



# Evolución de la Web

## El Origen

*Basado en apuntes del profesor Dr. José Emilio Labra,  
Universidad de Oviedo, España.*

**Richard Rodríguez Rivas**

Magister en Tecnologías de la Información

- Ingeniero Civil Informático



# Tecnologías Web

Primera Parte:

Evolución y fundamentos de la Web

Tecnologías XML

Tipos de representación: HTML, SVG, MathML, etc.

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# Fases

Prehistoria (1945-1990)

Nacimiento (1990-1995)

Crecimiento (1995-2000)

Consolidación (2000-2005)

Web 2.0 (2005-2010)

Web Social y en tiempo real (2010-?)

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# Prehistoria

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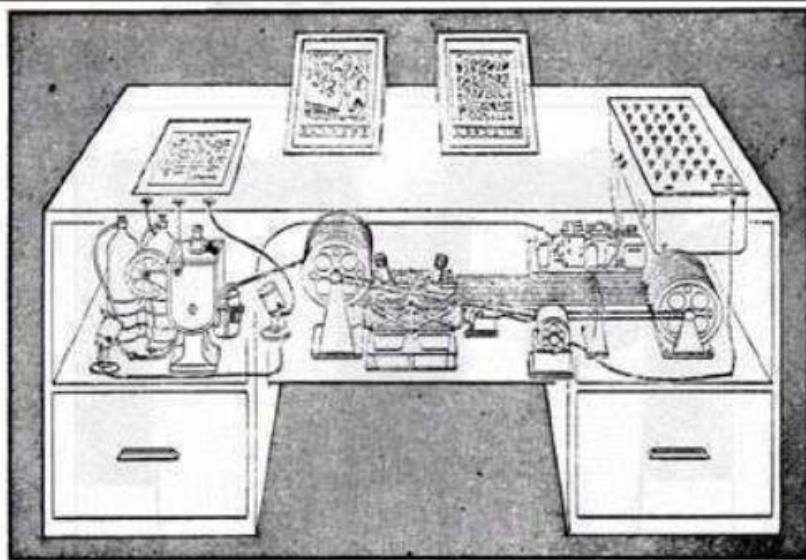
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# Vannevar Bush

Memex

## 1945 – Artículo: As we may think

Dispositivo llamado Memex para crear/seguir enlaces entre documentos y microfichas



Memex in the form of a desk would instantly bring files and material on any subject to the operator's fingertips. Slanting translucent viewing screens magnify supermicrofilm filed by code numbers. At left is a mechanism which automatically photographs longhand notes, pictures and letters, then files them in the desk for future reference (LIFE 19(11), p. 123).



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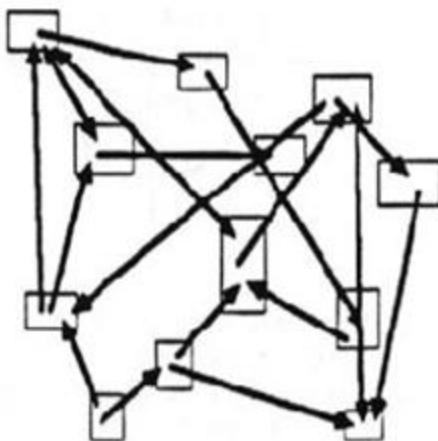
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# Ted Nelson

Xanadú  
Biblioteca online

1965, Ted Nelson: Hipertexto  
Proyecto Xanadú

## "ORDINARY" HYPERTEXT



Esquema de Hipertexto  
(Literary Machines, 1980)

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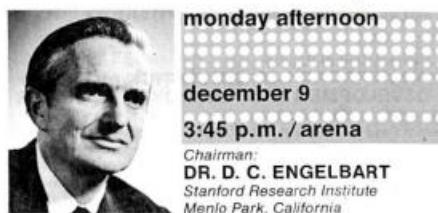
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*Primer Mouse  
Pionero Relación  
Hombre-Compuador*

# Douglas Englebart

1968 Sistema NLS (Online System), Stanford  
The Mother of All Demos

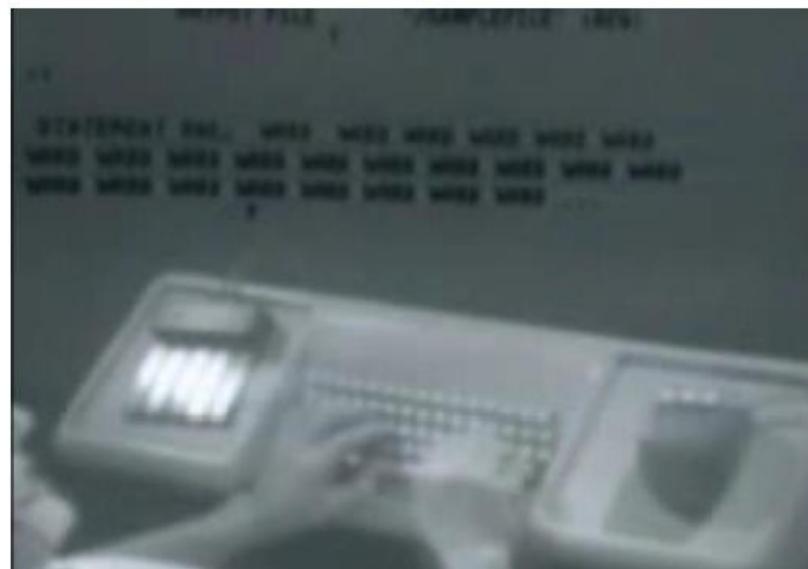
Primer sistema con ratón, texto interactivo, video-conferencia, tele-conferencia, email e hipertexto



a research center  
for augmenting human  
intellect

This session is entirely devoted to a presentation by Dr. Engelbart on a computer-based, interactive, multiconsole display system which is being developed at Stanford Research Institute under the sponsorship of ARPA, NASA and RADC. The system is being used as an experimental laboratory for investigating principles by which interactive computer aids can augment intellectual capability. The techniques which are being described will, themselves, be used to augment the presentation.

The session will use an on-line, closed circuit television hook-up to the SRI computing system in Menlo Park. Following the presentation remote terminals to the system, in operation, may be viewed during the remainder of the conference in a special room set aside for that purpose.



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# J.C. R. LickLider

1962 Visión de red global de ordenadores  
Red *intergaláctica*

Computación  
Interactiva



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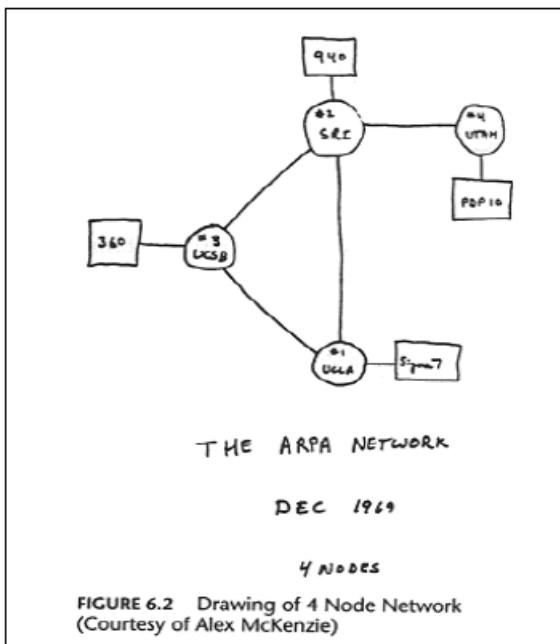
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ARPA

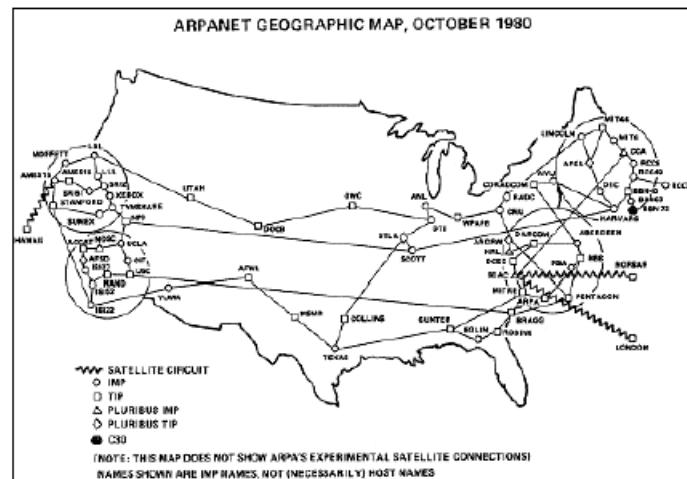
**PA** Advanced Research Projects Agency Network  
Departamento de Defensa de EEUU

1969

# Conexión de primeros nodos ARPANET: UCLA, SRI, UCSB, Utah



**FIGURE 6.2** Drawing of 4 Node Network  
(Courtesy of Alex McKenzie)

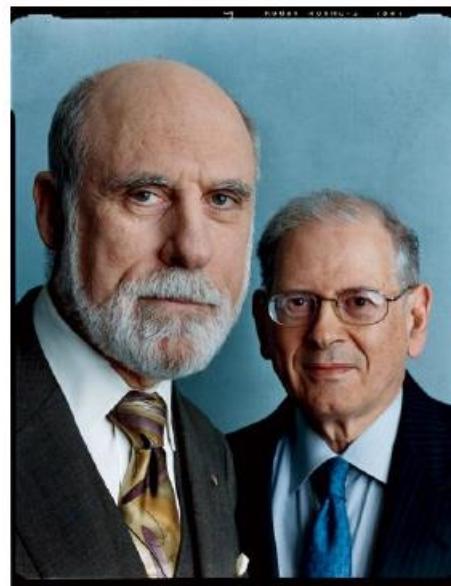


# Vinton Cerf, Robert Kahn

**Protocolos**  
TCP: Control  
IP: Dirección

1974 Protocolo TCP

1978 Se divide parte de TCP en IP  
TCP/IP



**TCP Vs UDP**

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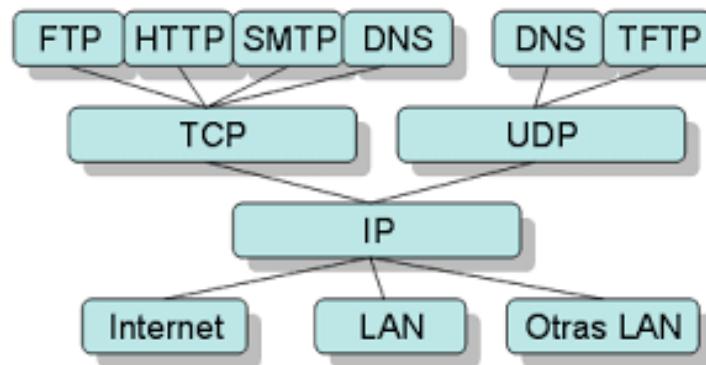
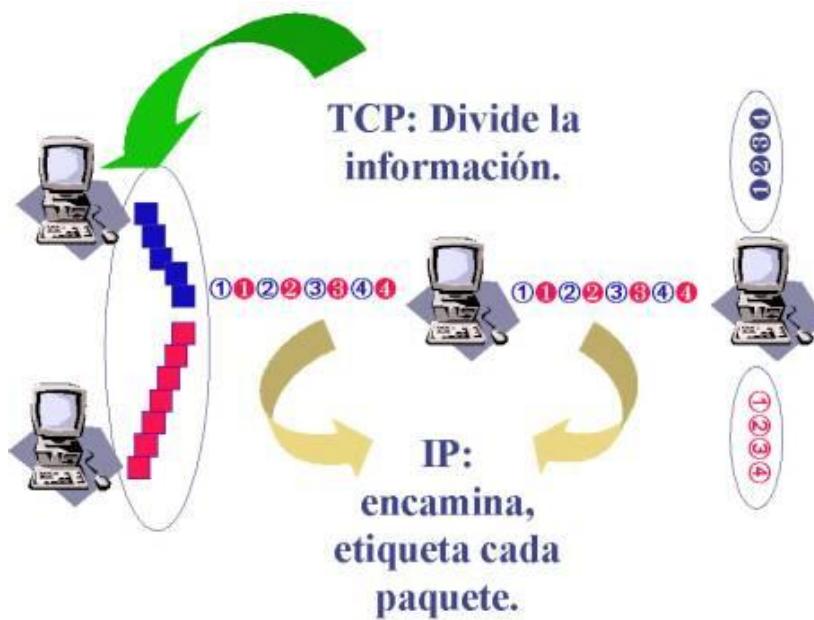
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# Protocolos

TCP: Control  
IP: Dirección



Autoría: Wikipedia 2015

## Guerreros de la Red

<https://www.youtube.com/watch?v=KXjupeVTQ30>

<https://www.youtube.com/watch?v=vBmeFGQ-JRM>

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# Paul Mockapetris

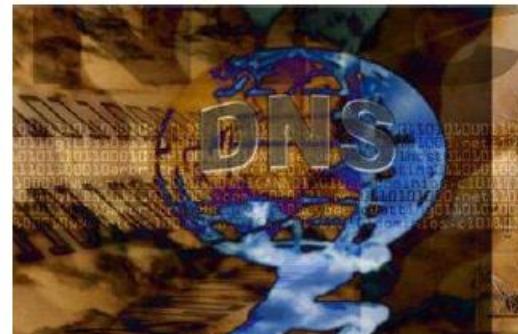
DNS  
Domain Name Server

1984 Introduce el sistema DNS

Facilita la utilización de nombres lógicos de dominio



Paul Mockapetris

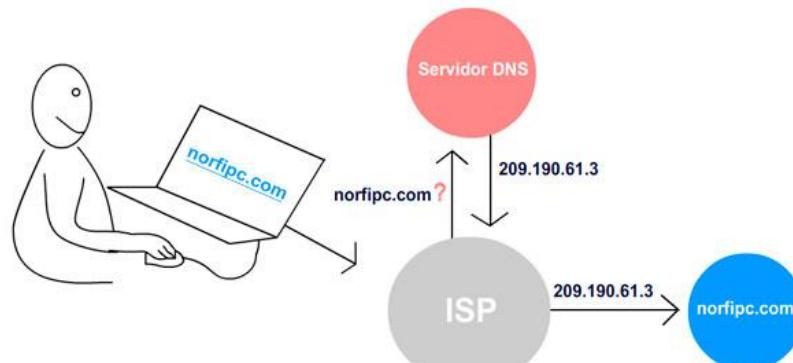


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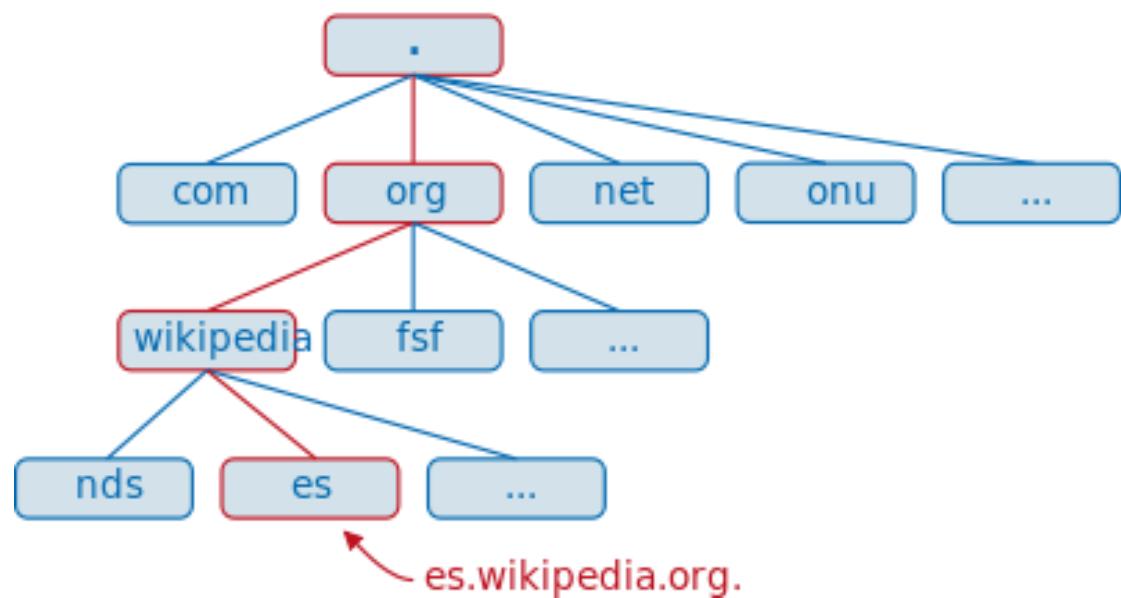
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# DNS Domain Name Server



Funcionamiento de los servidores DNS



Autoría: Wikipedia 2015

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# IETF

*RFC  
Estandares Web*

1986 IETF: Internet Engineering Task Force

Creación de estándares RFC de Internet

Relacionados con la Web: TCP/IP, URI, HTTP

Organización abierta formada por voluntarios

1992 Internet Society: Asociación Internacional

Incorpora IETF



I E T F®

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Scott Bradner,

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# IANA, ICANN

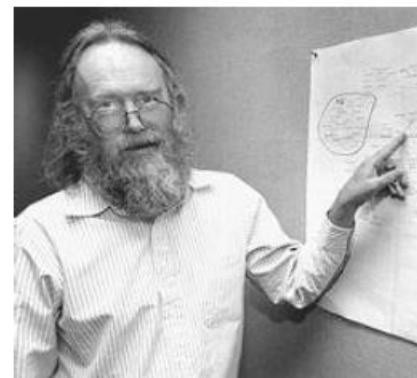
**Orden y Control**  
Dirección, Dominio Servidores Raíz  
Internacional

1988 IANA: Internet Assigned Names and Numbers Authority

Contrato entre Departamento de Defensa y el Information Sciences Institute (Univ. Southern California)

Gestión personal por John Postel

Desde 1998: ICANN: Internet Corp. For Assigned Names and Numbers



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# Nacimiento de la Web 1989 - 1995



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# Tim Berners-Lee

Cliente-Http-Servidor

1980 Primer periodo de TBL en el CERN

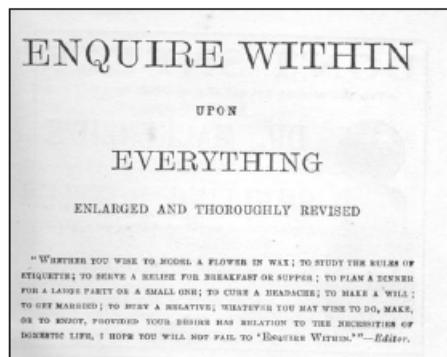
Implementa ENQUIRE (≈ directorio) en Pascal

1984 Vuelve al CERN

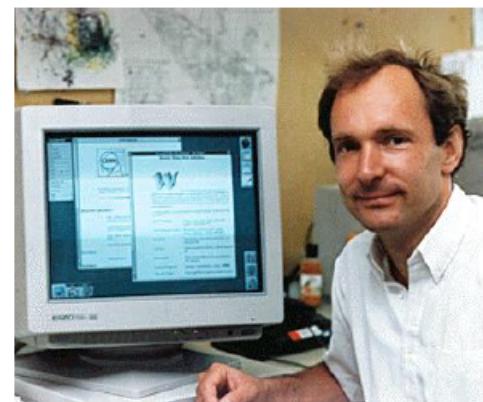
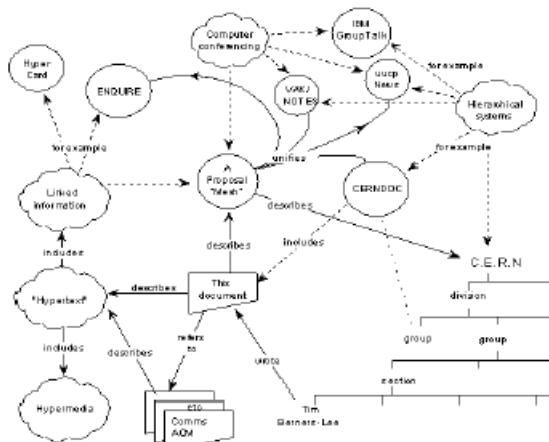
Implementa sistema RPC

1989 Propuesta: *Information Management: A proposal*

Mesh ≈ World wide web



Libro que inspira  
el sistema ENQUIRE



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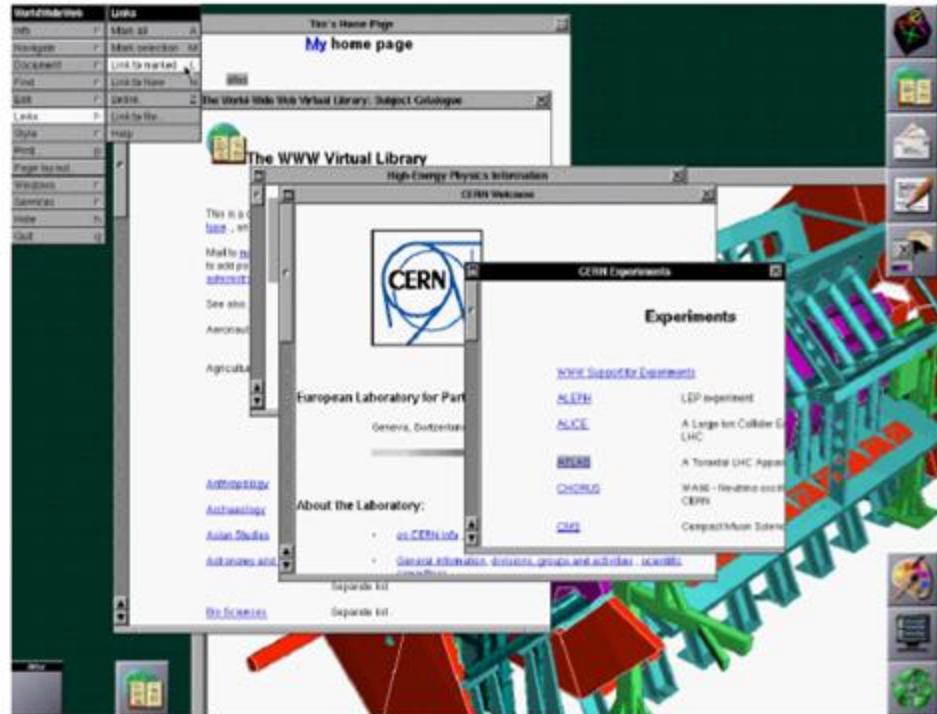
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# Primer navegador

1990 Implementado en NEXT



Pantalla capturada del primer navegador  
NOTA: Véase el botón "Edit"



Ordenador NeXT utilizado por Tim Berners-Lee

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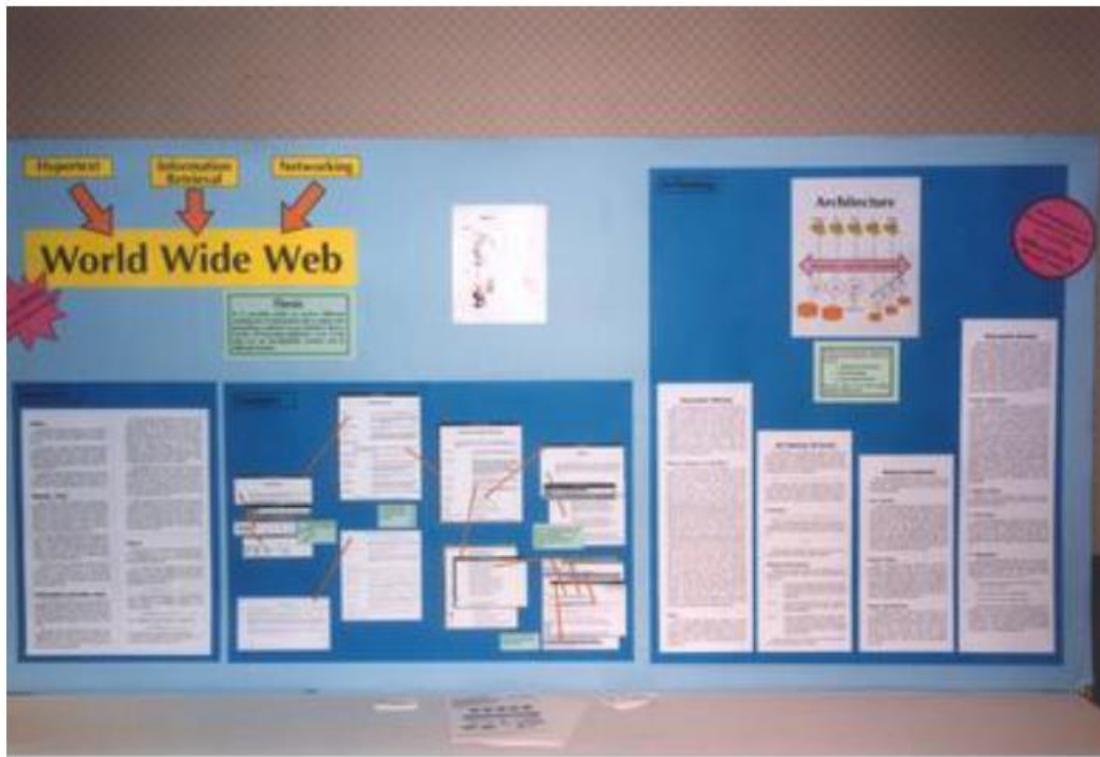
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# Presentación en sociedad...

Conferencia Hypertext 91. Presentación de Tim Berners-Lee



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# Primer servidor

Primer Website

<http://info.cern.ch/hypertext/WWW/TheProject.html>



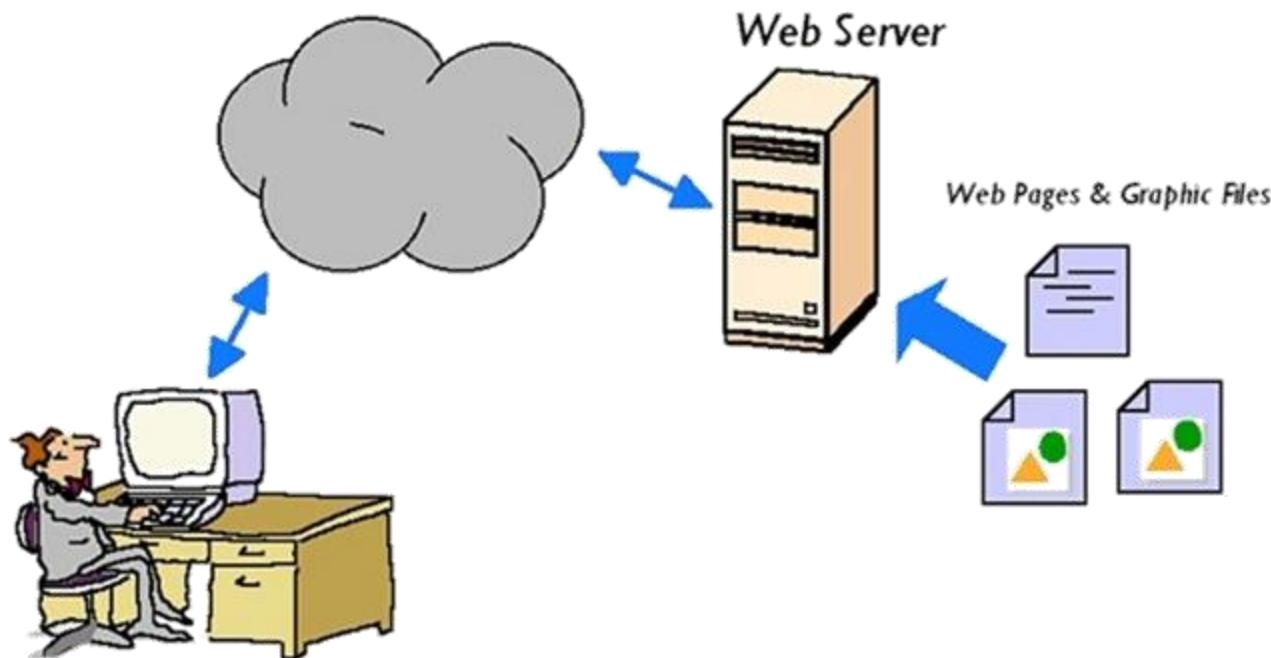
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# Primer Website



<http://www3.uji.es/~vrubert/mitja/>

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# Primer Navegador de texto

1991 Line-Mode Browser (Nicola Pellow)

Formaba parte de la librería libwww

CERN Welcome

CERN

The European Laboratory for Particle Physics, located near Geneva[1] in Switzerland[2] and France[3]. Also the birthplace of the World-Wide Web[4].

This is the CERN laboratory main server. The support team provides a set of Services[5] to the physics experiments and the lab. For questions and suggestions, see WWW Support Contacts[6] at CERN

About the Laboratory[7] - Hot News[8] - Activities[9] - About Physics[10] - Other Subjects[11] - Search[12]

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About the Laboratory

Help[13] and General information[14], divisions, groups and activities[15] (structure), Scientific committees[16]

Directories[17] (phone & email, services & people), Scientific Information Service[18] (library, archives or Alice), Preprint[19] Server

1-45, Back, Up, <RETURN> for more, Quit, or Help: ■

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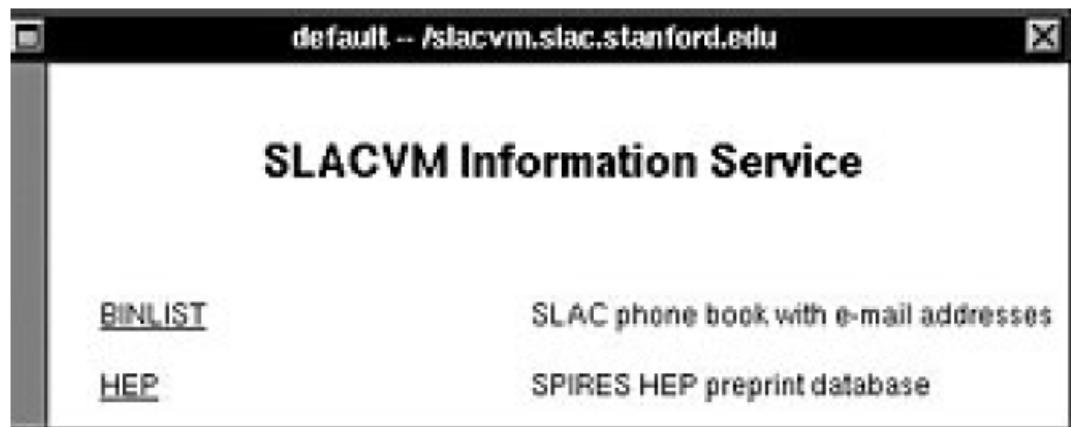
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# La Web cruza el charco

1992 Primer servidor web en USA

Instalado en Stanford University por Paul Kunz

*Primer Servidor Web*



Paul Kunz

Consistía en una base de datos de información sobre física y un listín telefónico y de emails para el Stanford Linear Accelerator Center (SLAC)

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# Nuevos navegadores

Más Navegadores Gráficos

1993

Erwise

ViolaWWW

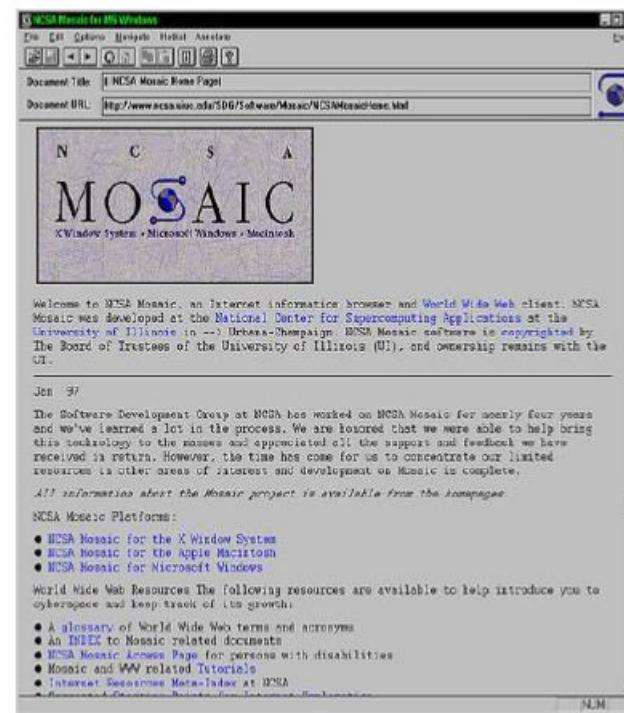
NCSA Mosaic, X-Windows



Erwise



ViolaWWW



Mosaic

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# Mosaic Communications

1994 Marc Andreessen deja NCSA para formar Mosaic Communications Corp.



Con el tiempo Mosaic se convertirá en Netscape



Marc Andreessen

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# Crecimiento de la Web 1995-2000

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# Nace el consorcio W3c

Finales de 1994 se crea el Consorcio W3c

Se establece entre el CERN y el MIT

Tim Berners-Lee se traslada al MIT

World Wide Web Consortium  
Estándares + Protocolos → Interoperabilidad

The screenshot shows the W3C homepage in Mozilla Firefox. The title bar reads "World Wide Web Consortium - Web Standards - Mozilla Firefox". The main content area features the W3C logo and the tagline "Leading the Web to Its Full Potential...". Below this are links to "Activities", "Technical Reports", "Site Index", "New Visitors", "About W3C", "Join W3C", and "Contact W3C". A sidebar on the left promotes the "Validator Donation Program" and "XML10". The central column displays news items, such as "W3C Web Standard Defines Accessibility for Next Generation Web" dated 2008-12-11. The right sidebar includes a search bar for Google and W3C mailing lists, and links to "Testimonials" and "Fundación ONCE".



Director del MIT,  
Impulso el desarrollo  
de la W3C

Michael Dertouzos

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# Más navegadores

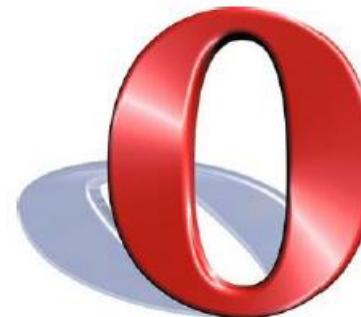
Más Nuevos Navegadores Gráficos

1994

Netscape (nuevo nombre de Mosaic Com.)

Opera, proyecto de investigación de Telenor

OmniWeb



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# La cosa crece...

1994

2 millones de usuarios

150.000 nuevos usuarios al día

95% Mosaic, 2% modo de línea

90% Unix

1,5 millones de visitas a la semana en NCSA

11% crecimiento a la semana



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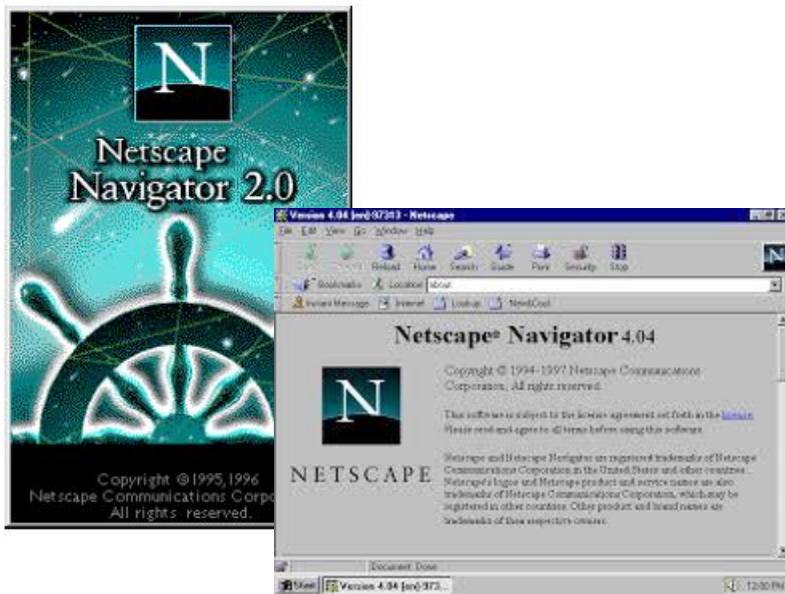


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# Páginas Dinámicas

1995 Netscape 2.0 incorpora JavaScript

Se populariza el uso de DHTML



Brendan Eich, Javascript

DHTML  
HTML + JS (Cliente)  
ANGULARJS  
by Google  
NEW

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# Más dinamismo: Java

JAVA  
Multiplataforma

1995 Sun ofrece la versión Java 1.0

Diseñado para sistemas empotrados desde 1991

Algunos navegadores incorporan la máquina virtual de Java: Applets

Con el tiempo, Java se utiliza más en el lado servidor:  
Servlets, JSP, J2EE, etc.



James Gosling, Java

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# Servidores Web

*SSL en Netscape  
NCSA → Apache*

1994 Netscape desarrolla Netsite Communications Server

Ofrece servidor con SSL

1995 OpenMarket Web Server

1995 Apache

Es una versión del servidor de NCSA

APACHE  
HTTP SERVER



Brian Behlendorf, Apache



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# Directorios

*Información online*

1991 WWW Virtual Library

Iniciada por Tim Berners-Lee

1995 Yahoo! (Jerry Yang, David Filo)

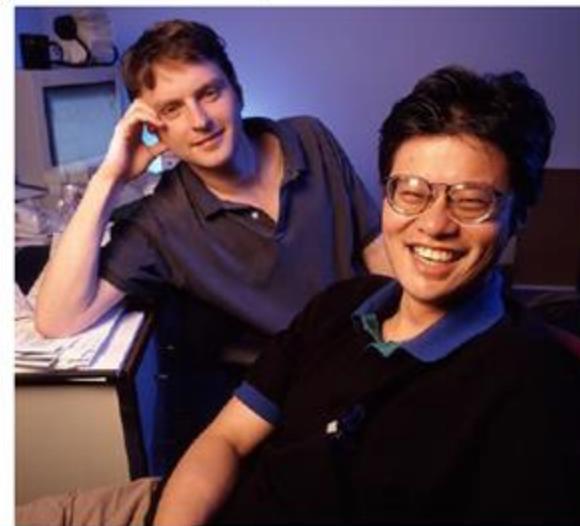
Se convertirá en buscador, portal, servicios, etc.

Otros:

StartingPoint, qango, botw, etc.

1998 Open Directory Project

**YAHOO!**



Jerry Yang, David Filo, Yahoo!

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# Buscadores

1994 Lycos

1994 Infoseek

1995 Altavista



[Stocks](#) | [News](#) | [Maps](#) | [Find People](#) | [Reference](#) | [Yellow Pages](#) | [UPS Services](#)

#### Search the Web and more

Enter words and phrases

  
 Web  News  Companies  Users  

#### Tune in to our Channels

[Automotive](#) - Buy a car, makes & models, vehicles ..

[Business](#) - Business resources, small businesses ..

[Careers](#) - At work, education, find a ideal job ..

[Computer](#) - Buy a PC, download, shareware ..

[Entertainment](#) - Books, games, great movies, music ..

[The Good Life](#) - Beer, dining, wine ..

The screenshot shows the AltaVista search interface. At the top, there's a banner for "AUTOSTATE USA CAR INSURANCE" with a "Buy and insure new cars & trucks online" link. Below the banner, there's a search form with fields for "Search the Web" and "Display the Results". It also includes links for "Advanced Search" and "Add URL". Below the search form are two buttons: "Contests" and "Creative Web". A link to "Download free demo versions of AltaVista Technology software" is also present.

The screenshot shows the Lycos search interface. At the top, there's a banner for "Serious Sports Fans Only \$1,000,000 in Cash and Prizes! For serious sports fans only! Play Fantasy Football!". Below the banner is the Lycos logo with the tagline "It's amazing where Go Get It will get you.". There's a search bar with "Find:" and "Go Get It" buttons. Below the search bar is a link to "Enhance your search". At the bottom, there are several links including "New Search", "TopNews", "Sites by Subject", "Top 5% Sites", "City Guide", "Pictures & Sounds", "PeopleFind", "Point Review", "Road Maps", "Software", "About Lycos", "Club Lycos", "Help", and "Add Your Site to Lycos".



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# ¿Hacer dinero en la Web?

Comercio electrónico

1994 Netscape 1.0 introduce SSL

Primeros bancos en Internet

Diverso material accesible...

Cámaras, bicicletas, pornografía...

*Compra online*

**https://**



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# Vendiendo libros...

Compra online

## 1995 Amazon (Jeff Bezos)



Página de Amazon en 1996



Jeff Bezos, Amazon

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# Mediante subastas...

1995 eBay (P. Omidyar)

*Subastas Online*

The screenshot shows the original eBay homepage for 'Valley Computers and Electronics'. The page features a yellow header with the eBay logo and a search bar. Below the header is a banner for 'Valley Computers and Electronics' with icons for a printer, CD, and computer monitor. A sub-header reads 'Selling quality computers, accessories and electronics for over 10 years.' A main search area displays a list of items under 'All Categories', including 'MOTOROLA Expandable Cordless Phone System' and 'MOTOROLA Premium Leather Case for Motorola v90 Series'. On the left, there's a sidebar with 'Store Categories' like Batteries & Chargers, Binoculars, Cables, Camera Cases & Accessories, Camera Parts & Accs, and Car Audio/Video/Batteries.



Pierre Omidyar, Fundador eBay

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# Microsoft entra en juego...

Mosaic padre de IE

## Internet Explorer

Licencia de Spyglass, Inc. a partir de Mosaic

Integrado en Windows 95



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# Guerra de navegadores

IE Vs Netscape

1996 Microsoft vs. Netscape



Time, Sep. 1996

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# W3C INTENTA CONSENSUAR...

# Hojas de Estilo CSS

1996 HTML 3.2

HTML 2.0 había sido definido en IETF

1996 Hojas de estilos: CSS



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# XML

## 1996 XML

Simplificación de SGML (años 70)

Lenguaje de intercambio

Validación de documentos

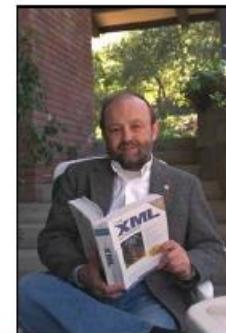
Servicios Web



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*Extensible Markup Lenguaje  
Estructura Estándar (WS)*



Charles Goldfarb (SGML)



Tim Bray  
Co-inventor de XML



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# Aparece Google...

**PageRank**  
El comienzo...  
\* Page (EEUU - Montessori)  
\* Sergei (Rusia - Matemáticas)

1997 Larry Page y Sergei Brin fundan Google  
Estudiantes de doctorado (Stanford)  
Algoritmo PageRank  
1996 Programa en Java y Python llamado BackRub



Larry Page



Sergei Brin

Página de Google en 1998  
NOTA: Estaba dentro de Stanford

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**¿Fácil o Difícil?**  
Idioma, UX Design, Responsive

## Accesibilidad

1997 WAI

Varios niveles:

Personas discapacitadas

Personas mayores

Con dispositivos “diferentes”

Otro entorno (idioma, cultura)

Máquinas en vez de personas



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# Portales, portales, portales...

Portales Online

## Portales Horizontales

Información de todo tipo...

Ejemplos: Yahoo!, Terra, MSN, etc.



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# Portaltes, portales, portales...*Portales Online*

## Portales Verticales (Vortales) Áreas específicas

The screenshot shows the homepage of the Univercia website. At the top, there's a banner for Disney International Programs. Below it, the Univercia logo is displayed with the text "red de universidades, red de oportunidades". The main menu on the left includes links for "España", "EMPLEO", "FORMACIÓN", "NOTICIAS", "OBSERVATORIO", "NOSOTROS", and "EN ABIERTO". The "NOTICIAS" section is currently active, showing a large article about the "Noche Erasmus" event. Other news items include "La UCA reconoce el compromiso de entidades e investigadores con la Transfereencia de Conocimiento en el ambito Humanístico" and "EL PREMIO PARA EL VENCEDOR: UN VIAJE A BUENOS AIRES PARA DOS PERSONAS". The "EN ABIERTO" section lists various international partners like Andorra, Argentina, Brazil, Chile, Colombia, Spain, Mexico, Panama, Paraguay, Peru, Portugal, Puerto Rico, Republica Dominicana, Uruguay, Venezuela, and Universidad Andres Bello.

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# En los juzgados...

Windows...

1998 Microsoft denunciado por el Depto. De Justicia de USA

2000 Microsoft acusada de Monopolio abusivo

Debe vender en 2 partes separadas (se revocará en 2001)

2004 Denuncia de la Unión Europea



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"That's all Folks!"

# Algunas Referencias de Interés...

## Guerreros de la Red

<https://www.youtube.com/watch?v=KXjupeVTQ30>

<https://www.youtube.com/watch?v=vBmeFGQ-JRM>

## TED – Tim Berners Lee

[http://www.ted.com/talks/tim\\_berners\\_lee\\_on\\_the\\_next\\_web?language=es#](http://www.ted.com/talks/tim_berners_lee_on_the_next_web?language=es#)

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