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Research Paper on Web 3.0: The Future of Web

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Abstract: ***The current web 2.0 is about connecting peoples during which the social media platforms were invented. Web 2.0 essentially meant the amendment from static to user-generated content and conjointly the expansion of social media where users can interact with each other.***

The purpose of this study is to outline web 3.0 and discuss the underlying technologies, establish new opportunities and highlight potential challenges that are associated with the evolution to web 3.0 technologies.

Keywords: Semantic web, Web technologies, Web 2.0, Web 3.0, Decentralized web

I. INTRODUCTION

Web 2.0, coined per se by O'Reilly et al. between 1999 and 2004, rapt the globe on from static desktop sites designed for information consumption and served from expensive servers to interactive experiences and user generated content that brought us Google, Amazon, Facebook and Instagram.

Web 2.0 and Web 3.0 represent consecutive, advanced iterations of the Web 1.0 of the Nineties and early 2000s. Web 2.0 is the current version of Web with which we all are familiar with, Web 3.0 represents the next web, which will be decentralized, open, and of larger utility. Innovations like smartphones, mobile web access, and social networks have driven the exponential growth of Web 2.0.

II. HISTORY OF WEB



Image Source: Dev Community(medium.com)

A. Web 1.0

Berners-Lee pioneered the first development of the web in 1990 when he was a computer scientist at European Research CERN.

By October 1990, Berners-Lee had written the 3 elementary technologies that became the foundation of the web, as well as the very 1st webpage editor/browser.

Most web users at that point were delighted by the novelty of options like email and real time news retrieval.

B. Web 2.0

The second wave of web 2.0, that came in 2004, not solely gave everybody a lot of interactive experience however conjointly created web consumption mobile-first and social. This was the age of static webpages retrieved from servers. Web 2.0 makes it possible for user-generated content to be viewed by millions of people round the world just about in associate instant; this unequalled reach has led to an explosion of this type of content in recent years. The exponential

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growth of web 2.0 has been driven by key innovations like mobile web access and social networks, also because the near-ubiquity of powerful mobile devices like iPhones and Android-powered devices. In the second decade of this millennium, these developments enabled the dominance of apps that greatly expanded on-line interactivity and utility—for example, Airbnb, Facebook, Instagram, TikTok, Twitter, Uber, WhatsApp, and YouTube, etc. The phenomenal revenue growth of those dominant platforms has created several of the web 2.0 centric companies—such as Apple, Amazon, Google, Meta (formerly Facebook), and Netflix—among the world's biggest firms by capitalization (FAANG).

C. Web 3.0

Web 3.0 represents successive iteration of the web/internet and potentially could be as disruptive and represent as huge a paradigm shift as web 2.0 did. Web 3.0 is constructed upon the core ideas of decentralization, openness, and bigger user utility. Where web 2.0 was driven by the arrival of mobile, social and cloud, Web 3.0 is constructed for the most part on 3 new layers of technological innovation: Edge Computing, decentralized data networks and AI. Because of the large variety of choices that have yet to be discovered, Web 3.0's capabilities are unclear.

Some Example of Web3.0 application in practice:

Bitcoin – The original cryptocurrency has been around for more than ten years, and the protocol itself is decentralized, although not all its ecosystem is.

Diaspora – Non-profit, decentralized social network

Steemit – Blockchain-based blogging and social platform

OpenSea – A marketplace for buying and selling NFTs

III. POTENTIAL AND PITFALLS OF WEB 3.0

Web 3.0 has the potential to supply users with way bigger utility, going well on the far side the social media, streaming, and on-line shopping that comprise the bulk of web 2.0 applications customers use. Core features of net three.0, like decentralization and permissionless systems, also will provide users abundant bigger management over their personal data. This may help limit the practice of data extraction—which refers to information collected from web users without their consent or compensation—and curb the network effects that have enabled the technology giants to become near-monopolies through explicatory advertising and selling advertising practices.

However, decentralization conjointly brings with it important legal and regulative risks. Cybercrime, hate speech, and misinformation already troublesome to police and will become even more so in a decentralized structure because of the lack of central Management. A decentralized web would conjointly create regulation and social control terribly difficult; as an example, which country's laws would apply to a particular web site whose content is hosted in varied nations globally?

People don't like several of the present proposal for web 3.0 because of the very fact that they are designed on blockchain, which may generally be terrible energy intensive, contributory to sscarbon emissions and global climate change. The Bitcoin blockchain, as an example, is calculable to consume round the same quantity of energy as Finland.

IV. CONCLUSION

The World Wide Web is recognized as the quickest growing publication medium of all time. To remain competitive, it's crucial to remain up to date with technological trends.

The Web matures in its own distinctive method. From the static informative characteristics of web1.0, it progressed into the interactive experience web 2.0 provides. The next phase of Web evolution, Web 3.0, is already in progress.

Web 3.0 entails an integrated Web experience where the machine is going to be able to perceive and catalogue data in an exceedingly manner just like humans. This may facilitate a worldwide data warehouse wherever any format of data is often shared and understood by any device over any network.

The evolution of the web can create new opportunities and challenges.

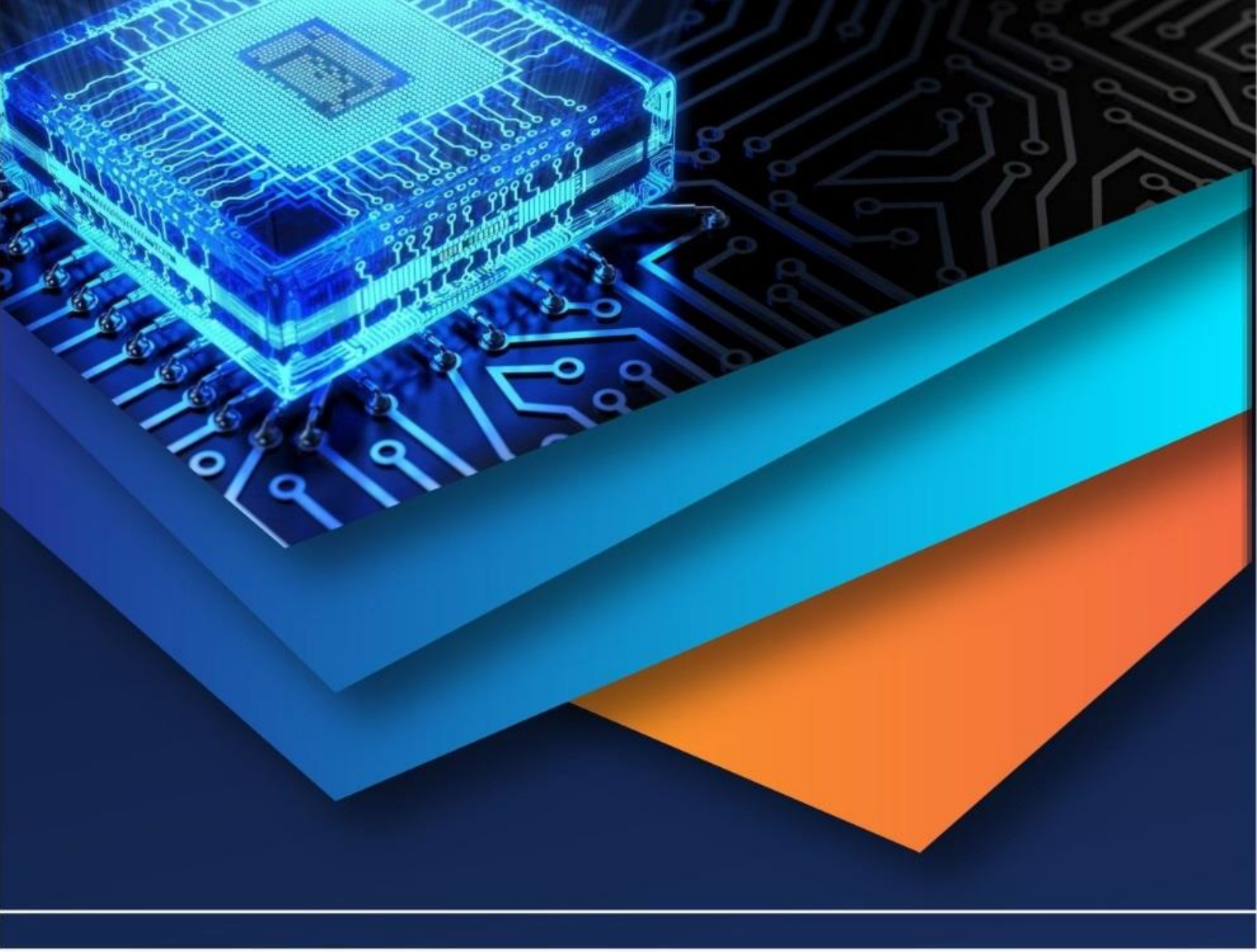
Opportunities known will chiefly be characterized because the autonomous integration of data and services that increase the pre-existing capabilities of web services, as well as the creation of new functionalities.

The challenges primarily concern unauthorized access and manipulation of data, autonomous initiation of actions.

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