

The World Wide Web

From Yesterday to Tomorrow

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Outline ... What ?!

- We are surfing the web
 - But, exactly *where* are we?
- Where will it bring us *tomorrow*?
 - ?????
- By the way, how did we get here?
 - From where?




An ancient World Wide Web?

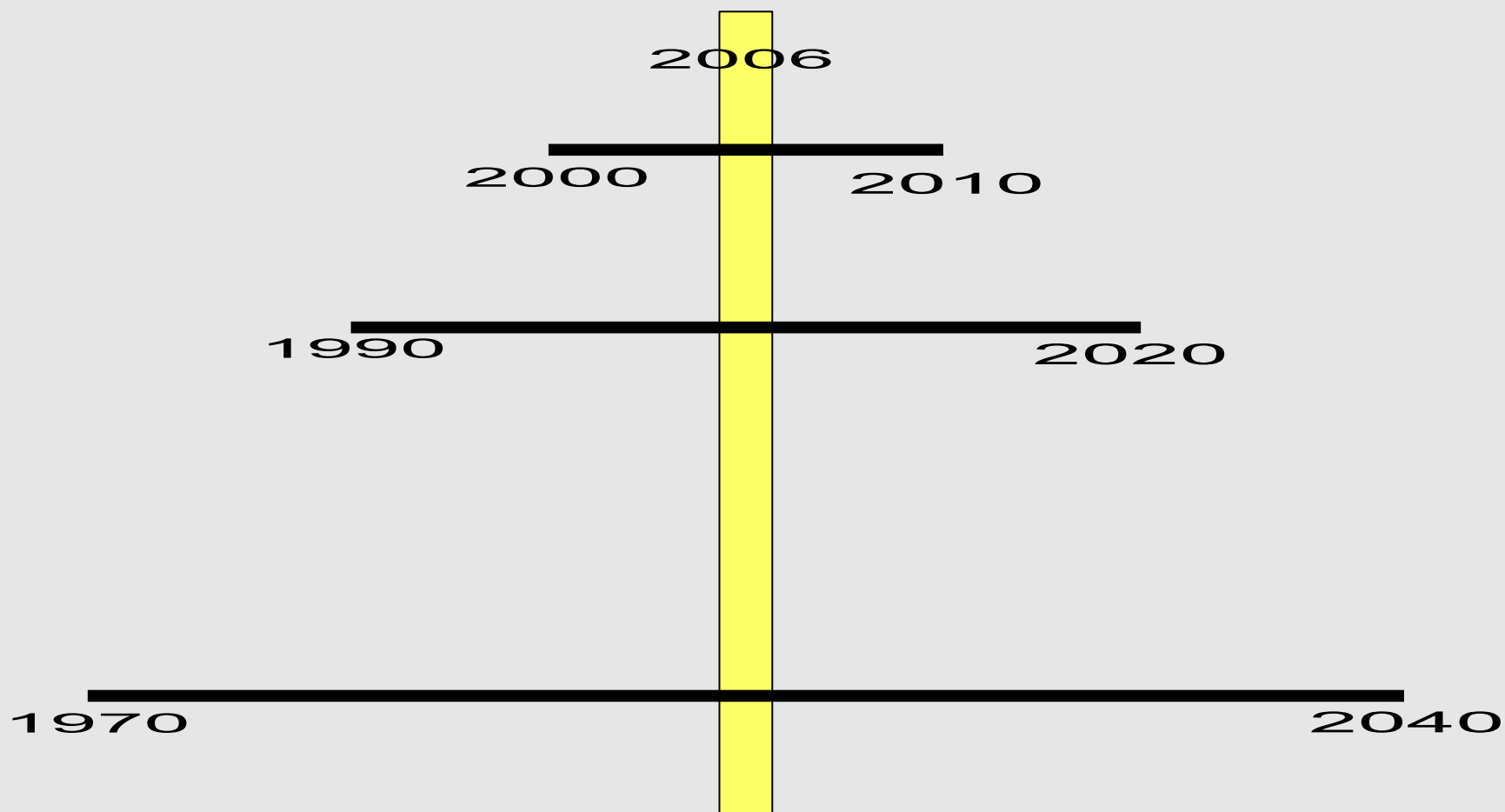


Where are we?

2006



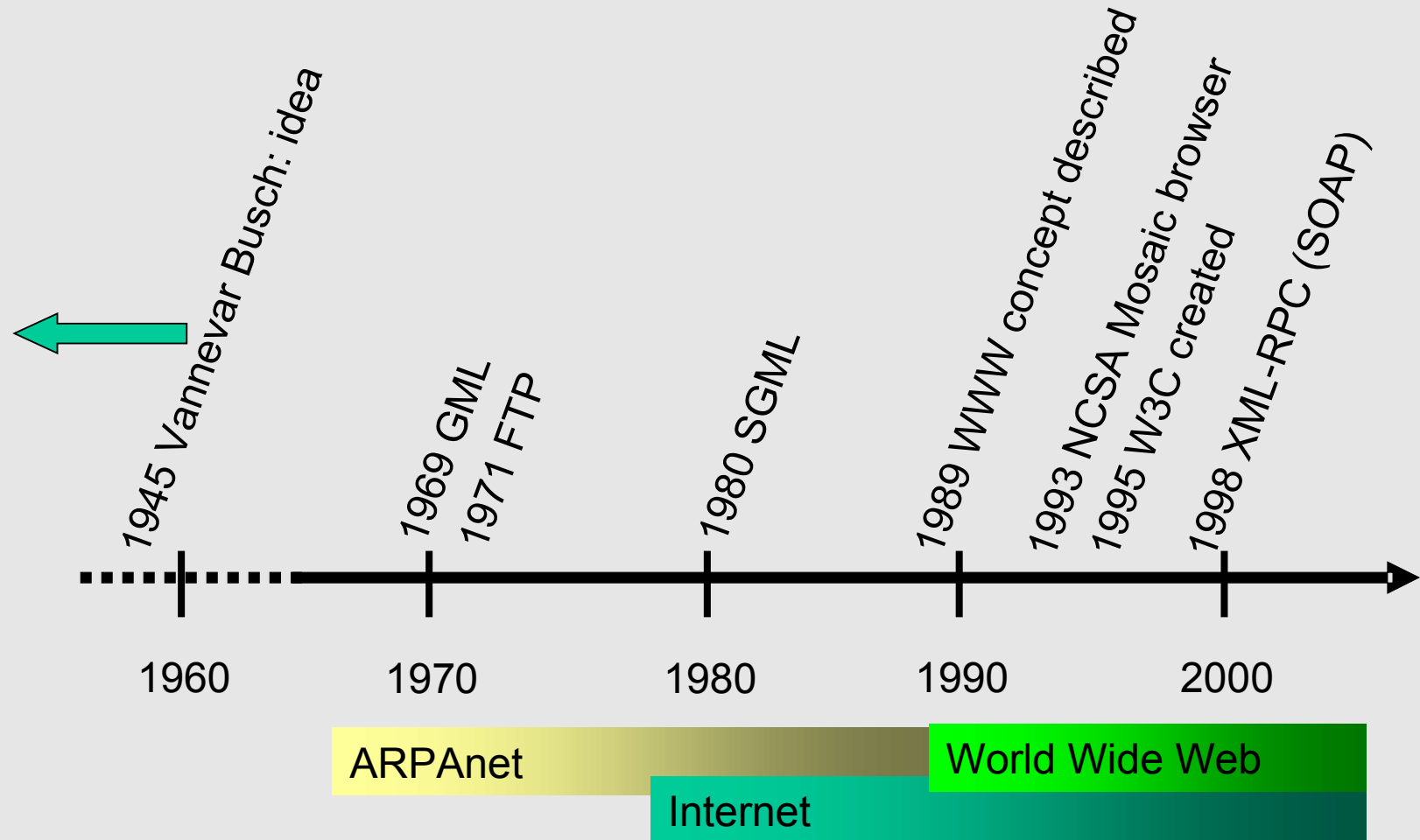
Where are we?



December 2005 – the web 15

The screenshot shows the CNN International website interface. At the top left is the CNN International logo with the URL CNN.com. To the right, there are links for 'Member Center: Sign In | Register' and a button to 'MAKE CNN.com YOUR HOME PAGE'. Below this is a search bar with 'THE WEB' and 'CNN.com' radio buttons, and a 'SEARCH' button. The main content area is titled 'TECHNOLOGY' in large red letters. A red oval highlights the word 'spark' in the article title '15 years of the World Wide Web'. Another red oval highlights the date 'Wednesday, December 14, 2005'. The article text reads: '(CNN) -- Spark looks at the top 10 "Web moments" since the World Wide Web was born 15 years ago, and asks viewers to vote for the one they think had the most impact in the Web's history.' Below the text is a photo of a hand typing on a keyboard. To the right of the article is an advertisement for 'Travel the World', 'CNNarabic.com', and 'Sports Update'. At the bottom right is a large graphic for 'CNN Pipeline' with the text 'CNN's TV COVERAGE OF 9/11/01, IN REAL TIME'. A 'QUICKVOTE' button is visible at the bottom of the article.

The Net - Timeline

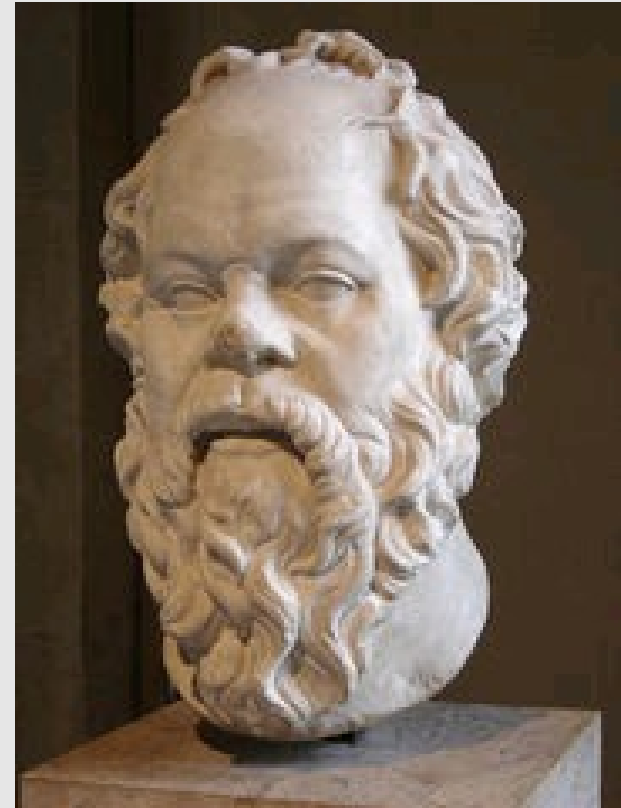


What *was*

440 BC – Socrates - dialogue

- Knowledge
- Memory
- Learning

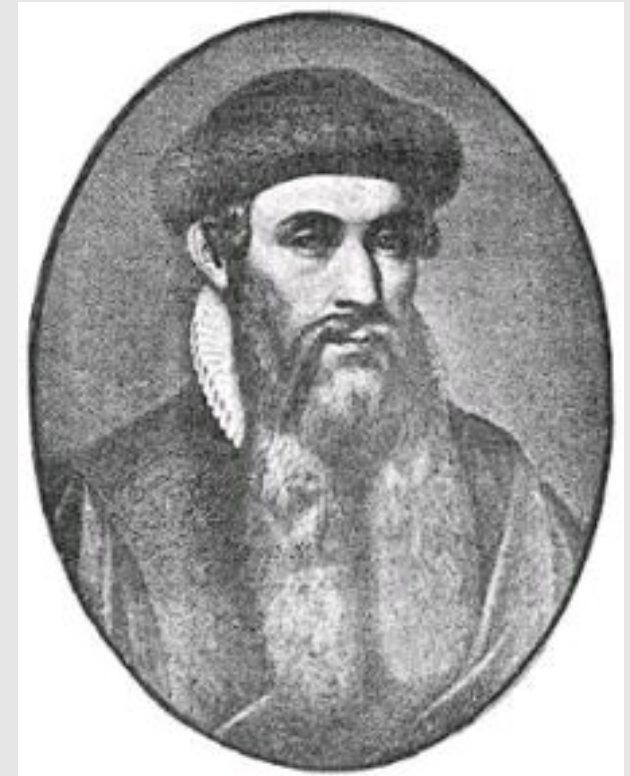
- *Socratic method - dialogue*



1447 – Gutenberg – movable types



- Industrial mass reproduction
- *Printing with movable types*



1945 - Vannevar Bush - memex

The Atlantic Monthly | July 1945

As We May Think

by Vannevar Bush

As Director of the Office of Scientific Research and Development, Dr. Vannevar Bush has coordinated the activities of some six thousand leading American scientists in the application of science to warfare. In this significant article he holds up an incentive for scientists when the fighting has ceased. He urges that men of science should then turn to the massive task of making more accessible our bewildering store of knowledge. ...

Radio World's Hall of Fame



(Photograph by Champion Studio)

DR. VANNEVAR BUSH

Associate professor in radio at Massachusetts Institute of Technology; chief consulting engineer for the American Radio and Research Corporation at Medford Hillside, Massachusetts. Professor Bush's mathematical treatment of radio circuits has made him a salient figure in the "Radio World's Hall of Fame."

1963 - Ted Nelson - hypertext

- Storing information on a computer
- Structuring information
- Retrieving information
- Pieces of text connected

- *Hypertext*



1969 - Charles Goldfarb/IBM - GML

- Text layout
 - Recurrent patterns
 - Typesetting principles
 - Embedded tags
 - Mechanical process
-
- *Generalized Markup Language*



GML

```
:book.  
:body.  
:h1.Introduction  
:p.GML supported hierarchical containers, such as  
:ol.  
:li.Ordered lists (like this one),  
:li.Unordered lists, and  
:li.Definition lists  
:eol.  
:p.as well as simple structures.  
:p.Markup minimization allowed the end-tags to be omitted  
for the "h1" and "p" elements.
```

1983 - Charles Goldfarb/IBM - SGML

- Text layout
 - Recurrent patterns
 - Typesetting principles
 - Embedded tags
 - Mechanical process
-
- *Standard Generalized Markup Language*



SGML

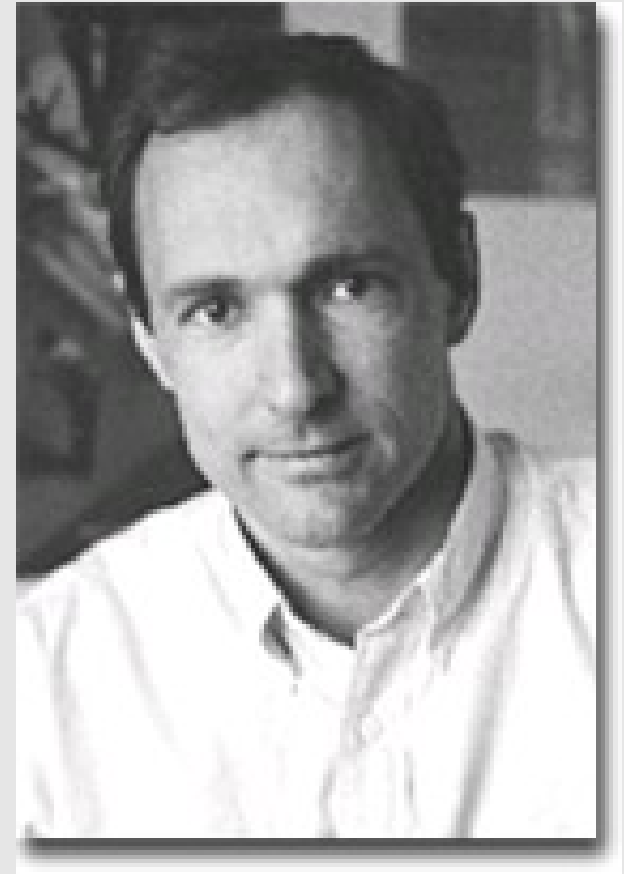
```
:memo)
:to) Fred Bloggs*to]
:from) Joe Smith*from]
:subject) Lunch*subject]
:body)
:p) Do you want to have lunch?*p]
:p) I am free at 12.00*p]
*body]
:signature) Fred*signature]
*memo]
```

SGML

```
<memo>
<to>Fred Bloggs</to>
<from>Joe Smith</from>
<subject>Lunch</subject>
<body>
<p>Do you want to have lunch?</p>
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</body>
<signature>Fred</signature>
</memo>
```

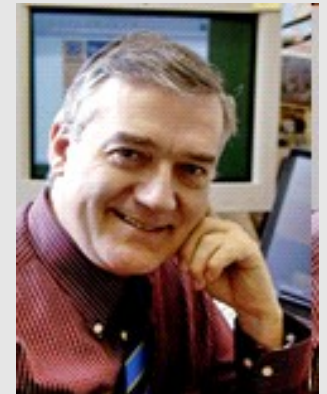
1990 – Tim Berners-Lee - WWW

- Computer-stored documents
 - Uni-directed links doc ==> doc
 - Networked computers
 - Server and client
-
- WWW – World Wide Web



1990 – CERN - WWW

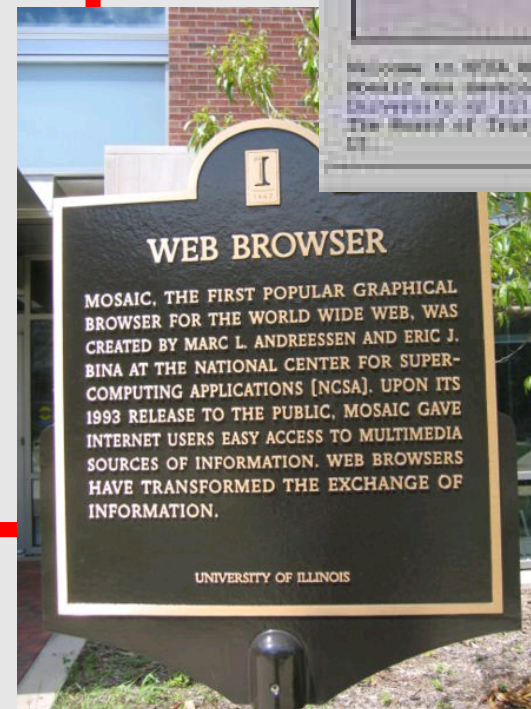
- Tim Berners-Lee & Robert Caillou
- Technical documentation
- Heterogeneous network
- Decentralised production



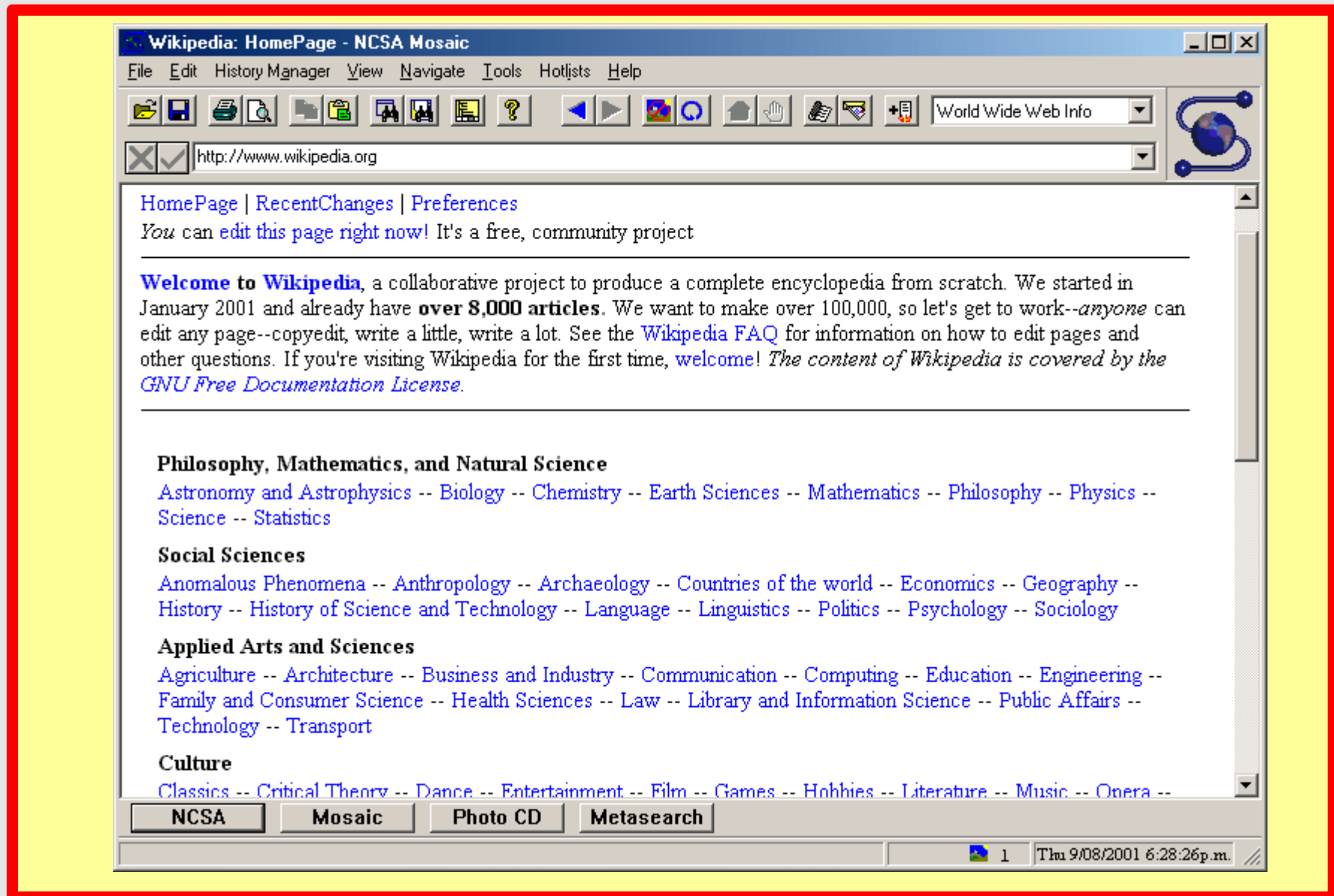
1993 – NCSA – Mosaic Browser

- Driven by curiosity
- A small but dedicated community
- Open development
 - Content handlers: graphics, ...
 - CGI protocol
- Free – no fees

- *Mosaic Browser*

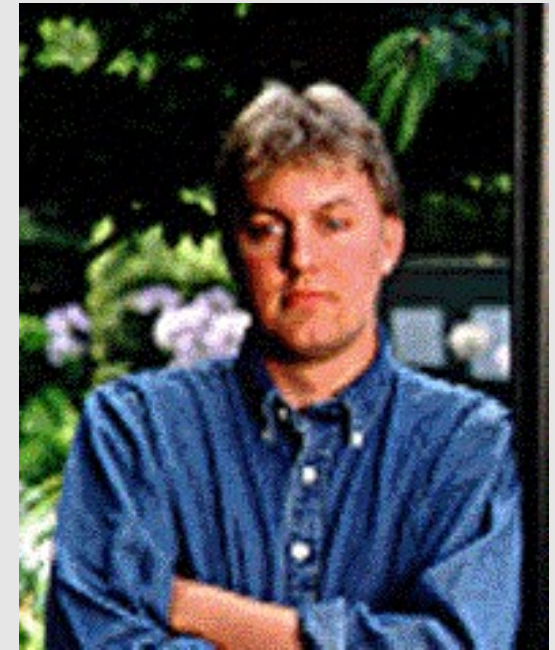
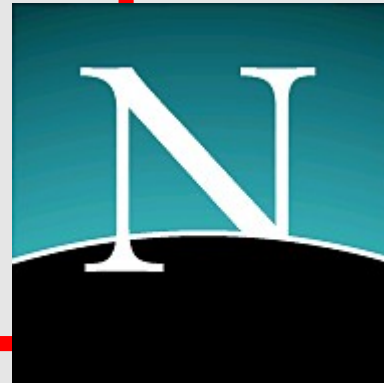


1993 – Mosaic Browser

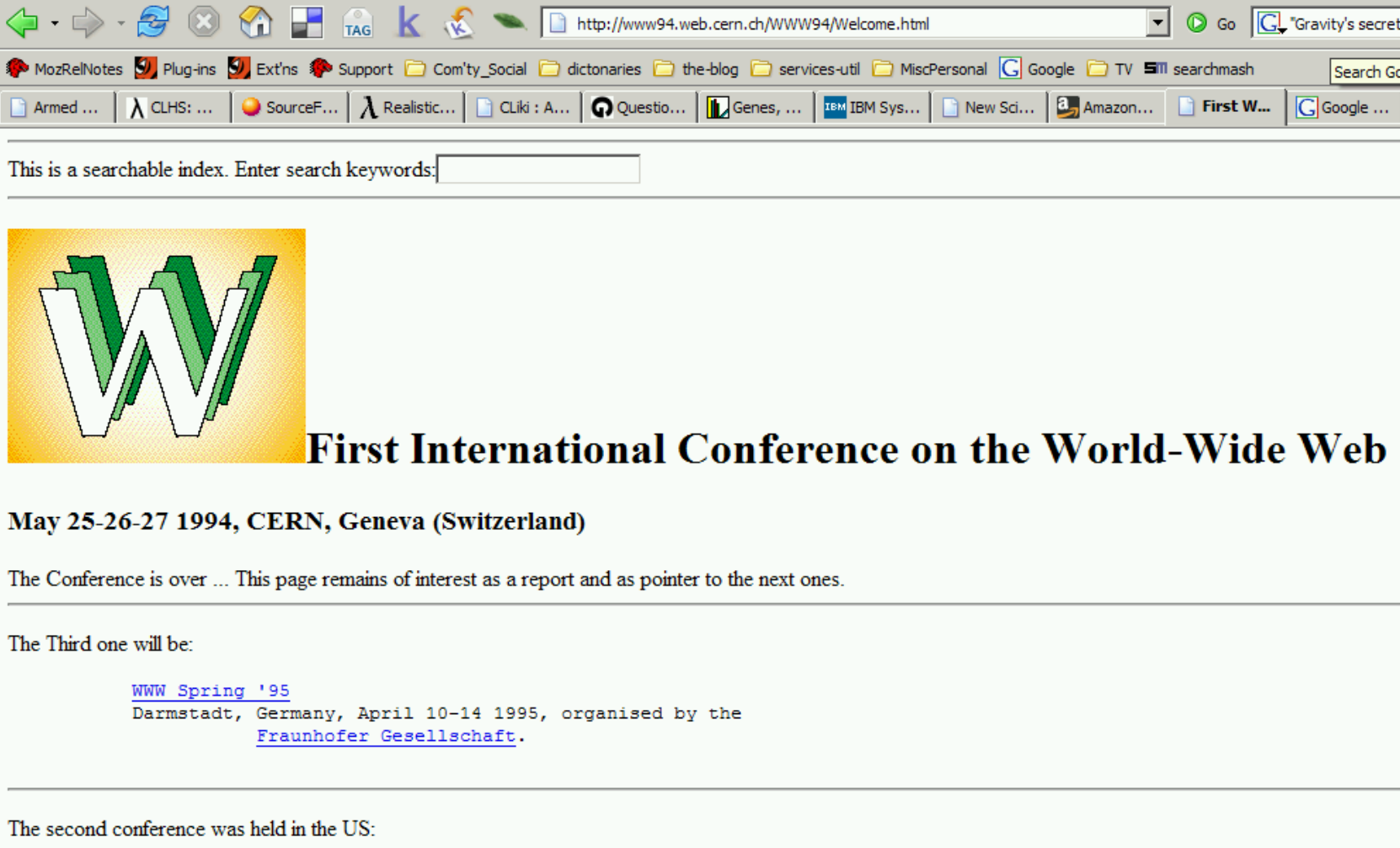


1994 – Netscape – web company

- Entrepreneurial
 - Successful IPO
 - Surprised expert market analysts
 - Endeared to the young generations
 - Driving technology
 - Portal concept
-
- Netscape Navigator



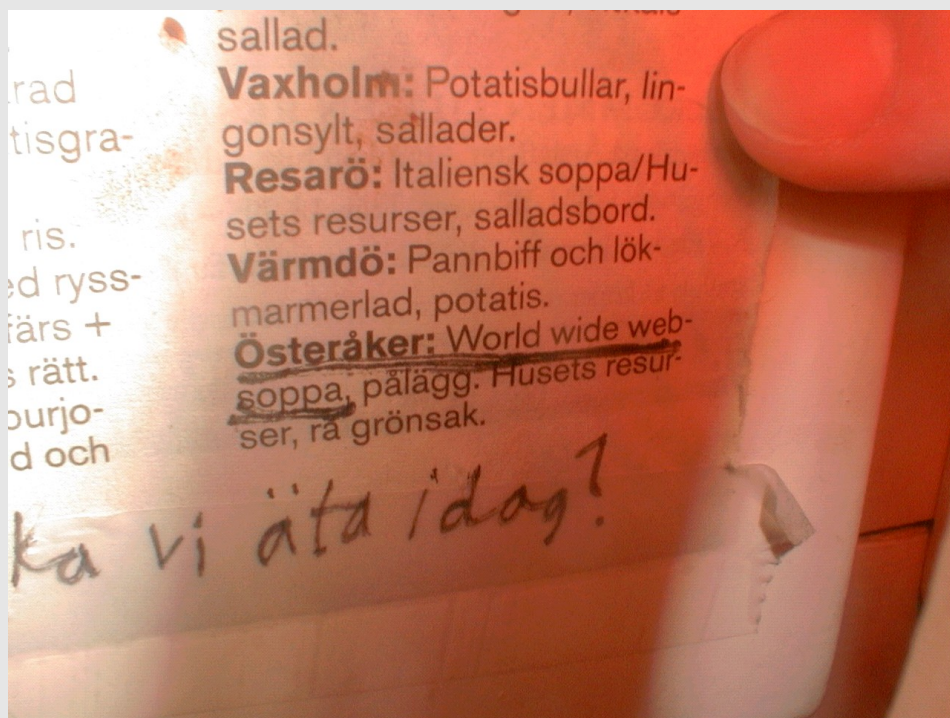
1994 – 1st WWW Conference



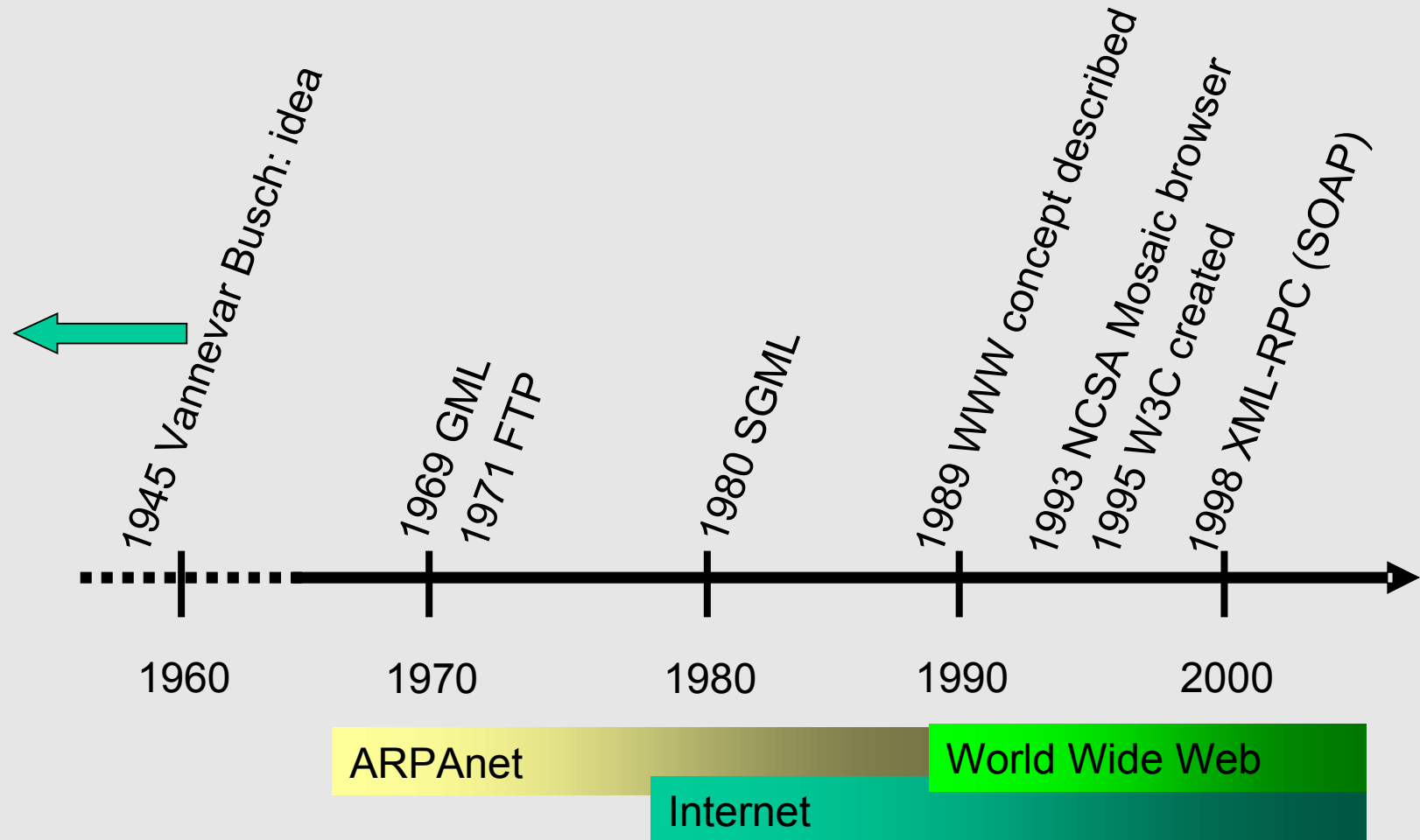
The screenshot shows a web browser window with the address bar containing `http://www94.web.cern.ch/WWW94/Welcome.html`. The browser's toolbar includes navigation buttons (back, forward, home, stop, refresh) and a search bar. Below the toolbar, there is a search index with the text "This is a searchable index. Enter search keywords:" followed by an empty input field. The main content area features a large, stylized "W" logo composed of green and white 3D blocks. To the right of the logo, the text reads "First International Conference on the World-Wide Web". Below this, it states "May 25-26-27 1994, CERN, Geneva (Switzerland)". A paragraph follows: "The Conference is over ... This page remains of interest as a report and as pointer to the next ones." Below this, it says "The Third one will be:" followed by a link to "WWW Spring '95" and the text "Darmstadt, Germany, April 10-14 1995, organised by the Fraunhofer Gesellschaft." At the bottom, it says "The second conference was held in the US:".

What *is*

The web – everywhere!



The Net - Timeline



World Wide Web Consortium - W3C

- Konsortium (1994-)
driver utvecklingen mot en webb för alla.
- Formell utvecklingsprocess, patentpolicy
- Cirka 400 medlemmar
stora & små, leverantörer & användare,
i Amerika, Europa och Asien
- W3C tar fram webbt teknologistandarder
"Recommendations"
- Standarder tas fram av arbetsgrupper
bemannade av W3C-medlemmar
- *"W3C leder webben mot sin fulla potential".*



Technology Stack



Results and actions

- Technology standards
 - Formats
 - Protocols
 - Interoperability!
- Guidelines
 - For use
- Architectural principles
 - *"Architecture of the web"*
- Outreach

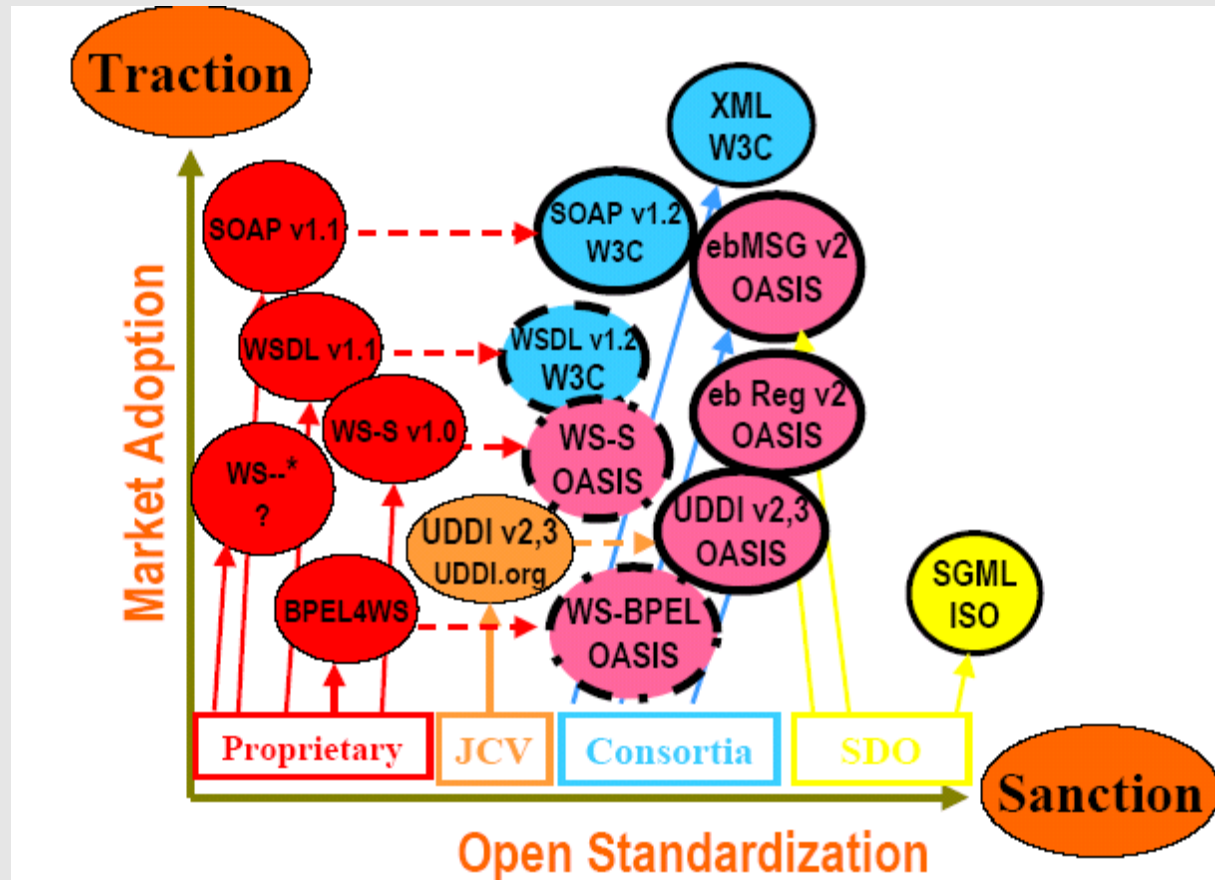


Web Technologies & Standards

- Software products
 - vendors
- Application models and schemas
 - user-specific
- Interoperability
 - across administrative borders
- Standards
 - Enable interoperability
 - Decrease vendor lock-in



Standards lifecycle



What *will* be (?)

“Prediction is very difficult,
especially about the future”

Niels Bohr

Where is the web going?

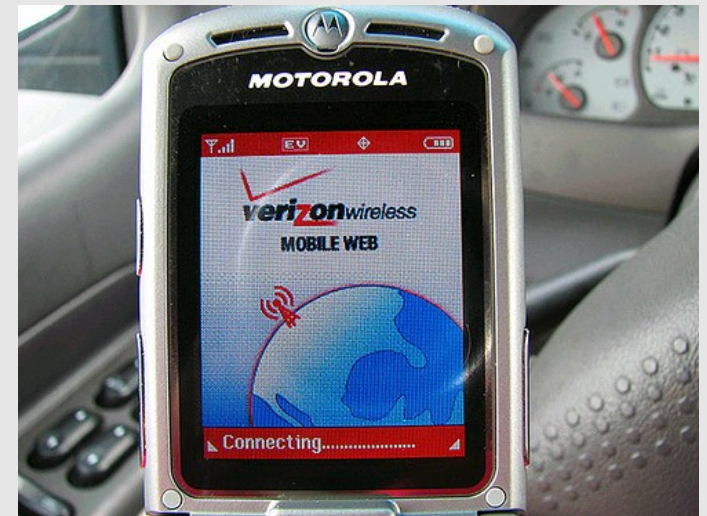
- In *all* directions !
- Two hot areas (among many hot areas):
 - Mobile web
 - Web 2.0

Mobile Web ? !



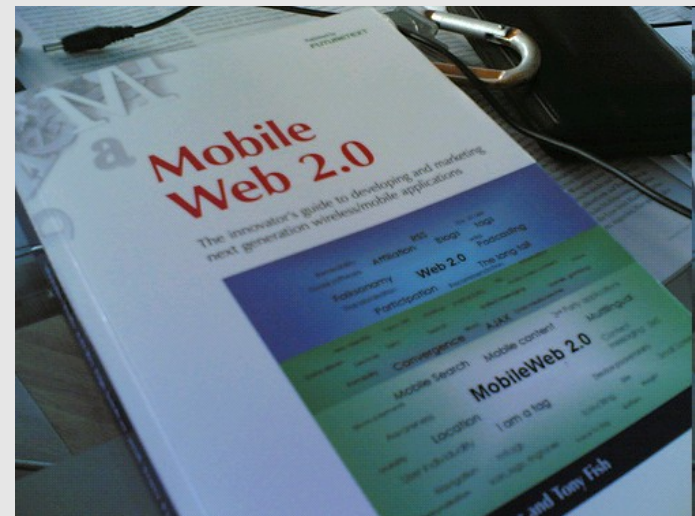
Mobile Web

- Already here
- Not yet in full glory
- Significant use in Japan and Korea
- Trend:
 - from PC
 - to mobile devices



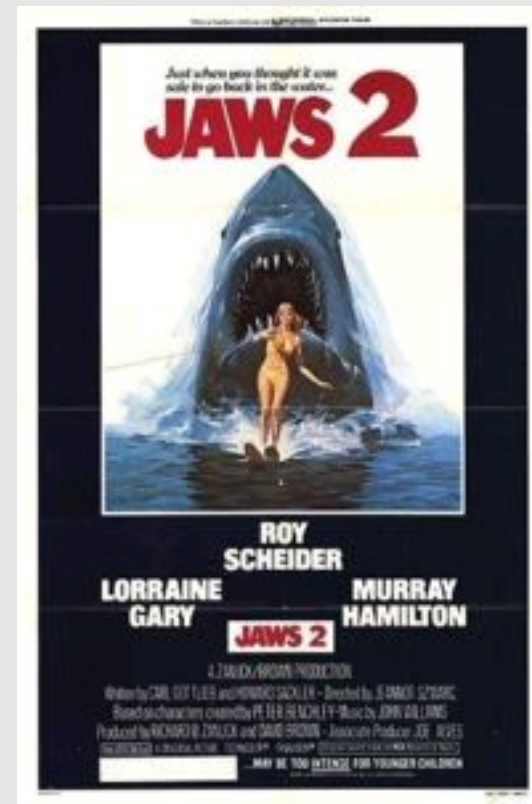
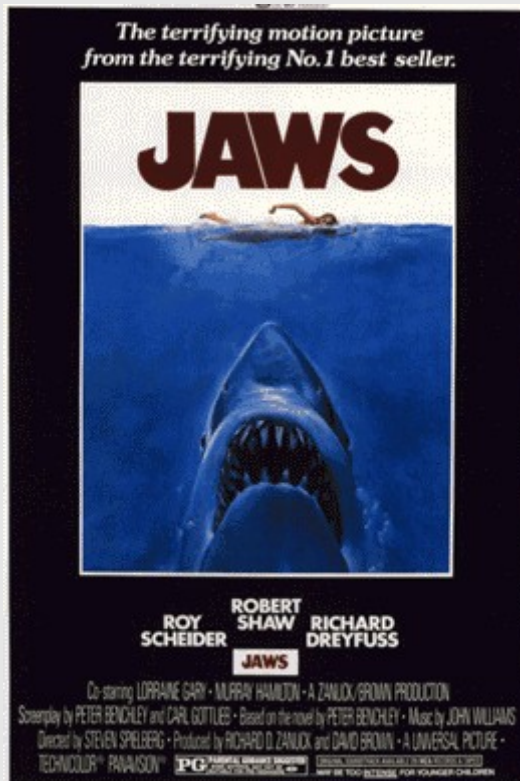
Mobile Web – critical factors

- Reusable content
 - Across PC and mobile
 - Across different mobile devices
- Spectrum of approaches
 - Completely generic content
 - Adaptable content
 - Device-dependent content

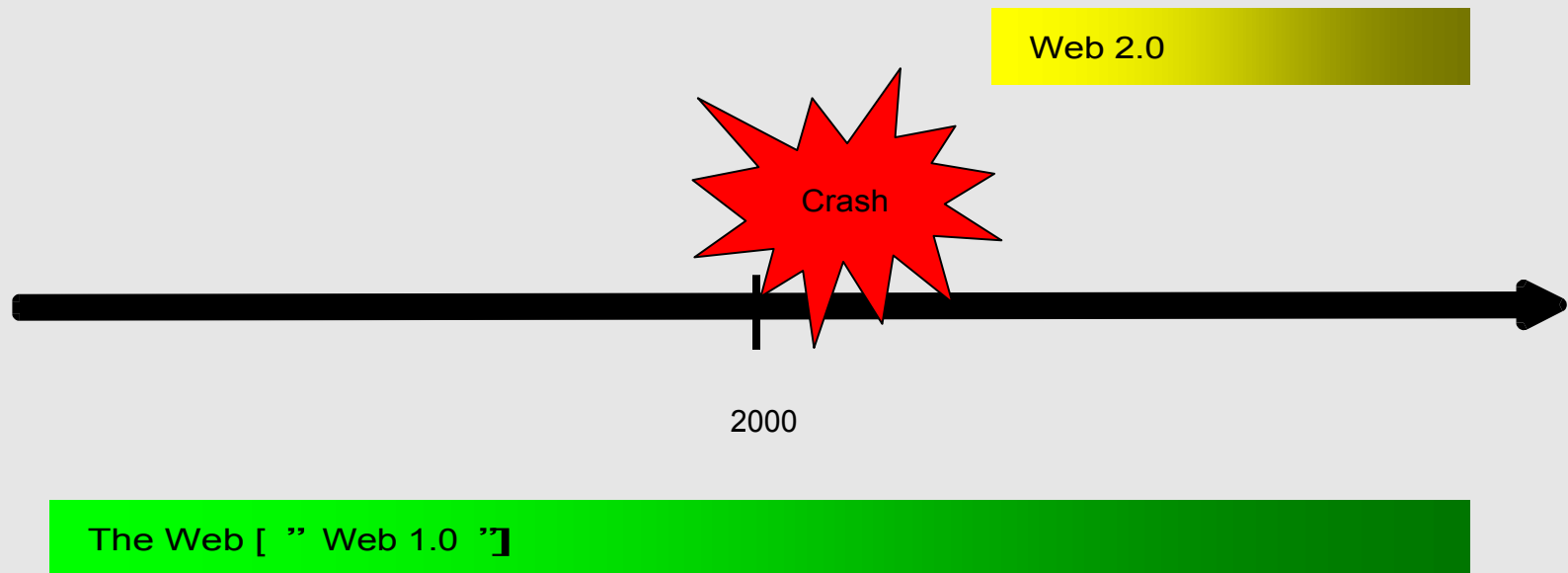


mobileOK!

Web 2.0 – the follow-up ;-)

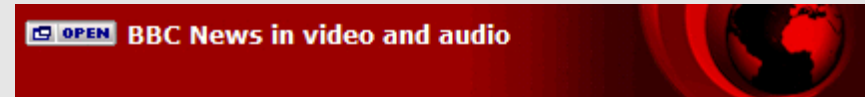


Web 2.0



“The web”, starring ...

- Hot sites
 - Google, Flickr, del.icio.us, YouTube, ...
- Hot business/stock market -- upstarts, acquisitions
 - Google, Amazon, eBay, ...
- Hot profits advertising revenue model

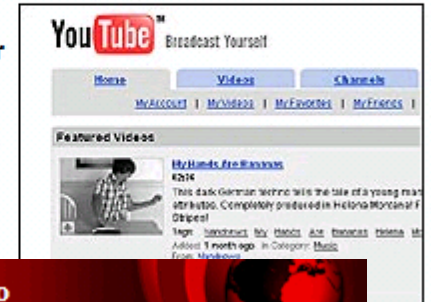


Last Updated: Tuesday, 10 October 2006, 03:03 GMT 04:03 UK
E-mail this to a friend Printable version

Google buys YouTube for \$1.65bn

Google is buying video-sharing website YouTube for \$1.65bn (£883m) in shares after a weekend of speculation that a deal was in the offing.

The two companies will continue to operate



Last Updated: Thursday, 21 April, 2005, 21:06 GMT 22:06 UK
E-mail this to a friend Printable version

Search ads fire up Google profits

Internet search engine Google has reaped the rewards of a rapid growth in search advertising with a near six-fold surge in quarterly earnings.

Google reported a net income of \$369.2m (£282.7m), or \$1.29 a share, in the first quarter, compared with \$64m, or 24 cents a share a year ago.

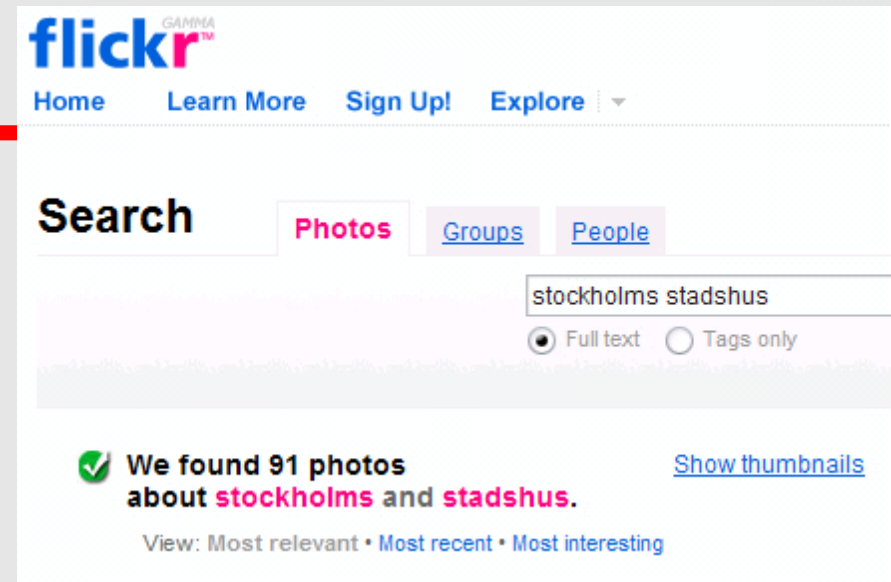


Google is one of the world's most popular search engines

The figures eclipsed even the most optimistic of Wall Street forecasts.

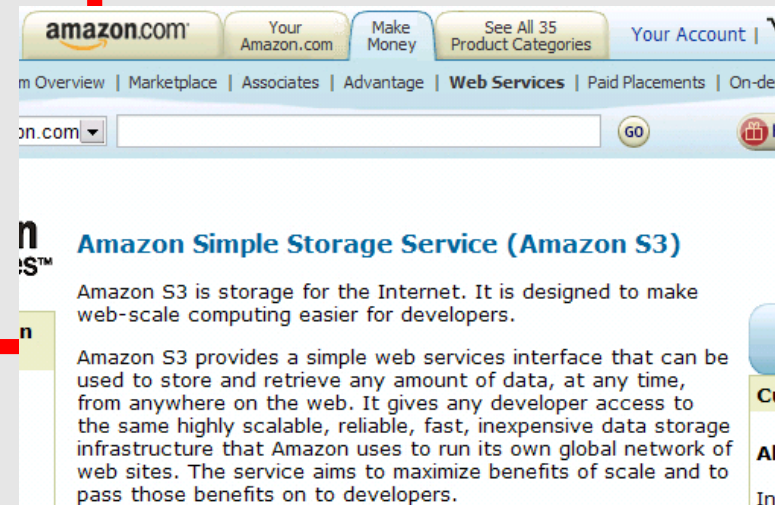
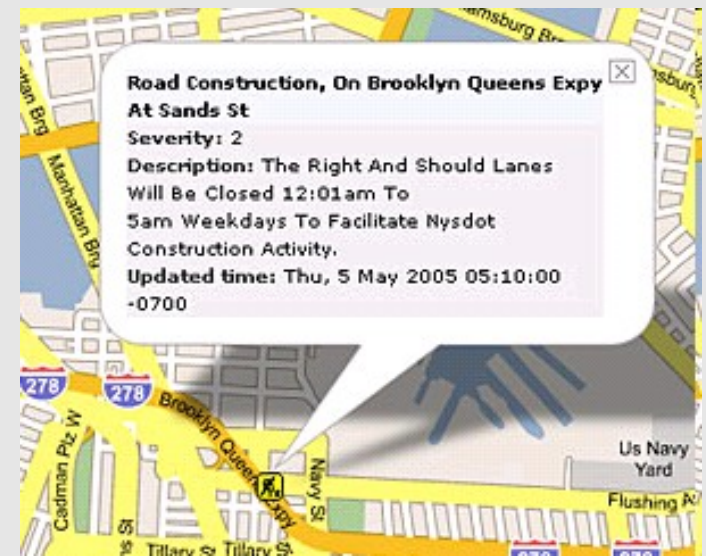
The little people make an impact

- Users as producers
 - Providing content
 - Part of the media scene
 - ...



Cool web services

- Enabling use/re-use other's contents
 - Re-format
 - Mash-up
 - ...
- Offers resources and functionality
 - Storage
 - Communication
 - Syndication
 - ...



And your office on the web

The screenshot displays the Zoho Writer web interface. At the top, there is a search bar and navigation links for Content, Feature, Options, Tell a friend, Feedback, Forums, and Sign out (demo). The main interface is divided into three sections: a left sidebar, a top toolbar, and a main editing area.

Left Sidebar: Contains a 'My Docs' section with 2421 items, a 'Zoho' section with various document titles (e.g., 'Untitled (auto-saved)', 'Unit 1 - Letter'), and a 'Templates' section.

Top Toolbar: Includes a 'Save' button, a font dropdown (Verdana), a font size dropdown (1 (8 pt)), a heading dropdown (Heading 1), and various text formatting icons (bold, italic, underline, strikethrough, bulleted list, numbered list, indent, outdent).

Main Editing Area: Contains the following text:
I wrote most of this article on Zoho with as much ease as writing with Microsoft Word.
- Damon Darlin, *The New York Times*

What we have here is a remarkably full featured document creation, editing, sharing, and collaboration system with extensive support for online integration making it the best online alternative to Word I have come across so far.
- Mark Gibbs, *Network World*

[Zoho Writer] is a remarkably full featured document creation, editing, sharing, and collaboration system with extensive support for online integration making it the best online alternative to Word I have come across so far.
- Mark Gibbs, *Network World*

"It's an impressive piece of work—and most definitely a preview of where the world's going."
Harry McCracken, *PC World*

Zoho [Writer] packs most of the functions along the top of the document pane, with familiar graphical icons, such as a disk that you click to save a file. We like the bottom icons that display the document's tags and sharing status. You can also keep multiple Zoho files open at the same time, which ThinkFree doesn't allow. By default, Zoho Writer organizes your open documents within tabs, which we prefer over the way Google Writely beta pops up a new browser window for each document.
- Elsa Wenzel, *CNET*

Bottom Status Bar: Shows 'Document Saved Successfully', 'Word Count: 214 words 1008 characters', 'Version : 1.1', 'Author : demo@zohowriter.com', 'Modified : 0 seconds ago', and 'Created : Mon, Sep 18, 2006'.

What does all this mean?

- Web used to be:
 - Content/services is produced/provided on commercial basis
 - End-users are consumers
 - The “Gutenberg paradigm”
- Web is moving towards:
 - The participatory web
 - Space for social interaction
 - What you do can make a difference
 - The “Socratic paradigm”

What will be?

- What will the web be?
 - What we now call the web
- What will be the web?
 - What will be called the web

-

Changes in different dimensions

- Technology
 - Basic building blocks in place
- Stakeholders
 - Business, public sector, citizens, ...
- Perception of the web
 - Why does the web matter?
- Business models
 - Where does value arise? How make a profit?
- Where can the web make a difference?
 - Everywhere (?)

Levels of web technology

- The infrastructure
 - Basic plumbing: Web Services, query engines, ...
- Application-specific processing
 - Business systems, ...
- The user interaction
 - Device interaction models and techniques, ...

Evolution on all levels!

- But different drivers.

Thanks!