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INTERNET WEB VERSION 3.0 TECHNOLOGIES

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ABSTRACT

This study presents the relationship between current technologies-Web 1.0, 2.0 and third generation of the web which is Web 3.0. Web 3.0 is the last evolution of web that requires Web 2.0 technologies, semantic web and artificial intelligence. The Web 3.0 technology is a system that includes Web 2.0 technologies (that provides rich content and interaction between users), semantic web technologies (which try to understand and interpret of the data) and basic artificial intelligence (which provides ability of thinking to the machines like a human being). Web 3.0 technologies are expected to be implemented in education, search engines and decision-making processes in the near future. Machines can contact both with people or machines in Web 3.0. Web 3.0 in Decision Support Systems that is new developing web technologies help the decision maker for decision making process. The distance from Web 1.0 to Web 2.0 has been covered almost in a decade. But soon after Web 2.0 a new Web 3.0 has evolved which has not only raised the level of interest but also many questions among developers, users and the regulators.

1. INTRODUCTION

For about last two decades, the World Wide Web (WWW) is being used to improve communication, collaboration, sharing of resources, promoting active learning, and delivering of education in distance learning mode. The WWW helps teachers in planning suitable online delivery structure, sharing goals of learning, and activities for their courses. In recent years, many of the universities and educational institutions worldwide offer online services such as for admissions, virtual (online) learning environments in order to facilitate the lifelong learning and to make this compatible with other educational management activities. For example, a teacher may create a purely Web-based delivery system including online handouts in respect of student's activities, projects and lists of resources for reference. The students and other learners may access web-based material anytime from anywhere in the world, being connected through InternetIt was an era known as Read-Write-Publish era, which had the blazing spread speed of information. And as a result, the number of Internet users, according to UN estimates, have increased from 738 million in 2005 to 3.2 billion in 2017. That, in turn is a huge amount of data and publicly available personal information. All these data are stored in centralized servers. The most impressive and popular repositories are Amazon, Facebook and Twitter. Personality of a person, his manner of viewing information, income, interests, details of a credit card, etc. have become a valuable asset that can be bought and sold. That's what advertisers do, which annually spent billions of dollars on these data The concept of the Internet Web 3.0 implies the combination of the best aspects from Web 1.0 and Web 2, with generating content and upgrading it by site users. Users will create and certify their own content: tag everything that deserves the attention of their like-minded people. For example, based on your opinion about the book you read or the movie you watched, you get a list of those whose interests coincide with yours as close as possible. Search by keywords will be conducted by living people, specialists in their fields of knowledge, with whom there is possibility to start a dialogue.

2. EVOLUTION OF WEB

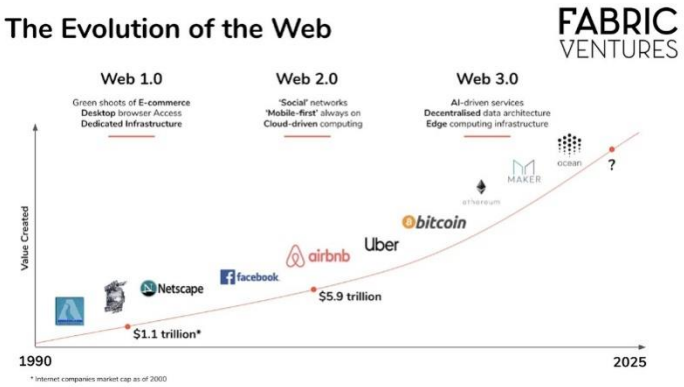


Fig: Evolution of Web

Web 3.0 is the stage that follows Web 2.0, focusing itself on the following principles:

- Decentralization
- Trustless and permission less
- Machine learning
- Artificial intelligence (AI)
- Ubiquity & Connectivity

By the mid-1990s, the introduction of web browsers such as Netscape Navigator ushered in the era of Web 1.0. This was the age of static webpages retrieved from servers, a far cry from the slick content that is taken for granted today. Most internet users at that time were delighted by the novelty of features such as email and real-time news retrieval. Contttent creation was still in its infancy, and users had little opportunity for interactive applications, although this improved as online banking and trading became increasingly popular.

Though there is as yet no standardized definition of Web 3.0, it does have a few defining features:

Decentralization: This is a core tenet of Web 3.0. In Web 2.0, computers use HTTP in the form of unique web addresses to find information, which is stored at a fixed location, generally on a single server. With Web 3.0, because information would be found based on its content, it could be stored in multiple locations simultaneously and hence be decentralized. This would break down the massive databases currently held by internet giants like Meta and Google and would hand greater control to users.

With Web 3.0, the data generated by disparate and increasingly powerful computing resources, including mobile phones, desktops, appliances, vehicles, and sensors, will be sold by users through decentralized data networks, ensuring that users retain ownership control.

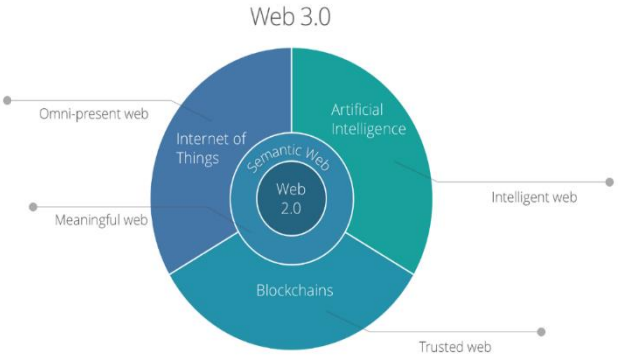


fig .2: semantic web

Web 2.0- the current medium of technology, that the world has been running on since 1991, has transformed the way communication and transactions took place across the globe. However, it also had a lot of loopholes like being prone to widespread cyberattacks, forging a digital divide, and being a threat to digital transactions as well. In an attempt to safeguard users from it all, Web 3.0 was birthed as the third generation of the internet in the early

2000s but it is only now that the idea has come to the forefront for the common public. Web 2.0 was considered to be only a read-write web, but Web 3.0 is being considered as a read-write-interact web which means it will let you interact with content including 3D-graphics as well. Web 3.0 is a decentralized way of networking online that processes user data in a faster way to provide a personalized user experience. The Internet we use today predominantly builds on the idea of the stand-alone computer. Data is centrally stored and managed on servers of trusted institutions. The data on these servers is protected by firewalls, and system administrators are needed to manage these servers and their firewalls. Trying to manipulate data on a server resembles breaking into a house, where security is provided by a fence and an alarm system.

Being built on the technologies of artificial intelligence, machine language, and semantic web, Web 3.0 is turning up as a safe haven for the new generation of internet users. Interpreting human mannerisms and understanding the context of user queries, Web 3.0 aims to deliver an evolved, more diligent and accurate answer. The fact that Web 3.0 is based on blockchain technology, makes it decentralized, which means

more mediator interference will have to be ensured before making any digital exchange anymore. Unlike in Web 2.0, with Web 3.0 users would find it easy to share and transfer their data, promote information to advertisers without an incumbent risk of a data breach or privacy corruption.

WEB 3.0 & THE BLOCKCHAIN:

Blockchain provides a universal state layer, or data set, that acts as a trusted source for internet-based settlement in Web 3.0. This layer enables secure P2P transmissions, without having to rely on any centralized governing bodies. Instead, management takes place over multiple participants throughout the network.

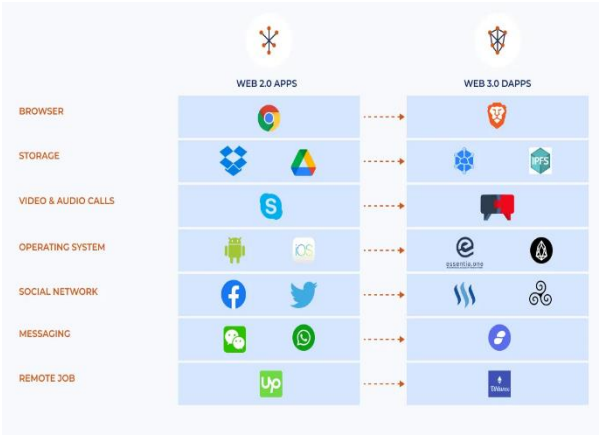
As a refresher, a blockchain is a distributed system that runs over multiple interconnected computer nodes. Blockchains contain blocks of data, which are publicly accessible, and impossible to modify due to cryptographic hash functions.

When new data becomes available, it goes into a new block. The block continues compiling data until it reaches capacity, and then links to the previous block in the chain. Blockchains have no central group or individual controlling group. All users have visibility and control into a blockchain.

APPLICATIONS:

Applications on Trending Technologies:

1. Blockchain technology.
2. Study of the relationship between words.
3. Spatial Web and 3D Graphics.
4. Web 3.0 machines can read and decipher the meaning and emotions conveyed by a set of data.
5. Web 3.0 gives immersive experience on 3D Technologies



ADVANTAGES:

1. Data Privacy and Control:
2. Seamless Services:
3. Transparency:
4. Open Accessibility to Data:
5. Restriction less Platform:
6. Intelligent connectivity

3. CONCLUSION

More personal and customized web browsing experience coupled with a smarter web would hopefully usher in a more equitable internet. Empowerment of users will be the most significant feature of Web 3.0 as they would have control over their data. As dApps (decentralized applications) and DeFi (decentralized finance) gain momentum we will see more industries affected by AI, ML, IoT, and related technologies. There are dozens of projects around the globe related to Semantic Web and Blockchain at different levels, some of them were presented on the "W3C Blockchains and the Web Workshop"22. Many universities and research centers are focusing on improving and upgrading the Blockchain technology and a few of them are researching on the integration with Linked Data. The main goal of this work is to show that Semantic Web principles can be used on a futuristic Internet that could be composed of Blockchain.

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