Web 3.0

A glimpse of the future

The spacial web and the ubiquitous web

Karim Stekelenburg

What we've seen so far

- How we got here
- How decentralization can avoid monopolies and digital dictatorship
- How semantics and linked data can help computers understand the world
- How self-sovereign identity can make sure we are in control of our data
- How cryptography can protect us and bring assurance

What we'll discuss

Index

- Where are we now?
- The spacial web
- The ubiquitous web
- Cryptocurrencies and non-fungible tokens
- Feedback
- Open discussion: how do you think the web will impact human life in the future?

Where are we now?

The current state of the internet

- People are realizing the importance of decentralization.
- Semantics are used more and more.
- Linked data is mainly used by organizations internally, not so much ‘cross-origin’.
- Self-sovereign identity is young, but is gaining interest of governments, businesses and organizations.
- Cryptography is widely adapted, although not always in the ‘right way’.

Where are we now?

What we can build with these technologies

- Systems that aren’t controlled by a single party.
- Systems that have a deep understanding of the data they process, and their relationships.
- Systems that can verify the authenticity of the data they process.
- Systems that only act with user consent.
- Systems that are inherently private.

What’s next?

The spacial web

“We are now seeing the Spatial Web unfold, which will eventually eliminate the boundary between digital content and physical objects that we know today.”

Peter H. Diamandis

The spacial web (a.k.a. the metaverse)

Is about

- Merging the physical world with the digital world.
- Creating a digital 3D world that allows us to do things we can’t do in the physical world.
- Creating a ‘physical experience’ in a digital world
  - Spacial audio
  - Spacial visuals

The spacial web

Augmented reality (AR)

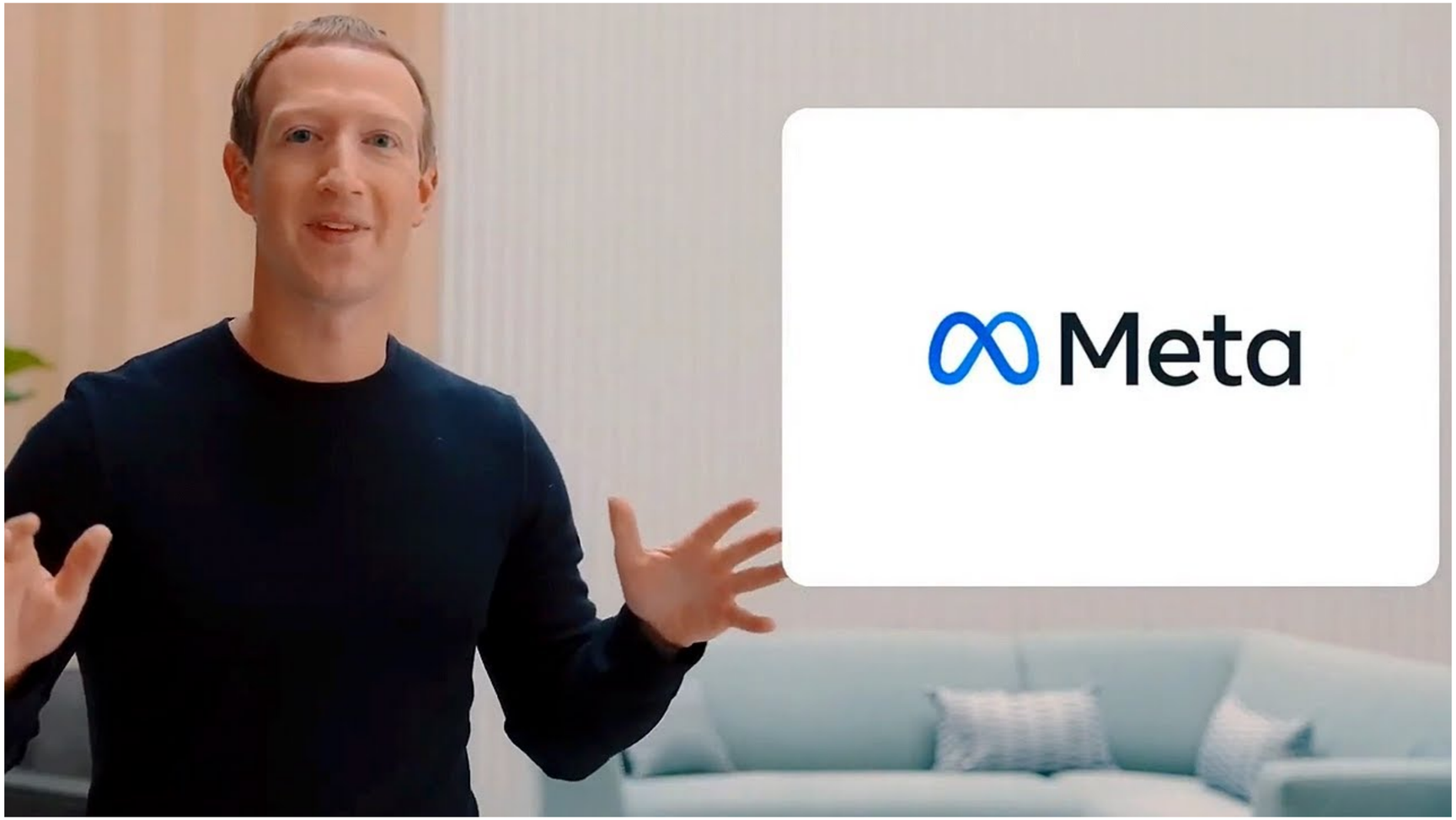
- Is **an enhanced version of the physical world**.
- Archives this by projecting digital visual elements on the physical world.
- Allows for total perception of the physical world, while simultaneously experiencing the benefits of the digital world.
- Can be applied to many fields:
  - IKEA Mobile App — allows you to see how a piece of furniture fits in your room
  - Pokémon Go — a gaming experience in the physical world
  - L’Oréal Makeup App — allows you to see make-up products on your face
  - U.S. Army — experimenting with AR to distinguish between enemies and friendly troops during combat.

The spacial web

Virtual reality (VR)

- Is **a totally immersive digital world**.
- Blocks out the perception of the physical world entirely.
- Exists out of many virtual worlds.
- Lets people interact with it using a ‘digital twin’
  - Often represented as an ‘avatar’
- Merges with the physical world in the sense that there is an awareness of the physical world but not necessarily a representation of it.
  - Example: a VR game won’t let you run into a table that is in your room. However, the table is not represented as a table in the game itself.

Facebook’s metaverse



With the spacial web

We can improve our

- Social experiences
  - Business meetings
  - Social gatherings
- Gaming experiences
- Knowledge of the physical world (AR)
  - Seeing translations of foreign languages.
  - Seeing the menu when looking at the front of a restaurant.
  - Seeing LinkedIn information when looking at a person

The ubiquitous web

The ubiquitous web

Is about

- Connecting all physical things, digitally.
- Enhancing the physical world, by using digital systems.
- Making these systems aware of everything that is physical, including human presence and personality.
- Making the digital react to the physical.
- Making the digital invisible.

The ubiquitous web

Examples

- You open the front door of your appartment, the lights turn on.
- You step into bed and your alarm is automatically turned on.
- Thermostats that are aware and automatically know when to apply personal preferences.
- Streetlights that are only illuminated when there is a human nearby.

In a lot of ways, the spacial web and the ubiquitous web are opposites.

Cryptocurrencies and NFTs

Cryptocurrencies

Allow us to

- Trade things online using a fungible token without a central authority
- Create intensives for certain computational tasks, e.g.:
  - Filecoin pays you to store things
  - Bitcoin pays you to maintain a ledger

Non-fungible tokens

Allow us to

- Trade **unique items**
  - These items can be both **physical** or **digital**
- **Prove ownership** of an item

So what is web 3.0?

Web 3.0

Digitizing the physical, physicalising the digital

- Sensory experience (spacial web)
- Social experience (spacial web)
- Cognitive experience (semantic web)
- Autonomy (decentralization & self-sovereign identity)
- Trade (cryptocurrencies & NFTs)

Feedback…

Questions on the final presentation

Open discussion: **how do you think the web will impact human life in the future?**