The Next Generation of the Internet

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In recent times, Web 3.0 has gripped the Internet world. Web 1.0 was the start of the Internet when there were only static pages. Web 2.0 became more interactive.

Tim Berners-Lee and his colleagues began developing the World Wide Web in 1989 at the CERN (Conseil Européen pour la Recherche Nucléaire) based in Geneva, Switzerland. They created a protocol, HyperText Transfer Protocol (HTTP), which standardised the communication between servers and clients.

Web 1.0: Read-only

In 1990, the internet was a group of connected computers and the Web was the first application that Tim Berners-Lee created. Web 1.0 was designed as a 'hyperlinked information system'. A huge library of data was sourced together from computers across the network for the users to browse the content by click-ing around linked text and images. Web 1.0 was created to be used by the companies and the content used to be static (read-only) where users didn't have an option to give feedback, comment, or quotes. The Webmaster used to be the one responsible for updating users and managing the content of the Website.

Web 2.0: Read + write

After ten years, with the emergence of giant companies like Google, Facebook, and Twitter, Internet gained massive user base. Web 2.0 was created to be used by the communities. For the first time, anyone could publish content online. As barriers faded, users and usage surged. The Internet had something for everyone. It became more widespread as it offered user-to-user interaction, content creation, and content retrieval.

In the backend, three significant shifts shaped Web 2.0 as we know it today. These are use of smart mobile phones, Social Media platforms and Cloud storage.

Web 2.0: The Cons

Ownership: Platforms own everything that is created online including the data provided by the users, the generated behavioural data, and the images, videos, songs, status updates and comments uploaded. Whatever we do on the platform becomes the platform's property.

The attention economy: Websites compete for users' attention with algorithmically generated content loops that keep us scrolling and headlines that force us clicking as it has become the Internet's naive currency. On Web 2.0, we are fed with a personalised diet of whatever triggers us the most. This leads to clickbait, misinformation, fake news, ad blockers, and ad blocker-blockers.

De-platforming: Close to 90% of the Web is stored with four host-

Web development step by step Web 1.0 to Web 3.0

ing providers, the biggest of which is Amazon Web Services (AWS). Their data centers run the sites and apps we use every day: Facebook, Twitter, Netflix, Uber, Reddit, and so on. We access them through Web browsers and download them from mobile App stores. These companies control the gates to the global marketplace of ideas.

Hacker Paradise: An interconnected economy that combines decentralised data creation with centralised storage giving enormous rewards to hackers. Billions of devices uploading data to a handful of massive data centres are analogous to a central bank with infinite entry points. Data breaches have become the new norm in terms of privacy and cyber-terrorism. Web 2.0's centralised nature opens the door to security threats.

Trust problem: The Internet pioneers never meant Web 2.0 to be centralised but the core challenge of human social organisation, trust, was overlooked by them.

Units of civilization: Institutions foster trust among strangers by keeping track of who owns what. Taxes, payments, real estate, and exchanges records confirm the truth, and the truth builds trust.

Gatekeeper: Unbounded by space and time, today's Internet institutions have slashed the latency and cost of economic exchanges – unlocking instant global business. They achieve this by letting the software take care of trust. We trade with strangers worldwide having enormous faith on the data provided by the Internet.

Web 3.0: Read + write + own

Web 3.0 is an umbrella term for an online ecosystem that cuts out the prominent mediators on the Internet. Central gatekeepers do not own platforms on Web 3.0 and you would not navigate the internet through search engines such as Google. It

is an idea for a new iteration based on blockchain technology, which incorporates concepts including decentralization and token-based economics. Web 3.0 aims to reduce dependency on large tech companies.
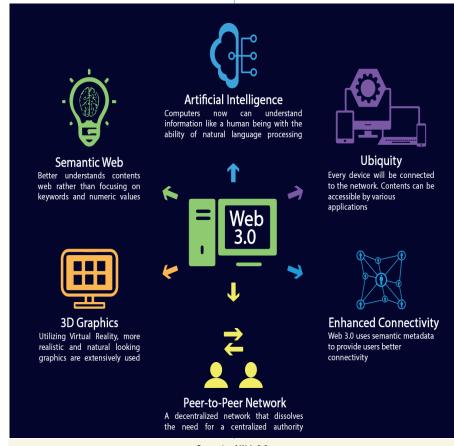
Why is it on everyone's minds?

Thirty years into mass Internet adoption, our data architectures are still based on the concept of stand-

Concepts of Web 3.0

alone computers – data is centrally stored and managed on a server and sent or retrieved by a client. Every time we interact over the Internet, copies of our data get sent to the server of a service provider, and every time that happens, we lose control over our data. Our data is still centrally stored: on our computers or other devices, on the USB stick, and even in the cloud, which raises issues of trust.

Web 3.0 Concepts:

Artificial Intelligence (AI): Most people believe that AI will play a big part in Web 3.0 due to the heavy involvement of machine-to-machine communication and decision-making needed to run many Web 3.0 applications.

Metaverse: It is the user interface, through which we interact with the online world, communicate with other users and manipulate data concerning

Web 3.0. The metaverse is intended to be a much more immersive, social, and persistent version of the Internet that we are all familiar with and enjoy. It will entice us by utilising Virtual Reality (VR) and Augmented Reality (AR), allowing us to interact with the digital domain in more natural and immersive ways. For example, we could use virtual hands to pick up and manipulate objects, and our voices to

instruct machines or converse with others. In many ways, the metaverse can be thought of as the interface through which humans will engage with Web 3.0 tools and applications. Creating Web 3.0 applications without involving the metaverse is possible. Bitcoin is one example, but metaverse technology and experiences are expected to play a significant role in how many of these applications interact with our lives.

Bitcoin: Bitcoin is a decentralized digital currency, without a central bank or single administrator, that can be sent from user to user on the peer-to-peer bitcoin network without the need for intermediaries.

Blockchain: Although the concepts surrounding blockchain technology is extremely complex, blockchains themselves are relatively simple. In layman's terms, a blockchain is a public database. Blockchains keep a record of transactions between parties on a public forum that anyone can access.

Following are the main differences between a regular database and the blockchain:

● *A blockchain is append-only:* Data cannot be changed once it has been written, i.e., information is locked on the blockchain forever.

● *A blockchain takes the form of a linked list instead of a table:* Every set of transactions (known as a block) added to the blockchain reference the previous block. As a result, there is a chronological record of every transaction that has ever occurred on the blockchain.

● *Blockchains are decentralised:* They are not owned by any specific organisation and cannot be removed in the same way that a regular database can. This is due to the fact that a single blockchain is replicated among hundreds of different users, each of whom runs a node, each of which contains an identical copy of the blockchain's entire history.

Cryptocurrencies

Cryptocurrencies are digital currencies that can be exchanged online as a payment for goods and services. It is a new kind of private digital currency or digital money, which can be used to pay someone using the Internet. It is radically different from the traditional currency to which we are accustomed. Cryptocurrencies are frequently managed through governance protocols, in which stakeholders vote on proposals for future token-related decisions.

Cryptocurrencies differ from traditional digital payment methods in a variety of ways:

● *Permissionless:* Anyone in the world can access and transfer cryptocurrency directly without having to register on a financial platform. Users are not at risk of having their assets frozen or controlled by a third party.

● *Anonymity:* Governments regulate financial platforms, and as a result, personal data is required to use their services. Cryptocurrencies enable the transfer of ownership without the need for proof of identity.

● *Volatility:* Market value can vary wildly (except stablecoins) based on expectations for the project or blockchain tech as a whole.

It is difficult to predict when Web 3.0 will be fully implemented; but given that it took over ten years to transition from the original Web, Web 1.0 to Web 2.0, it is expected to take at least that long, if not longer, to fully implement and reshape the Web with Web 3.0.

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