

Internet Evolution

From Web 1.0 to 3.0

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November 1, 2007

Outline

- 1 Overview
- 2 Evolution of the WEB
 - Web 1.0: the Web-as-information-source
 - Web 2.0: the participatory Web
 - Web 3.0: the Semantic Web
- 3 Summary

Overview

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Overview, Definition & Characteristics

- Before 2003
- Read-only mode
- Static Content

Technology overview

- HTML (1.0 to 4.0)
- (CSS 1) ?

Web 1.0 Summary

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- Britannica Online (Web 1.0) / Wikipedia (Web 2.0),
 - Personal website (Web 1.0) / blogging (Web 2.0),
 - Content management systems (Web 1.0) / wikis (Web 2.0)
 - Directories (taxonomy) (Web 1.0) / tagging ("folksonomy") (Web 2.0)
-
- Google Apps, Gmail, Google Calendar, Google Reader, Google IG, Google Maps, ...
 - LinkedIn / Facebook / MySpace
 - Flickr, del.icio.us

Overview

- Web 2.0 refers to a perceived 2nd generation of web-based services which aim to facilitate collaboration and sharing between users.
- The term appears following the first O'Reilly Media Web 2.0 conference in 2004.
- Although the term suggests a new version of the World Wide Web, it only refers to changes in the ways software developers and end-users use the Internet.

According to Tim O'Reilly

Web 2.0 is the business revolution in the computer industry caused by the move to the Internet as platform.

Definition

key principles of Web 2.0 applications:

- The web as a platform
- Data as the driving force
- Network effects created by a new architecture of participation
- Innovation in assembly of systems and sites composed by pulling together features
- Lightweight business models enabled by content syndication

Stephen Fry (actor, author, and broadcaster):

*Its actually an idea that the **reciprocity between the user and the provider** is whats emphasized. In other words, **genuine interactivity** if you like, simply because people can **upload as well as download***

Characteristics of Web 2.0

A Web 2.0 website/application may exhibit some basic common characteristics. These might include:

- "Network as platform": delivering applications entirely through a browser.
- Users owning the data on a site and exercising control over that data.
- An architecture of participation that encourages users to add value to the application as they use it.
- A rich, interactive, user-friendly interface based on Ajax, Flex or similar frameworks.
- Some social-networking aspects.

Technology overview

The complex and evolving technology infrastructure of Web 2.0 includes server-software, content-syndication, messaging-protocols, standards-based browsers with plugins and extensions, and various client-applications. These differing, yet complementary approaches provide Web 2.0 with information-storage, creation, and dissemination capabilities that go beyond what the public formerly expected in Web 1.0.

Technology overview

- Rich Internet application techniques, often **Ajax**-based
- Semantically valid **XHTML** and **HTML** markup
- Microformats enriching pages with additional semantics
- **CSS** to separate presentation from content
- REST and/or XML- and/or JSON-based APIs
- 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 to support user generated content
- OpenID for transferrable user identity
- Use of Open source software, such as the **LAMP** stack

Innovations associated with Web 2.0

- Web-based applications and desktops
 - Websites mimics applications, such as word processing, spreadsheet, and slide-show presentation.
 - Browser-based "operating systems".
- Rich Internet applications

many rich-Internet application techniques: Ajax, Adobe Flash, Flex, Nexaweb, OpenLaszlo and Silverlight.
- XML and RSS
 - Standardized protocols: RSS, RDF, and Atom.
 - Specialized protocols: FOAF (Friend of a Friend) and XFN (XHTML Friend Network).
- Web APIs: REST/SOAP allow web-based access to data and functions.

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Innovations associated with Web 2.0

Warning

Web 2.0 merely continues to use "Web 1.0" technologies and concepts.

Techniques such as Ajax do not replace underlying protocols like HTTP, but add an additional layer of abstraction on top of them.

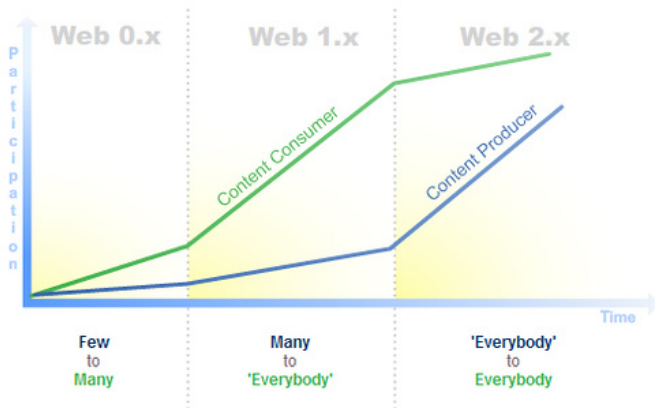
The Economy of Web 2.0

- The economy of Web 2.0 is based on **mass collaboration**.
- The new Internet economy would be based on the principles of **openness**, **peering**, **sharing**, and acting globally.
- A lot of Web 2.0 business models (peer pioneers, ideagoras, prosumers, new Alexandrians, platforms for participation, global plantfloor, wiki workplace).

Web 2.0 Summary



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Overview

- The term appears in early 2006, in an article by Jeffrey Zeldman.
- Web 3.0 will appear during the third decade of the Web (2010 - 2020)



Purpose

The semantic web is a vision of information that is understandable by computers, so that they can perform more of the tedious work involved in finding, sharing and combining information on the web.

Proposed expanded definition

- Transformation of the Web from a network of separately siloed applications and content repositories to an 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;

Characteristics

- Based on the actual Web 2.0.
- Use formal languages to describe the content
- Systems are able to:
 - generate semantic data
 - aggregate data
 - publish data
 - exchange data

Technology overview

Based on:

- the actual **HTTP** protocol
- **URI** (Unified Resource Identifiers)
- **XML**

in addition to others standards associated to the Semantic Web:

- **RDF** and **RDF Schema** to describe data
- **OWL** (Web Ontology Language)
- **SPARQL** to query RDF graphs

Web 3.0 debates & projects

Debates

- Transforming the Web into a database
- An evolutionary path to artificial intelligence
- The realization of the Semantic Web
- Evolution towards 3D
- Web 3.0 as an "Executable" Web Abstraction Layer

Projects

- Neurocommons
- FOAF
- SIOC
- SIMILE
- Linking Open Data

Skeptical reactions

- Practical feasibility
- Censorship and privacy

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Summary

- A lot of framework exist to produce Web 2.0 applications.
 - Support of a lot of programming languages (Java, Javascript, Ruby, Python, .Net, ...)
 - They will drive the actual use of the web to the final Web 3.0 state

Any Questions ?