



Going Meta with Web 3.0

Facebook, the world's biggest social media site, just changed its corporate name to "**Meta Platforms, Inc.**". The timing was immediately suspect, as it came just days after an internal whistleblower accused it before Congress of putting profits above the well-being of its users and brought the receipts with her.

CEO Mark Zuckerberg's announcement in a relentlessly upbeat, cartoonish **infomercial** may have achieved its goal in distracting people from the elephant rampaging about the room, but it left many more confused than ever about this "**metaverse**" he hyped. What is it and what does it really mean?

Zuckerberg's metaverse is his vision of the internet's future. It is as an immersive virtual environment where people appear in 3D cartoon form any way they want and can interact with others, effortlessly going from a business meeting to a concert, viewing digital artwork or even building new worlds.

The term was coined originally in **Snow Crash**, a 30-year-old dystopian science fiction novel by Neal Stephenson, for a future version of the net, where people interact using personal avatars in continuous, 3D, shared virtual spaces with augmented informational overlays to interact with the real world.

Though Zuckerberg's idea is extremely similar, it's a disturbing and perhaps telling choice for the builder of a platform already widely criticized for sucking users into an online universe to claim that the future of the internet is more of the same, only in 3D. Especially as that vision is of a crumbling society in which people flee to find some kind of refuge in imaginary worlds. No wonder it's his idea of utopia.

For Zuckerberg boldly declared his intention to "build the metaverse". To do so, he plans to hire 10,000 engineers and pivot the whole enterprise to support the endeavor. This is even more far-reaching than the cosmetic change Google underwent when it made Alphabet, Inc. as its holding company. Just as the search engine remains, so too will the core Facebook platform, along with Instagram and WhatsApp.

Whether the change really amounts to anything remains to be seen. But the future of the world wide web has been speculated about for a long time already, and the shiny new toys of the metaverse are just a small part of the online world to come.

Web evolution

The original version of the web was invented to share scientific papers online and looked it. It had static pages that could carry tables of data and photos. Browsers were invented to view them. But most importantly, webpages used **hyperlinks**, where a click can open other content elsewhere online.

Web 1.0 would work with email and so opened the virtual world to social interactions and the beginnings of commerce. But design choices were highly limited, and kept that way by fierce competition between companies' different browsers. It took them a very long time to finally settle on standards.

Web 2.0 brought a lot of personalized individualization so that the same pages could carry content tailored for users and follow their travels online. Mobile phones caused a revolution in how people used the net, and in its design to display info on those tiny screens. It was the golden age of social media, of which Facebook was the uncontested victor.

So what will the future hold? Some changes to the internet can be easily predicted: huge bandwidths and wide access, an interplanetary internet stretching across the solar system, meshed-based local nets to provide connections during disasters. But mainly the net will become smarter – incorporating artificial intelligence and smart things all around us.

In 2014, Pew Research Center **asked** what the net would be like in 2025. The gurus predicted a lot of current trends, such as the shattering of the global net into regional nets, that access would become an omnipresent utility like electricity and the transformation of daily life through internet-enabled things.

However, they were a lot more hopeful than specific, foreseeing augmented reality with net-powered glasses, but not the multiverse. Yet they concluded that "the best way to predict the future is to invent it".

The man who invented the web, Tim Berners-Lee, calls Web 3.0 the "**semantic web**". Semantics is all about the meaning of words, signs, and sentence structure, so while earlier versions of the web built links between documents, this will build links between sets of data, and act more autonomously, too.

The **semantic web**, as Berners-Lee put it, "is an extension of the current web in which information is given well-defined meaning, better enabling computers and people to work in cooperation". This is not

all pie-in-the-sky, either: the World Wide Web Consortium is already working on **future standards**.

The basis of Web 3.0 is the automation of information retrieval, the internet of things, and personal software assistants, like Siri or Alexa. For this, the semantic web depends on new ways of organizing and linking data to be useful for artificial intelligence.

Linked Open Data (LOD), for instance, is data using internet addresses as the name of the thing and also their relationships to other things and related data. These links turn the data sets automatically into part of a searchable global **knowledge graph** – a collection of linked descriptions of people, ideas, events, whatever, that can be searched, analyzed and processed by computer to generate new data.

But that's only half of it. The other part is to link all the webpages of the currently existing web into this system. This will be done with **semantic meta-data**. And that is where it truly gets all "meta".

Meta about metadata

Nowadays **meta** means something written or performed that relates to itself or the same kind of thing. It's self-referential, often employed in snark and humorous side comments. Which may be apt to apply to Facebook, but that's not what it means here. Nor does it mean "**dead**" as it does in Hebrew.

The actual **word** comes from μετά, the Greek for "after" or "beyond" indicating "more comprehensive" or "transcending". On the web, it has been long used for data in the header section of a webpage. This part is never displayed because it tells the browser how to show everything else. It includes information on authors and functions, and addresses for resources.

Metadata is data about data. In webpages, the data is the content of the webpage, so metadata is what describes that information. But metadata is not just confined to the header, but scattered as tags all throughout the page shaping its layout and function.

Semantic metadata in these tags helps interpretation by references to concepts connecting to the knowledge graph, adding layers of details to existing data to use it better. It's like putting handles on the info, making it so much more easy to work with.

For Facebook, Instagram, WhatsApp, and hence Meta, users provide data with everything they do. The **metadata** the platform derives from that ceaseless torrent is extremely valuable as it can predict not only what users will like or dislike, it extends its knowledge graph to all their friends and family, too.

The platform does this very well already, but the metaverse will feed it even more, much more intimate user metadata. In its totally immersive embrace, **every user reaction** can and must be closely monitored to maintain the illusion, and all that information provides fuel for the algorithm.

Avoiding a virtual hellscape

If Zuckerberg's presentation of his grand scheme seemed somewhat childish and cartoony, perhaps it was meant to be. While the audience Facebook most hungers for are older teens and young adults, it is rapidly **losing young users** to SnapChat and TikTok. Yet with the recent revelations of how Instagram can harm the **self-esteem** of teenage girls, Facebook has come under heavy pressure, forcing it to shelve its plans for a new Instagram kid's platform.

One **leaked document** shows that Facebook considered apps for children as young as 6 years old. One reason it hasn't done more is that the Children's Online Privacy Protection Act (COPPA) limits data collection and targeting of kids under 13. Their children's Messenger app therefore doesn't collect their data – but it does target advertising at them.

Meta just announced that they will cease using facial recognition for **photo-tagging** on Facebook, deleting the facial templates of a billion people. But they are keeping the algorithm that uses them and will likely incorporate it into their metaverse projects.

It may not be very smart or sociably responsible to extend their platform when they can't even effectively govern what they have already built, as leaker **Frances Haugen** noted. Her recently leaked **Facebook papers** show that the leadership of the company knew the site was spreading hate speech and false information, harming self-esteem in pursuit of more user engagement and higher profits.

However, Meta is not alone in creating this brave new world one straps on one's face. Microsoft, for instance, just announced its own business version of the metaverse. Launching next year, their **Mesh** for Teams service for 3D virtual spaces for meetings.

Zuckerberg's vision promises an effortless sharing of data across platforms, like using a gaming character from one game in others. While standards might allow that, judging by the browser wars, persuading companies to share might be very difficult.

Yet, the multiverse may be here. **Epic Games**, makers of the world's most popular video game Fortnite, for instance, has built a **platform**, Unreal Engine, on which a **mass concert** for Ariana Grande, car commercials and even *The Mandalorian* were made.

Now, if they can get beyond those **VR headsets**...



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