Web 3.0

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Contents

Intro, Generations of web

World Wide Web (WWW), commonly known as web is invented by Sir Tim Berners-Lee purposing the first concept in 1989, working at CERN, as a document management system. He developed HTML to develop web pages, URI to locate and identify documents in the web and HTTP as the protocol to retrieve the documents from the web servers. The support of texts, images, embedded video, audio and scripts, also hyperlinks by HTTP provides immediate access to other web resources, was fascinating and reliable that thousands of consumers started creating web pages, and consumers started reading the resources available in the web after making the source code open to public after 1993. The period between 1993 to 2004 is known as the era of Web 1.0, and in the period a lot of web servers like Apache web server, Microsoft IIS, browsers such as Internet Explorer, Mozilla, google chrome started rising. [1]

Web 2.0 is the period after 2004, when web pages become more interactive to the users using the scripting languages like JavaScript, Ajax with providing the opportunity by providing the "web as platform". Web 2.0 provides better way of involvement of costumers in the web, everyone can share their views, comments, blogs, videos which has provided the web surfing a real ease environment. However, in overall, the web today seems totally centralized towards the "big techs" such as Facebook,

Google, Microsoft, LinkedIn twitter and so on. The platform provides advantage of social interaction, however, has also found putting public identity, integrity of speech and sovereignty somewhat in risk, also business are selling the collected data by analysing the engagement with advertisement companies using Machine learning and AI has provided good marketing scope for business. [2]

Web 3.0 is still a concept and not fully developed web and will be the third generation of web. The concept was forwarded by Ethereum co-founder Gavin Wood in 2014. The purposes believe, web 3 will break the monopolistic control of 'big giants' and decentralize the online ecosystem. The platform is believed to use AI and machine learning, blockchain and semantic web concept [3]. The features, compared with web 1.0 and 2.0, we can assume that web 3.0 will change the foundation of web and the way people interact with them, however some opposes stating that the purpose of web is to connect the people and web 3.0 is also doing same in advance form as a demand of time and advancement of technology [4] [5].

Features of Web 3

The Decentralised autonomous Organization (DAO) provides the governance based on blockchain regard the usage of web. Overall, web 3.0 will reduce the distance between the costumers and content, with relevancy of accurate information across entire web by providing direct connection between creators and costumers and semantic approach.

The upgrade to web 3.0 will create a lot of clamours in the social, Ethical, Political and Business level. There are a lot which sees the potential benefits and excited to welcome the new technology whereas some criticize it being a more marketing buzzword than the reality [cnbc.com] and in addition, web inventor Tim Berners-Lee even suggests web on blockchain will not work and has changed the direction which it was created for [5].

Form the following benefits and drawbacks, let's analyse the opportunity and issues that can lead to social, political, and business sectors.

Decentralization

Benefits

Unlike in the web 2.0, applications and services in web 3.0 will be enabled in distributed approach without being central authority, with the distributed consensus.

This way the user will have the transparency of their data and decision how to use their data 'Data ownership'. [6]

This will limit the expose of data without the user's consent. The change in structure of using web can fluctuate the way how data is being used in the present by the centralized tech powers to analyse the user behaviour and for advertisement purpose.

This will also stop to 'manipulate voters' [7] which will provide the transparent voting system.

Drawbacks

To adapt the situation many organizations can go in great loss regard to update their websites, servers.

In leakage of data stored in any websites by mistake, the private stuffs can go public and can cause confidentiality issues.

As no single authority is controlling the web and there is no censorism which can create biased on moral, and ethical agendas. [8]

Use of Blockchain:

Blockchain will be used as the enabler for creating the distributed applications and services, the data now can be stored across different nodes in distributed approach providing the immutable ledger to verify authenticity in a decentralized world.

Benefits

The process also avoids the single point of failure. No one can alter the data by any other users in the network.

It will provide the data recovery which is a problem in web 2.0 if all data is deleted from a profile, with blockchain every information is protected. [4]

Charge and speed of transaction will be minimised using Blockchain technology, which reduce the stress to wait long hours to get approval from the banks and other financial institutions.

Drawbacks

The blockchain term is new and difficult topic for many organizations, which can lead the situation to hire more developers use block chain.

Blockchain requires high computational power and more digital activity which requires more energy to make it lively. In April 2021, Ethereum blockchain was using 33-terawatt hour of electricity which is same amount of electricity Serbia [9]

Blockchain has several security issues such as 51% Attacks, Phishing attacks, Routing attacks and so on [10]

Cryptocurrency-enabled:

It can largely replace the use of flat currency being cryptocurrency is used as a key feature in web 3.0.

Benefits:

Decentralised Financial service using decentralized blockchain is used as the financial service, which provides the freedom from traditional monarchy system. [11]

Cryptocurrency has a lot of potential in speed of transaction, cost, accessibility, privacy, transparency, security and protects form the inflation and so on [12].

Drawbacks:

New concept for many individuals, and business about the cryptocurrency, can lead the enhancement of rich and tech-savvy people whereas other may lag [4].

Losing to access of account will lead to unrecoverable loss of all cryptocurrencies [11].

A lot of people investing in cryptocurrency can lead to decrease of value of cryptocurrency [11].

Autonomous and artificially intelligent:

The autonomous AI provides faster and relevant data to the end users. Social bookmarking [13] as a search engine is believed to provide better results. AI will be used to provide virtual assistant and separate legitimate results which provides with the interest-related content, customized out of whole website information [11].

Benefits:

A lot of benefits for the accessibility and usability of web service because of the improve web browsing, with a lot of anonymity and identity security, with customized web searches.

Open-source website gives the transparent view of the development of the web application and provide the chance to contribute to the development.

Business or anyone will have the good opportunity to develop dApps, making huge money if getting good number of users [14]

Drawbacks:

Because of the advance technologies usages such as 3D graphics, AI, AR, VR embedded websites, requires more computing power.

Traditional website owners have to upgrade their websites so that it can adopt the demand of new users supporting advance technology with advance security issues, which will lead high expenses.

The most present gadgets do not support web 3.0 technology, which will lead the downfall of million gadgets in the market today.

Users will spend more time in internet with arise of new technologies like metaverse, which can challenge to continue the cultural and ethical matters.

[11]

Conclusion

Web 3.0 is the concept that is being arising in present virtual world. The centralized structure of the web has created issues such as loss of integrity and sovereignty of user data. The buying and selling of data under the nose of users is making the 'Giant tech' more advance while users are being annoyed with unwanted advertisement and worried about security of their identity. In this report, we discussed how web 3.0 not only improved accessibility and interactivity of users in web using AI, AR, VR and 3D technology but also decentralized the data storage and power using DAO, blockchain and cryptocurrency. We also discussed about the challenges arising to the business and social levels with advancement in web in short- and long-term basis. While many arguing on successful implementation, let us analyse and feel the changing web being alert in our own view.

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