Standards for Web Design: Best Practices

i.e. a very general overview (and practical introduction)
to the (eXtensible) HyperText Markup Languages
(mostly XHTML) and Cascading Style Sheets

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Story of WWW

December, 2003:

Announcements from Buckingham Palace and the World Wide Web Consortium (W3C) proclaim that Queen Elizabeth II will make **Tim Berners-Lee**, W3C Director, a Knight Commander of the Order of the British Empire.
"The rank of Knight Commander is the second most senior rank of the Order of the British Empire, one of the Orders of Chivalry awarded. Tim Berners-Lee, 48, a British citizen who lives in the United States, is being knighted in recognition of his services to the global development of the Internet through the invention of the World Wide Web."

Sir Tim Berners-Lee

Story of WWW

In 1980, while Berners-Lee worked as a consultant software engineer at CERN, the European Particle Physics Laboratory in Geneva, he wrote for his own private use his first program for storing information using the kind of random associations the brain makes. The "Enquire" program -- which was never published -- formed the conceptual basis for the future development of the Web.

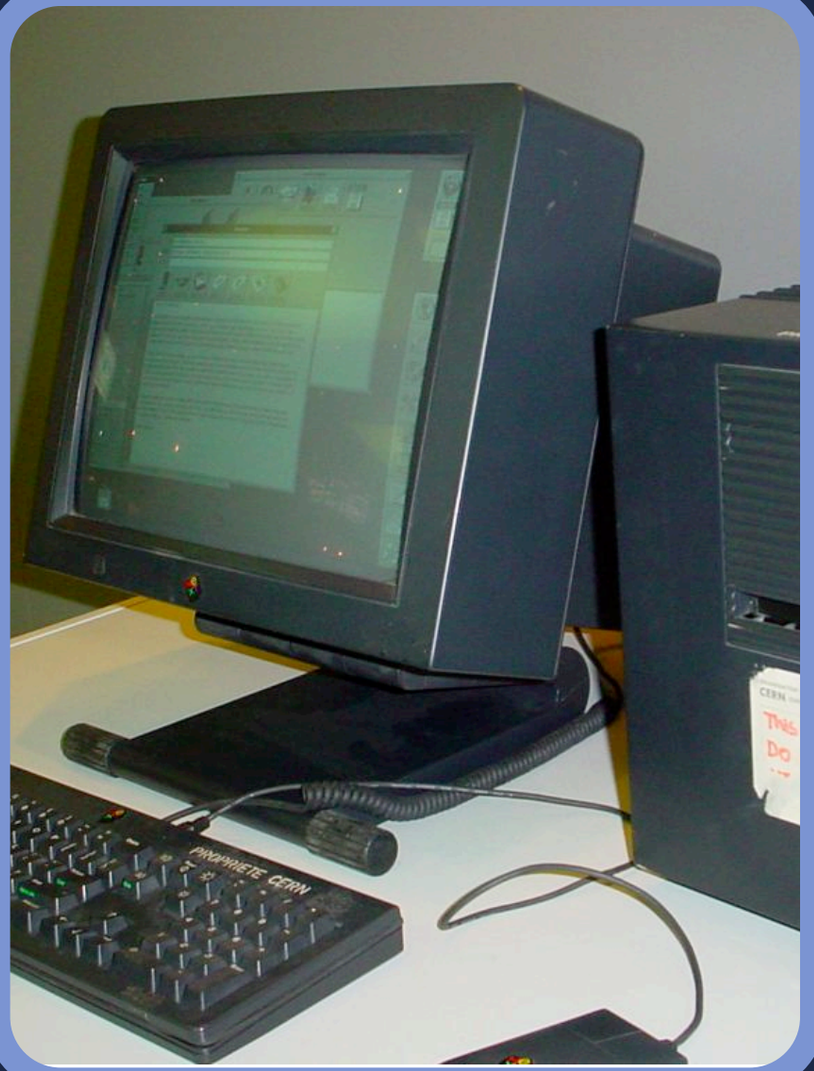
While at CERN in 1989, he proposed a global hypertext project to be known as the World Wide Web. Based on the earlier "Enquire" work, it was designed to allow people to work together by combining their knowledge in a Web of hypertext documents.

Tim Berners-Lee meets Kofi Annan during the WSIS, Geneva 2003

Story of WWW

Berners-Lee wrote the first World Wide Web server, **`httpd`**, and the first client, "World Wide Web," in October 1990. He also wrote the first version of the document formatting language with the capability for hypertext links, known as **HTML**.

The program "WorldWideWeb" was first made available within CERN in December 1990, and the first successful demonstration of the Web clients and servers working over the Internet was made that same month. All of his code was made available on the Internet at large in the summer of 1991.

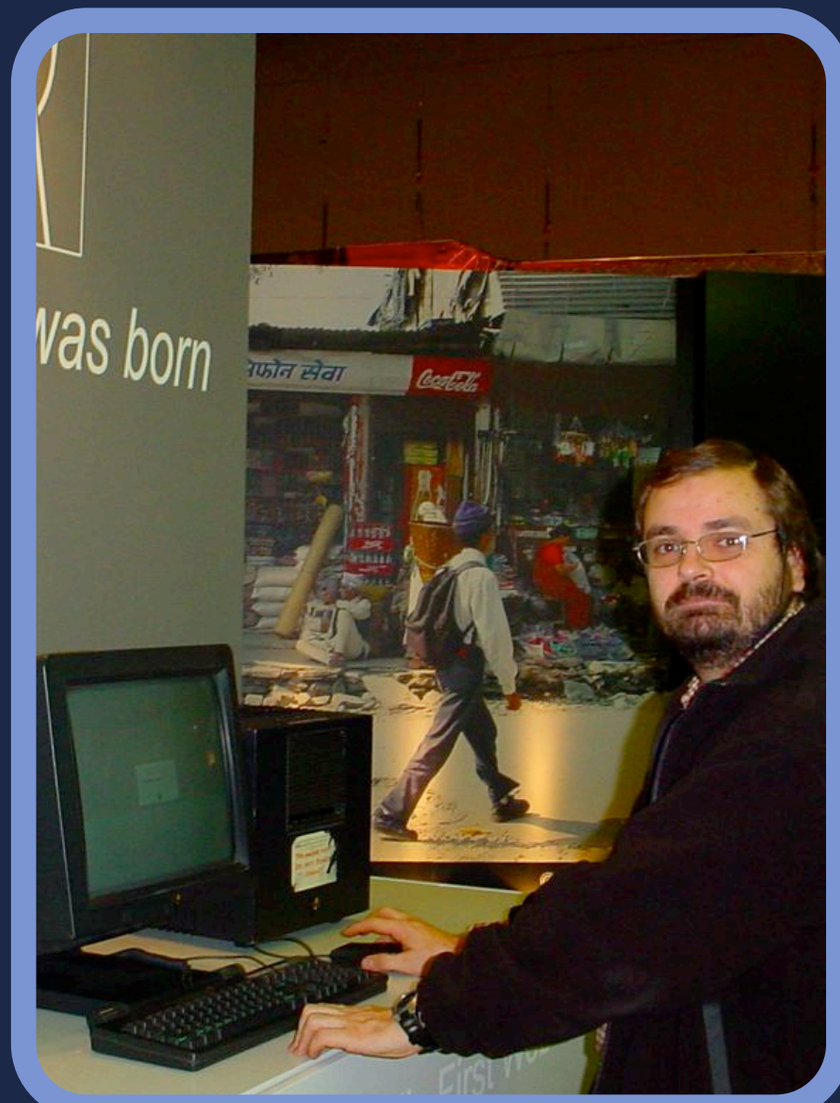


The very first webserver
(a Next Cube at CERN)

Story of WWW

From 1991 to 1993, Berners-Lee continued working on the design of the Web, coordinating feedback from users across the Internet. His initial specifications for URIs, HTTP and HTML were refined and discussed in larger circles as the Web technology spread.

In 1994, with support from the Massachusetts Institute of Technology (MIT), Berners-Lee founded the **World Wide Web Consortium**, where he presently serves as director. The **W3C** coordinates Web development worldwide. Its goal is to lead the Web to its full potential, ensuring its stability through rapid evolution and revolutionary transformations of its usage.

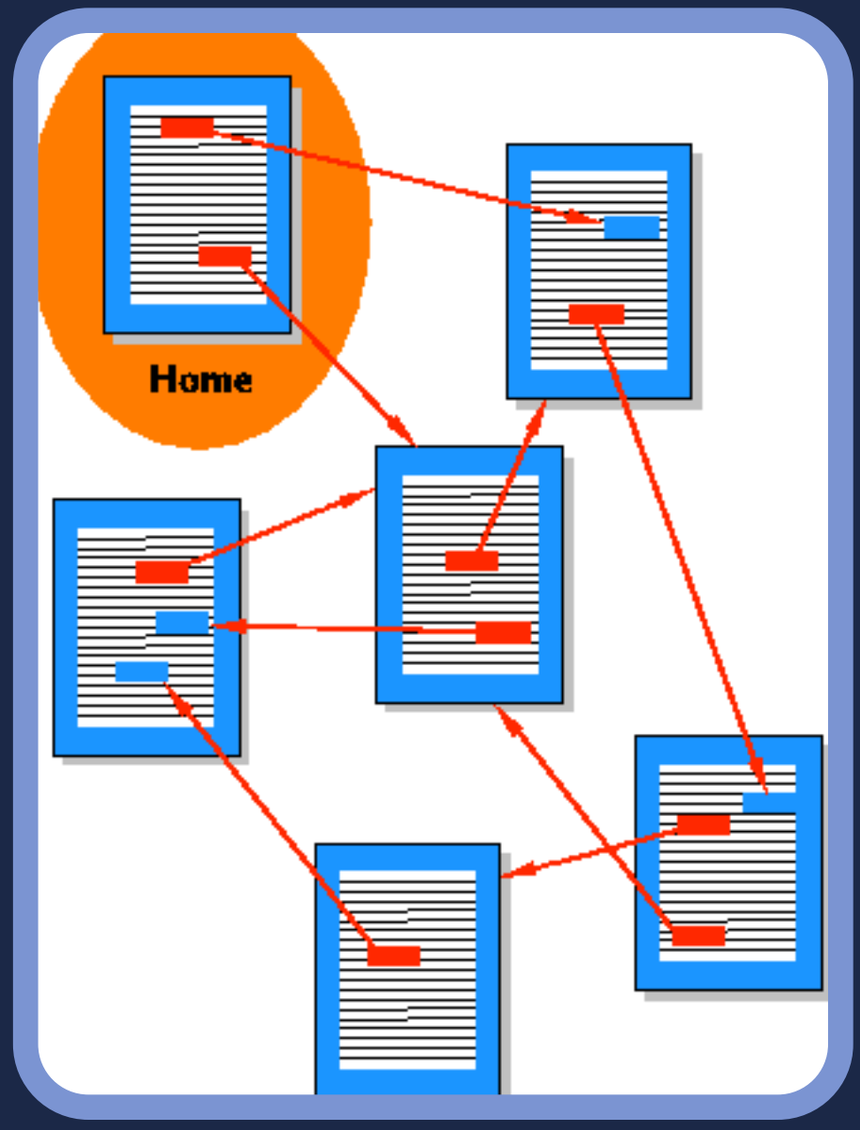


Carlo at the WSIS, playing with the first webserver ;-)

HTML: a definition

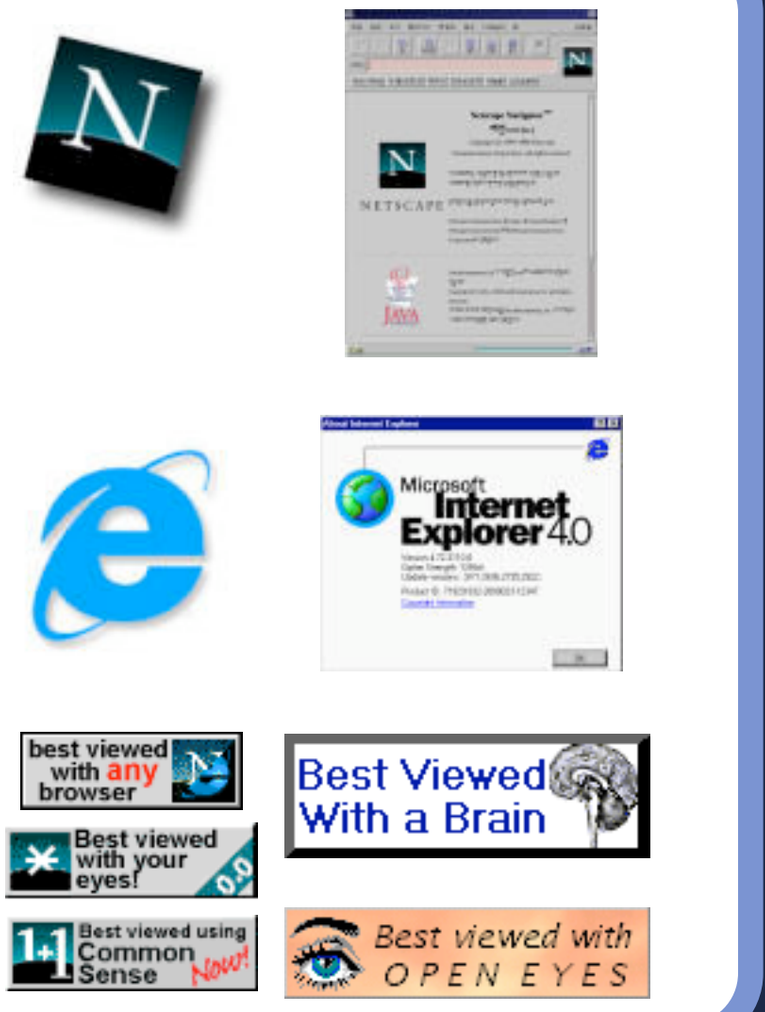
"HTML is an authoring language that defines the **structure** *and* **layout** *of a Web document by using a variety of tags and attributes"*

- HyperText Markup Language
  - **Hypertext:** it's a way to link together documents with cross-references, adding a logical structure to the information.
  - **Markup Language**: it's a way to add computer-understandable information to text files. Certain parts of the text file are interpreted as markup instead of content. This markup may contain instructions for the computer. The interpretation of those instructions is defined by the semantics of a particular markup language. HTML, XHTML, SMIL are examples of markup languages.



structure or layout?

- At the beginning HTML was supposed to define only the structure (hypertext, semantic).
- It has been later adapted to provide also graphical layout information (appearance).
- These two functions doesn't mix well together because of the different behaviors of the many browsers *(browser's war and the broken standard...)*



an example

- international centre for theoretical physics
- Frontiere: incontri di scienza e conoscenza

structure with layout

- W3C developed a solution that meet the need of *standard-compliant* tools to design *nice-appealing* and *well-structured* websites:
  - *(X)HTML* for the semantic structure (markup)
  - *Cascading Style Sheets (CSS)* for the graphical layout

designing for web

- The easiest way to ensure optimal rendering of your web pages in any browser is by following the standards.
- Doing so will guarantee optimal rendering in all standard-compliant modern browsers like the recent versions of Mozilla, Firefox, Opera, Netscape, Internet Explorer, being them for Linux, Windows, Macintosh, etc...
- Of course, each of these browsers has its own minor quirks or legitimate differences of interpretation, so testing your site in all of them is still mandatory.
- Old version of browsers are also partially supported, with some limitation.

an example: XHTML

- XHTML
  - <!– Beginning of overview –>
    <h3>Founded in 1964 by Prof. Abdus Salam (Nobel Laureate), the Centre operates under the aegis of two United Nations Agencies: UNESCO and IAEA ..... </h3>
    <!– End of overview –>

an example: CSS

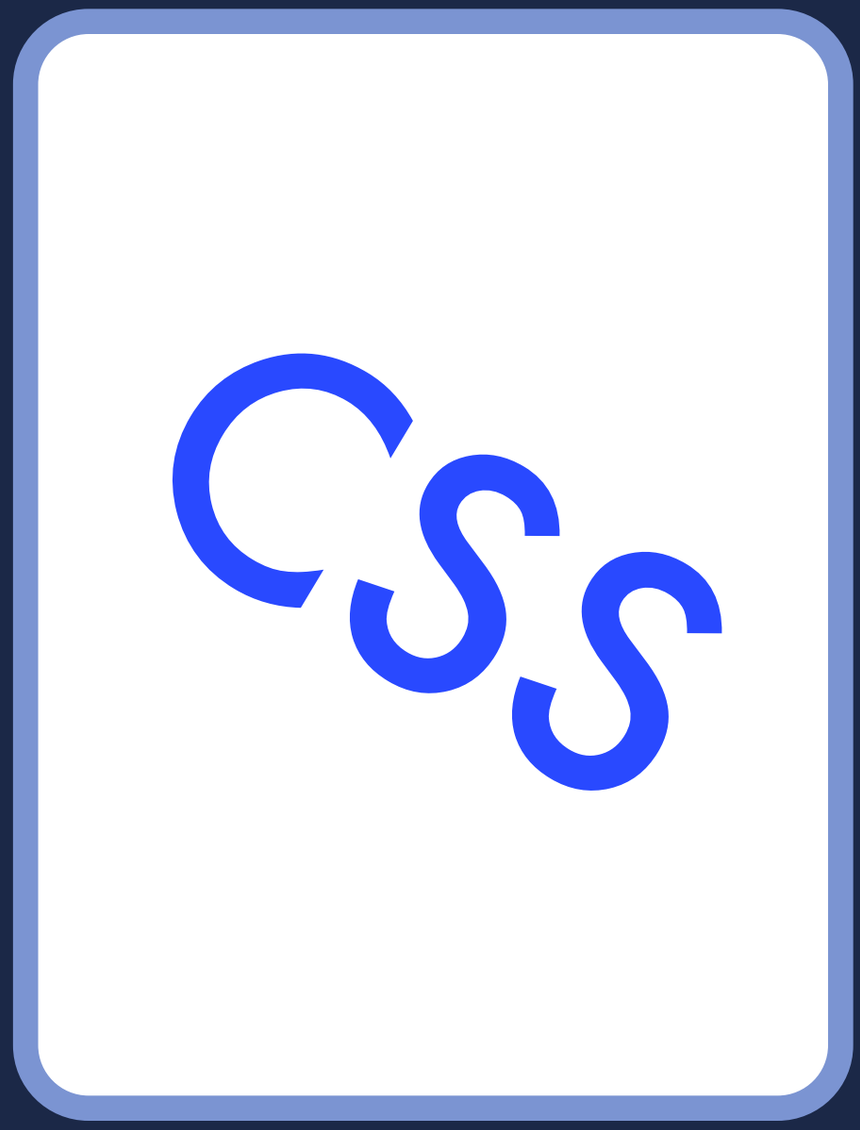
- CSS
  - #content h3 {
    font: 1em Arial,Helvetica,san-serif;
    color: #3e6fa9;
    background-color: #68a0d1;
    height: 2em;
    margin: 0;
    padding: 0em 1em;
    text-align: right;
    line-height: 1.8em;
    font-weight: bold; .....
}

Practical introduction

- I assume you already know (some) HTML
- XHTML is sligthly different from “old school” HTML
- few more rules to obey to
- let’s do a small exercise to become friends with XHTML (brief tutorial)

Practical introduction

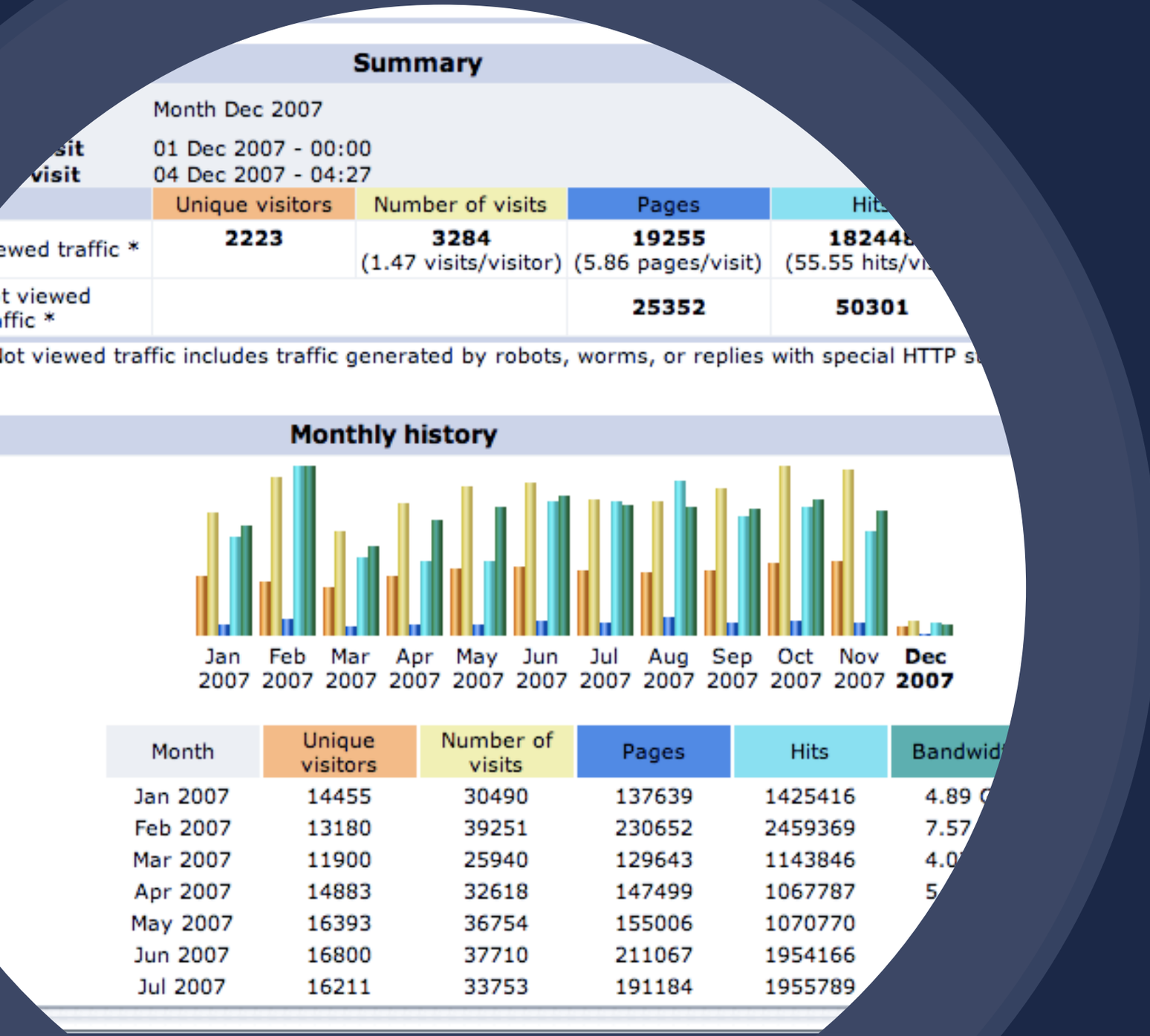
- CSS takes care of the graphical aspects that are now *taken away* from HTML
- many versions (CSS1, 2, 3...)
- browsers had (have) different interpretations of CSS:
  - i.e. IE (box model ;-)
  - many ways to solve it



Advantages of CSS

- Precise control over presentation
- Simplify site maintenance
  - single version of data
  - multiple renderings
- Faster downloads
- Resolution independence
  - supports relative measurements for layouts
- Media-specific rendering

Drawbacks of CSS



Summary

Month Dec 2007

visit 01 Dec 2007 - 00:00
visit 04 Dec 2007 - 04:27

	Unique visitors	Number of visits	Pages	Hits
ewed traffic *	**2223**	**3284** (1.47 visits/visitor)	**19255** (5.86 pages/visit)	**182448** (55.55 hits/vi
t viewed ffic *			**25352**	**50301**

lot viewed traffic includes traffic generated by robots, worms, or replies with special HTTP s

Monthly history

Jan 2007 Feb 2007 Mar 2007 Apr 2007 May 2007 Jun 2007 Jul 2007 Aug 2007 Sep 2007 Oct 2007 Nov 2007 **Dec 2007**

Month	Unique visitors	Number of visits	Pages	Hits	Bandwid
Jan 2007	14455	30490	137639	1425416	4.89 G
Feb 2007	13180	39251	230652	2459369	7.57
Mar 2007	11900	25940	129643	1143846	4.0
Apr 2007	14883	32618	147499	1067787	5
May 2007	16393	36754	155006	1070770	
Jun 2007	16800	37710	211067	1954166	
Jul 2007	16211	33753	191184	1955789	

- Old browsers do not support CSS
- How many old browsers are there?
- CSS websites are “usable” also with older browsers, if properly designed

accessibility

- "The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect."
  – Tim Berners-Lee, W3C Director and inventor of the World Wide Web
- W3C Web Accessibility Initiative (WAI)

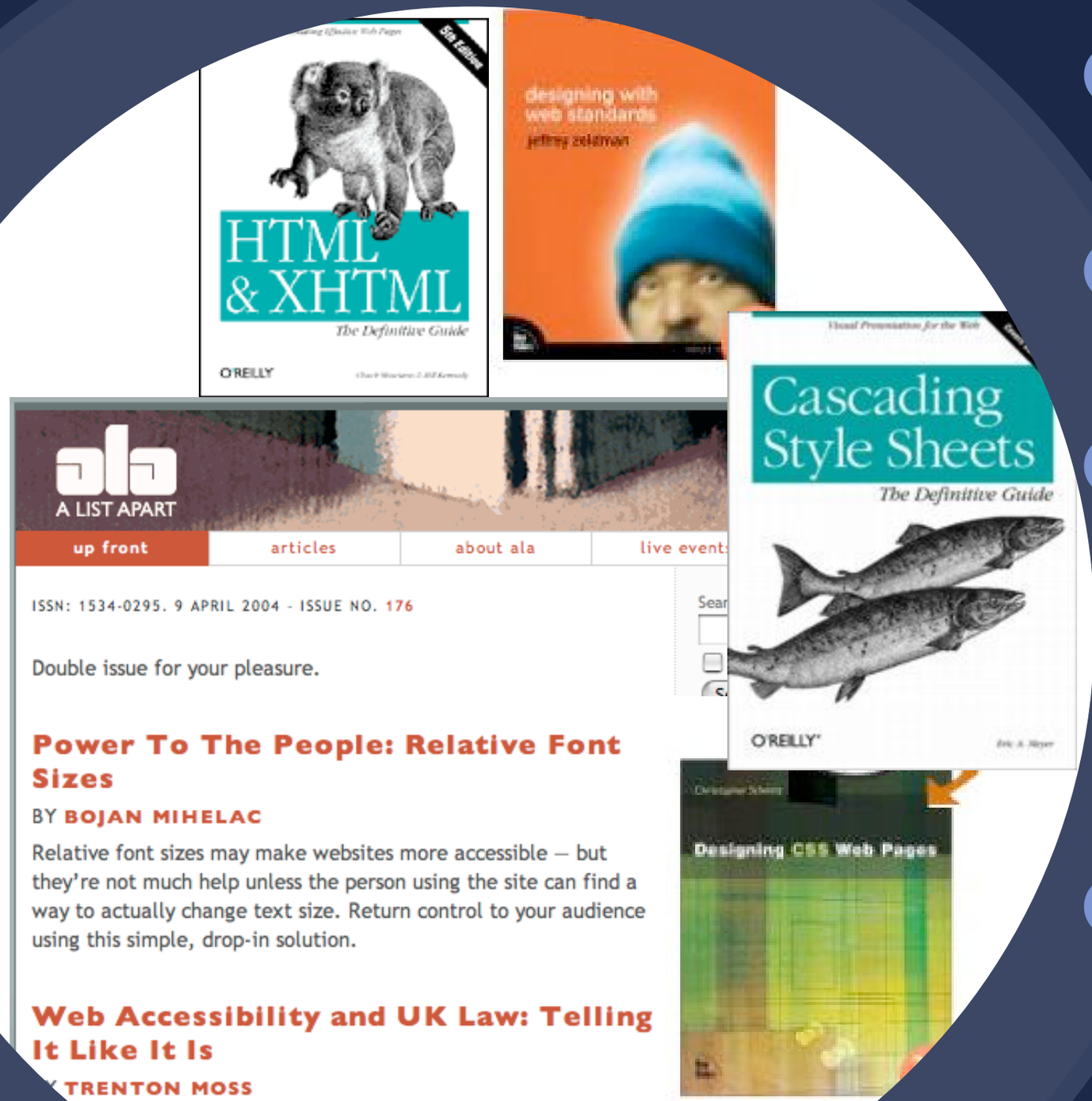
accessibility

- All images have text alternates (ALT attributes), unless they are purely decorative.
- Text uses relative font size so it can be enlarged or reduced using the text size options available in visual browsers.
- Pages are organized to be fully functional, even with JavaScript turned off.
- Pages use flexible formats so they can be automatically resized for different window sizes and screen resolutions.
- Pages are designed with separate cascading style sheets, so they can be replaced by user-defined style sheets.

usability

- *Learnability*: How easy is it for users to accomplish basic tasks the first time they encounter the design?
- *Efficiency*: Once users have learned the design, how quickly can they perform tasks?
- *Memorability*: When users return to the design after a period of not using it, how easily can they reestablish proficiency?
- *Errors*: How many errors do users make, how severe are these errors, and how easily can they recover from the errors?
- *Satisfaction*: How pleasant is it to use the design?

Designing with standards



- Start here:
  - http://developer.apple.com/internet/webcontent/bestwebdev.html
- Follow the guide of Jeffrey Zeldman:
  - http://www.zeldman.com/dwws/
- and his famous mailing list, A LIST APART:
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