## Web 3.0: The Future of the World Wide Web, "Blockchain for Everything, Everywhere" or Blue Smoke and Mirrors?

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When you scan the technology and business press, a few terms have been rising in interest. One of them has exploded onto the scene, although its roots go back more than 15 years: Web3. *Time* magazine has introduced its Web3 community initiative, TIMEPieces,[1] and is selling access to issues as non-fungible tokens. "Rank and file" Web3 developers are reportedly being offered compensation of $300,000 US or more.[2] The *New York Times* has recently published its own guide on "What is web3?"[3]

But whether people don't see the need being met, confusion about what web3 is, or some other reasons, it seems like those directly involved don't care. According to Google Trends, a tool for tracking search volumes, "blockchain" has remained interesting buoyed on by Bitcoin in late 2017[4]; "NFT" (non-fungible tokens) exploded in interest in February 2021[5]; "Meta" took off in October 2021, led by Facebook's new Meta brand for its apps and technologies.[6] What hit the headlines, however, but not the search results is the focus of this article: *Web 3.0*, or *Web3*.

The evolutionary path of technologies having an impact on financial professionals is littered with trends and fads. Few were solutions designed to meet particular problems in the profession. Many failed, or at least stalled, as they were hyped before their time and may yet gain traction. Some were marketing terms rebranding what's already in place, but with new clothes. Some are signposts announcing possible destinations, where the actual path may or may not reach the destination as described. Which of these is Web 3.0? And how far back does the term go, and has its meaning changed?

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In this article, I will delve into the background and distinctives of Web 3.0. At a very high level, it is a name for the visions of the natural evolution of the World Wide Web … given other technical advancements. Currently, that vision incorporates or focuses on blockchain technology as a foundation. Web3 is not yet in place; there is no official standards organization defining it or developing the architecture authoritatively; there is little agreement to what will bring us from "Web 2.0" to Web 3.0, but many try to plot the course.

Moving forward, we introduce the background of the term, illustrate how the market has grabbed and stretched it in different directions and speak about potential impacts on financial professionals.

## The Genesis of Web 3.0

My involvement in the "World Wide Web" spans back almost 30 years. I developed my first web pages on a university Unix system using the *vi text* editor and looked at the pages using the Lynx web browser, a text-only tool. My own website, at my long-standing domain *Computercpa.com*, is little changed from the lovingly handcrafted site I first put up, first on that university computer and later under my own domain. I wrote the first article about the Internet (and the World Wide Web) for the *Journal of Accountancy* back in August 1995,[7] and published one of the first books about the topic for the profession, *The Accountant's Guide to the Internet*.

From those early days of static text-only pages, there have been many evolutionary stages of the Web. In those earliest days, chatting with fellow enthusiasts, I learned about the Mosaic browser, the precursor to today's Mozilla Firefox, which permitted display of images *inline* with the text. Other evolutionary changes included:

- Javascript and CSS (cascading style sheets), for a more dynamic and interactive web.
- Peer to peer file sharing.
- Mobile browsing.
- The social web, with blogs, social media.
- Multimedia sites, like YouTube, aided by broadband connections.


So, there is little agreement on when "Web 2.0" emerged, although some people say the change was from the "read only" Web to the "read write" Web, or the change to centralized sites (social media) and engaging users to contribute content, such as images, videos and personal information, with the information (intellectual property) grab that came with it. One might say the leaders of Web 2.0 are sites like Facebook, LinkedIn, YouTube, TikTok, Instagram, Snapchat and others of that ilk.

As a reaction to the rise of these new powerhouses, Web 3.0 was introduced. Well, one could posit that Web 3.0 has been introduced a number of different times. In 2006, there is reference in *The New York Times* from reporter John Markoff, appearing also in *IEEE Internet Computing* in May/June 2007 as a return to common sense, based on Semantic Web technologies, leading to a "machine-facilitated understanding of information in order to provide a more productive and intuitive user experience," and focused on the so-called *Semantic Web.*[8] We in XBRL circles had many discussions about XBRL and the Semantic Web in the immediate years that followed.[9]

How much of Markoff's vision has carried over into today's blockchain-focused Web3 is up for argument. As we will see, the blockchain-era Web 3.0 is often credited to Ethereum/Polkadot pioneer, Dr. Gavin Wood, in 2014. While Wood's vision was originally aimed at a decentralized web, we will see even that vision has been pulled into a number of different directions.

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There is, fittingly, a group known as the "web3 foundation," which brings visibility to this space, and wjocj funds research and supports development teams building the foundation of the "decentralized web." Dr. Wood is the Founder of the web3 foundation. His "Web 3.0" vision was expressed in a post called "DApps: What Web 3.0 Looks Like". The four major components of the vision were focused on *more control over personal information*, using:

- Static content publication
- Dynamic messages
- Trustless transactions and,
- Integrated user-interface.

This interview in Bitcoin Magazine in 2014 is also helpful for understanding Wood's original vision, freeing users from having their email and pictures and identifiers and movements and social media content from being conscripted by Facebook, Google, Twitter (not my list, his) and other large organizations and governments. He also revolutionized the model for interactions between parties into a "decentralized, encrypted information publication system" where we own and control our information using a zero-trust interaction system: a "Secure Social Operating System."

This move from centralized cloud systems to decentralized systems is interesting; it seems we just moved from systems we owned and controlled ourselves to centralized cloud systems, and we are still working off of the risks related to taking mission-critical activities and moving them away from our direct control. Shortly before I left PwC, we were making a difficult transition from Lotus Notes to the Google Suite. Certainly, all of the "i"s were dotted and the "t"s crossed, but our correspondence, spreadsheets and documents moved from our control to a third party, "centralized," service (Google) on our behalf. Speaking to my own business, known as Cohen Computer Consulting, while my own business email is conducted separate from Amazon,

Google or Facebook, much of my personal life is on their services; sometimes it seems like it is being used at my expense, or at least being held captive. Would some kind of a decentralized, secure social operating system help me?

**Where Has the Web 3.0 Story Gone?**

In the eight years since Wood's vision was first proposed, and 16 years since Markoff's, there has been a lot of re-use of the term Web 3.0 or Web3, but not always to the same end. The very companies Wood warned about have now said they are going to be Web 3.0 organizations, and Twitter founder Jack Dorsey posted:

> "You don't own 'web3'. The VCs [EEC: venture capitalists] and their LPs [EEC: limited partners] do. It will never escape their incentives. It's ultimately a centralized entity with a different label. Know what you're getting into…".[10]

So, it is unclear if the technology and the development is being used for a safe, social operation system or a new next general commercial grab with new potential enticements for the users. It may be much as Bitcoin changed from a "peer-to-peer payment" mechanism designed to disintermediate financial organizations to an investment asset highly reliant on intermediaries like Coinbase, Binance or Gemini.


While there is broad agreement that Web 3.0 is the evolution of the current Web to one that is using "decentralized" technology in some way, with potential benefits (and less obvious pitfalls) driven by the cryptographic privacy and confidentiality, open and of greater utility, with blockchain and sovereign self-identity as foundations, the vision is currently being driven by parallel concepts such as the *metaverse,* driven by non-fungible tokens, and encompassing both meta and physical space with the so-called "Spatial Web", also involving self-execution/autonomous activity and intelligence leveraging Artificial Intelligence (the read-write-execute Web).

Much as the concept of Web 3.0 has come in waves and differing focuses, one may say the metaverse[11] has experienced similar waves. We can look at a series of technologies as contributors, including virtual reality, augmented reality, digital economies, identities and personas, means of communication, inventories and storage, and related tools. We can look at the massively multiplayer online role-playing games, such as World of Warcraft (2004), or virtual worlds like Second Life (2003), as individual platforms with currencies, identities, places to go, people to see. At its heyday, major businesses like IBM,[12] accounting and tax firms and others worked to establish their presence in Second Life, and shortly after began to abandon it.[13]

While proponents speak about the joys of working in the metaverse to come, where virtual currencies, sovereign and protected identities, interaction with others from anywhere, protected intellectual

property, and other potential benefits may exist if we can develop our way toward achieving them, the reality has not started to coalesce. It is a challenge when we don't have distinct business requirements being solved and Web 2.0 only provides a slight preview. As Mark Zuckerberg (founder of Facebook) notes,

"A lot of the magic But I think a lot of the magic of NFTs and a lot of the Web 3.0 work is that it's designed in a way to be fundamentally interoperable. So, I think that that's going to be really important because it will help break down the silos between different apps and make it so that all your stuff can be more portable between these different experiences."[14]


**What Is the Impact on The Financial Professional?**

As Web 3.0 is ambiguous in vision and not really instantiated, it is difficult to say with authority what the impact is on financial professionals. We can look at the change from the PC era to the Web era: how our reference materials move from three ring binders to online access, how our software moved from the PC to the cloud, how new services from WebTrust to SOC engagements arose. The pandemic has been the catalyst for a major movement from in-person to virtual services. It has been 35 years since IBM ran its humorous commercials on how Lotus Notes would "save users lives" and get rid of the need to travel in order to do business. Will virtual worlds change things?

In IBM's ad, called Boondoggle," first shown in January 1998, prolific actor Paul Ben-Victor played a well-travelled business person, who had been to "52 countries in two years," met Fatima ("big star!"), had his picture taken with an obscure prime minister ("Prime Minister Some … Something"), and had pictures and knick-knacks to commemorate his travels. His young IT colleague, however, had just installed something that "is going to save [his] life," called Lotus Notes. He'll "never have to leave the office" again. No more free vacations on the company's dime.

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While Zoom has shown we are all more disposed to doing everything from running the government[15] to holding conferences to meeting with clients, it has had its problems as well. In standard setting, for good or the bad, more agreement took place during off-hours with adult beverages than in the plenaries.

It is not yet clear where financial professionals have been active in virtual worlds and are seeking an interoperability solution. It is also not yet clear where components of the Web3 technical stack are in use but require a holistic solution rather than bridges in specific areas.

Security issues loom. From a security aspect, I have been working for more than 20 years on how digital signatures, encryptions and private keys work together at individual, role-based, and organizational-based levels for authorization and authentication. Likewise, data standardization – or the "Semantic Web," which some say is a foundation to Web 3.0 – has been sporadic in development and take up.

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The vision of greater control of information, with greater reliability of that information, and automation of its processing can lead to new operational, business and accounting systems, and new methods of interactions between businesses, governments and individuals. The potential merging of physical and digital objects and space can mean completely new business models and new methods of tracking and control.

The flip side is the potential introduction of new risks. We are already seeing challenges with securities laws (related to crypto tokens in particular), money laundering, sanctions avoidance, challenges with developing internal controls (let alone when the walls between organizations blur and the line between internal and external becomes difficult to see), and the need for new types of third party service organization controls and assurance, when the services are decentralized and there is no centralized management to make assertions and hire auditors.

Web 3.0 is a fragmented vision, highly aspirational and offers promises to solutions that have eluded us for 30 years. People speak as if Web 3.0, the metaverse and blockchain technologies (in particular, non-fungible tokens) are the same thing. Web 3.0 may be the vision of interoperability of web services; in a prior issue of *ThinkTwenty20*, my interoperability maturity model for blockchain is very compatible with that vision. For others, it's just a way for people to better control their own data and move from social media to shopping to business activities using a single, personalized account that exposes only the necessary information both parties agree is necessary.

It is clear that VCs are throwing money at Web 3 and that the very companies Web 3.0 enthusiasts are concerned about are not going to bow out quietly. This means there are new

opportunities for service, new risks to consider, new potential benefits to consider. The financial community can, however, work together to craft the vision of the future for the Web and encourage development in those areas.

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**End Notes**

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