

User generated content	Value added by users
Open API to enable data reuse	Web based rich interface
Revenue from advertising	Promote participation

Level 3	Only exist on the Internet, deriving their effectiveness from the inter-human connections and from the network effects that Web 2.0 makes possible, and growing in effectiveness in proportion as people make more use of them	eBay, Craigslist, Wikipedia, del.icio.us, Skype, dodgeball and AdSense
Level 2	Can operate offline but gain advantages from going online	Flickr
Level 1	Applications operate offline but gain features online	Writely (now Google Docs & Spreadsheets) and iTunes (because of its music-store portion)
Level 0	Applications work as well offline as online	MapQuest, Yahoo! Local and Google Maps

Technology

Web 2.0 websites typically include some of the following features/techniques:

- * Cascading Style Sheets to aid in the separation of presentation and content
- * Folksonomies (collaborative tagging, social classification, social indexing, and social tagging)
- * Microformats extending pages with additional semantics
- * REST and/or XML- and/or JSON-based APIs
- * Rich Internet application techniques, often Ajax-based
- * Semantically valid XHTML and HTML markup
- * Syndication, aggregation and notification of data in RSS or Atom feeds
- * mashups, merging content from different sources, client- and server-side
- * Weblog-publishing tools
- * wiki or forum software, etc., to support user-generated content

Example: YouTube

The screenshot shows the YouTube interface for a video titled "Ian, you're fired! - The Apprentice - BBC One". The video player is on the left, showing a man in a suit. To the right, there's a channel card for BBC with 1,809 videos and a "Subscribe" button. Below that, there's a "More From: BBC" section with video thumbnails and titles like "Doctor Who: Planet of the Od - Next Time - BBC One" and "Ideal Series 4: Psycho Paul - BBC Three".

Example: YouTube

This screenshot shows the comments section of the video. It includes a "Commentary" tab and a "Statistics & Data" tab. The "Text Comments" section shows 94 comments. The first comment is from "DariannaPoetess" (4 hours ago) discussing the video's content. Other comments are from "AshiyasHukka", "tokyosweetcheeks", "superstar9111", and "dubzy81". To the right, there are sections for "Related Videos" and "Promoted Videos".

Example: del.icio.us

The screenshot shows the del.icio.us website interface. At the top, there's a search bar and user information. Below that, there are sections for "hotlist" (what's hot right now) and "tags to watch". The "HOT NOW" section lists several bookmarked items with their titles, first post dates, and the number of people who bookmarked them. For example, "Bloxorz - Miniclip Games - Play Free Games" has 227 people, "Socialtext Enterprise Wiki" has 2508, "Use the YouTube API with PHP" has 151, "Technology and Multiple Intelligences" has 289, and "Official Google Webmaster Central Blog: Best practices when moving your site" has 162.

Things you can try

This example uses

firefox on a mac

del.icio.us

del.icio.us plugins for firefox

Equivalent tools are available for IE/Windows users

<http://del.icio.us/help/ie/extension>

del.icio.us / search popular | recent

[your bookmarks](#) | [your network](#) | [subscriptions](#) | [links for you](#) | [post](#) logged in as [barryavery](#) | [settings](#) | [logout](#) | [help](#)

Search results for **ple**

Your bookmarks
showing 1 - 3 of 40

- [PLE Project Summary](#) edit / delete
to [ple](#) [education](#) [elearning](#) [web2.0](#) [lms](#) [e-learning](#) ... [saved by 33 other people](#) ... on dec 09
- [PLE implementations - JITT](#) edit / delete
to [ple](#) ... [saved by 3 other people](#) ... on dec 20
- [ray_ple.png](#) (PNG Image, 2230x1016 pixels) edit / delete
to [ple](#) ... 1 day ago

[» More results in your bookmarks](#)

Everyone's bookmarks → [related tags: ple web2.0 elearning education learning e-learning lms blog socialsoftware eportfolio](#)
showing 1 - 100 of 3302
« [previous](#) | [next](#) »

- [eLearning Moments: The present and future of Personal Learning Environments \(PLE\)](#) save this
to [ple](#) [elearning](#) [web2.0](#) [learning](#) [education](#) ... [saved by 149 people](#)
- [Ple - LTCWiki](#) save this
to [ple](#) [wiki](#) [elearning](#) [learning](#) [web2.0](#) ... [saved by 90 people](#)
- [Teach and Learn Online: Die LMS die! You too PLE!](#) save this
to [ple](#) [lms](#) [elearning](#) [e-learning](#) [web2.0](#) ... [saved by 103 people](#)

Tagrolls
» Tagrolls are a way for you to display your del.icio.us tags as part of your website.

Display Options

size

max font

min font

title icon

sort alphabetically by frequency

flow cloud list tag counts

show your del.icio.us username

show 'add me to your network' link

Preview

my del.icio.us tags

2.0 academic access aggregator ajax api apple art article atom audio bbc
bittorrent blackboard **blog** blogs book books cardiacs cheatsheet classification
cms coding **collaboration** color colour column **Community** comparison
computer conference cost crime **css** cyber data database db **design**
development dictionary download downloads **e-learning** ebook ebooks
eclipse editor **education** **elearning** small entertainment eportfolio eztv feed
flesharing firefox **firmware** flash folksonomies **folksonomy** food form forms
framework free generator google googlemaps graphics guide history hosting hotel
howto **html** humor ide images **imported** inspiration internet iphone
javascript jsc journal language layout **learning** library linksys **linux** lms
mac magazine management map maps mashup MBIT media memory
memoyleak microsoft mining movies mp3 music **networking** **News** online
open **opensource** csx p2p php **ple** powerpoint presentation presentations
programming rdms **reference** research router **rss** search security
sharing **social** socialsoftware **software** standards streaming tagging
taxonomy teaching technology templates **tools** torrent torrents tutorial
tutorials tv usability vb6 video videos vie **web** **web2.0** **webdesign**
webdev wikipedia xhtml

RIAs

- Rich Internet Applications
- Characteristics of installed 'desktop' applications
- Distributed over internet
- Written in AJAX or runs in a browser plugin

AJAX

- First 'named' in an article by Jesse James Garrett
- AJAX: A new approach to Web Applications on www.adaptivepath.com

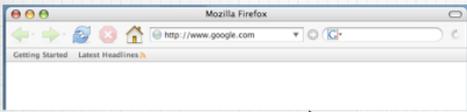


- February 2005

AJAX

- A different way to build and distribute applications over the Internet
- Many Web 2.0 sites use AJAX
- So how do AJAX applications differ to what we had before?
- HTTP is driven by the user using a browser

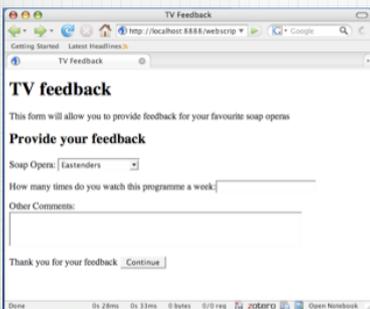
User types in an address and presses enter to start the HTTP get process



1010101001010100100101
0101010101010101010101
0101010101010101010101
0101010101010101010101
0101010101010101010101
0001001....

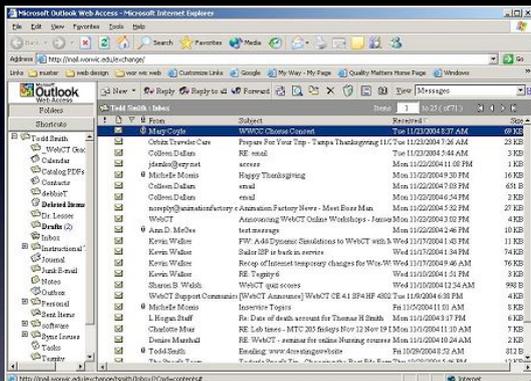
*Hypertext Transfer Protocol

Alternatively: User types in an information into a form and presses a button



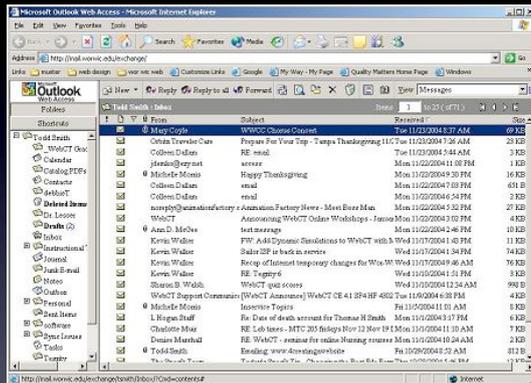
1010101001010100100101
0101010101010101010101
0101010101010101010101
0101010101010101010101
0101010101010101010101
0001001....

In 2000:



Microsoft wanted to create a web front end to their email system - Outlook Web Access

Problem



The only way to see the current list of emails was to click the refresh button

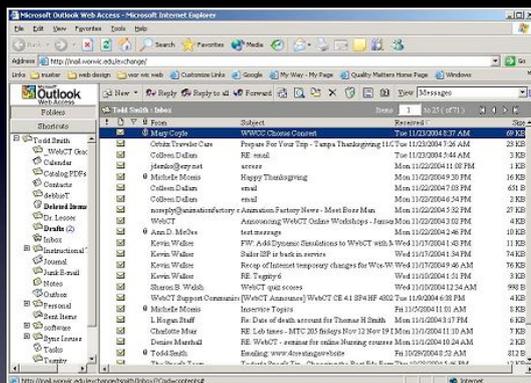
So how to fix this...?

Web browsers can process HTML, XHTML to display a page



They also support programming languages which enable us to write programs that will run **inside** the browser

So: Microsoft introduced a component that could issue HTTP requests under **program** control



A program in the browser polls the email server to update the list every few minutes in the background

No user intervention required

... other browsers implement a version of the **xmlhttprequest** object, along with standards such as DOM, CSS, XML ...



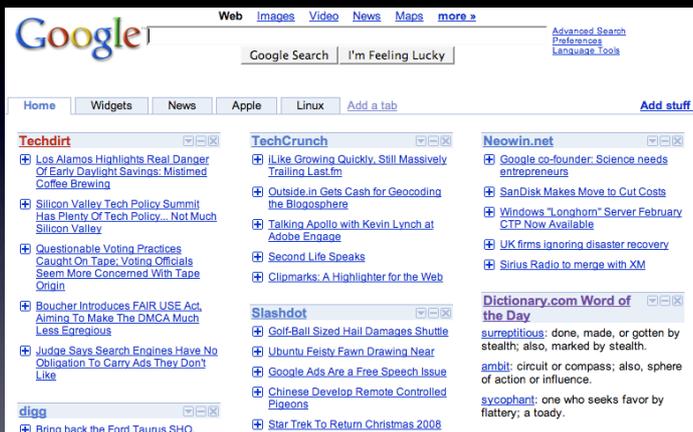
Q4 2004

- Various web applications with rich GUI effects start to appear using this technique

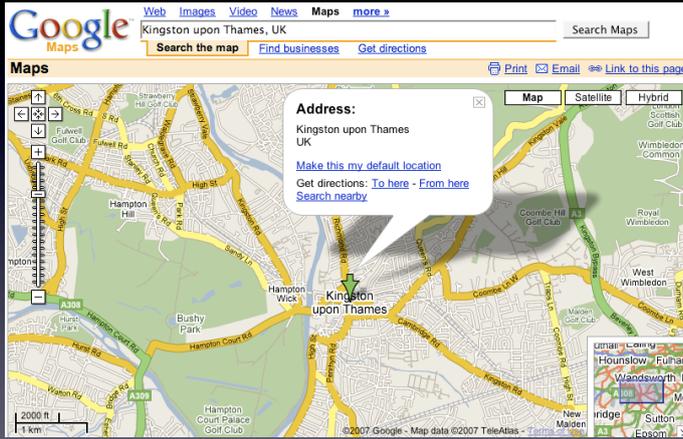


- Jesse James Garrett suggest AJAX as a name for these apps 2005

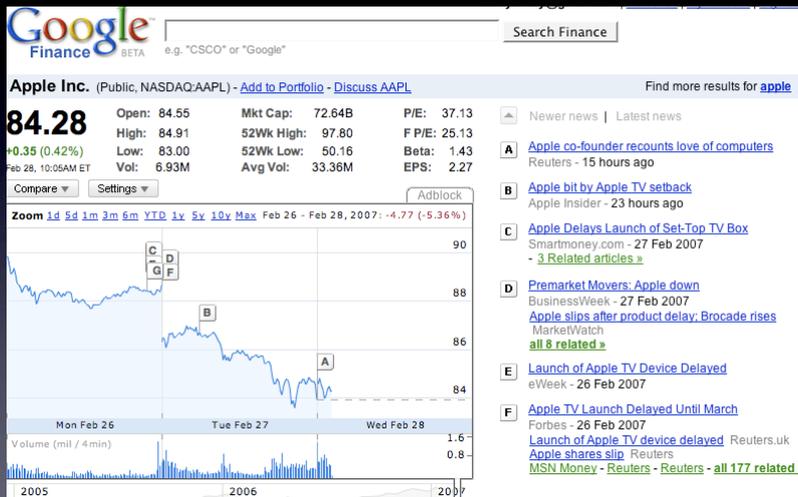
Examples - Google Customised Home



Google Maps



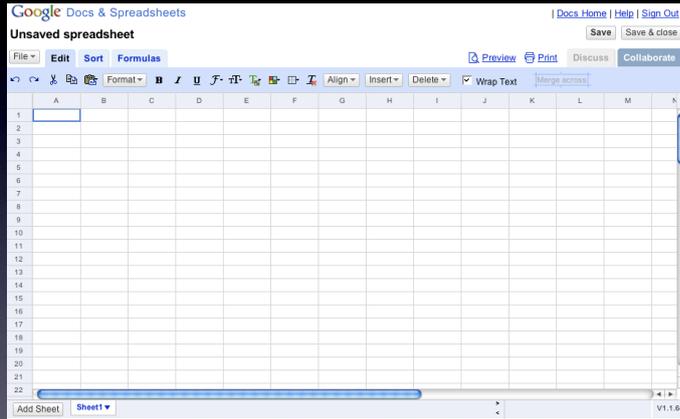
Google Finance



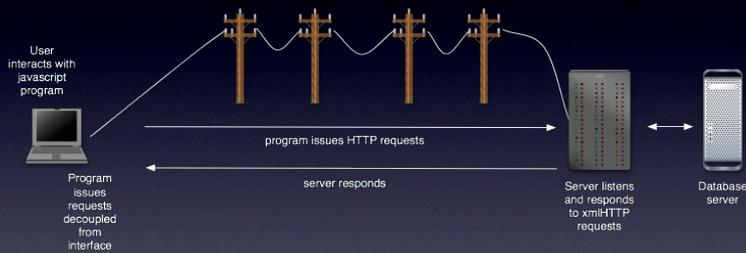
Google Mail



Google Docs and Spreadsheets



Architecture of an AJAX application

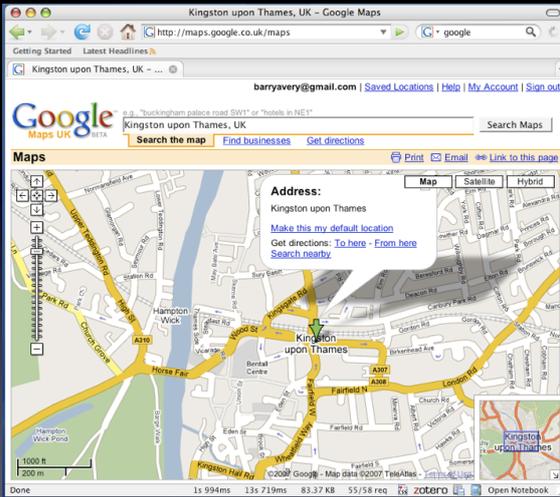


Architecture of an AJAX application

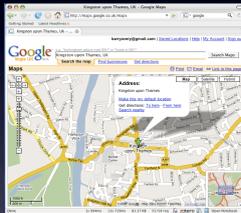
Client

- Web application written in JavaScript, which supports event programming and parallel background processes

Consider Google Maps



These 'off screen' maps load in the background



Architecture of an AJAX application

Client

- Use Cascading Style Sheets to separate page content from design

A style sheet

Flash drives

Flash drive capacities

Here is a picture of a 128MB flash drive which was popular at one time. Note the USB connector. 128MB is regarded as being rather small now.



```

<img alt="Flash drive" data-bbox="70 75 140 110" style="width: 100%; height: auto;"/>
</pre>


Current capacities



Here is a picture of a 128MB flash drive which was popular at one time. Note the USB connector. 128MB is regarded as being rather small now.



```


</pre>

```


```

```

body {
background: teal;
}

h1 {
font-family: Arial, sans-serif;
font-size: 280%;
color: #000;
background: silver;
text-align: center;
}

h2 {
font-family: Arial, sans-serif;
background: #255788;
color: white;
text-align: right;
}

p {
font-family: "Lucida Grande";
color: white;
}

```

Flash drives

Flash drive capacities

Here is a picture of a 128MB flash drive which was popular at one time. Note the USB connector. 128MB is regarded as being rather small now.



Current capacities

Current standards are measured in Gigabytes (GB, 1024 MB) with increasingly larger sized devices scheduled to appear soon.

Content + Design = Final transformed document

Architecture of an AJAX application

Client

- Uses Document Object Model to create a rich GUI (drag and drop, animation, resizable components, on-the-fly changes to parts of the web page)

Architecture of an AJAX application

Transmissions

- Uses HTTP for transmission
- Content probably wrapped in XML or JSON (JavaScript Object Notation)

Architecture of an AJAX application

Server

- Listens for incoming requests
- Responds / services the requests

In fact: very similar to traditional Remote Procedure Call model

Architecture of an AJAX application

Server

- More succesful AJAX applications have an open API
- Allows other people to use the technology in their sites (mashups such as houseprices.co.uk)

Note:

- Importance of Web Standards here
HTTP, XML, DOM, XHTML, CSS

The screenshot shows three overlapping pages from the W3C website. The top page is the 'Document Object Model (DOM)' page, featuring a 'Table of contents' with items like 'What's new?', 'Why the Document Object Model?', and 'DOM Level 3 XPath'. The middle page is the 'CASCADING STYLE SHEETS HOME PAGE', which includes a 'WHAT'S NEW!' section for new CSS (draft) specifications. The bottom page is the 'HTTP - Hypertext Transfer Protocol' page, detailing the protocol's history and current status, with a 'WHAT'S NEW!' section listing recent RFCs such as RFC 2965 (HTTP State Management Mechanism) and RFC 2774 (HTTP Extension framework).

Advantages of AJAX

GUI more like traditional installed applications

Applications distributed at very low cost

*Upgrades or new features can be added
'instantly'*

*User data held centrally - user doesn't need to
worry about backup/restore process*

Disadvantages of AJAX

Users have to be on-line

Applications very hard to write

*Applications given away for free so need to
make money from other sources*

*Data held on central server may cause
privacy issues*

Rich Internet Applications - Browser plugins

- Two competing architectures
- Adobe Flash
- Microsoft's Silverlight

Adobe Flash architecture

- Flash plug-in originally for web animation
- As the plugin became more sophisticated, better apps could be built

Video streaming support	Connectivity to serverside resources
Scriptability	Connectivity to browser resources

Example: YouTube

Google Finance

Apple Inc. (Public, NASDAQ:AAPL) - [Add to Portfolio](#) - [Discuss AAPL](#) Find more results for [apple](#)

84.28 Open: 84.55 Mkt Cap: 72.64B P/E: 37.13
 High: 84.91 52Wk High: 97.80 F P/E: 25.13
 Low: 83.00 52Wk Low: 50.16 Beta: 1.43
 Feb 28, 10:05AM ET Vol: 6.93M Avg Vol: 33.36M EPS: 2.27

Zoom 1d 5d 1m 3m 6m YTD 1y 5y 10y Max Feb 26 - Feb 28, 2007: -4.77 (-5.36%)

Mon Feb 26 Tue Feb 27 Wed Feb 28

Volume (mil / 4min)

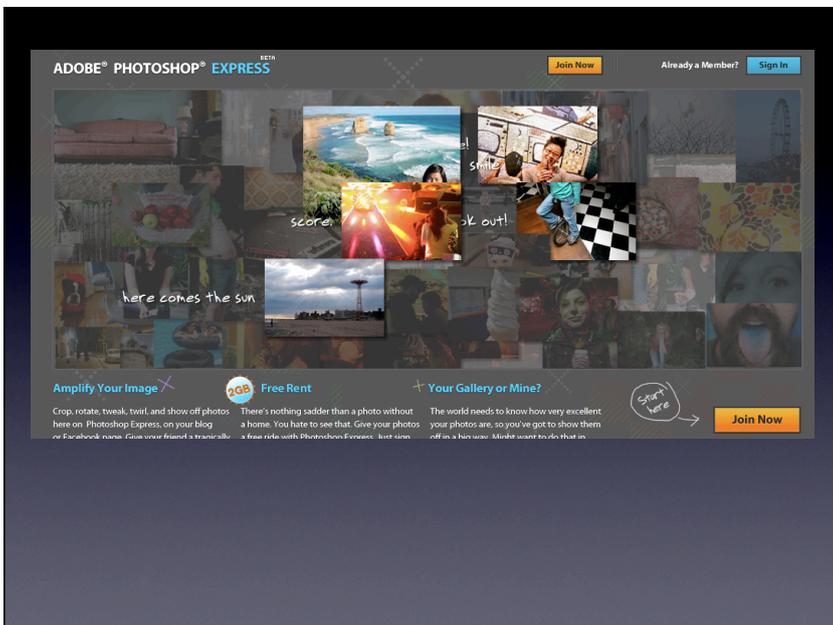
2005 2006 2007

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Apple Insider - 23 hours ago
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eWeek - 26 Feb 2007
- F** [Apple TV Launch Delayed Until March](#)
Forbes - 26 Feb 2007
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Adobe Flash architecture

- Adobe now offers tools for flash application development
- Look at Photoshop elements



Rich Internet Applications - Browser plugins

- Two competing architectures
 - Adobe Flash
 - Microsoft's Silverlight

Microsofts Silverlight

- Silverlight plugin required
- Same feature support as Adobe

Video streaming support	Connectivity to serverside resources
Scriptability	Connectivity to browser resources

Many examples on-line from microsoft.com

Light up the Web. A showcase of next generation experiences using Silverlight.



The screenshot shows a web page titled "Light up the Web. A showcase of next generation experiences using Silverlight." The main content area features a large image of a game interface for "Tunnel Trouble Game" with a "PLAY" button. To the right of the image, the text reads: "Tunnel Trouble Game Use your tunnel gun to rescue your family from the evil porcupine in this free online game from Miniclip.com." Below this text are two buttons: "See It" and "See More...". At the bottom of the page, there is a row of six small thumbnail images representing other Silverlight applications.

Issues

- Silverlight plugin not as common as Flash
- Designer/developer community already using Flash

	Development tools	Plugin	Developer Trust	Platforms
Silverlight	Many, different languages, Windows only	Rare	Slight	Windows, Mac
Flash	Less choice than Silverlight, many platforms	Common	Common	All

Web 3.0

- No-one is really sure
- No single definition

Nova Spivack defines Web 3.0 as the third decade of the Web (2010–2020) during which he suggests several major complementary technology trends will reach new levels of maturity simultaneously including:

- * transformation of the Web from a network of separately siloed applications and content repositories to a more seamless and interoperable whole.

- * ubiquitous connectivity, broadband adoption, mobile Internet access and mobile devices;

- * network computing, software-as-a-service business models, Web services interoperability, distributed computing, grid computing and cloud computing;

- * open technologies, open APIs and protocols, open data formats, open-source software platforms and open data (e.g. Creative Commons, Open Data License);

- * open identity, OpenID, open reputation, roaming portable identity and personal data;

- * the intelligent web, Semantic Web technologies such as RDF, OWL, SWRL, SPARQL, GRDDL, semantic application platforms, and statement-based datastores;

- * distributed databases, the "World Wide Database" (enabled by Semantic Web technologies); and

- * intelligent applications, natural language processing, machine learning, machine reasoning, autonomous agents