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PERCEPTIVE OF SEMANTIC WEB: AROUSING TOWARDS NEW GENERATION

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Abstract

The Semantic Web is a Web of actionable information derived from data through a semantic theory for interpreting the symbols. The semantic web theory provides an account of meaning in which the logical connection of terms establishes interoperability between systems. It's aimed to be able to be readily interpret by machines, so machines can perform works involved in finding, combining, and substitute upon information on the web, which has been by far been performed and managed by human being.

KEYWORDS :

Web 3.0, Semantic web, Web technology.

INTRODUCTION:

The Internet has revolutionized the computer and communications world like nothing before. The invention of the telegraph, telephone, radio, and computer set the stage for this unprecedented integration of capabilities. The Internet is at once a world-wide broadcasting capability, a mechanism for information dissemination, and a medium for collaboration and interaction between individuals and their computers without regard for geographic location. The Internet represents one of the most successful examples of the benefits of sustained investment and commitment to research and development of information infrastructure. Beginning with the early research in packet switching, the government, industry and academia have been partners in evolving and deploying this exciting new technology (Internet Society).

In the beginning, static web pages were being created for one way of communication and these pages were read-only for visitors. Hyper Text Markup Language (HTML) was being used widely for web-publishing. This initial form of web was named Web 1.0 later. The term Web 2.0 was being popularized in 2004. Initially this term was used by Darcy DiNucci in 1999. 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. On the other hand, the Semantic Web has emerged to be a new and highly promising context for knowledge and data engineering (Vossen, Lytras, & Koudas, 2007).

The term "Semantic Web" was coined by Tim Berners-Lee, to describe the evolution from a document based web towards a new paradigm that includes data and information for computers to manipulate. The Semantic Web enables automated information access based on machine process able semantics of data. This means that this data will be available for providing precise and exhaustive

information retrieval. Thus, the Semantic Web provides a complementary vision as a knowledge management environment (Warren, 2006) that, in many cases has expanded and replaced previous knowledge and information management archetypes (Davies, Lytras, & Sheth, 2007; Lytras & García, 2008; Lytras & Ordóñezde Pablos, 2007, 2009; Ordóñez de Pablos, 2002; Rodriguez Pérez & Ordóñez de Pablos, 2003). Semantic Web has been named as Web 3.0 (Hendler, 2008; Lassila & Hendler, 2007)
According to Lytras and García (2008), in recent years, Semantic Web research has resulted in significant outcomes and the adoption of this technology from the market and the industry is becoming closer. Thus, the application of semantics to knowledge management is not new (e.g. Colomo Palacios, Gómez Berbís, García Crespo, & Puebla Sánchez, 2008; García Crespo, Colomo Palacios, Gómez Berbís, & García Sánchez, 2010, García Crespo, Colomo Palacios, Gómez Berbís, & Mencke, 2009; García Crespo, Colomo Palacios, Gómez Berbís, & Ruiz Mezcua, 2010).

Semantic Web

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. Web 3.0 is a term that is used to describe various evolutions of Web usage and interaction among 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. 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.

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. (Bebi, K P Singh., & Dipti Gulati. (2011). The semantic web is aimed to be able to be readily interpreted by machines, so machines can perform works involved in finding, combining, and acting upon information on the web, which has been by far been performed and managed by humans. Web 3.0 will be a maze / network of web application working together homogeneously. The users can do anything and everything they want from a single source on the web.

The web 3.0 would act as a giant database and also as a personal assistant to the repeat user, as through it one would be able to type complex sentences for a much more specified search and a repeat user's preferences would be understood/calculated by the browser itself on basis of all past relevant searches to provide him a straightforward option list at one point of time. Web 3.0 is known as the third generation of World Wide Web. It has everything that we could ever wish for. With the help of Web 3.0, web content was easily carried in the form of natural language. It also consist of micro formats, natural language search, recommendation agents which are commonly known as AI i.e. Artificial Intelligence. We can also find different attributes like Deductive Reasoning, Contextual Search, Evolution of 3D web, Personalized Search and Tailor made Search which was not present in earlier versions.

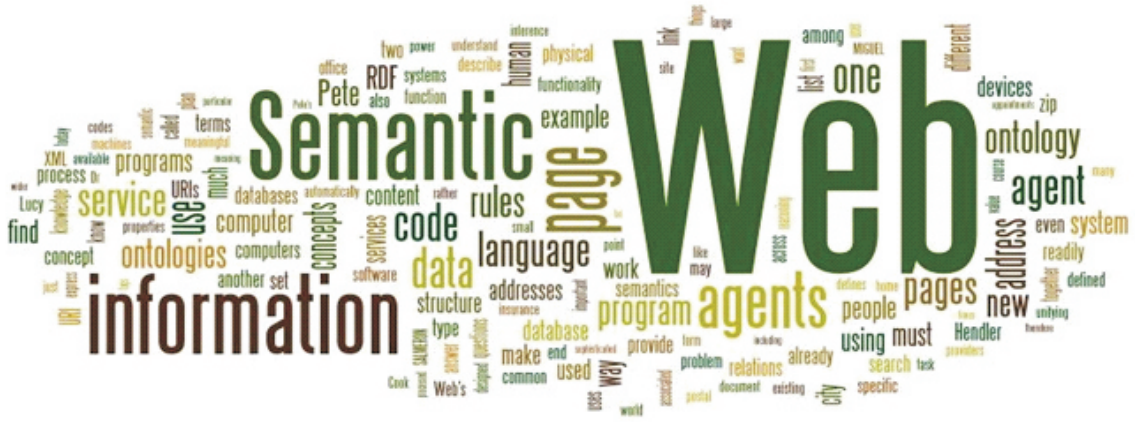

Fig-1, Source: http://webindiasolutions.com/blog/wp-content/uploads/2013/03/semantic_web.jpg

Through such advancements in Web 3.0, we have become empowered to do many things that we may have never dreamed of. But this not the end, as with the time we will get to see more advancements in World Wide Web that will make internet surfing an amazing experience. (Weblinkindia, 2010). The term Web 3.0 is best used to explain the next era of web computing and the new information age it will introduce, rather than a set of specific technologies or technical attributes. Generally, the concept of Web 3.0 emphasizes three main features:

The capability of obtaining contextual information from a web search
The ability to obtain information drawn from a variety of previously incompatible or walled applications or sources
The engagement of all types of devices and machines in the data creation, data use, and communication process that informs our daily lives.

Benefits of Web 3.0

A huge benefit of Web 3.0 is the move towards being able to access data from anywhere. This is mainly being driven by the heavy usage of smart phones and cloud applications. The idea here is to make sure that the user can access as much data as possible from anywhere, not just their home. Technology is trying to expand this idea in ways that allow TV's to pick up on user data, and allowing smart phones to access data on your computer. For designers like myself who typically forget their jump drives, this is an amazing and useful advancement

The potential benefits of Web 3.0 are immense and will provide improvements for businesses, researchers, and the average web user. According to an article by Marty Zwilling, you will someday be able to ask your web browser personal questions such as, where to go for dinner, and based on your web browser history, currently location, and other details, it will be able to give you a list of suggestions of restaurants (Zwilling, 2010). Medical doctors are also noted as saying that Web 3.0 is going to bring much great advancement. In an article by Dean Giustini he quotes a neurologist as saying, “The development of the graphical web from its early days in 1995 to the social web of late 2007 is comparable to the developing brain.

Whereas web 1.0 and 2.0 were embryonic, formative technologies, Web 3.0 promises to be a more mature web where better 'pathways' for information retrieval will be created, and a greater capacity for cognitive processing of information will be built (Giustini 2007)” The article also discusses that even for medical librarians finding the best evidence has become more and more difficult due to the

fact that Google's and other search engine's search results have become places of information overload and very difficult to find what a person is looking for specifically. With the use of Web 3.0 those people working in the medical field will be able to gain access to trusted clinical and medical information, as well as creating new sources to help Web users receive medical advice (Giustini, 2007). These examples of just a few of the many potential benefits that Web 3.0 will have to offer, everything from advertising, clothing, and travel companies could benefit from this new Web.

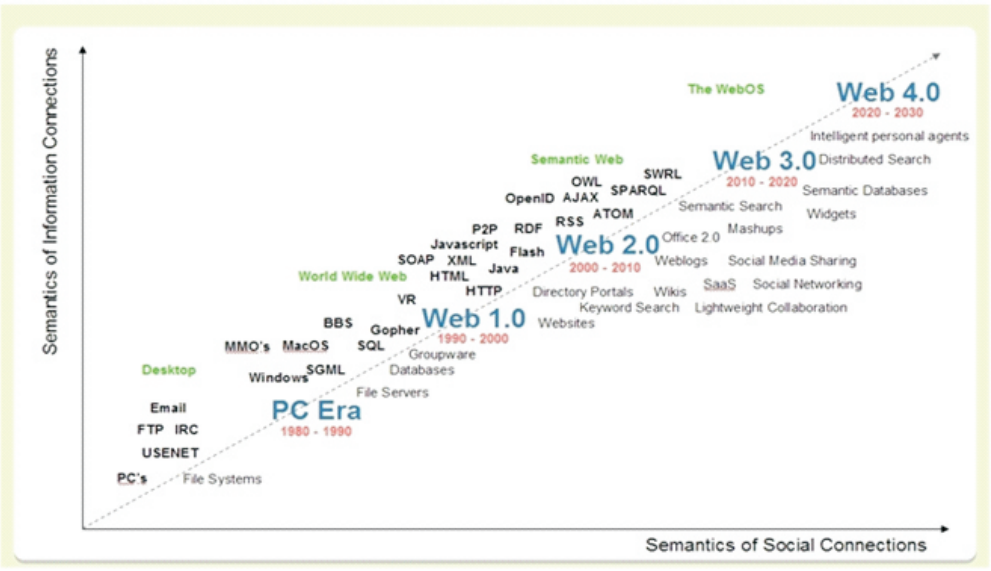

Fig-2, Source: http://blog.almawave.it/wordpress/wp-content/uploads/2011/10/socialweb.jpg

Evolution of web 3.0

Web 3.0 is the next evolution of the internet. Some hypothesize that Web 3.0 will combine the best bits of both Web 1.0 and Web 2.0 but will be a more user focused, personalized, intelligent, controlled or semantic (meaningful) web experience. Furthermore, the web is set to become more mobile too, as demonstrated through recent trends in the marketplace whereby smart phones and the iPhone are improving the web experience for those accessing through a mobile phone. With this new technology comes a much faster pace; therefore it is no surprise to see that experts estimate the minimum delivery of speed for Web 3.0 will be 10mb/sec. Key features of Web 3.0 may include intelligent mobile applications, personalized portals and search engines (such as iGoogle which can already be personalized to deliver key information to a users' desktop), integrated games, business and education, avatars and 3D role play games.

Comparison of Web 1.0 / Web 2.0 / Web 3.0

Web 1.0	Web 2.0	Web 3.0
Mostly Read-Only	Wildly Read-Write	Portable & Personal
Company Focus	Community Focus	Individual Focus
Home Pages	Blogs / Wikis	Lifestreams / Waves
Owning Content	Sharing Content	Consolidating Content
Web Forms	Web Applications	Smart Applications
Directories	Tagging	User Behavior
Page Views	Cost Per Click	User Engagement
Banner Advertising	Interactive Advertising	Behavioral Advertising
Britannica Online	Wikipedia	The Semantic Web
HTML / Portals	XML / RSS	RDF / RDFS / OWL

Fig-3: Source: http://rockcheetah.com/rockcheetah/images/websummary.jpg?c90c31

CONCLUSION:

Web 3.0 is known as the third generation of World Wide Web. It has everything that we could ever wish for. A web service is a software system designed to support computer-to-computer interaction over the Internet. Currently, thousands of web services are offered. However, in the context of Web 3.0, they take center stage. Web 3.0 is an extension that will go beyond the physical engagement.

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