Comparative Study of Web 1.0, Web 2.0 and Web 3.0

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Abstract

The WWW is more and more used for application to application communication. The programmatic interfaces made available are referred to as web services. Most people today can hardly conceive of life without the internet. The web of documents has morphed into a web of data. The semantic wave embraces three stages of internet growth. The first stage, web 1.0, was about connecting information and getting on the net. Web 2.0 is about connecting people putting the "I" in user interface, and the "we" into a web of social participation. The next stage, web 3.0, is starting now. It is about representing meanings, connecting knowledge, and putting them to work in ways that make our experience of internet more relevant, useful, and enjoyable.

Keywords : WWW, Web 1.0, Web 2.0, Web 3.0, Web services, Web Technology, Web Application

1. Introduction

A web service is a software system designed to support computer-to-computer interaction over the Internet. Web services are not new and usually take the form of an Application Programming Interface (API). In today's world of extreme competition on the business front, information exchange and efficient communication is the need of the day. The web is an increasingly important resource in many aspects of life: education, employment, government, commerce, health care, recreation, and more. The web is a system of interlinked, hypertext documents accessed via the Internet. With a web browser, a user views web pages that may contain text, images, videos, other multimedia and navigates between them using hyperlinks.

The web was created in 1989 by Sir Tim Berners-Lee, working at CERN (The European Organization for Nuclear Research) in Geneva, Switzerland. Since then, Berners-Lee has played an active role in guiding the development of web standards (such as the markup languages in which web pages are composed), in recent years has advocated his vision of a Semantic web. [2]

Web 1.0 was the era when people could think that Netscape was the contender for the computer industry crown. Web 2.0 is the era when people have come to realize that it's not the software that enables the web that matters so much as the services that are delivered over the web. New technologies will make online search more intelligent and may even lead to a web 3.0. Enter web 2.0, a vision of the web in which information is broken up into "microcontent" units that can be distributed over dozens of domains. The web of documents has morphed into a web of data.

2. Web 1.0

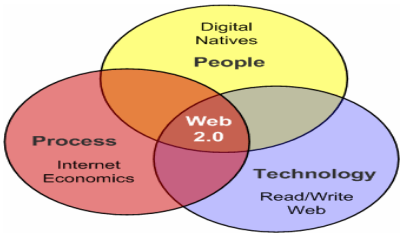
In web 1.0, a small number of writers created web pages for a large number of readers. As a result, people could get information by going directly to the source. The WWW or Web 1.0 is a system of interlinked, hypertext documents accessed via the Internet.

WWW or Web 1.0

The first implementation of the web represents the web 1.0, which, according to Berners-Lee, could be considered the "read-only web." In other words, the early web allowed us to search for information and read it. There was very little in the way of user interaction or content contribution. However, this is exactly what most website owners wanted: Their goal for a website was to establish an online presence and make their information available to anyone at any time. [9]

3. Web 2.0

Currently, we are seeing the infancy of the Web 2.0, or the "read-write" web if we stick to Berners-Lee's method of describing it. The newly-introduced ability to contribute content and interact with other web users has dramatically changed the landscape of the web in a short time. In alluding to the version numbers that commonly designate software upgrades, the phrase "Web 2.0" hints at an improved form of the WWW. Technologies such as weblogs (blogs), social bookmarking, wikis, podcasts, RSS feeds (and other forms of many-to-many publishing), social software, web APIs, and online web services such as eBay and Gmail provide enhancements over read-only websites. Stephen Fry (actor, author, and broadcaster) describes Web 2.0 as "an idea in people's heads rather than a reality. It's actually an idea that the reciprocity between the user and the provider is what's emphasized. In other words, genuine interactivity, if you like, simply because people can upload as well as download". [3]



Web 2.0

Tim O'Reilly popularized w*eb 2.0* as an expression when he wrote a fairly coherent definition. Web 2.0 is definitely the next big thing in the WWW. It makes use of latest technologies and concepts in order to make the user experience more interactive, useful and interconnecting. It has brought yet another way to interconnect the world by means of collecting information and allowing it to be shared affectively. It definitely has a bright future with so many Web 2.0 based websites coming up. It is a revolution in the field of computers and will definitely achieve far greater success *[1]*

According to some sources, the term Web 2.0 has been around since about October 2004. From Wikipedia, the free Web encyclopedia, it is defined as Web 2.0 is a term often applied to a perceived ongoing transition of the WWW from a collection of websites to a full-fledged computing platform serving web applications to end users. Ultimately web 2.0 services are expected to replace desktop computing applications for many purposes. *[5]*

3.1 Web 2.0 Website Types

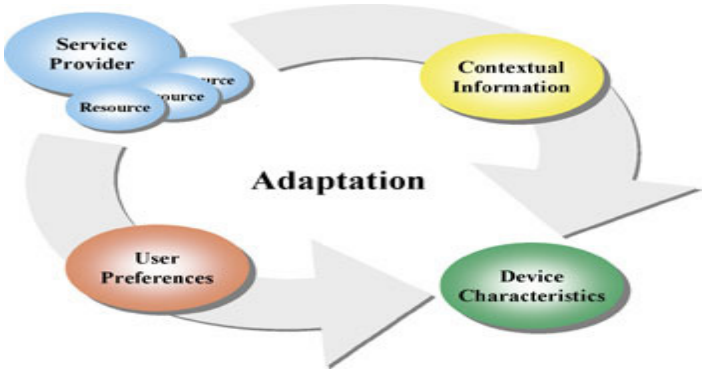
Audio	BlogPod	Blogging	Bookmarking	Calendars
Chats	Collaboration	Communication	Community	CRM
E-commerce	E-learning	E-mail	Filesharing	Forums
Games	Images	Knowledge Base	Lists	Mapping
Mashups	Multi-media	Portals	RSS	Wiki

4. Web 3.0

Web 3.0 is a term that has been coined to describe the evolution of Web usage and interaction that includes transforming the Web into a database. Web 3.0 is an era in which we will upgrade the back-end of the Web, after a decade of focus on the front-end (Web 2.0 has mainly been about AJAX, tagging, and other front-end user-experience innovations.) This in turn leads us to the rumblings and mumblings we have begun to hear about Web 3.0, which seems to provide us with a guarantee that vague web-versioning nomenclature is here to stay. By extending Tim Berners-Lee's explanations, the Web 3.0 would be something akin to a "read-write-execute" web. Web 3.0 is defined as the creation of high-quality content and services produced by gifted individuals using web 2.0 technologies as an enabling platform. [6]

Web 3.0 is a term that is used to describe various evolutions of Web usage and interaction along several paths. These include transforming the Web into a database, a move towards making content accessible by multiple non-browser applications, the leveraging of artificial intelligence technologies, the Semantic web, the Geospatial Web, or the 3D web. Gartner suggests the need to differentiate incremental changes to Web 2.0 from Web 3.0. Tim Berners-Lee coined Giant Global Graph (GGG) as another facet of Web 3.0 [8]

Web 3.0 is a web where the concept of website or webpage disappears, where data isn't owned but instead shared, where services show different views for the same web / the same data. Those services can be applications (like browsers, virtual worlds or anything else), devices or other, and have to be focused on context and personalization, and both will be reached by using vertical search. [13] One could speculate that the Google / Sun Microsystems alliance to create a web based operating system for applications like word processing and spreadsheets is an early indicator of this trend. [12]

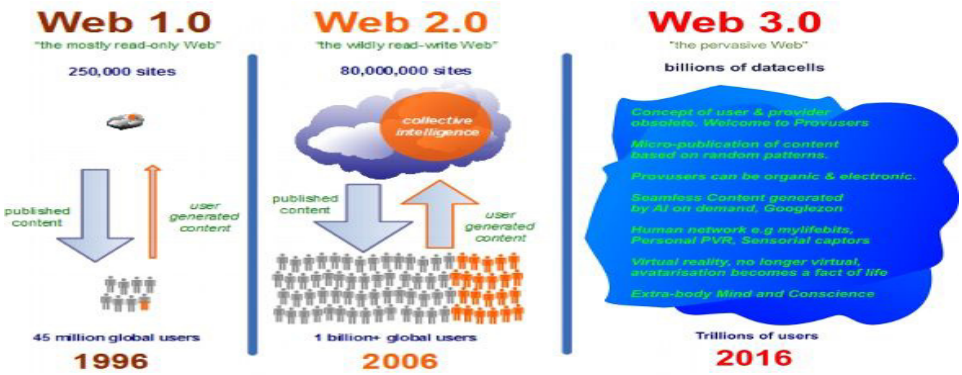


Web 3.0

4.1 Examples of Web 2.0 based websites

1. **Flickr** – A photo sharing website which allows users to upload their photographs and share it with anyone and everyone.
2. **Orkut**-Social networking site which allows the users to send messages and communicate with other members.
3. **YouTube** – It allows the users to upload their videos and share it with everyone.
4. **Blogs** – Maintained by individuals or groups, they can be used to convey anything.
5. **Google AD sense** – Allows users to earn money through posting Google ads on their websites.
6. **Wikipedia** – Online encyclopedia wherein the users contribute by writing the articles, definitions, etc. It is completely edited and maintained by the users.
7. **Scribd** – Users can upload any documents on the website where other users can either download or view those documents online

5. Comparison between Web 1.0, Web 2.0 and Web 3.0



Web 1.0, Web 2.0 and Web 3.0

S.No	Web 1.0	Web 2.0	Web 3.0
1.	1996	2006	2016
2.	The Web	The Social Web	The Semantic Web
3.	Tim Berners Lee	Tim O'Reilly	Sir Tim Berners Lee
4.	Read only web	Read and write web	Read, write and execute web
5.	Information sharing	Interaction	Immersion.
6.	Million of users	Billion of users	Trillion of users
7.	Ecosystem	Participation	Understanding itself
8.	Connect information	Connect people	Connect knowledge
9.	Brain and Eyes (= Information)	Brain, Eyes, Ears, Voice and Heart (= Passion)	Brain, Eyes, Ears, Voice, Heart, Arms and Legs (= Freedom
10.	The Hypertext/CGI Web. (the basics)	The Community Web (for people: apps/sites connecting them).	The Semantic Web (for machines).
11.	Pushed web, text/graphics based flash	Two way web pages, Wikis, video, pod casts, shading, Personal publishing, 2D	3D portals, avtar representation, Interoperable profits, multi-user virtual environment (MUVEs),

		portals	Integrated games, education and business, all media flows in and out of virtual Web worlds
12.	Companies publish content that people consume (e.g. CNN)	People publish content that other people can consume, companies build platforms that let people publish content for other people (e.g. Flickr, YouTube, Adsense, Wikipedia, Blogger, MySpace, RSS, Digg)	People build applications that people can interact with, companies build platforms that let people publish services by leveraging the associations between people or special content (e. g. FaceBook, Google Maps, My Yahoo!)
13.	In Web 1.0 search engines retrieve macro contents. Search is very fast but many times results are inaccurate or more than users can chew.	In Web 2.0 search engines retrieve tags with micro contents (Furl even retrieves tags with macro contents). The process of tagging is manual, tedious and covers negligible percents of the WWW. Web 2.0 tags everything: pictures, links, events, news, Blogs, audio, video, and so on. Google Base even retrieves micro content texts.	In Web 3.0 search engines will hopefully retrieve micro content texts which were tagged automatically. This implies translating billions of Web 1.0 macro contents into micro contents. The result could be more precise search because tagging can solve part of the ambiguity that homonyms and synonyms introduce into the process of search.
14.	Web 1.0 was all about static content, one way publishing of content without any real interaction between readers or publishers or each other.	Web 2.0 is more about 2 way communication through social networking, blogging, wikis, tagging, user generated content and video.	Web 3.0 is curiusly undefined. AI and the web learning what you want and delivering you a personalized web experience.
15.	The web in the beginning when it was first developing web 1.0	New advances that allow a much more sophisticated user interaction with web pages – citizen journalism,	Thought to be the future - where the web is more interactive with

		social networks and Wikis are all products of Web 2.0	users, leading to a kind of artificial intelligence web 3.0
16.	Personal web sites	Blogs	Semantic Blogs: SemiBlog, Haystack, Semblog, Structured Blogging
17.	Content Management system	Wikis, Wikipedia	Semantic Wikis: Semantic MediaWiki, SemperWiki, Platypus, dbpedia, Rhizome
18.	AltaVista, Google	Google personalized, DumpFind, Hakia	Semantic Search: SWSE, Swoogle, Intellidimension
19.	Citeseer, Project Gutenberg	Google scholar, Book search	Semantic Digital Libraries: JeromDl, BRICKS, Longwell
20.	Message boards	Community portals	Semantic Forums and community portals: SIOC, OpenLink DataSpaces
21.	Buddy Lists, Address book	Online social networks	Semantic Social Networks: FOAF, PeopleAggregator
22.			Semantic Social Information Spaces: Nepomuk, Gnowsis

6. Conclusion

The web offers so many opportunities to people with disabilities that are unavailable through any other medium. It offers independence and freedom. However, if a web site is not created with web accessibility in mind, it may exclude a segment of the population that stands to gain the most from the internet. Most people do not intend to exclude people with disabilities. As organizations and designers become aware of and implement accessibility, they will ensure that their content can be accessed by a broader population.

The Semantic Web (Web 3.0) promises to "organize the world's information" in a dramatically more logical way than Google can ever achieve with their current engine design. This is specially true from the point of view of machine comprehension as opposed to human comprehension.The Semantic Web requires the use of a declarative ontological language like OWL to produce domain-specific ontologies that machines can use to reason about information and make new conclusions, not simply match keywords. The effects of Web 2.0 are far-reaching. Like all paradigm shifts, it affects the people who use it socially, culturally, and even politically. One of the most affected groups is the

designers and developers who will be building it—not just because their technical skills will change, but also because they will need to treat content as part of a unified whole, an ecosystem if you will, and not just an island. First, knowledge of all kinds gets represented in a form that is interpretable both by people and machines. Second, different forms of language in which knowledge is expressed begin to be interrelated and made interchangeable with each other. Third, when knowledge is encoded in a semantic form, it becomes transparent and accessible at any time to a variety of reasoning engines.

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