

# Web Applications Introduction

Martin Caminada

# Overview module (1/2)

Lecturers: Martin Caminada (this semester)  
Natasha Edwards (next semester)

Lectures: 2 hours a week

Labs: 2 hours per week

(spring semester will be slightly different)

Assessment:

Autumn: exercise in HTML and CSS (10%)

Autumn: exercise in CGI (10%)

Spring: website development project (40%)

Spring: written exam (40%)

# Overview module (2/2)

Schedule Autumn Semester:

- week 5: introduction (history + technical background)
- week 6: HTML (Hyper Text Markup Language)
- week 7: CSS (Cascading Style Sheets)
- week 8: CGI (Common Gateway Interface)
- week 9: HTML5 advanced features + design issues
- week 10: UNIX/Linux overview
- week 11: Javascript (Natasha Edwards)

HTML/CSS exercise: week 7 out / week 9 in

CGI exercise: week 8 out / week 10 in

# Book

# *Beginning HTML and CSS*

Rob Larsen (£20)

Lectures provide general overview; book provides details!

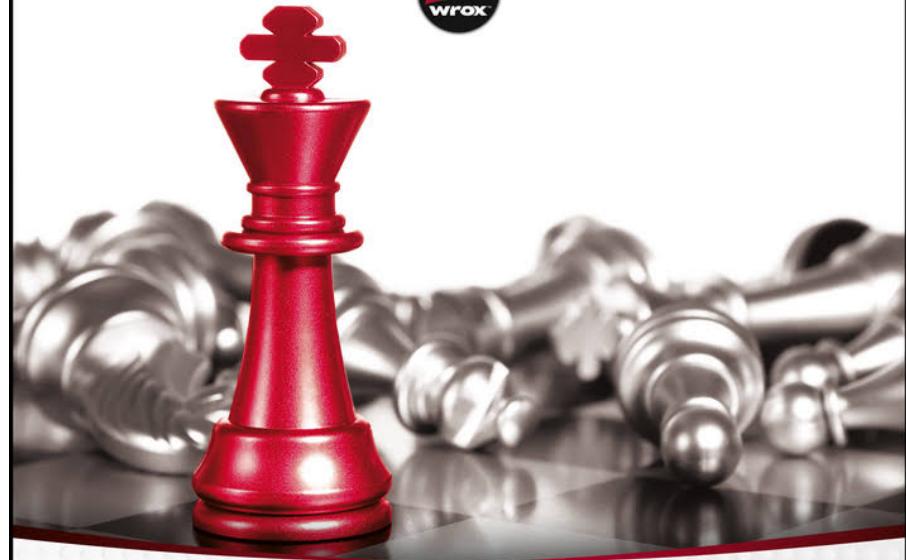
# Online resources:

[www.w3schools.com](http://www.w3schools.com)

Join the discussion @ [p2p.wrox.com](http://p2p.wrox.com)



Wrox Programmer to Programmer™



# Beginning **HTML** and **CSS**

Rob Larsen

# The World Wide Web

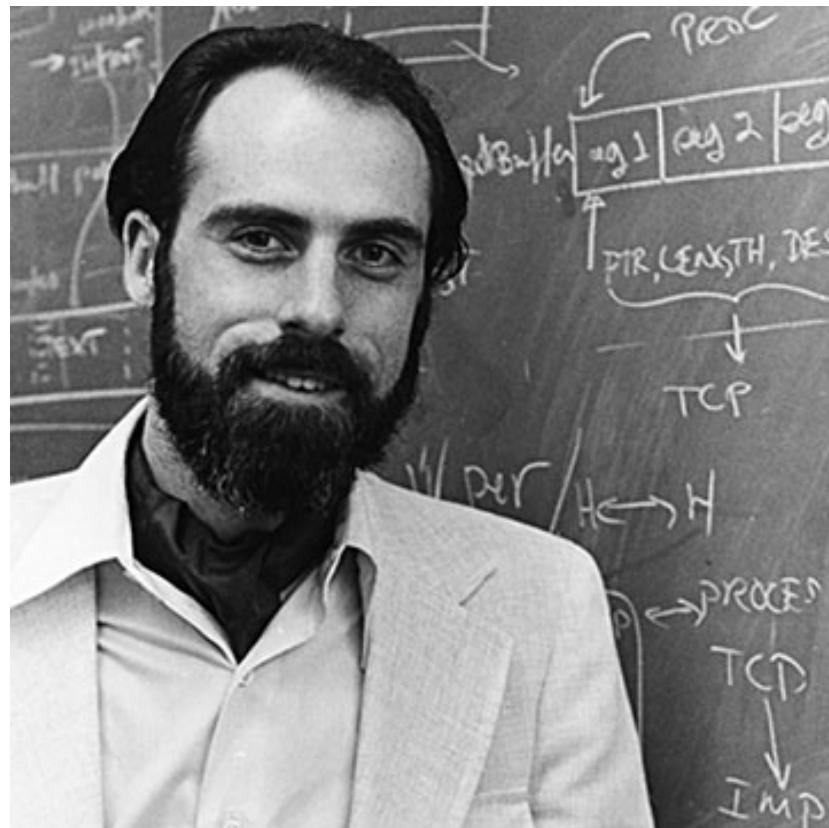
- When did it start?
- Where?
- Who?
- Components of the Web



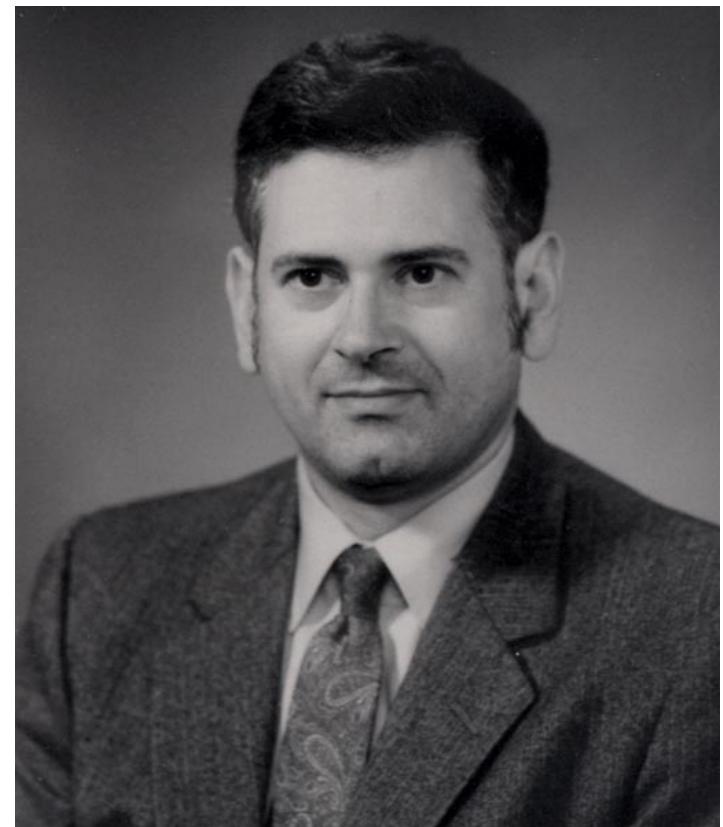
# Arpanet (1969)



# TCP/IP (1983)



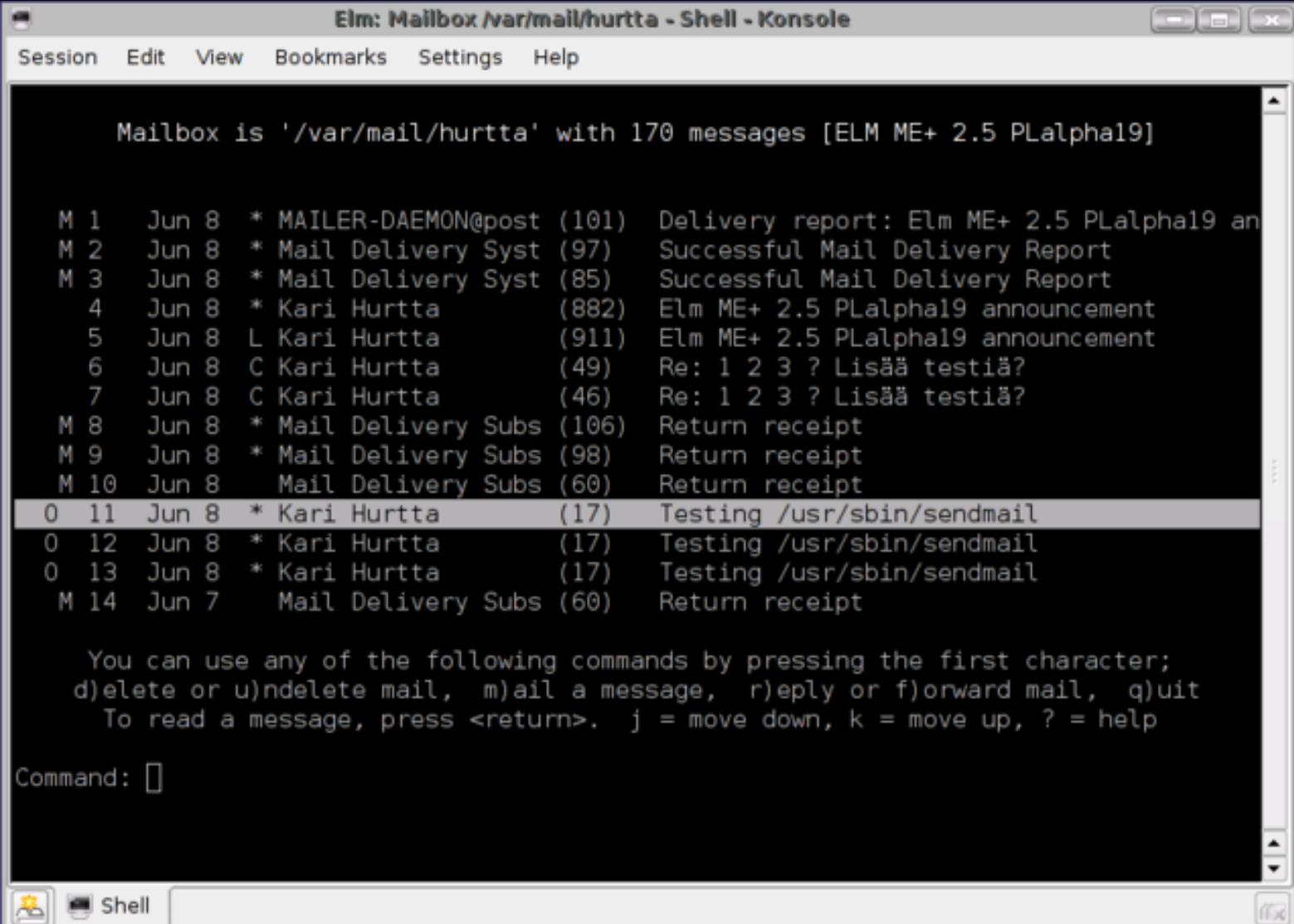
Vinton Cerf



Robert Kahn

# The Internet in the early 1990s

## email



Elm: Mailbox /var/mail/hurtta - Shell - Konsole

Session Edit View Bookmarks Settings Help

```
Mailbox is '/var/mail/hurtta' with 170 messages [ELM ME+ 2.5 PLalpha19]

M 1 Jun 8 * MAILER-DAEMON@post (101) Delivery report: Elm ME+ 2.5 PLalpha19 an
M 2 Jun 8 * Mail Delivery Syst (97) Successful Mail Delivery Report
M 3 Jun 8 * Mail Delivery Syst (85) Successful Mail Delivery Report
  4 Jun 8 * Kari Hurtta (882) Elm ME+ 2.5 PLalpha19 announcement
  5 Jun 8 L Kari Hurtta (911) Elm ME+ 2.5 PLalpha19 announcement
  6 Jun 8 C Kari Hurtta (49) Re: 1 2 3 ? Lisää testiä?
  7 Jun 8 C Kari Hurtta (46) Re: 1 2 3 ? Lisää testiä?
M 8 Jun 8 * Mail Delivery Subs (106) Return receipt
M 9 Jun 8 * Mail Delivery Subs (98) Return receipt
M 10 Jun 8 Mail Delivery Subs (60) Return receipt
  0 11 Jun 8 * Kari Hurtta (17) Testing /usr/sbin/sendmail
  0 12 Jun 8 * Kari Hurtta (17) Testing /usr/sbin/sendmail
  0 13 Jun 8 * Kari Hurtta (17) Testing /usr/sbin/sendmail
  M 14 Jun 7 Mail Delivery Subs (60) Return receipt

You can use any of the following commands by pressing the first character;
d)elete or u)ndelete mail, m)ail a message, r)eply or f)orward mail, q)uit
To read a message, press <return>. j = move down, k = move up, ? = help

Command: 
```

Shell

# The Internet in the early 1990s

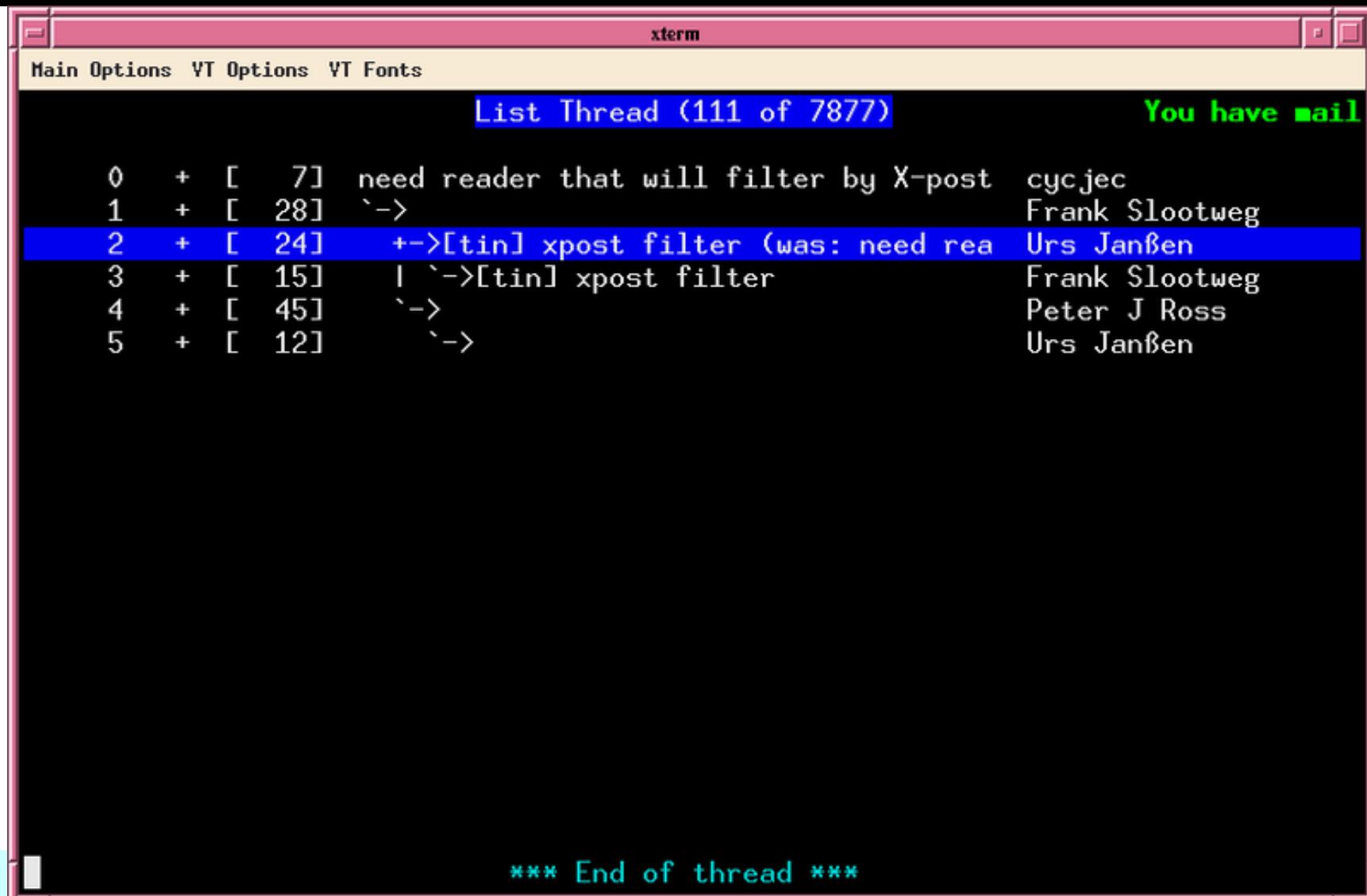
## FTP (file upload/download)

A screenshot of a Windows command-line window titled "C:\myftp.exe". The window contains the following text:

```
226-Transfer complete.  
226 Quotas off  
ftp> chdir pub  
Invalid command.  
ftp> cd pub  
250 CWD command successful  
ftp> ls  
pics  
temp  
msruntime.exe  
3dftp70.zip  
3dftp60.zip  
3dftp.ico  
226-Transfer complete.  
226 Quotas off  
ftp> cd pics  
250 CWD command successful  
ftp> ls  
3dftp.ico  
3dftp_icon.gif  
226-Transfer complete.  
226 Quotas off  
ftp> get 3dftp_icon.gif  
226 Transfer complete.  
ftp>
```

# The Internet in the early 1990s

## USENET (discussion groups)



# The Internet in the early 1990s USENET (discussion groups)

Pan: gmane.org.gnu.discuss

File Edit View Go Groups Articles Post Help

Group Name Subject or Author

**Subscribed Groups**

- alt.anarchism (6346)
- alt.binaries.dvd.classic.movies (3)
- alt.binaries.dvd.english
- alt.binaries.mp3.audiobooks (384)
- alt.config (996)
- alt.config.faq
- alt.config.proposals
- alt.configuration
- alt.consciousness (11)
- alt.cyberpunk (76)
- alt.cyberspace (1)
- alt.cyberspace.rebels (22)
- alt.fan.disguising.godiva
- alt.rave (4)
- alt.society.neutopia (2)
- free.alt.config
- free.answers (11)
- free.cyberpunk.literature
- free.england.config
- free.eu
- free.free
- free.ftpfreak (1)
- free.uk.config
- free.uk.politics.libertarian (9)
- free.uk.technology.alternative
- gmane.linux.ubuntu.marketing (100)
- gmane.org.freeculture.discuss (10)
- gmane.org.freeculture.uk (1)
- gmane.org.fsf.announce (6)
- gmane.org.gnu.discuss (299)
- gmane.org.wikimedia.commons

Subject	Score	Author	Lines	Date
+ Web 2.0 (1)	62	Kip Warner	Mar 17 11:23 PM	
NYC LOCAL: Tuesday 2 March 2010 NYLUG Programming Sy...	82	secretary	Mar 02 6:15 PM	
+ Anatomy of "GPL Enforcement" fraud (1)	20	Alexander Terekhov	Feb 27 4:18 PM	
+ Settlements (80)	9	Hyman Rosen	Feb 25 6:52 PM	
+ From the Best Buy et. al. case (9)	26	RJack	Feb 25 12:16 AM	
NYC LOCAL: Corrected and Improved Announcement ...	95	secretary	Feb 24 4:07 AM	
NYC LOCAL: Wednesday 24 February 2010 NYU Law S...	51	secretary	Feb 23 10:12 PM	
+ Re: A simple question (12)	15	Hyman Rosen	Feb 22 6:55 PM	
+ Re: A simple question (1)	36	Alan Mackenzie	Feb 22 9:41 AM	
+ Jacobsen v. Katzer settled (90)	21	Hyman Rosen	Feb 19 8:15 PM	
NYC LOCAL: Wednesday 17 February 2010 NYLUG: Lu...	126	secretary	Feb 16 9:36 AM	
NYC LOCAL: Tuesday 16 February 2010 Hack Fests: P...	153	secretary	Feb 16 9:04 AM	
+ GNU aclocal - regenerated aclocal.m4 does not m4_in...	18	Mark Hobley	Feb 14 4:08 AM	
+ Re: Bye - Bye , open source derivative works litigatio...	94	Alexander Terekhov	Feb 13 2:47 PM	
+ Re: The SFLC dismissals should be coming soon (88)	7	Hyman Rosen	Feb 12 9:42 PM	

+ NYC LOCAL: Tuesday 2 March 2010 NYLUG Programming Sy... hop: Squeak from secretary at 2 Mar 2010 11:15:50 -0500

<blockquote>  
what="official NYLUG Workshop / Hacking Society announcement"  
note="This is a regular event."  
The NYLUG Workshop / Hacking Society meets every other Tuesday.  
edits="">

From: NYLUG Announcements <info@nylug.org>  
To: NYLUG Announcements <nylug-announce@nylug.org>  
Date: Mon, 1 Mar 2010 09:20:01 -0500 (EST)  
Subject: [nylug-announce] NYLUG Workshop / Hacking Society, (Smalltalk, C++, Python) TOMORROW March 2 6:00PM-8:00PM  
X-BeenThere: nylug-announce@nylug.org  
Reply-To: Announcements from NYLUG <nylug-announce@nylug.org>

This is a reminder for the event detailed below.

1 @ 0.0 KiB/s No Tasks

# The Internet in the early 1990s

## Gopher (information service)

A screenshot of a Gopher client window titled "Terminal". The window has a menu bar with "File", "Edit", "View", "Terminal", and "Help". The title bar also displays "Terminal". The main area shows the output of a Gopher session to "sdf.org".

```
sdf.org

Welcome to the SDF Public Access UNIX System .. est. 1987
=====
We offer FREE and inexpensive memberships for people interested
in the UNIX system and internetworking. Personal GOPHERSPACE
is available to all users as well as hundreds of UNIX utilities,
games and networking utilities. We are a federally recognized
non-profit 501(c)7 organization and we are supported entirely
by donations and membership dues. telnet://sdf.org

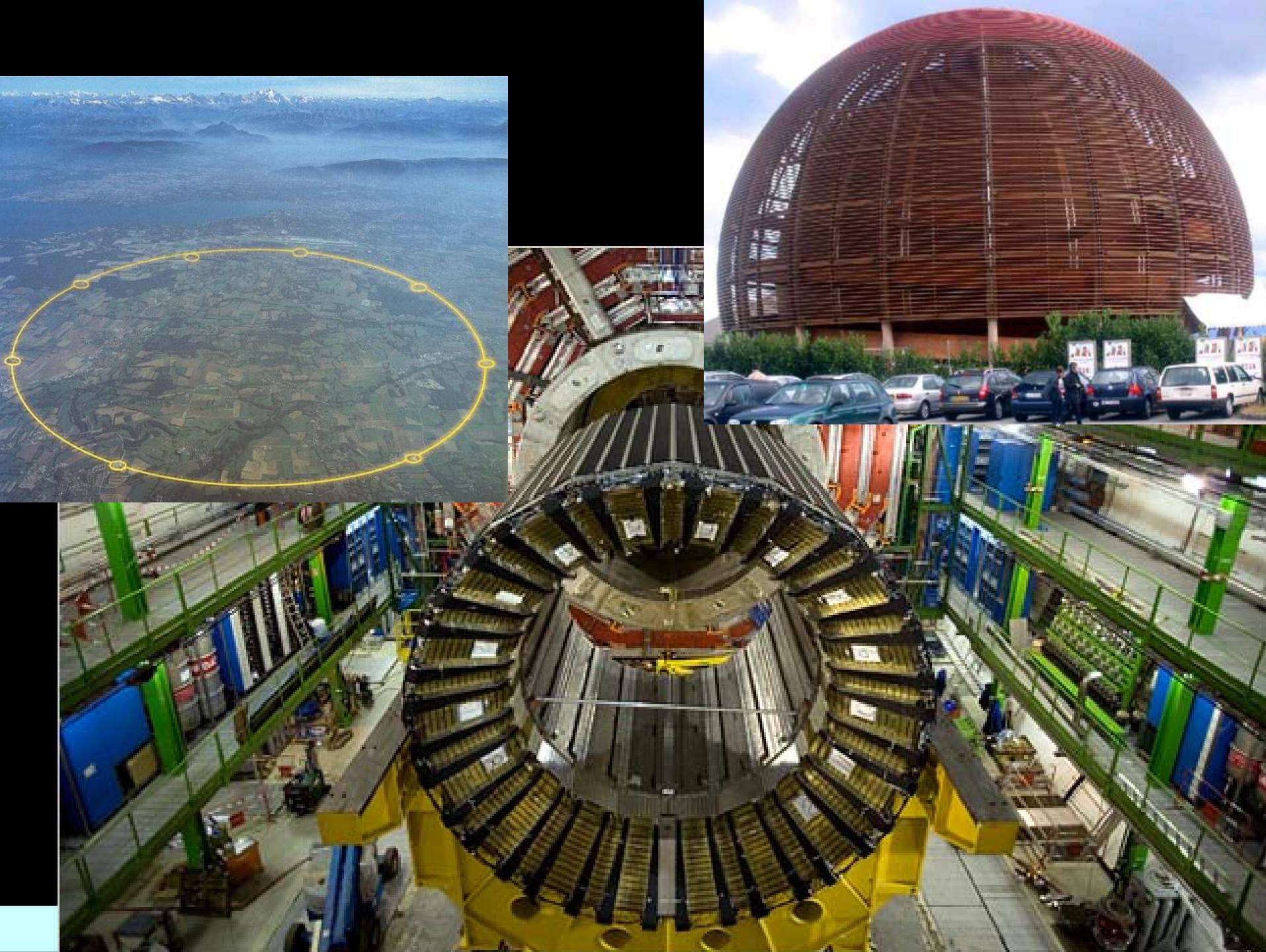
[ 10] SDF Member PHLOGOSPHERE (41 directories)/
[ 11] SDF Member GOPHERSPACE (1730 directories)/
[ 12] SDF Frequently Asked Questions (FAQ)/
[ 13] SDF Accredited University Courses/
[ 14] Software and Documentation for various computers/
[ 15] GopherSpace SEARCH Engine <?>
--> [ 16] Floodgap's GOPHERSPACE/
[ 17] NetBSD Distribution Mirror/
```

Press ? for Help, q to Quit, u to go up a menu

Page: 1/1

# The Internet in the early 1990s

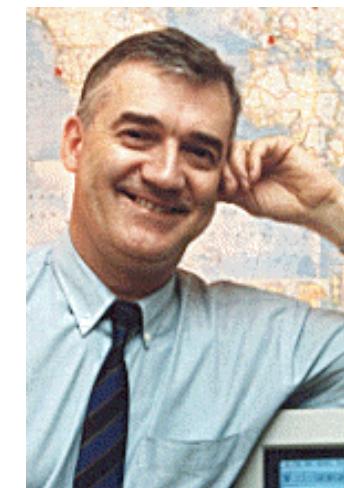
- mainly text based
- non-profit
- for the happy few





**Tim Berners Lee**

Photo: Guardian



**Robert Cailliau**

Photo: CERN

# Foundations: *The Internet*

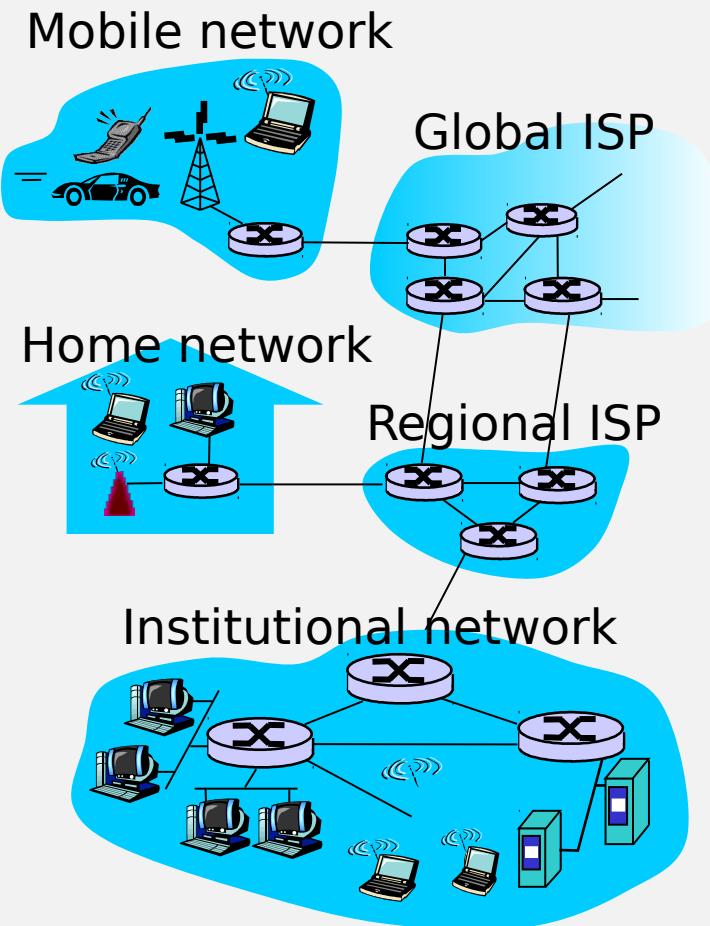
Packet Switching

TCP/IP

Telnet

FTP

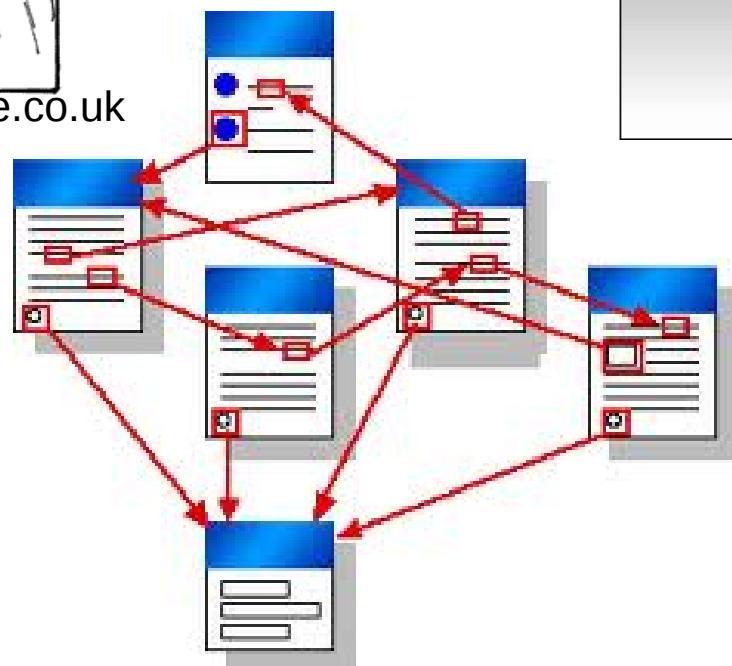
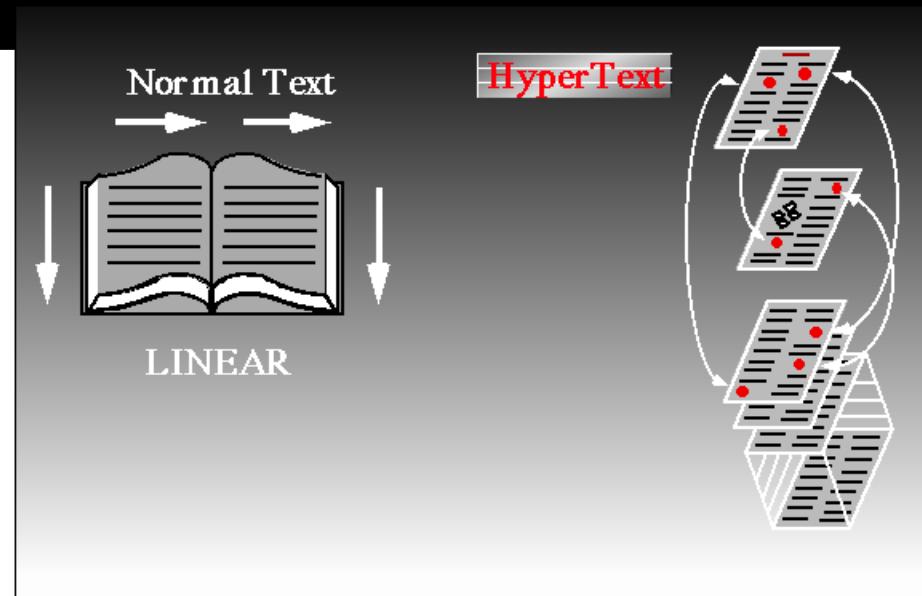
SMTP



# Foundations: *Hypertext*



<http://www.bittonline.co.uk>



<http://www.timothyjwelsh.com>

Ted Nelson 1968: says  
“Non-sequential writing  
text that branches and  
allows choices to the  
reader.... A series of  
text chunks connected  
by links which offer the  
user different pathways”<sup>17</sup>

# Building Blocks of the Web

HTML

HTTP

Web Server

Browser

# HTML

## Hypertext Markup Language

An application of **SGML**

*(Standard Generalized  
Markup Language)*

```
<!DOCTYPE html>
<html>
  <head>
    <title> Hello There </title>
  </head>
  <body>
    <h1>Hello There</h1>
    <p> Welcome to the <a href="http://www.w3.org">
    Web</a>. Some protocols:</p>
    <ul>
      <li> HTTP </li>
      <li> FTP </li>
      <li> SMTP </li>
    </ul>
  </body>
</html>
```

# HTTP

## Hypertext Transfer Protocol

### Request

**GET /somedir/page.html**

**HTTP/1.1**

**Host:** www.someschool.edu  
**User-agent:** Mozilla/5.0  
(Macintosh; Intel Mac OS X 10.7; rv:14.0)  
Gecko/20100101

**Firefox/14.0.1**  
**Connection:** close  
**Accept-language:** en

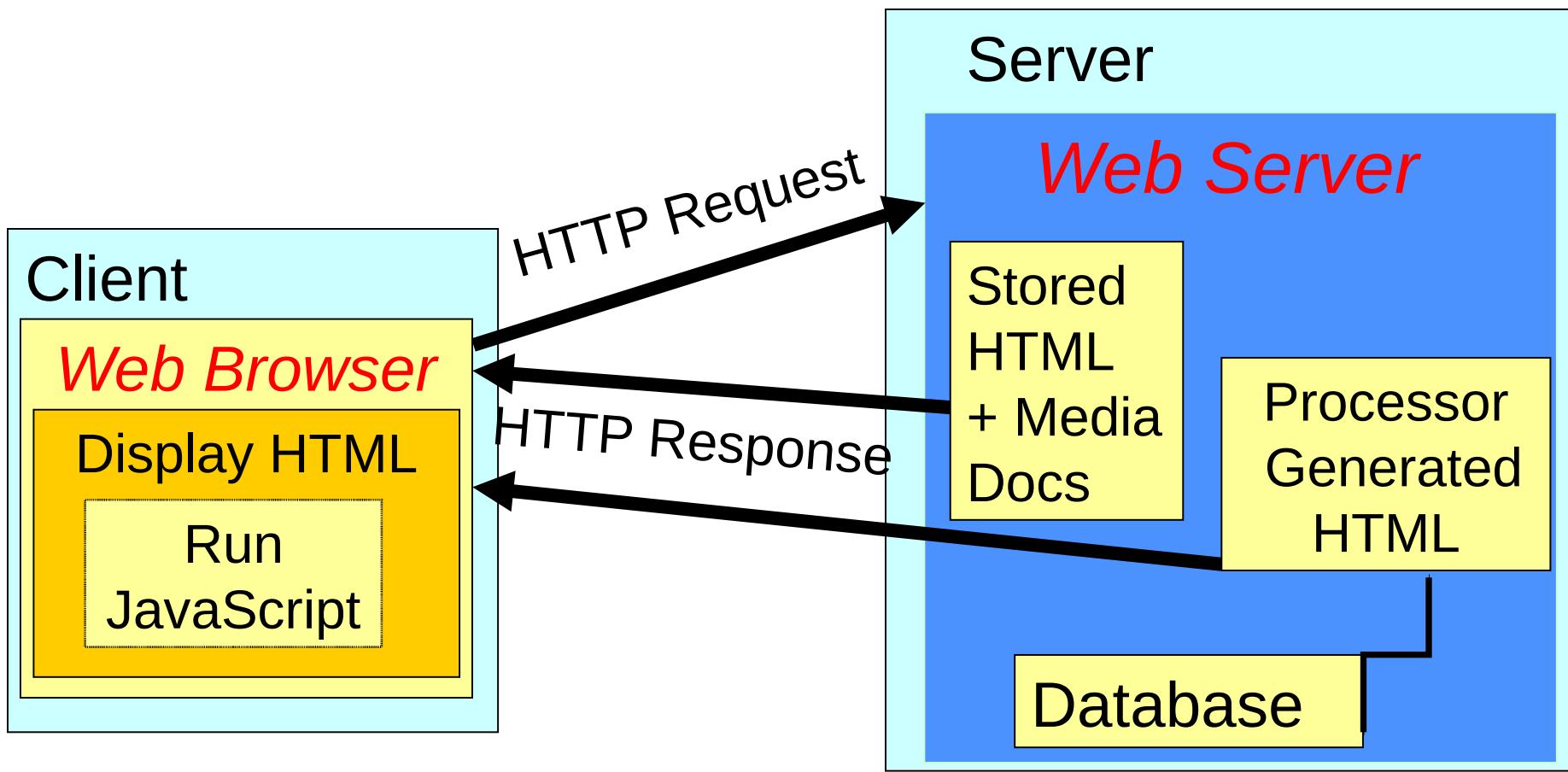
.....  
[body]

### Response

**HTTP/1.1 200 OK**  
**Connection:** close  
**Date:** Thu, 06 Aug 2010  
12:00:15 GMT  
**Server:** Apache/1.3.0(Un.)  
**Last-Modified:** Mon, 22 J  
**Content-Length:** 6821  
**Content-Type:** text/html

.....  
[body]

# Web Server



# Browsers and layout engines

Firefox



Gecko

Internet Explorer



Trident

Chrome



WebKit

Safari



Opera



Presto



# Marc Andreessen NCSA Mosaic / Netscape

NCSA Mosaic for Microsoft Windows Home Page - NCSA Mosaic

File Edit Options Navigate Hotlists Help

http://www.ncsa.uiuc.edu/SDG/Software/WinMosaic/HomePage.html

N C S A  
M O S A I C

NCSA Mosaic™ for Microsoft Windows

Welcome to the Mosaic for Microsoft Windows Home Page. Mosaic is a World Wide Web client that was developed at the National Center for Supercomputing Applications on the campus of The University of Illinois in Urbana-Champaign.

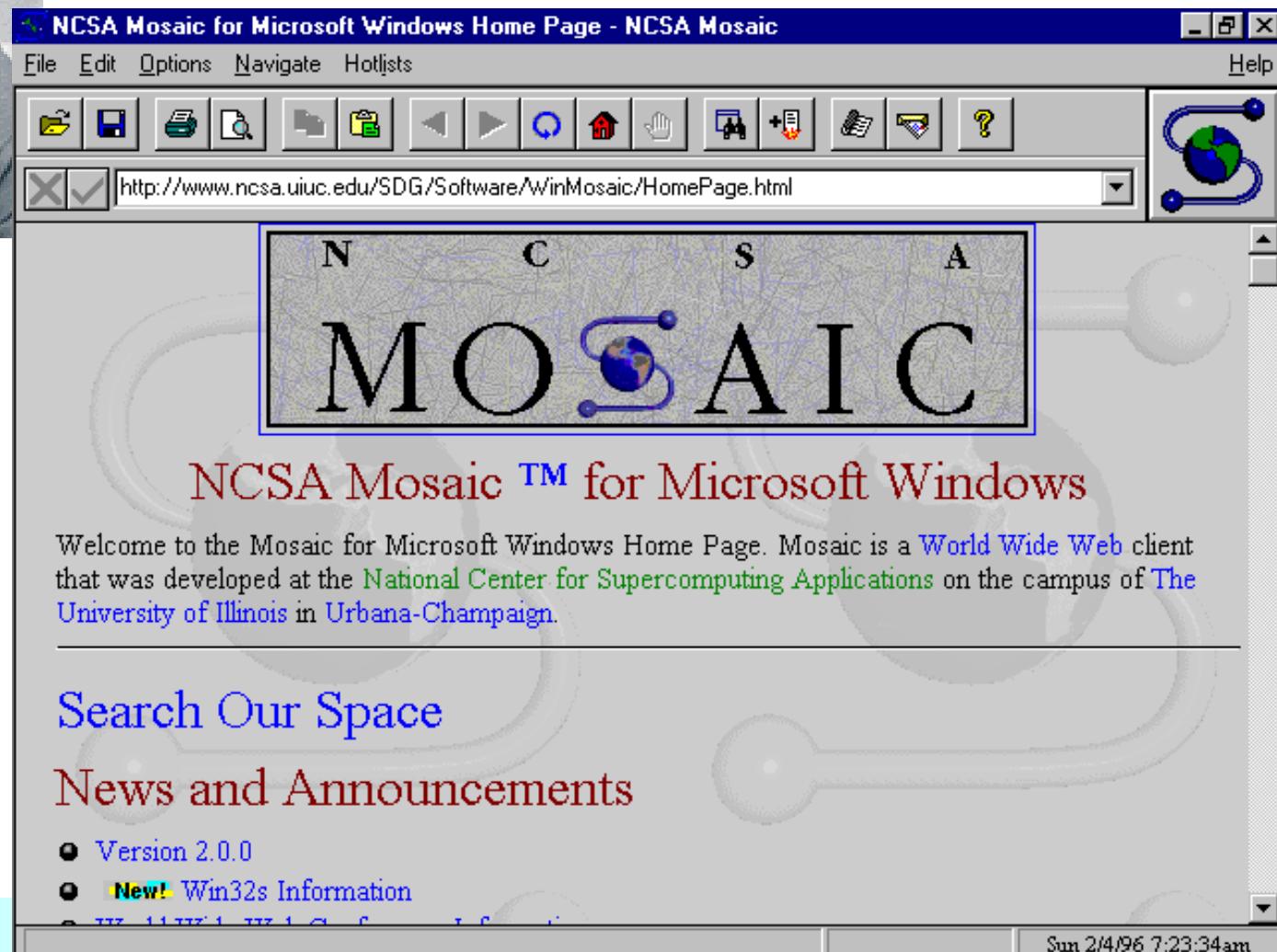
---

Search Our Space

News and Announcements

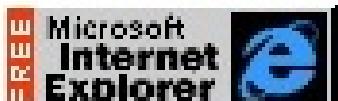
- Version 2.0.0
- New! Win32s Information

Sun 2/4/96 7:23:34am



## Browser Wars

Best viewed with





# Marc Andreessen NCSA Mosaic / Netscape

NCSA Mosaic  
↓  
Netscape  
↓  
Mozilla



# Evolution of the Web

## Web 1.0

HTML + CSS +

JavaScript, Java applets, JavaServerPages, ASP.NET,  
PHP, Ruby on Rails.....

## Web 2.0

## Web 3.0

# Web 2.0: Social Web



webmedia-solutions.com

# Web 3.0: Semantic Web

*“Machine  
Readable”*

RDF

Ontologies

SPARQL

# The module

## *Autumn Semester*

HTML

CSS

CGI

design issues

UNIX/Linux

Javascript

## *Spring Semester*

databases (MySQL)

Frameworks (e.g. Flask, Django)

networks / security

search engines

e-commerce and innovation

# optional lecture (Spring Semester)

*how to run your own webserver  
with your own domain name  
using home broadband  
for less than £55 one-off  
(all equipment included!)*

# optional lecture (Spring Semester)

