored by the client
- Host: Host name of the website
- User-Agent: Identification string for the web browser

# Example set of headers

- **Host:** en.wikipedia.org
- **User-Agent:** Mozilla/5.0 Firefox/64.0
- **Accept:** text/html,application/xhtml+xml,application/xml;q=0.9,/;q=0.8
- **Accept-Language:** en-GB,en-US;q=0.8,en;q=0.6,fr-FR;q=0.4,fr;q=0.2
- **Accept-Encoding:** gzip, deflate, br
- **Connection:** keep-alive
- **Cookie:** Auth=8QXA5fSQeZAEKZVG6iRjMWvQ8KtQKAaj

# HTTP Request Methods

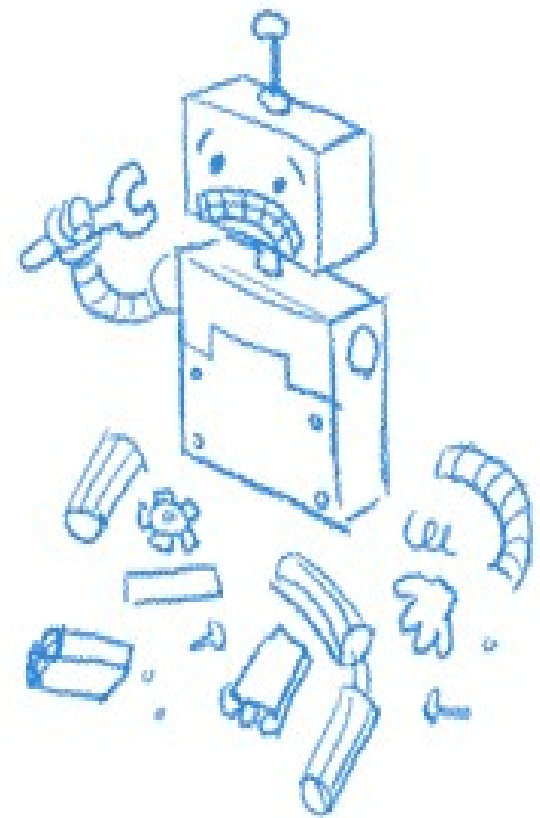
- GET: used to retrieve a resource. Has no request body.
- POST: used to submit a new resource (path) or send data. Usually has a body.
- HEAD: used to preview the result of a GET operation. Has no request body and no response body.
- PUT: used to submit an update to an existing resource
- DELETE: used to delete the specified resource
- TRACE: echoes the received request for tracing purposes
- OPTIONS: verify the server supports a specified request (see Preflight requests)
- CONNECT: used by HTTPS
- PATCH: allows partial modification of a resource

# HTTP status codes



**404.** That's an error.

The requested URL /asdasdasd was not found on this server. That's all we know.



# HTTP Status Codes

## 2xx Success:

- 200 OK, Standard response for successful HTTP requests.

## 3xx Redirection:

- 302 Found, An HTTP response with this status code will additionally provide a URL in the location header field.

## 4xx Client Error:

- 404 Not Found, 400 Bad Request, The server cannot or will not process the request due to an apparent client error

## 5xx Server Error:

- 503 Service Unavailable, 502 Bad Gateway, The server was acting as a gateway or proxy and received an invalid response from the upstream server

HTTP Status Codes	
<b>1xx</b>	<b>Informational</b>
100	Continue
<b>2xx</b>	<b>Successful</b>
200	OK
201	Created
202	Accepted
204	No Content
<b>3xx</b>	<b>Redirection</b>
301	Moved permanently
302	Found
304	Not Modified
308	Permanent Redirect
<b>4xx</b>	<b>Client Error</b>
400	Bad Request
401	Unauthorized
403	Forbidden
404	Not Found
405	Method Not Allowed
<b>5xx</b>	<b>Server Error</b>
500	Internal Server Error
502	Bad Gateway
503	Service Unavailable
504	Gateway Timeout




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 magic  
leap

 ROCKETINTERNET

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MANGO

Inspector Console Depurador >>

Buscar en HTML

```
<!DOCTYPE html>
<html data-react-helmet="lang" lang="es">
  <head>
    <body id="dummybodyid">
      <div class="cc-revoke cc-bottom cc-animate cc-color-override--2049367119" style="">Cookie Policy</div>
      <div class="cc-window cc-banner cc-type-opt-in cc-theme-classic cc-bottom cc-color-override--2049367119 cc-invisible" role="dialog" aria-live="polite" aria-label="cookieconsent" aria-describedby="cookieconsent:desc" style="display: none;">
        <noscript id="gatsby-noscript"></noscript>
        <div id="__gatsby"></div>
        <script id="gatsby-script-loader">
          /*! [CDATA[ */window.pagePath="/es";/*]]*/</script>
        <script id="gatsby-chunk-mapping"></script>
        <script src="/webpack-runtime-7cbe47a5925127898f3f.js" async"></script>
        <script src="/commons-4c2bfd7f82f51ed27457.js" async"></script>
        <script src="/component---src-template-home-index-tsx-4e3e16875c442ca376fc.js" async"></script>
        <script src="/app-076889b248be18e2846b.js" async"></script>
        <div id="diigo-video-capture" style="display: none;"></div>
        <div id="diigolet-notice" class="diigolet notice" style="display: none;"></div>
        <div id="diigolet-dlg-sticky" class="diigolet diigoletFN yellow" style="position: absolute; left: 100px; top: 100px; display: none;"></div>
        <div id="diigolet-csm" class="yellow" style="position: absolute; display: none;"></div>
      </body>
    </html>
```

html > body#dummybodyid

Filtrar estilos	Disposición	Calculado	Cambios	Tipografía
:hov .cls +	Filtrar estilos			Estilos de navegación
elemento en línea	box-sizing			
{	border-box			
}	font-family			
* {	"Roboto"			
box-sizing:	font-size			
border-box;	10px			
margin: 0px;	margin-bottom			
padding: 0px;	0px			
}	margin-left			
Heredado de html	0px			
html {	margin-right			
font-family:	0px			
"Roboto";	margin-top			
font-size: 10px;	0px			
}	padding-bottom			
	0px			
	padding-left			
	0px			

# HTML

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<meta content="IE=edge" http-equiv="X-UA-Compatible">
```

```
</head>
```

```
<body>
```

```
<h1>Hello World!</h1>
```

```
</body>
```

```
</html>
```

# CSS

- Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language like HTML.

```
<h1><font color="red"> Chapter 1. </font></h1>
```

```
<style>  
h1 {  
    color: red;  
}  
</style>
```

# Javascript

- JavaScript is high-level, often just-in-time compiled, and multi-paradigm. It has curly-bracket syntax, dynamic typing, prototype-based object-orientation, and first-class functions.

```
<html>
<body>

<h2>JavaScript in Body</h2>

<p id="demo">A Paragraph.</p>

<button type="button" onclick="myFunction()">Try it</button>

<script>
function myFunction() {
  document.getElementById("demo").innerHTML = "Paragraph changed.";
}
</script>

</body>
</html>
```

# Python and the web



# requests

```
import requests
```

```
response = requests.get("http://www.google.com")
```

```
if response.status_code == 200:
```

```
    print(response.content)
```

# HTTPError, ConnectionError

```
from requests.exceptions import HTTPError, ConnectionError
```

```
try:
```

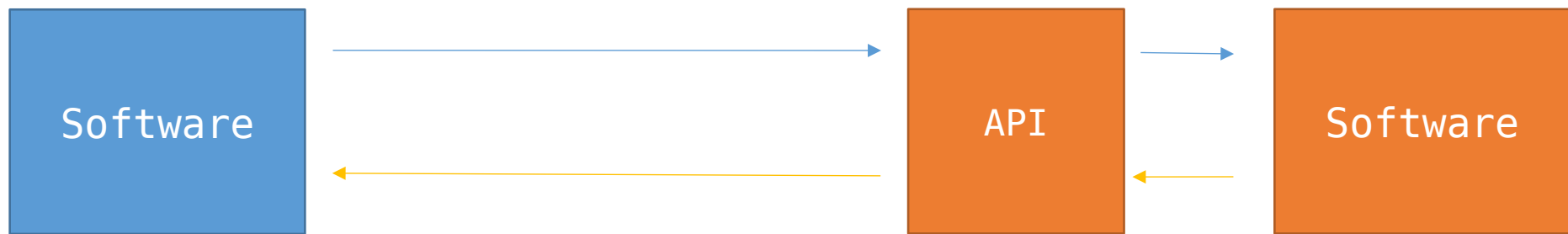
```
    response = requests.get("http://www.google.kom/")
```

```
except(HTTPError, ConnectionError) as err:
```

```
    print(err)
```

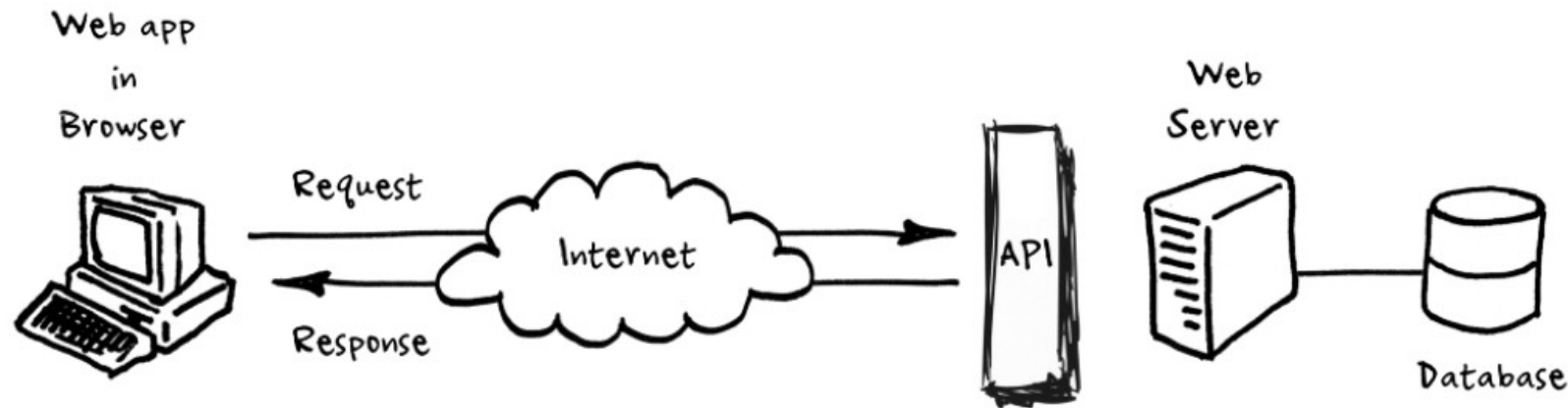
**API**

# ¿What is an API?



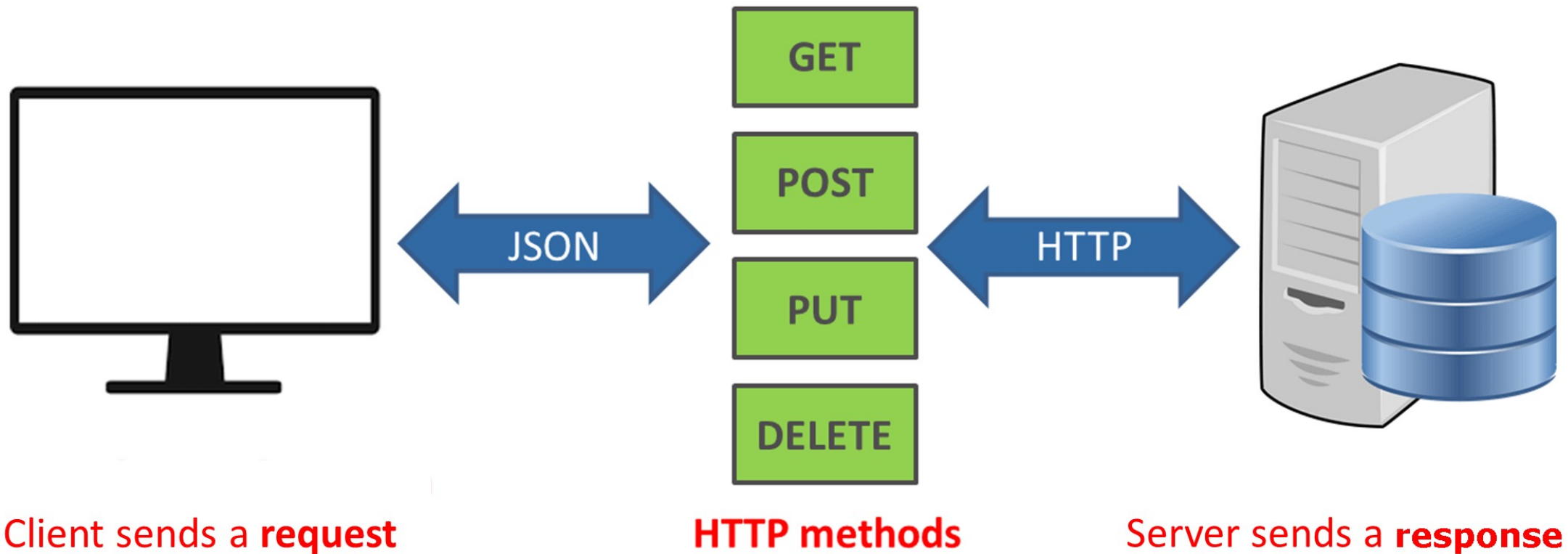
Application Programming Interfaz: A software interface for application communication

# ¿What is an API REST?



**REST architecture:** Representational State Transfer, a distributed architecture based on HTTP web services allowing the requesting systems to access and manipulate textual representations of web resources by using a uniform and predefined set of stateless operations.

# ¿What is an API REST?



# exchangerateapi.io

## <https://api.exchangeratesapi.io/latest>

### Foreign exchange rates API with currency conversion

Exchange rates API is a free service for current and historical foreign exchange rates  
published by the [European Central Bank](#)

```
GET https://api.exchangeratesapi.io/latest HTTP/1.1
```

```
{  
  "base": "EUR",  
  "date": "2018-04-08",  
  "rates": {  
    "CAD": 1.565,  
    "CHF": 1.1798,  
    "GBP": 0.87295,  
    "SEK": 10.2983,  
    "EUR": 1.092,  
    "USD": 1.2234,  
    ...  
  }  
}
```

# Example

```
import requests

def get_rates():

    api_url = 'https://api.exchangeratesapi.io/latest'

    response = requests.get(api_url)

    rates = response.json()

    return rates['rates']

def convert(cantidad, de='EUR', a='USD'):

    rates = get_rates()

    return rates['USD'] * cantidad

cantidad_en_euros = 100

cantidad_en_dolares = convert(cantidad_en_euros)

print('{} euros son {} dólares'.format(cantidad_en_euros, cantidad_en_dolares))
```





## MUNICIPIOS DESTACADOS

Estella-Lizarra		19°C	9°C	Pamplona		18°C	9°C
Roncal		18°C	4°C	Tudela		20°C	11°C

## PREVISIÓN NAVARRA

HOY

MAÑANA

Nuboso o cubierto en el norte y el oeste y poco nuboso en el cuadrante sureste, con lluvias de madrugada que serán poco probables en el extremo este, aumentando a cubierto durante las horas centrales, cuando se esperan lluvias y chubascos en el norte, y tendiendo a disminuir la nubosidad a intervalos por la tarde en el este y el sur, y a remitir las precipitaciones, pudiendo persistir de forma débil en el noroeste. No se descartan brumas y bancos de niebla matinales en los entornos de las sierras de Urbasa y Aralar y del Pirineo. Temperaturas mínimas con pocos cambios y máximas en aumento. Viento débil del norte y noroeste, con algún intervalo algo más intenso en la Ribera baja durante las horas centrales.

# Weather API

- <https://www.el-tiempo.net/api>
- <https://www.el-tiempo.net/api/json/v2/provincias/09/municipios/08019>

# A Collective List Of APIs. Build Something.



 GRID

 LIST



AMAZON S3 API

API2CART

BEST BUY COMMERCE  
API