

WEB3 DEMYSTIFIED

Exploring the hazy future of blockchain in the content business



THE CRYPTO CRASH SHOULDN'T DASH HIGH HOPES FOR WEB3

The midpoint of 2022 is a great time to ponder the implications of the Web3 phenomenon. After riding a tidal wave of hype for much of 2021, a springtime sell-off that wiped away a staggering \$2 trillion in this new market's value should have everyone asking some tough questions about what blockchain means, both inside and outside of the media business.

While the crypto crash isn't exactly a good omen, it's difficult to believe that technology with revolutionary potential for content creators and consumers alike is truly doomed. As Variety Intelligence Platform's special report "Web3 Demystified" explores, the innovations in monetization and user experience that the industry has just begun to unlock would seem too groundbreaking to simply vanish. It's hard not to be fascinated by Web3 when one considers the failings of previous iterations of digital platforms. Every company in Big Tech is currently trying to figure out how to incorporate blockchain into what they do in some shape or form.

We're clearly seeing evidence of that now in the early phase of the NFT market, and it won't be long before what's known as the metaverse takes shape as well. Time will tell whether the sell-off underway is just the darkest moment before the dawn of a new era in computing or the end point for an overblown trend. I'm inclined to believe the former is true. In the meantime, it's incumbent upon all of us to educate ourselves on just what Web3 means for our businesses, because the future has to hold someplace for something too profound to ignore.

Andrew Wallenstein
President and Chief Media Analyst, VIP+

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About the Author

Paul Sweeting, cofounder of the RightsTech Project and editor of the RightsTech blog, is a veteran business journalist and industry analyst specializing in the intersecting worlds of media, technology and public policy. He is also founder and principal of Concurrent Media Strategies LLC, a Washington, D.C.-based consulting and editorial services firm.

DEFINING WEB3

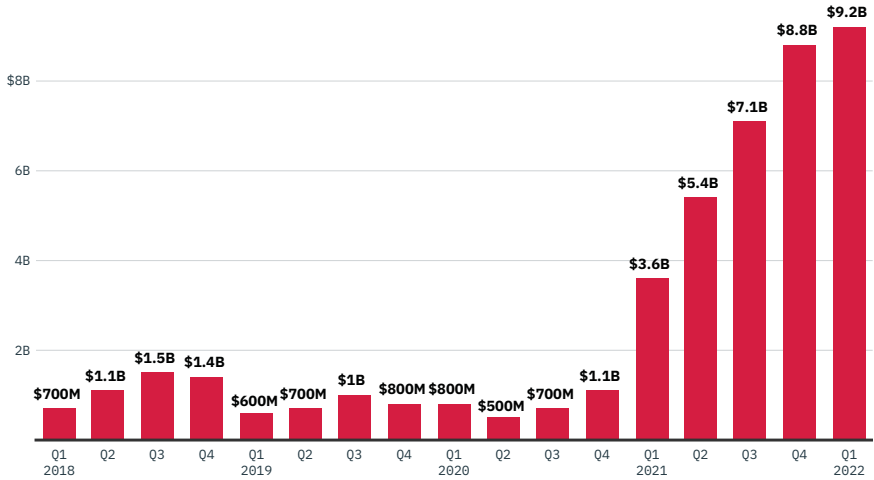
The hottest buzzword in tech circles these days is “Web3,” sometimes written Web 3.0 or web3. Conferences are devoted to it, developers are beavering away at building it, and companies are “pivoting” to it.

But what exactly is it? On one level, Web3 is just the latest product of the Silicon Valley hype cycle, created to tickle the zeitgeist and keep investment dollars flowing into both established tech companies and startups. And on that level, it has definitely been working over the last year or so.

Investment in companies that could plausibly fit under a Web3 banner exploded in 2021, with venture capital funds channeling around \$25 billion worldwide into blockchain and crypto companies and startups comprising those two core Web3 technologies, all before a record \$9.2 billion was tracked for the first quarter of 2022, per CB Insights. More than 60 blockchain unicorns — privately held startups worth above \$1 billion — were seen in that quarter alone, while 28 global mega-rounds each raised at least \$100 million.

Another way to understand Web3 is as shorthand for evoking an intersecting and overlapping set of ideas and technologies that its proponents hope will make

Global Venture Capital Investment in Crypto & Blockchain Firms



SOURCE: CB INSIGHTS

up the next iteration of the internet. At the center of that Venn diagram is the notion of a World Wide Web built on decentralized protocols such as blockchain rather than on the massive, centralized platforms and walled gardens running on the proprietary servers that dominate today's Web2 version.

Unfortunately for the biggest enthusiasts behind this interconnected vision, the cryptocurrency market that for years now has legitimized the implementation of blockchain and propped up many fintech endeavors is in an enormous state of flux. After crypto soared throughout 2021 amid a rush to invest in various coins and non-fungible tokens after a year of the pandemic highlighting value in more virtually oriented markets — on top of consumers understandably rethinking their income situations — massive sell-offs of crypto and related NFT assets caused crypto stocks to plunge throughout May 2022.

Seeing as Web3 applications and platforms such as NFTs, cryptocurrencies and the metaverse are seen by proponents as tools meant to help unlock the vision of a true and permanently decentralized market that empowers users and creators alike without the heavy hand of today's tech giants, the current crypto crash is a scary reminder of some of the risks involved in investing in this area — risks only the biggest tech companies can reasonably power through. Several of today's major platform operators are already investing heavily in one or another Web3 technology or application with plainly proprietary priorities. Arguably the most notable is Meta Platforms (formerly Facebook), which recently rechristened itself to reflect its new orientation and is betting heavily on becoming a successful example of what the metaverse can offer.

While the metaverse is generally considered a Web3 concept, Meta's version, as outlined by founder, chairman and CEO Mark Zuckerberg in the company's reintroduction, is clearly intended to operate within Meta's not at all decentralized ecosystem. One of the largest early metaverse implementations runs entirely

within the video game Minecraft, owned by Microsoft, and Twitter is working to incorporate Web3 features like sending tweets via crypto accounts into its platform. YouTube, as well, has announced plans to move aggressively into NFTs.

Apart from the self-interest of the platform providers, there is a logic behind them ultimately claiming a dominant role in Web3 applications. A fully scalable metaverse, for instance, consisting of a persistent virtual space rendered in 3D and in real time while populated by millions of individual avatars, will require an enormous amount of computing power — something that Big Tech platforms are best positioned to endure. The more robust early iterations of metaverse tech are in large part being run by major companies in the video gaming space, such as Roblox, Microsoft and "Fortnite" maker Epic Games, with many also relying on game-engine software like Epic Games' Unreal Engine for real-time rendering.

In other words, any metaverse is difficult and expensive to maintain.

From another angle, when consumers today use the marketplaces OpenSea or Rarible on their mobile phones or laptops to buy and trade NFTs, they are not really interacting with a blockchain, as those devices lack the computing power required to run a blockchain node and because blockchain transaction costs — so-called gas fees — can be prohibitively high. Instead, they are engaging with a third-party application that performs most of the necessary functionality off-chain and only uses the blockchain to record the results of the completed transaction.

Those technical constraints obviously clash with the Web3 ethos as articulated by its most fervent advocates. That tension, between aspiration and technical limitations, is likely to characterize much of the development of Web3 applications for many years to come. Semiconductor-chip manufacturer Intel, for instance, estimates we will need 1,000 times our current computing power to fully make Web3 a reality. The same

sort of tension is already emerging within the creative industries' early forays into Web3. A myriad of ambitious startups, fueled by angel investors and early-stage venture capital, are currently working to develop distributed applications running on decentralized Web3 infrastructure they hope will empower artists and creators to engage directly with their audiences, without the need for traditional intermediaries and gatekeepers.

At the same time, many gatekeeping entities are eager to avoid missing the digital boat this time as they did in early iterations of the web and see significant opportunity in Web3 applications like the metaverse and NFTs, so they, too, are racing to stake their claims in those realms now. But what they don't want to see is a repeat of the Napster experience, in which technology allowed consumers to seize control of music distribution, which plunged that industry into a decade-long slump as downloadable MP3s became easily accessible and preferable to purchasing physical music.

Warner Music Group, for example, is an investor in Dapper Labs, which helped kick off the recent NFT craze by introducing CryptoKitties in 2017 and developing the NFT-focused Flow blockchain protocol as well as the music-focused NFT platform OneOf. WMG has also formed partnerships with gaming metaverse developer The Sandbox and digital collectibles platform Blockparty.

Far from envisioning a future without gatekeepers, WMG CEO Stephen Cooper insisted in the company's Q4 2021 earnings call that "the emergence of Web3 is going to further amplify the importance of music labels and publishers." Likewise, Walt Disney CEO Bob Chapek declared the metaverse to be "the next great storytelling frontier" as the company hired a senior executive in February to spearhead the company's own ambitious Web3 strategy.

Rather than a decentralized, user-controlled web, what executives like WMG's Cooper are really referring to in discussing Web3 is more like a collection of

advanced applications and technologies that can enable richer, more immersive forms of engagement between artists and fans. That engagement may still happen via Web2 infrastructure, but it could be developed and implemented by creators themselves rather than conforming to the design and operation of third-party platforms and walled gardens.

The major music and movie companies, in other words, view Web3's development not as a way to circumvent the incumbent music and movie companies but as an opportunity to shift some of the value captured through network effects dominated by major digital platforms, such as YouTube, Facebook, TikTok and Twitch, back to the creators and rights owners. And they are now investing heavily to make this a reality for themselves.

Essentially, it's more Web2.5 than Web3.

Webs 1-3: A History

The first era of the World Wide Web, now designated as Web1 or Web 1.0, is generally regarded as lasting from 1991 through roughly 2004. For most of that time, it consisted of static content websites, with limited interactivity and a largely passive user experience.

This was the domain of specialized developers and content publishers rather than users but for the most part hewed closely, particularly in the early years, to the original open design of the internet itself. It was built on open standards and protocols under shared governance that prioritized interoperability. Anyone could configure a network or server to connect with any other; anyone could create a website using Hypertext Transfer Protocol that any browser capable of rendering HTTP could display.

The launch of MySpace in 2003, followed by Facebook in 2004, marked the beginning of the social and interactive era of the web, referred to as Web2 or Web 2.0, in which we still live. The widespread adoption of web browsers eliminated the need for proprietary

interfaces like AOL and the introduction of broadband internet access to replace dial-up connections greatly accelerated that transformation by enabling the uploading and downloading of larger files supporting richer experiences and media.




With the advent of social media applications, anyone could create and populate their own online "space" or, in Facebook's case, "wall," and photos and videos could be uploaded to such spaces, allowing users to document their lives in real time. The increased use of these networking applications, however, brought a new level of network effects. As more in one's friend circle created Facebook accounts, the more valuable the platform became to all members of the group, a reality that in turn attracted more users and increased the overall power of Facebook.

The explosion in the related amount of content and content creators that was further sparked by the launch of YouTube in 2005 drew the need for tools to find and sort it all, a challenge quickly met and resolved by Google, which purchased YouTube a year after the video platform's creation. This synergy of multiple tech companies led to network effects of their own and continued to amplify the presence of

social networks by making them more useful to users. Some 15-plus years in, and the result of those effects has been the centralization of functionality within the dominant networks, the subordination of openness and interoperability and the emergence of a digital economy increasingly defined by monopoly power.

While the scale and market-ready access provided by the dominant platforms have delivered substantial value to users, as well as to content creators and rights owners, it has also come at a cost to both. For users, it has meant the surrender of privacy and personal autonomy; for creators and rights owners, it has meant accepting the unilateral terms and conditions established by the platforms in order for them to reach the biggest possible audiences.

The growing interest in Web3 can be viewed, at least in large measure, as backlash against the monopoly economics of Web2. It rests on the core principle and goal of decentralization, in which functionality and control would be distributed throughout the network rather than concentrated at the center. It would once again operate primarily through open, ungated standards and protocols such as blockchains, and it would redistribute value from the platform to the users.

Web1 vs. Web2 vs. Web3		
YEAR	NEW WEB DESIGNATION	APPLICATION COMPLEXITY
1990 	WEB1	Basic HTML / Emails
2000 	WEB2	Informative and interactive / Information-centric
2020 	WEB3	Decentralized, private, secure / User-centric

SOURCE: 101 BLOCKCHAINS, COINTELEGRAPH

BUILT ON BLOCKCHAIN

What we know today as blockchain was first described in the seminal 2008 white paper published by the pseudonymous inventor of Bitcoin, Satoshi Nakamoto. Most of its technical elements — cryptography, distributed storage, public key encryption — were not new. But Nakamoto developed a method for verifying transactions over a blockchain network — the proof-of-work consensus mechanism — that did not require trusted intermediaries to validate.

Without banks, monetary exchanges must be tracked, as ones and zeros are easily copied. For instance, if Bob sends Alice 10 digital dollars, how does anyone know he hasn't sent the same amount to Mary without a bank keeping track of the exchange? In cryptocurrency circles, this is known as the double-spend problem, and Nakamoto's solution was to create a network protocol that set a hard limit on the number of digital dollars that could ever be issued, before spreading the account ledger across the entire network.

This birthed Bitcoin, and cryptocurrencies like it reward users who enable this computational work to validate transactions by issuing newly "mined" Bitcoin that encourages further use of the system. Messages

sent via blockchain are encrypted using public/private key encryption, also called asymmetric encryption. Every user has a public key that can be disseminated widely and a private key known only to the user. Keys are generated by the network protocol itself, never assigned or maintained by a single entity. Anyone can encrypt a message using the recipient's public key and broadcast it to the network, but only the intended recipient can decrypt it with their private key.

Should you ever lose your private key, there is no central authority from which to retrieve it. Anything of value you have stored on the blockchain will be lost, which could prove a significant disincentive for consumers to rely on blockchain-based applications. The system also works in reverse. Messages can be digitally "signed" using the sender's private key and verified by anyone accessing the sender's public key. Anyone seeing the message can be certain it came from the person associated with that public key, even if they are anonymous.

While Bitcoin didn't turn out to be terribly useful in ordinary commerce, as it proved to have its own design limitations, the buzz around it soon caught the attention of those outside the crypto and fintech sectors

as a possible path around traditional gatekeepers within a variety of industries, not the least of which were within the creative industries. Startups were formed to address the perceived funding, data and payment bottlenecks within the music, movie and visual arts industries, and venture capital began pouring into the sector.

Most of those efforts, however, turned out to be either poorly conceived or overly ambitious given blockchain's still-nascent stage of technical development, and as a result they quickly disappeared, taking most of the VC capital along with them and souring many on the technology.

The introduction of the ERC-721 technical standard in 2018, however, which enabled the minting of unique, provably scarce (i.e., non-fungible) crypto tokens on the Ethereum blockchain, reignited interest around the technology and its commercial potential.

Nowhere has that rekindled interest in blockchain burned hotter than in the music and graphic-arts world. Total NFT trading volume in 2021 reached nearly \$25 billion worldwide, per DappRadar. Digital collectibles and NFT art — both categories that include images, music and video — accounted for roughly two-