Chapter 25
The Future of Web 3:
A Roadmap for the Decentralized Web

Azadeh Eskandarzadeh
University Canada West, Canada

ABSTRACT

This article examines the ways in which Web 3.0 technologies can be advanced through research and innovation across disciplines. To completely benefit from the semantic web, efforts must be made to establish semantic standards and compensate data providers. To ensure ethical AI in the Web 3.0 era, researchers in the field must fixate on creating systems that are both reliable and readily explicable. Enhanced scalability, usability, and governance models are among the objectives of developing decentralized technologies like blockchain. When decentralized and AI-enabled systems become the norm, security, privacy, and accountability research will become increasingly crucial. Multi Stakeholder engagement will be required to resolve governance concerns in order to maximize the benefits of Web 3.0 while minimizing the risks.

INTRODUCTION

Web 3 and Web 3.0

This leads us to the subsequent stage of the internet, wherein numerous individuals aspire to regain authority from the dominant entities that have established hegemony over it. The terms web 3 and Web 3.0 are frequently utilized interchangeably, although they represent distinct concepts.

web 3 represents the paradigm shift towards a decentralized internet infrastructure constructed upon blockchain technology. The concept of Web 3.0 can be traced back to the initial vision of Tim Berners-Lee for the internet, wherein he envisioned a network of interconnected websites operating at the data level. The current internet infrastructure can be characterized as a vast collection of documents. Computational systems demonstrate the capability to retrieve information in response to human instructions. However, they are limited in their capacity to comprehend the inherent significance or deeper meaning embedded within our queries.

WEB 3.0

Berners-Lee, Hendler, and Lassila came up with the concept of the Semantic Web in the year 2001. In certain areas, the Semantic Web is also referred to as Web 3.0. They were of the view that this forward-thinking method had the potential to totally revolutionize the manner in which we engage with the World Wide Web. If we were to integrate characteristics such as content that is machine-readable and artificial intelligence (AI), it has been hypothesized that the Semantic Web may completely alter the manner in which we interact with websites. This is something that has been suggested. According to O'Reilly (2007), the modern web, also known as Web 2.0, makes it feasible for users to easily share the content that they have created on the website. This ability to easily share content is made possible by Web 2.0. However, it is difficult for robots to read and comprehend the information, which is one of the areas in which it falls short. This is one of the areas in which it falls short. Ontologies and semantic labeling, according to Shadbolt, Berners-Lee, and Hall's (2006) interpretation, will be included into Web 3.0 as a solution to this problem, which they claim will be resolved. Robots will be able to acquire a deeper knowledge of the content found on the internet as a direct result of the development of these technologies. Berners-Lee and colleagues (2001) argue that the building of the Semantic Web makes use of a variety of distinct technologies. These technologies include the Resource Description Framework (RDF), Web Ontology Language (OWL), and Simplified Knowledge Organisation System (SKOS). According to Shadbolt et al. (2006), the combination of many different technological systems leads to the development of a worldwide "semantic graph." The data in the graph are connected in some way, and it is possible that AI systems will make use of this information. Berners-Lee and colleagues (2001) postulated that Web 3.0 will bring forth a multitude of advantages, one of which would be enhanced search capabilities that are both easier to use and understand. In order to deliver tailored ideas and automatic responses, the technology that our organization offers takes use of semantic query responding and reasoning over the network of data. The introduction of Web 3.0 is just around the horizon, and it has the potential to bring about a fundamental shift in the manner in which we take in information when interacting with websites online. The effective utilization of nonrenewable resources, the reduction of waste and pollution, the development of social and economic benefits for local communities, and the cultivation of a sustainable ethos within the organization are some of the important considerations that need to be taken into account. Other important considerations include the cultivation of a sustainable ethos within the organization. In addition, the United Nations Global Compact (2015) states that the implementation of sustainable innovation has the potential to facilitate the reduction of costs, the enhancement of competitiveness, and the provision of new opportunities within the market. As a consequence of this, it is extremely required to recognise that it plays an essential part in establishing a sustainable future and in resolving the grave concerns posed by climate change and social inequality. Consequently, it is absolutely necessary to acknowledge that it plays an essential role in reaching a sustainable future. This is a prerequisite that cannot be ignored under any circumstances.

The Evolution of the Web

As stated by Hearn (2009), the advent of Web 1.0 facilitated the creation of web pages that possessed a static nature, limiting their functionality to mere reading capabilities. In 2005, O'Reilly provided a description of Web 2.0 as a period characterized by the emergence of user-generated content and the prominence of social networking. In the year 1890, Warren and Brandeis made an observation regarding

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