



Evolution of Web toward Web 3.0

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Abstract:

We utilize web 2.0 in today's atmosphere to access and update information on the internet. In today's society, we use websites and web applications to do jobs more quickly. Web development has introduced new opportunities as well as new obstacles to web-based education and learning. The first version of the web, Web 1.0, was a static (read-only) medium, whereas Web 2.0 is a Read/Write medium. Web 3.0, the most current and still-evolving version of the web, is now a technologically advanced medium that allows us (users) to read, write, and execute, as well as robots to conduct some of the intellectual thinking once reserved for humans. In a short period, Web 2.0 and Web 3.0 have developed new tools and technologies for supporting web-based education and learning. To begin, this article addresses several Web 3.0 principles, as well as their evolution and features. Following that, we discussed some of the future potentials of Web 3.0 technologies, trends, tools, and services that will help in online learning, personalization, and knowledge creation through the use of the Semantic Web.

Keywords: Continuous evolution, web-based education, and learning, Web 1.0, Web 2.0, Web 3.0.

1. Introduction

When you buy something online, the website's algorithm searches for other products that individuals who have bought your product have purchased and recommends them to you. So, what exactly is going on here? The website learns what your favorite selections are from past users and utilizes that knowledge to make recommendations for you. To put it another way, the website is evolving and learning. In a nutshell, web 3.0 is based on this principle. Web 1.0 was largely used to store the information provided by a company or organization for its consumers. Web 2.0 went a step further by allowing users to publish and share material directly on the website. Web 3.0 enables online applications and websites to receive information from the Internet and provide users with fresh information/data. The World Wide Web (WWW) has been used to facilitate communication, share resources, promote active learning, and deliver education in a distance learning mode for about twenty years. Teachers can use the internet to develop online delivery structures, share learning goals, and activities for their courses. In recent times, many universities and educational institutions have begun to provide digital services such as admissions and online learning environments to provide lifetime learning and make it compatible with other educational activities. A teacher, for example, can develop a whole Web-based delivery

system for student activities, projects, and resource lists. Students/learners who are linked to the Internet can access web-based information from anywhere in the world. Since its inception in the 1990s, the World Wide Web has progressed from earlier versions, such as Web 1.0 through Web 2.0, and is now maturing into the most recent version, Web 3.0. "Web 1.0 Read-only, static data with basic markup for reading, the Wikipedia states: "**Web 1.0 Read-only, static data with simple markup for reading.**

Web 2.0 is Read/Write dynamic data through web services customize websites and manage items. Web 3.0 is Read/Write/Execute." Web2.0 allows users to read information from the internet and pass it on or share it with others over the internet. Many popular Web 2.0 interactive apps are available today, such as Blog, Podcast, Tag, RSS/Atom, Wiki, P2P, AdSense, and so on. In comparison to Web 2.0, Web 3.0 has yet to be given a precise description. Web 3.0 is a concept used to characterize the World Wide Web's future. The perspectives of various pioneers on the evolution of Web 3.0 vary substantially. Some feel that emerging technologies such as the Semantic Web will change the way people use the Internet and open up new opportunities for AI-based apps. Many individuals believe that faster Internet connections, modular web applications, and developments in computer graphics will

be major factors in the development of the new World Wide Web version.

2. Web 3.0 Definition

Web 3.0 helps the third generation of the **internet** to enter a new era where websites and apps merge their data and will be able to process information smartly with the help of technology like ML, Big Data.

Web 3.0 can be easily defined as follows: every data will be interconnected with the method of decentralized way, which will help the web generation to have a leap forward to our present generation of internet (Web 2.0), where data is simply stored at centralized repositories.

Moreover, machines and users can able to interact with data. It can only happen when the programs can able to understand the information in both ways such as conceptually and contextually. By keeping this in mind, the two main points of Web 3.0 are AI (artificial intelligence) and the semantic web.

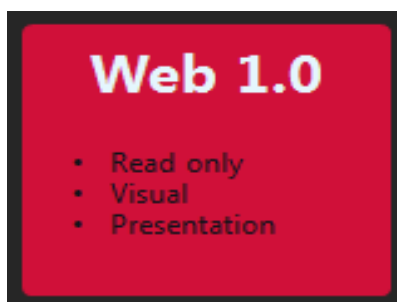
3. Web and versions

The World Wide Web is a powerful tool that is commonly used by billions of people to read, write and share data, information to communicate with other people with the help of the internet. WWW made progress since it was advent. We are going to share a brief idea of the evolution of web version 1.0 to 2.0 and 3.0.

3.1. Web 1.0

Web 1.0 is a simple page also called Static web, 1.0 was the first and most used and reliable on the internet back in the 1990s by offering very little amount of access to information by interacting with people using it. In the past days, creating a user page or sending a message wasn't a thing.

Web 1.0 didn't have that algorithm to change pages, which hard for the users to have reliable information. Simply we can't put that, it was like a one-way highway with a steep path where creation was in making by a select few info came mostly from directories.



3.2. Web 2.0

The Web 2.0 or the Social Web, helped make the internet more understandable thanks to improvements in technologies like JS, HTML5, CSS3, SASS, etc, which helps the start-up to build interactive web platforms such as YouTube, Facebook, Wikipedia, and many more.

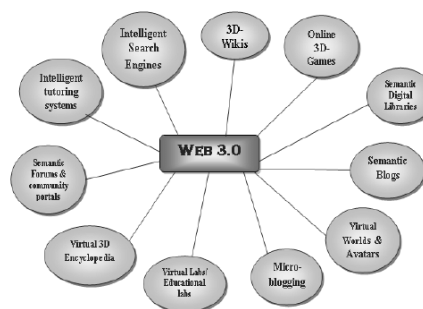
This made the way for social network content production to spring up data that are shared between shared and distributed various platforms and applications. Tools in this internet era were pioneered by several web innovators like the aforementioned Jeffrey Zeldman.



3.3. Web 3.0

Web 3.0 is the next phase of web emergence that can make the Internet more intelligent or process human-like intelligence with the power of AI programs that can use intelligent programs to help users.

Tim Berners-Lee had said that Semantic Web was designed to communicate "automatically" with systems, people, and home devices. Therefore, content creation and decision-making processes will involve both people and equipment. This will enable intelligent design and distribution of highly tailored content directly to every online consumer.



4. Why Web 3.0 Matters.

There is a lot of buzz around web 3.0 and the major changes it will bring to the industry, but few people know why it came out and what it will bring. To understand this, you need to go back in time and check out the previous ones, Web 1.0 & 2.0.

As in the Middle Ages, Web 1.0 was not given its name until it bit the dust. 'World Wide Web as it is known, was

just a set of static websites with a lot of information and no interactive content. Connecting meant dialing green modems and preventing anyone in the house from using the phone. It was a website for AOL talks with MSN, AltaVista, and Ask Jeeves. It was moving slowly with madness. Stream videos & music? Forget it. Downloading a song can take at least a day. Then 2.0. The memory of the sleep modems and boring workshops has floated very high. The fast internet speed paved the way for interactive content, the web was no longer about viewing, it was about participation. Sharing information around the world has created an era of ‘Forums’. YouTube, Wikipedia, Flickr, and Facebook have given voice to the wordless and ways for like-minded communities to succeed. Publishing this blog post will take me 30 seconds without any hassle, an unparalleled improvement from which it required a concerted effort between designers, developers, and managers just to make a simple website editor. We might call this the ‘Read-Write-Publish’ era - when the spread of information is as simple as those three words. So, the question arises, web 2.0 is good, what is bad? Information is money. The UN estimates that Internet users will increase from 738 million to 3.2 million from 2000-2015. That’s an unpredictable amount of wandering data, and as big digital companies see, personal information is a very valuable asset. Thus began a massive data collection on the central servers, Amazon, Facebook, and Twitter, which are the largest hosts. People are sacrificing security to make these services easier; whether they knew it or not, their identity, browsing habits, search, and online shopping information were sold to the highest bidder. Version 3.0. At this stage, the exponents of Web 2.0 were already dreaming of a replacement. The next web, they thought, would take a surprising turn in Web 1.0: more ‘personality’ and more privacy. Instead of focusing on power (and data) in the hands of big behemoths with questionable motives, it will be returned to the rightful owners. The idea of a better and more transparent web dates back to about 2006, but tools and technology were not available to make it happen. Bitcoin was still three years away, in line with the idea of a widely distributed ledger, or blockchain, for digital peer-to-peer digitalization. The distribution of the empire was a vision; The blockchain was the way to go. We now have what is described as a person-centered internet.

5. How will it work

It is still being developed, like with any new technology. To obtain access to the decentralized web, people will just need a seed. This will be a single item that allows interaction with both the Desktop app and external

services. Individuals will still access the internet via a web browser, but Web 2.0 will make it more user-friendly.

On the surface, the transition from 2.0 to 3.0 appears to be smooth. However, the architecture connecting users to digital services is vastly different behind the scenes. To prevent platforms from stealing personal information without justification, transactions are manually signed and confirmed. Instead of attempting — and frequently failing — to opt-out, web users will opt-in.



Fig.1 Web 2.0 > Web 3.0

These are just a few examples. As Web 3.0 takes off, new platforms will develop with the healthy competition that is not hampered by dominant service providers. The finest Apps and distributed services we'll use in 3 years are probably only a twinkle in a developer's eye right now.

6. Pros and Cons of web 3.0

Pros

Web 3.0 has the potential to make the internet an always present feature in everyday life. But the main advantages of Web 3.0 include

- Efficiency in search results
- Efficiency in browsing for the user as there is better access to information
- Change in human interaction with a computer as the end-user has complete control over their data by encrypting it
- Intermediaries like Apple and Google and even governments will no longer have control over data, services, or sites
- Digital assets can be transferred and moved quickly and efficiently leading to the distribution of wealth with no barriers
- No interruption of services as data is stored in nodes to reduce redundancy.

- Multiple backs up will eliminate interruptions inflow of data
- Sharing information will be easier
- Harder to adopt fake identity online
- Easier to work on the internet since it can be personalized cone
- Only advanced devices will be able to handle Web 3.0 locking out the population that can't afford such devices
- Web 3.0 will be complicated for newcomers to grasp the concept
- Privacy policy will be needed more than with previous web generations
- It will be easier to find people's private and personal information
- Web 1.0 website will seem obsolete rendering them less appealing to customers
- People will spend too much time on the internet
- Web 3.0 will provide less anonymity so reputation management will be needed more than ever
- Offers the possibility of mass entertainment which comes with social consequences

7. Application of WEB 3.0

7.1 The 3D Web:

This future of the World Wide Web refers to the construction of 3-dimensional worlds on the web. The use of 3D images will be widely used in the development of Web 3.0 tools or applications. High-speed internet, fast processing speed, high screen resolutions, 3D game technology, and the unpopular realities of taxpayers we see will transform web browsing into 3D animation, as you navigate through the visible web tunnels, like your real person's avatar. Recently several basic online-based worlds, such as Radar Networks, Second Life, IMVU, Active Worlds, and the Red-Light Center, have garnered much public attention around the world. Users of these visible worlds are growing exponentially every day. For example, at the end of March 2008, Second Life had over 13 million accounts with about 38,000 users logged in at any one time. These types of environments allow users to discover new things they may not have in real life. Users create avatars on the web and allow them to live in the physical world. Residents or avatars of the physical world can explore, collaborate with other residents, engage, participate in various activities, create and provide a variety of services. Possible interactions in these visible

worlds occur through text, chat messages, audio chat, and/or video.

7.2 The Social Web:

Social Web explains how people connect using the basic technologies of the World Wide Web. The development of Web 3.0 technology will upgrade existing computer computers to a higher level known as Semantic Social Computing or Socio-Semantic Web, which will generate and use the information for all types, such as content, models, services, and software behavior. Semantic Web and, more broadly, Artificial Intelligence technology will add information, tags, processes, services, software features, and behaviors through the display of basic information. The wisdom of the masses will emerge from the semantic and logical integration of the individual into the group's ideas, ideas, and conclusions, rather than from the consensus of the group's consensus. Instead of linking documents only, the future Social Web will automatically connect individuals, organizations, communities, and ideas.

8. Educational tools of WEB 3.0

Learning with 3D Virtual worlds & Avatars:

As mentioned earlier, the visual 3D world is a mixture of 3D game technology, a reality that is unpopular with the taxpayers we see, a virtual reality environment powered by online technology where users interact with animated avatars. Users create avatars on the web and allow them to live in the physical world. Students can create their avatars on the web and live in these worlds. The visual world can be seen as the beginning of a new era of e-learning as it allows students to do role-playing, 3D modeling, simulation, creativity, and visual engagement. There is a huge amount of research space related to the benefits of teaching and learning in the visual 3D world. Recently a few 3D-based virtual worlds, such as Second Life, IMVU, Active Worlds, and Red-Light Center, have garnered the attention of students and teachers through education and learning around the world. Teachers can run classes with a variety of different settings in the 3D visual world where they can participate in a true classroom environment. Teachers and students may run collaborative sessions in geographically dispersed environments in a virtual 3D shared environment. They can allow teachers and students to run conferences, seminars, presentations, digital shows where students add and participate in the same way we do in real life. The 3D virtual worlds available today and in the future will be very useful in a variety of fields including education, medicine, business, commerce, science, communications, media, arts, architecture and design, law, computer

science, language learning, history, and geography to name a few.

8.1 Intelligent Search Engines:

Over the past few years, learning processes have benefited from the evolution of web technology. Web distribution has allowed the introduction of new, more flexible educational processes in accessing learning resources. Nowadays the internet has become a very useful and powerful source of information. To cope with the huge amount of information on the web, advanced web search engines are designed to retrieve useful and important information in the form of multimedia for its users. If you use a standard web search engine, the engine will not be able to understand your search. Browsing Web pages containing keywords found in search terms. The search engine can't detect if a Web page matches your search. It can only mean that the keyword appears on the Web page. The Agent Web-based 3.0 version 3.0 could not only find keywords in your search but also translate the context of your request. It will return relevant results and suggest other content related to your search terms. Experts believe that Web 3.0 will provide users with richer and more relevant information. Experts also believe that with Web 3.0, every user will have a unique Internet profile based on that user's browsing history. Web 3.0 will use this profile to personalize your personal browsing experience. That means that if two different readers, each doing an online search with the same keywords using the same service, will get different results determined by their profiles. Students will also benefit from Semantic Web-sponsored knowledge building. A Semantic web-based search engine will return a mixed media report to a list of hits. A smart agent can return local lectures, relevant blogs, books, and television programs about the topic to the reader. Ontologies will link student needs and features so that personalized agents can search for learning materials based on student needs. Students can use the same type of search opportunities on other media items such as photos, audio, and video. Some examples of this type of technology can be found in software such as the Ojos Riya photo-sharing tool that allows you to automatically tag photos using face recognition, or Like.com which allows the user to search for products based on the same images.

8.2 Online 3-D Virtual Labs / Educational labs / Simulations or 3D Web:

The rich 3D graphics of user interaction will serve as a strong platform for users to participate and engage in collaborative activities, such as sharing results and exchanging natural media material. Some examples of

visual 3-D labs / Teaching Labs / Simulations or 3D Web-based applications that will have a major impact on education are as follows:

1. Visiting inaccessible places: Students can benefit from visiting various places around the world in a few ways. Students can go to historical sites in about a short time. When you visit ancient sites such as the Taj Mahal, Red Fort, or Rome, students may engage and experience the statues of monuments, other students, and their teacher as an online guide. Similarly, children may see an Indian village or visit an Indian monument. We can teach children a lot and provide them with a safe and inexpensive way to get such things.

2. Promoting student collaboration:

Students can meet and connect electronically in a variety of attractive ways. They can work together on shared projects. Students and teachers can discuss, debate, communicate, collaborate, and discuss collaborative projects. They can also fly and control objects in 3D. They can use and work in many 3D settings at once.

3. Promoting Project-Based Learning Assessment:

Students, for example, can do research and build a (real) society within, say, the Roman Empire. In addition, when you take a grade-reading course, a large group of students from all over the world can create this space. This allows them to participate in the project while discovering new ways to learn from afar.

4. Improving situations and simulations:

High-quality 3D images and complex online programs can be used to create role-based environments or labs where students can study or do research. These labs are called dry labs. These Web-Based Labs can be very useful for online students. They may do experiments in a virtual science laboratory. After the simulation, students can stay offline and go to a real science lab to do a proper experiment and see how it works. Advanced scientific research and professional training can be done in ways that a university or school cannot. Consider separating atoms, performing surgeries, flying, or exploring hazardous areas.

9. Conclusion

As we move to the central internet, we can expect a new wave of global internet change, with augmented reality (AR) and artificial intelligence (AI) that play a major role in defining our operating conditions. What Web 3.0 offers in the table is the much-needed flexibility of the developer rename. Users, on the other hand, maybe look forward to a better digital experience with the often improved and

refined internet. When done successfully, Web 3.0 has the potential to solve many problems at low cost, such as removing red tape, saving time, and improving productivity. In the future, we may be looking for a clever internet connection because, believe it or not, it is going to stay.

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