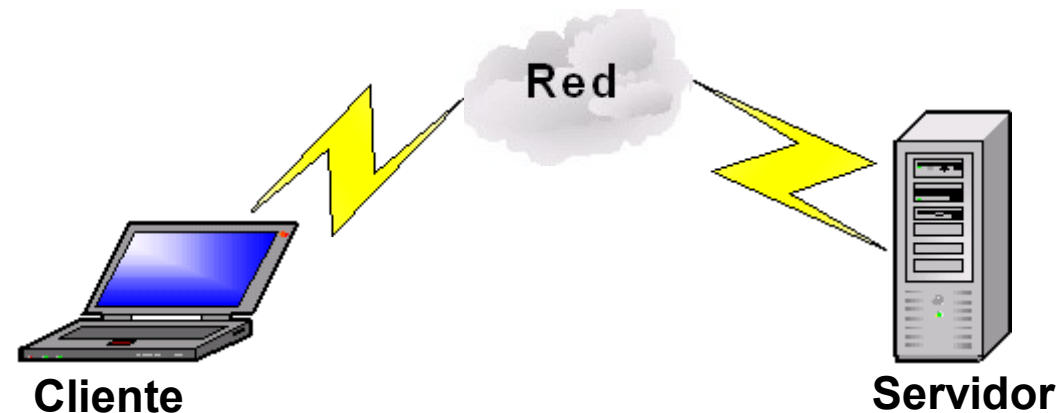


Internet y Web

- ¿Qué es Internet?
 - Internet es una red de redes
 - Se compone de miles de redes interconectadas
- ¿Cómo funciona Internet?
 - Esquema de cliente servidor

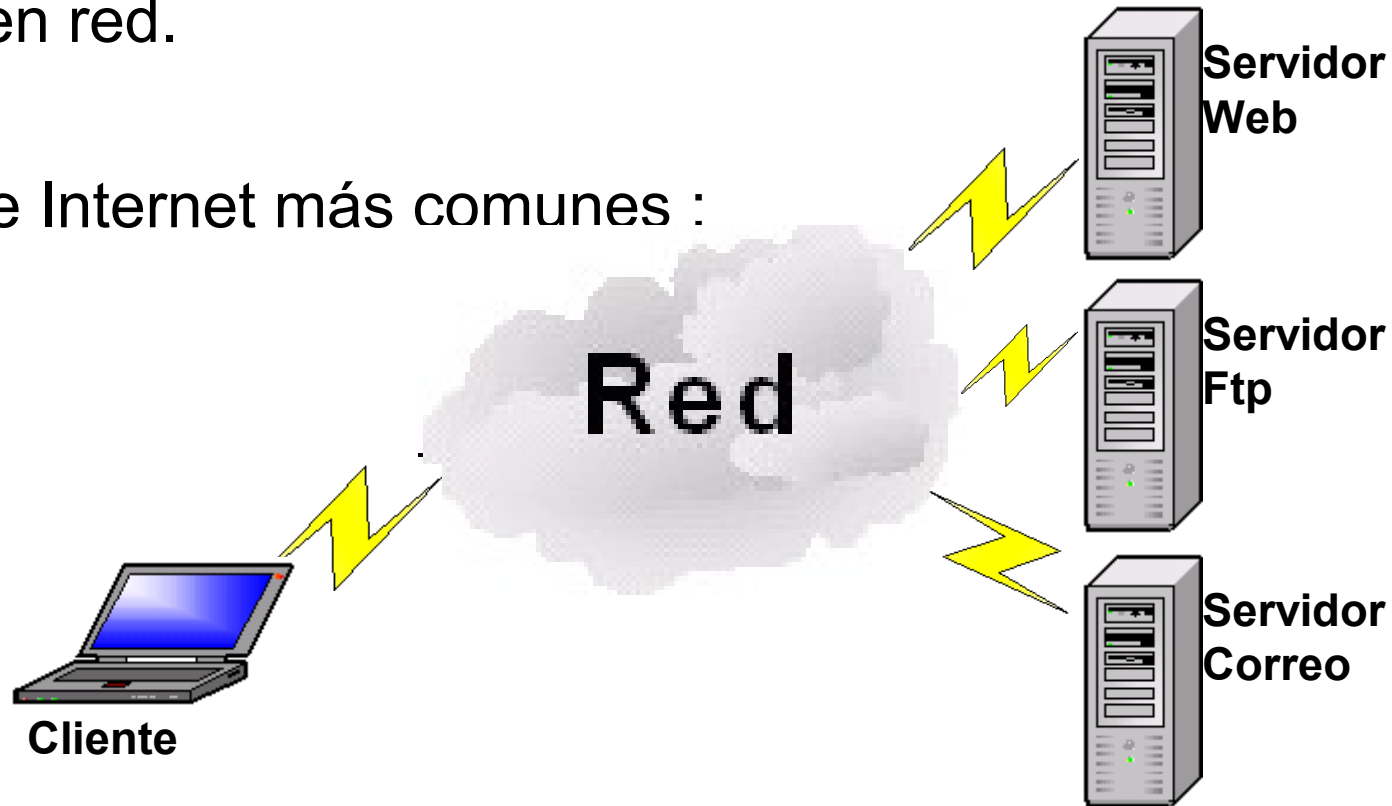


- Los protocolos son una serie de reglas estándares definidas para la comunicación y transferencia de información en red.

- Protocolos de Internet más comunes :

- TCP/IP

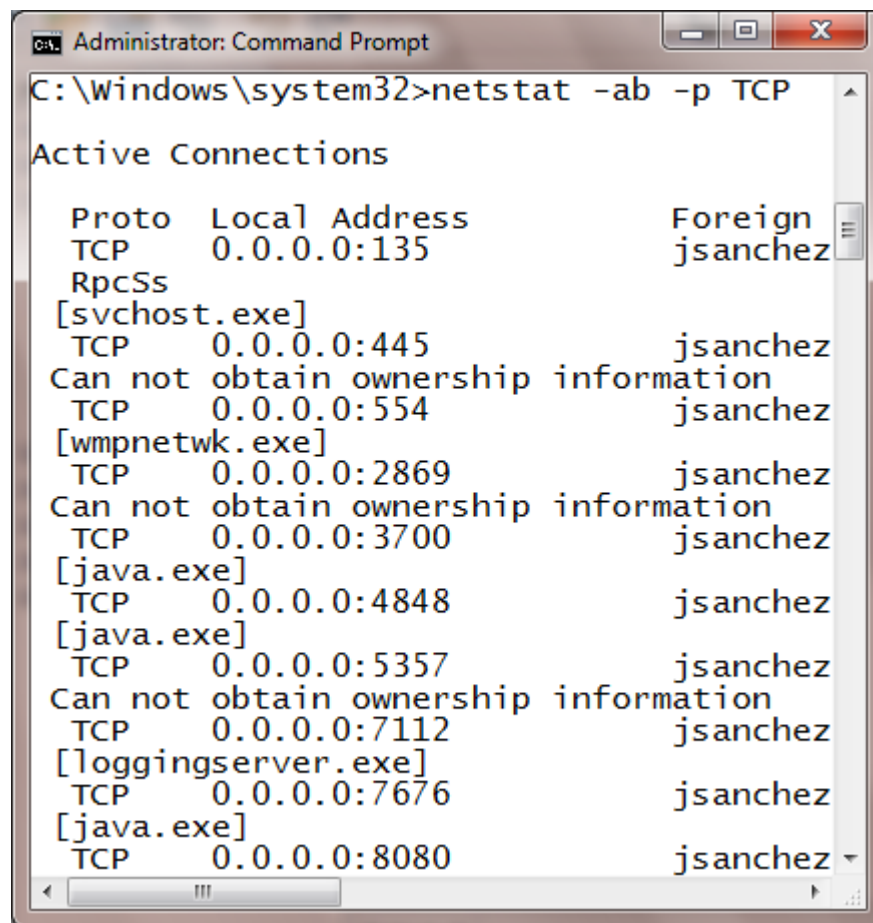
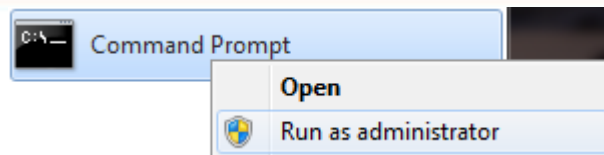
- HTTP
- FTP
- SMTP
- POP



Algunos protocolos y sus puertos default

4

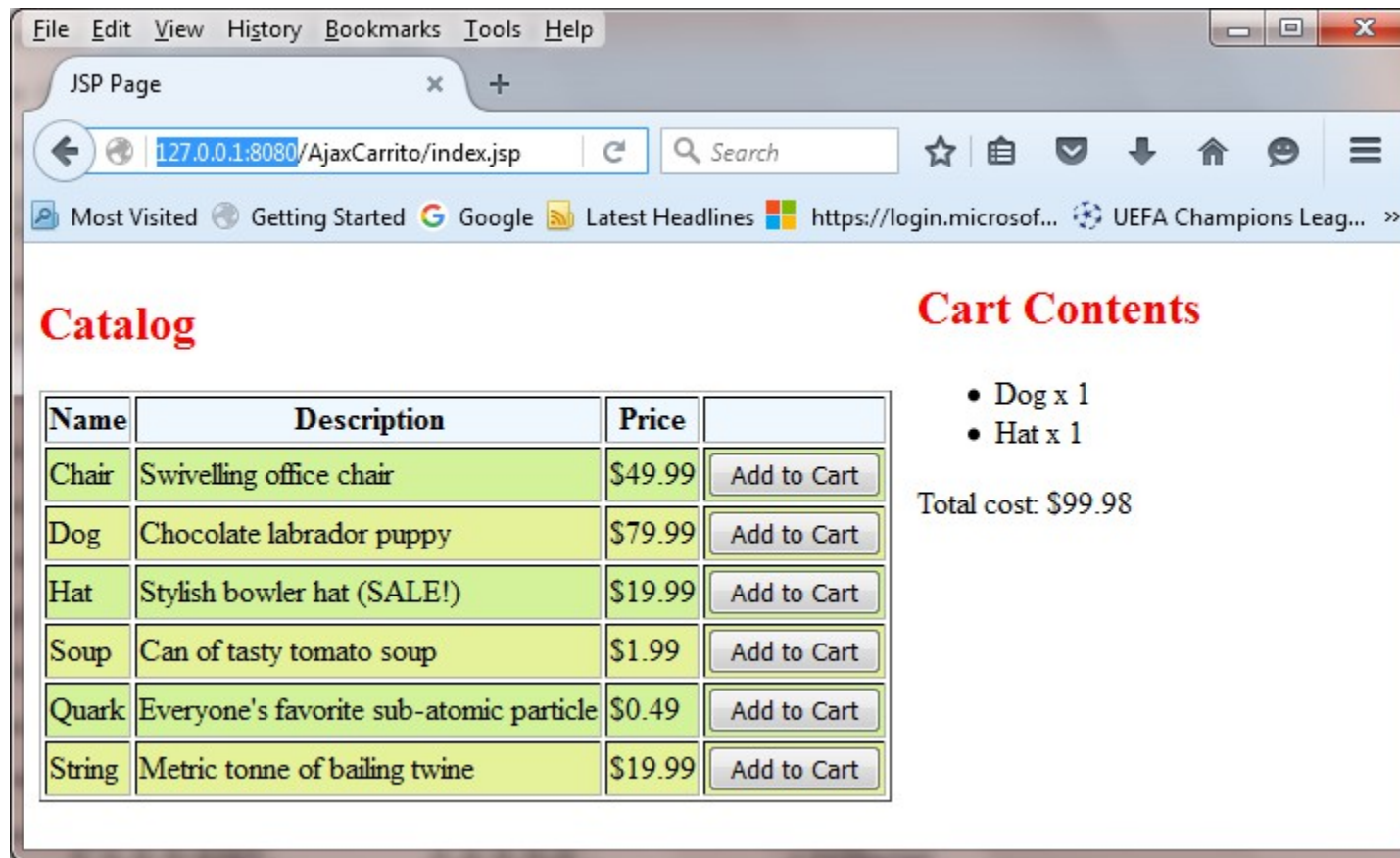
- ftp
- smtp
- http
- https
- sqlserver
- mysql
- tomcat



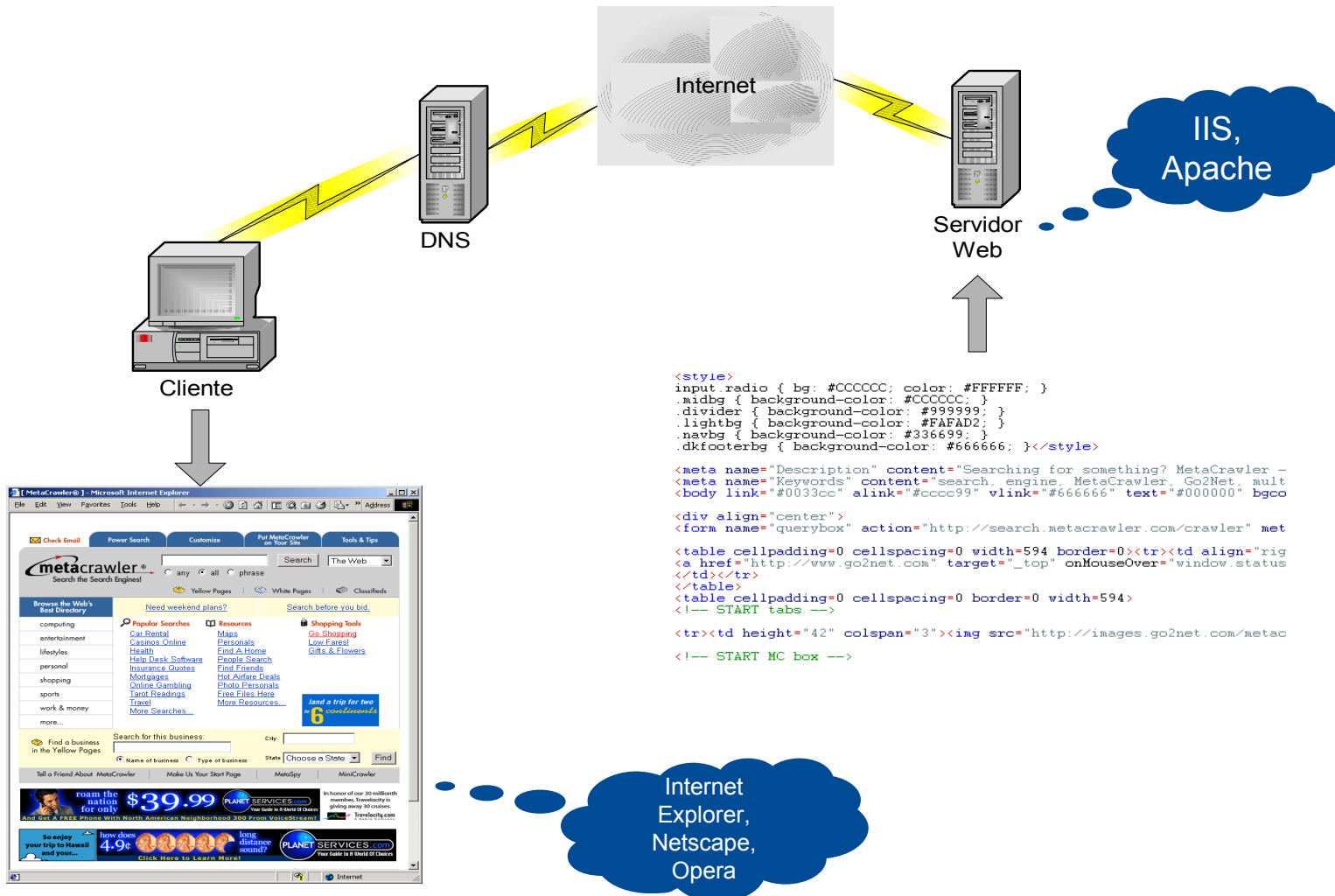
```
C:\Windows\system32>netstat -ab -p TCP

Active Connections

Proto Local Address           Foreign Address         [State]
TCP    0.0.0.0:135                jsanchez
RpcSs
[svchost.exe]
TCP    0.0.0.0:445                jsanchez
Can not obtain ownership information
TCP    0.0.0.0:554                jsanchez
[wmpnetwk.exe]
TCP    0.0.0.0:2869               jsanchez
Can not obtain ownership information
TCP    0.0.0.0:3700               jsanchez
[java.exe]
TCP    0.0.0.0:4848               jsanchez
[java.exe]
TCP    0.0.0.0:5357               jsanchez
Can not obtain ownership information
TCP    0.0.0.0:7112               jsanchez
[loggingserver.exe]
TCP    0.0.0.0:7676               jsanchez
[java.exe]
TCP    0.0.0.0:8080               jsanchez
```



- HTTP: HyperText Transfer Protocol o Protocolo para la Transferencia de HiperTexto
- HTTP es el conjunto de reglas para la transmisión y recepción de documentos hipertexto. Es usado por la WWW desde 1990 y es el protocolo responsable del entendimiento universal de las páginas de la WWW escritas en HTML.
- Una de las principales debilidades del HTTP (y de Internet en general) es que carece de facilidades de seguridad para la información transmitida.
- Como respuesta a esto, han surgido varias soluciones particulares, en especial el HTTP Seguro (Secure HTTP en inglés o S-HTTP), el cual goza de bastante popularidad.



- La Word Wide Web ¿Qué es y para qué sirve?
 - Conjunto de páginas almacenadas en equipos conectados a la Internet
 - Los usuarios de la red pueden acceder a ellas

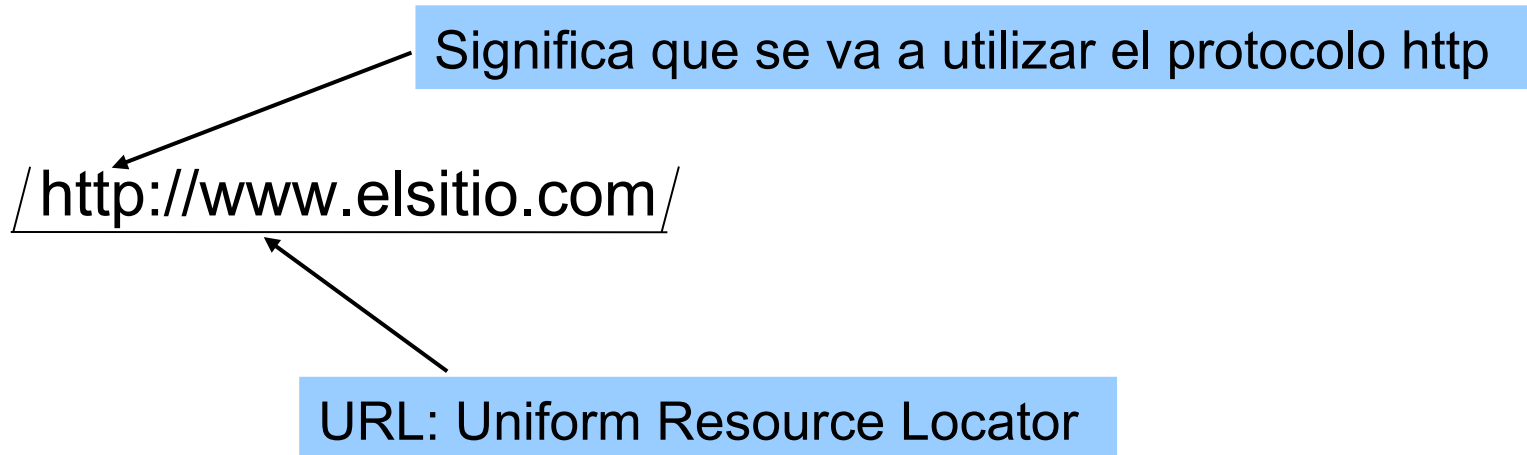
• Protocolo HTTP

- HypertText Transfer Protocol (Protocolo para la transferencia de hipertexto)
- Uno de los protocolos utilizados en la Internet
- Vital para el funcionamiento de la WWW

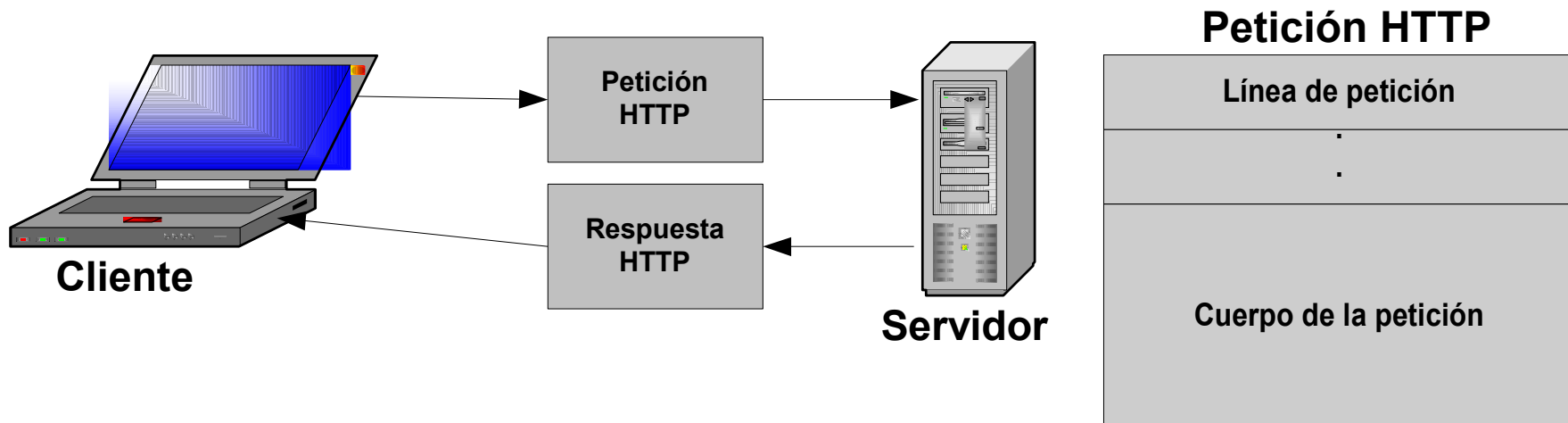
HTML

- **H**yper**T**ext **M**arkup **L**anguage (Lenguaje de marcado para hipertexto)
- Lenguaje utilizado para la construcción de hiperdocumentos

- El protocolo HTTP
 - El protocolo http es el que se utiliza para transferir información de computadora a computadora en la World Wide Web
 - Es un protocolo estándar

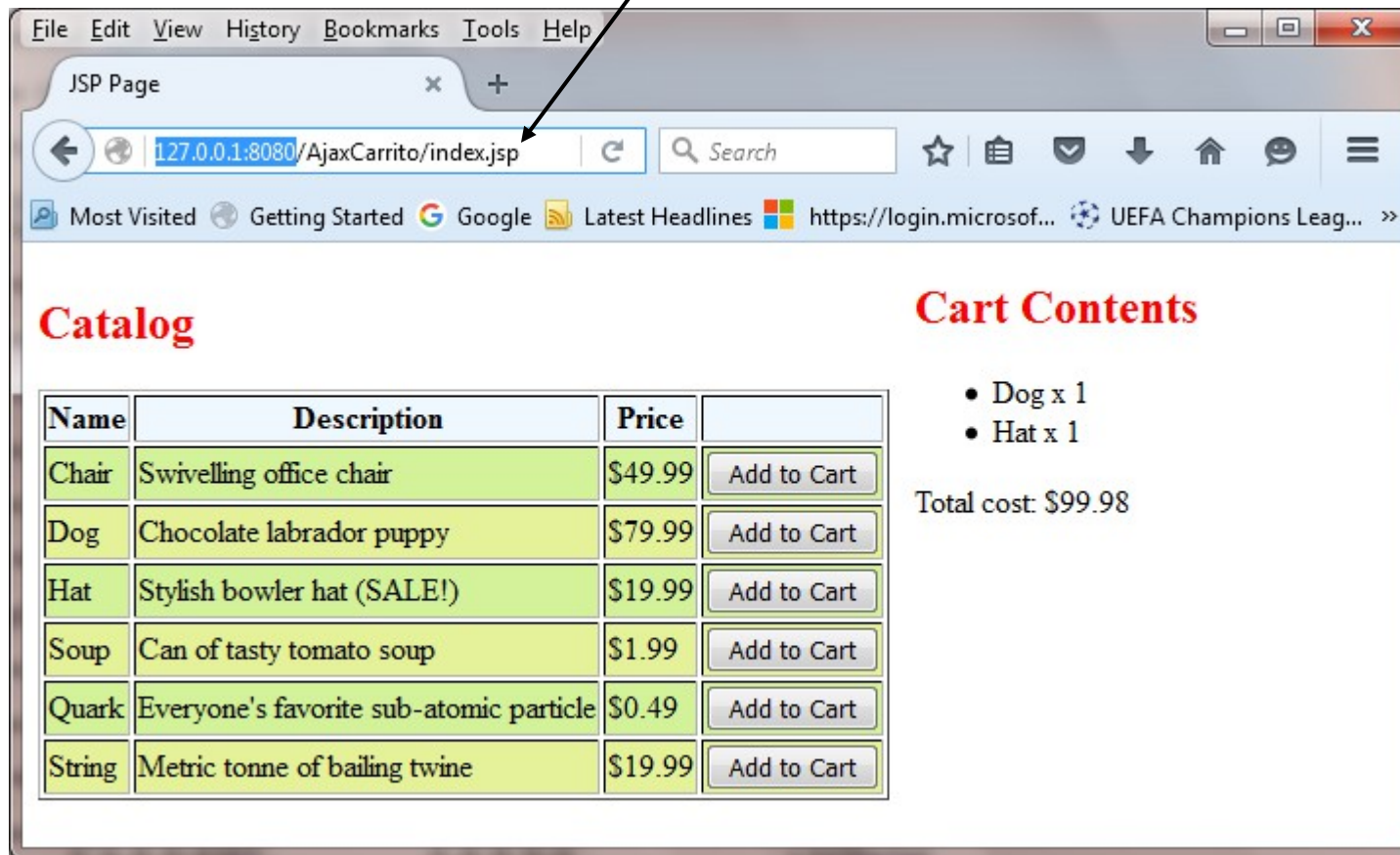


- Conexión HTTP (vista macro)
- El Cliente usualmente es un browser
- Podría ser cualquier otro programa que “entienda” el protocolo HTTP
- La respuesta HTTP usualmente incluye un documento HTML, pero podría ser otra cosa (imagen, video, etc.)



- HTTP es un protocolo de texto. Las peticiones, y los datos que las acompañan, se escriben en texto, no en binario, usando verbos HTTP.
- Los dos principales verbos de HTTP son el GET y el POST
- GET: manda a pedir un documento http, indicando su url.
- POST: manda a guardar unos datos, indicando el url de quien los recibirá y los datos en el formato `campo=valor&campo=valor...`

Get



The screenshot shows a web browser window with the address bar displaying `127.0.0.1:8080/AjaxCarrito/index.jsp`. An arrow labeled "Get" points to the address bar. The browser's menu bar includes File, Edit, View, History, Bookmarks, Tools, and Help. The page content is divided into two main sections: "Catalog" and "Cart Contents".

Catalog

Name	Description	Price	
Chair	Swivelling office chair	\$49.99	<input type="button" value="Add to Cart"/>
Dog	Chocolate labrador puppy	\$79.99	<input type="button" value="Add to Cart"/>
Hat	Stylish bowler hat (SALE!)	\$19.99	<input type="button" value="Add to Cart"/>
Soup	Can of tasty tomato soup	\$1.99	<input type="button" value="Add to Cart"/>
Quark	Everyone's favorite sub-atomic particle	\$0.49	<input type="button" value="Add to Cart"/>
String	Metric tonne of bailing twine	\$19.99	<input type="button" value="Add to Cart"/>

Cart Contents

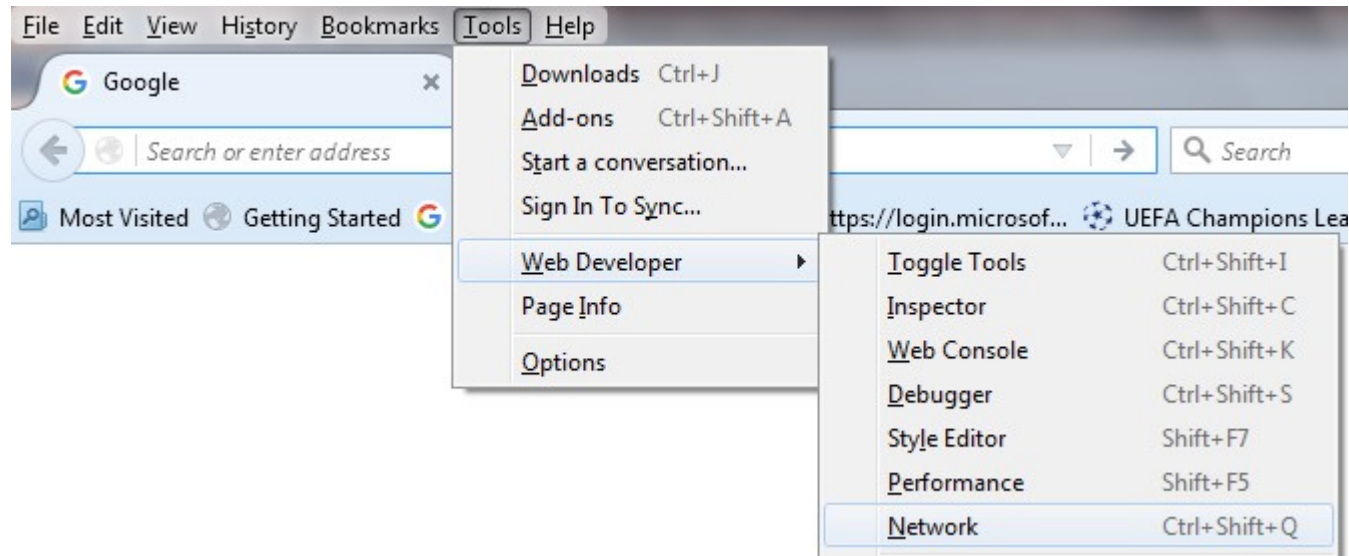
- Dog x 1
- Hat x 1

Total cost: \$99.98

```
Command Prompt
GET /AjaxCarrito/index.jsp HTTP/1.0

HTTP/1.1 200 OK
Server: GlassFish Server Open Source Edition 4.1
X-Powered-By: JSP/2.3
Set-Cookie: JSESSIONID=0c040e55536b52485bd57bb3bb82; Path=/AjaxCarrito; HttpOnly
Content-Type: text/html; charset=UTF-8
Date: Wed, 27 Jan 2016 01:43:49 GMT
Connection: close
Content-Length: 1652

<!DOCTYPE html>
    <html>
        <head>
            <meta http-equiv="Content-Type" content="text/html; charset=
>
            <script type="text/javascript" src="js/cart.js"></script>
            <script type="text/javasc
src="js/ajax1.js"></script>
            <link rel="stylesheet" href="css/cart.css" type="text/css">
        </head>
        <body>
            <div style="float: left; width: 500px">
                <h2>Catalog</h2>
                <ta
rder="1">
                <thead><th>Name</th><th>Description</th><th>Price</th><th></th></thead>
                <tbody>
```



The screenshot shows a web browser window displaying the SimpleWeb homepage. The browser's address bar shows the URL `www.simpleweb.org`. The page content includes a large "SimpleWeb" logo, a navigation menu with links to Home, Wiki, MIBs, and RFCs, and a welcome message. The developer tools are open, showing the Network tab. The network log displays a list of 18 requests, all of which are GET requests. The selected request is the first one, which is the main page request. The request details panel on the right shows the request URL, method, remote address, status code, and version. The response headers section is expanded, showing various headers like Accept-Ranges, Connection, Content-Type, Date, Keep-Alive, Server, and Transfer-Encoding. The request headers section is also expanded, showing Host, User-Agent, and Accept headers.

SimpleWeb

Home
Wiki
MIBs
RFCs

Welcome to the SimpleWeb

This server, called the "SimpleWeb", provides links and information on network management, including software, RFCs and tutorials. The focus is on SNMP and Internet management, but people interested in other management technologies will also find interesting information.

Inspector Console Debugger Style Editor Performance Network Headers Cookies Params Response Timeline

✓	Method	File	Domain	Type
200	GET	/	www.simplewe...	html
200	GET	simple.css	www.simplewe...	css
200	GET	sdmenu.css	www.simplewe...	css
200	GET	sdmenu.js	www.simplewe...	x-js
200	GET	bg_left_top.jpg	www.simplewe...	jpeg
200	GET	bg_right_top.jpg	www.simplewe...	jpeg
200	GET	simpleWeb.png	www.simplewe...	png
200	GET	bg_top.jpg	www.simplewe...	jpeg
200	GET	bg_left.jpg	www.simplewe...	jpeg
200	GET	back2.jpg	www.simplewe...	jpeg
200	GET	bg_right.jpg	www.simplewe...	jpeg
200	GET	collapsed.gif	www.simplewe...	gif
200	GET	flamingo-logo.jpeg	www.simplewe...	jpeg
200	GET	ifip-logo.gif	www.simplewe...	gif
200	GET	simple-logo.gif	www.simplewe...	gif
200	GET	bg_left_bottom.jpg	www.simplewe...	jpeg

Request URL: `http://www.simpleweb.org/`
Request method: GET
Remote address: 130.89.10.12:80
Status code: 200 OK
Version: HTTP/1.1

Filter headers

Response headers (0.219 KB)

- Accept-Ranges: "bytes"
- Connection: "Keep-Alive"
- Content-Type: "text/html"
- Date: "Mon, 01 Feb 2016 17:08:54 GMT"
- Keep-Alive: "timeout=15, max=100"
- Server: "Apache/2.2.17 (Linux/SUSE)"
- Transfer-Encoding: "chunked"

Request headers (0.284 KB)

- Host: "www.simpleweb.org"
- User-Agent: "Mozilla/5.0 (Windows ...20100101 Firefox/44.0)"
- Accept: "text/html,application/xhtml+xml;q=0.9,*/*;q=0.8"

All HTML CSS JS XHR Fonts Images Media Flash Other 18 requests, 94.38 KB, 0.78 s Clear

The screenshot shows a web browser window titled "The Simpleweb - Homepage" with the address bar displaying "www.simpleweb.org". The page content features a large yellow banner with the text "SimpleWeb" in a bold, red, stylized font. Below the banner, the page content is partially visible, showing a table structure with various images and text.

The browser's developer tools are open, displaying the Network tab. The list of requests shows 18 requests, with the first request (200 GET /) selected. The response for this request is displayed in the right pane, showing the HTML document structure. The response is an HTML document with a public DTD, a title "The Simpleweb - Homepage", and a body containing a table with a collapsed state. The table has a header row and a body row, with the body row containing a table with a collapsed state. The table has a header row and a body row, with the body row containing a table with a collapsed state.

The response content is as follows:

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<meta name="description" content="Lots of Network Management Information" />
<meta name="keywords" content="SimpleWeb, simpleweb, homepage, network" />
<meta name="author" content="University of Twente" />
<link rel="stylesheet" href="/html-support/style/simple.css" />
<link rel="stylesheet" type="text/css" href="/html-support/style/simple.css" />
<script type="text/javascript" src="/html-support/sdmenu/sdmenu.js"></script>
</head>
<body>
<table class="externalLayout">
<tr>
<td></td>
<td class="externalBorderTop" height="10px"></td>
<td></td>
</tr>
<tr>
<td class="externalBorderLeft" rowspan="2"></td>
<td>
<table class="topBanner">
<tr>
<td width="160px">&nbsp;</td>
<td align="center">

</td>
</tr>
</table>
</td>
<td></td>
</tr>
</table>
</body>
</html>
```

The bottom of the developer tools shows a summary of the network activity: 18 requests, 94.38 KB, 0.78 s. The status bar also includes a "Clear" button.

The screenshot shows a web browser displaying the SimpleWeb homepage. The browser's address bar shows `www.simpleweb.org`. The page has a yellow header with the "SimpleWeb" logo and a navigation menu with links to Home, Wiki, and MIBs. The main content area says "Welcome to the SimpleWeb" and provides a brief description of the server.

The Chrome DevTools Network panel is open, showing a list of requests. The selected request is for `simple.css`, a GET request to `http://www.simpleweb.org/html-support/style/simple.css`. The status code is 200 OK, and the version is HTTP/1.1. The response headers are visible, showing `Accept-Ranges: bytes`, `Content-Length: 5157`, and `Content-Type: text/css`.

The Response panel is also open, showing the CSS content of the selected request. The CSS includes a font-family definition and a BODY style block.

Method	File	Headers	Response
200 GET	/	Request URL: <code>http://www.simpleweb.org/html-support/style/simple.css</code> Request method: GET Status code: 200 OK Version: HTTP/1.1	
200 GET	simple.css	Filter headers Response headers (0 KB) Accept-Ranges: "bytes" Content-Length: "5157" Content-Type: "text/css"	<pre>1 BODY, TH, TD, P, LI A { 2 font-family : Verdana, Arial, Helvetica, sans-serif; 3 font-size: 12px; 4 } 5 6 BODY { 7 background-color: #707070; 8 margin-left: 0px; 9 margin-top: 0px; 10 margin-right: 0px; 11 margin-bottom: 0px;</pre>
200 GET	sdmenu.css		
200 GET	sdmenu.js		
200 GET	bg_left_top.jpg		
200 GET	bg_right_top.jpg		
200 GET	simpleWeb.png		
200 GET	bg_top.jpg		

The bottom of the image shows the Response panel for the selected request, displaying the CSS content. The CSS includes a font-family definition and a BODY style block.

The screenshot shows a web browser window with the address bar displaying `www.simpleweb.org`. The page content includes a large yellow banner with the text "SimpleWeb" and a "Welcome to the SimpleWeb" message. The Network Inspector is open, showing a list of requests in the left pane and the details of the selected request in the right pane.

Network Inspector - Requests List:

✓	Method	File
● 200	GET	/
○ 200	GET	simple.css
○ 200	GET	sdmenu.css
○ 200	GET	sdmenu.js
○ 200	GET	bg_left_top.jpg
○ 200	GET	bg_right_top.jpg
○ 200	GET	simpleWeb.png
○ 200	GET	bg_bottom.jpg

Network Inspector - Request Details (selected):

Request URL: `http://www.simpleweb.org/html-support/layout_images/simpleWeb.png`

Request method: GET

Status code: 200 OK

Version: HTTP/1.1

Response headers (0 KB):

- Accept-Ranges: "bytes"
- Content-Length: "36336"
- Content-Type: "image/png"

Network Inspector - Response Details (selected):

Name: simpleWeb.png

Dimensions: 323 × 96

MIME Type: image/png

Peticiones Http POST (a programa php)

20

The screenshot shows a web browser window displaying the SimpleWeb software page. The page has a yellow header with the 'SimpleWeb' logo. Below the logo, there are sections for 'Availability' (Freely available, Commercial), 'Platforms' (All platforms, Linux, MacOS), and 'Search terms' (Cacti). A sidebar on the left contains links for Home, Wiki, MIBs, and RFCs. The browser's address bar shows the URL 'www.simpleweb.org/software/'.

Below the browser window, a network inspector window is open, showing the 'Network' tab. It displays a list of requests:

✓	Method	File	Domain	Type	Transferred	Size	0 ms	10.24 s
● 200	GET	/software/	www.simplewe...	html	18.62 KB	18.62 KB	→ 982 ms	
○ 200	GET	simple.css	www.simplewe...	css	cached	5.04 KB		
○ 200	GET	sdmenu.css	www.simplewe...	css	cached	1.40 KB		

Below the network inspector, a 'Source' window is open, showing the 'Package name' 'Cacti' and the 'Description' 'RRD Front-end'. The 'Source' window also displays the 'Request URL' 'http://www.simpleweb.org/software/select_obj.php', the 'Request method' 'POST', and the 'Remote address' '130.89.10.12:80'.

- ¿Qué es un servidor web?

Equipo donde se encuentran almacenadas las páginas de un sitio web y que por medio del software apropiado permite que los usuarios puedan acceder a dichas páginas.



- Software para servidor web
 - Permite que un usuario pueda acceder a las páginas web que el servidor administra
 - Atiende las peticiones de los clientes
 - El cliente utiliza un *browser* para interactuar con él

- Sitio Web
 - Conjunto de páginas Web relacionadas
- Página Web
 - Documento que contiene código escrito en HTML
 - Documento que un browser puede interpretar y mostrar el resultado al usuario

- Contenido de un sitio web
 - Información que se le muestra al usuario
 - Puede ser estático o dinámico
- Funcionalidad de un sitio web
 - Lo que el usuario es capaz de hacer en el sitio

- Estáticas

- No cambian su contenido desde que el desarrollador las crea

- Dinámicas

- Cambian su contenido
- Se pueden adaptar a la situación particular de cada usuario

- Algunas tecnologías para desarrollar páginas dinámicas del lado del cliente son entre otras:
 - JavaScript
 - Css
 - Applets de java

- Algunas tecnologías para el desarrollo de páginas dinámicas del lado del servidor son entre otras:
 - Servlets
 - JSP
 - Frameworks (jsf, struts, Oracle ADF, etc.)
 - CGI
 - ASP

