

The Metaverse

Internet 3.0 Virtual Cloud



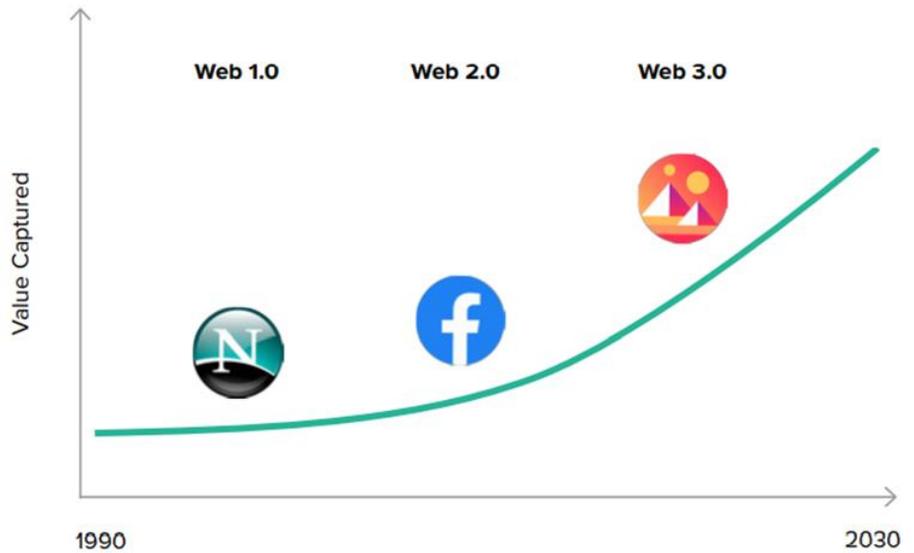
What is the Metaverse and why does it matter?

At a conceptual-level, the Metaverse can be thought of as the successor-state to today's Internet - just as today's predominantly mobile Internet was built on top of fixed broadband Internet of the 1990s and early 2000s. And while the technologies to design, enable and support the "fullest" of the Metaverse are as far from the capabilities of 2021 as the 1990s Internet is from us today, emergence of the Metaverse will revolutionize every industry. From healthcare to payments, consumer products, entertainment and hourly labour.

With the arrival of the Metaverse, the world – as we know it – will no longer be the same. Just take a step back and imagine yourself in a world where humans enter the Metaverse as "digital avatars". In this virtual world, humans will do everyday activities like play games, meet up with colleagues, or watch a movie. Virtual products – be it the digital versions of actual products, or products that exist only in the virtual world – will have their own unique worth in the Metaverse with ownership secured by an NFT (non-fungible token).

The internet has always been about connecting people. Over the past three decades, internet technology has evolved, and the way we all interact with the web has evolved with it. Much has changed, but three key eras of online-based communities could be thought of as:

- Web 1.0 - Netscape connected us online
- Web 2.0 - Facebook connected us into online communities
- Web 3.0 - Decentraland connected us into a community-owned virtual world



A greater and greater portion of our attention is going towards digital activities, especially for younger generations. Today, ~1/3rd of our lives (~8 hours/day) is already spent watching TV, playing games, or on social media. As we spend more of our time in these digital world experiences, we also spend more of our money within these digital realms to build our social status within these online communities.

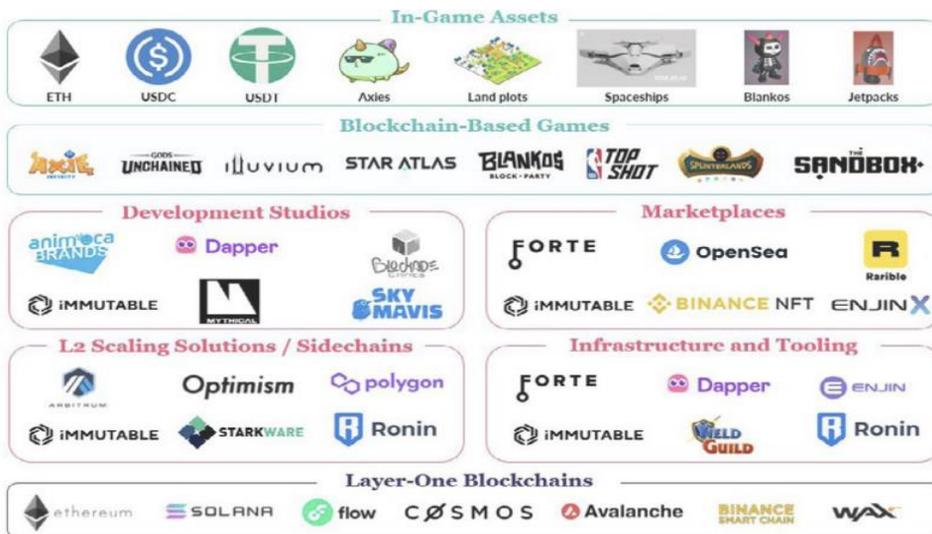
Illustrative Key Features of Web 1.0, 2.0 & 3.0

	Web 1.0	Web 2.0	Web 3.0
Interact	Read	Read-Write	Read-Write-Own
Medium	Static Text	Interactive Content	Virtual Economies
Organization	Companies	Platforms	Networks
Infrastructure	Personal Computers	Cloud & Mobile	Blockchain Cloud
Control	Decentralized	Centralized	Decentralized

The Metaverse Economy

Web 3.0 crypto Metaverses are emerging market virtual world economies with a continually developing complex mix of digital goods, services, and assets that generates real-world value for users. Early Web 3.0 metaverse worlds have been typically built on top of blockchain computing platforms (layer one) with a host of parties contributing to the development of the games and in-game items that can be freely traded on the blockchain.

Blockchain-Based Gaming Stack



Users purchasing these items are starting to build a new e-commerce experience. Examples of some more popular business activities within Decentraland and other virtual world economies today are:

- **Art Galleries**, such as Sotheby's, have launched allowing owners to showcase and sell their digital NFT art at auction.
- **Business Offices**: crypto businesses like Binance and others have established digital headquarters in the Metaverse where employees can meet and collaborate.
- **Games & Casinos** where players can win MANA.
- **Advertising**: digital billboards have been built by property owners to advertise to game players for a fee.
- **Sponsored Content**, such as the recently announced Atari arcade which will feature games that can be played within Decentraland.
- **Music Venues** where DJs and musicians play music and hold concerts.

Metaverse Experiences



These Web 3.0 Metaverse worlds are part of a larger interconnected crypto cloud economy. These decentralized protocols interoperate with and provide the technical infrastructure to support Metaverse virtual economies.

- **Payment Networks:** Web 3.0 metaverse economies can use their own digital currency, like MANA, or the currency of the layer one base crypto cloud economy platform they're built on, such as Ethereum (ETH) or Solana (SOL).
- **Decentralized Finance:** Decentralized exchanges allow users to trade in-game items while lending platforms allow users to take out loans on their virtual land.
- **NFT Sovereign Goods:** Players can purchase NFTs from other creators and bring them into other virtual worlds to be put on display or sold.
- **Decentralized Governance:** Legal frameworks take back control of the digital economies from centralized corporations and allow a global network of Web 3.0 metaverse users to decide the rules of their collectively owned virtual space.
- **Decentralized Cloud:** File storage solutions such as Filecoin give Web 3.0 metaverse worlds a decentralized infrastructure solution to store data while services like Livepeer give virtual worlds decentralized video transcoding infrastructure.
- **Self-Sovereign Identity:** Internet-native social reputation coin ("creator coins") data from other platforms may be transferred into the Metaverse and used for identity or credit scoring.



Key Players in the Metaverse and Companies we Hold in our Global Equity Portfolio Mandate

Nvidia - From the world's fastest supercomputers to the chipset inside your device, Nvidia has been developing some of the most critical chips over the last three decades. The company accounted for 83% of the global GPU market as of 2Q21. Apart from hardware, Nvidia has also released the "Omniverse" which simulates shared virtual 3D worlds.

Meta platform - Facebook has announced plans to transition from a social media company to a Metaverse company (recently renaming itself "Meta Platforms"). The company has made investments in software that allow AR-powered "teleportation" as well as hardware relating to VR headsets (under Oculus).

Since acquiring VR firm Oculus for USD3b in 2014, Facebook has managed to capture 2/3 share of the global VR headset market (as of 1Q21). The company plans to sell 10m active units to create a self-sustaining ecosystem.

Key Players in the Metaverse and Companies we Hold in our Global Equity Portfolio Mandate (Cont'd)

Microsoft - Microsoft has announced plans to develop the enterprise Metaverse, a new layer of enterprise infrastructure stack where users can “start with the digital twin to build a rich digital model of anything physical or logical, whether it’s assets, products, or complex environments spanning people, places, things, and their interactions”.

The initial move into the Metaverse will be via its Teams conferencing programme which will feature digital avatars. Through the usage of Mesh software, users are able to access both virtual and augmented reality experiences with AR/VR goggles. Microsoft’s exposure to the gaming space includes the (a) Xbox gaming platform which currently attracts 100m monthly active users and (b) Mojang Studios which produces Minecraft (the best-selling video game of all time with over 140m monthly active users).

Tencent - Tencent registered two trademarks in September 2021 for “Timi metaverse” and “Kings metaverse”. “Timi” refers to Tencent’s Timi Gaming Studio, the creator of Call of Duty Mobile and Honour of Kings (two immensely popular mobile games that generated USD10b revenue in 2020).

Kering & LVMH – Gucci (part of Kering), the fashion house released a collection for Roblox earlier this year. In it, one would see avatars sporting Gucci products and moving around in a virtual “Gucci Garden” (similar to the actual one in Florence). Louis Vuitton, meanwhile, went one step further by releasing “Louis the Game”, which sought to introduce the brand to audiences who are new and unfamiliar with the company.



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