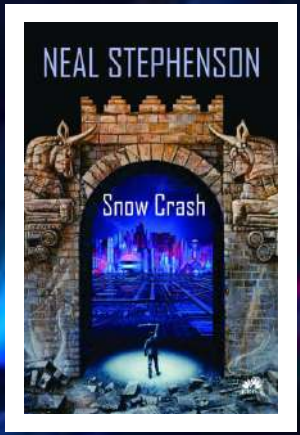
Daniel López, Director of Innovation & Business Strategy
Inetum Catalunya

METAVERSE:~# _

METAVERSE:~# ./news.sh

Meta
Meta has invested **$13 billion** in its new Metaverse division
Goldman Sachs
Metaverse: A market with a potential valuation of $8 billion according to Goldman Sachs or Morgan Stanley
Gartner
PAST
FUTURE
Gartner Predicts 25% of People Will Spend At Least One Hour Per Day in the Metaverse by 2026
Microsoft
ACTIVISION BLIZZARD
Microsoft acquires Activision for **$69 billion**
WORLD ECONOMIC FORUM
By 2026 it is estimated that 1/4 of us and 30% of companies will be connected to the Metaverse

```
METAVERSE:~# ./definition.sh
```



The term METAVERS originates from the first time in the novel "Snow Crash" by Neal Stephenson in 1992.

"A three-dimensional virtual zone in which humans, represented by avatars, interact in various ways"

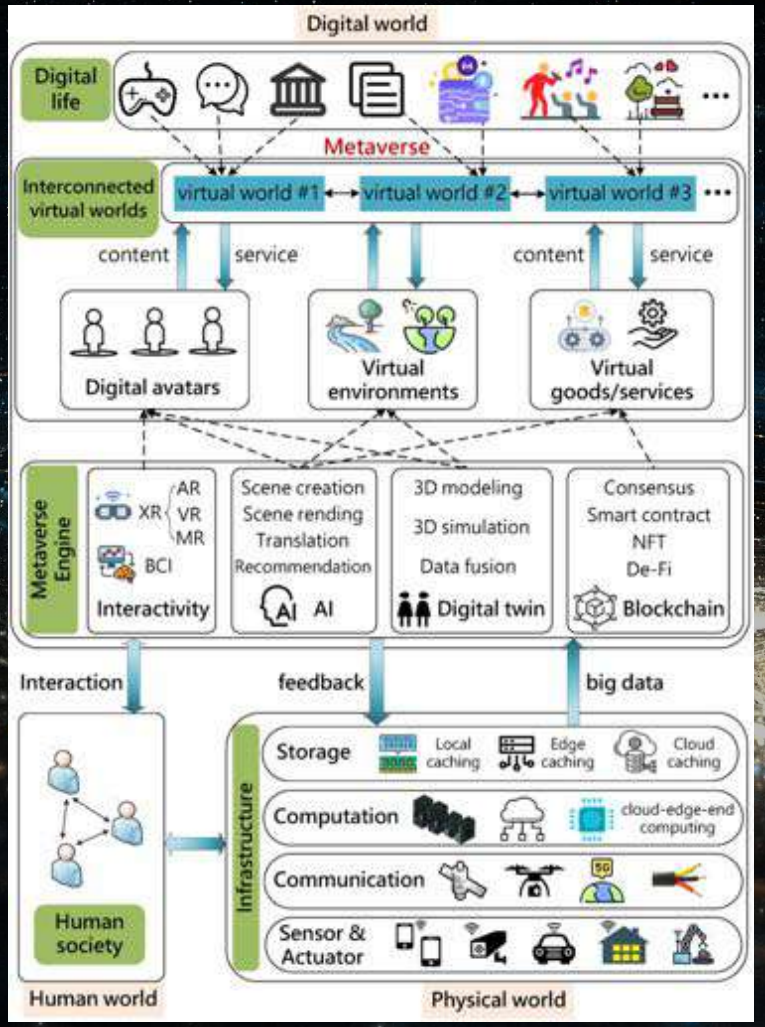
HBO Max is developing new series

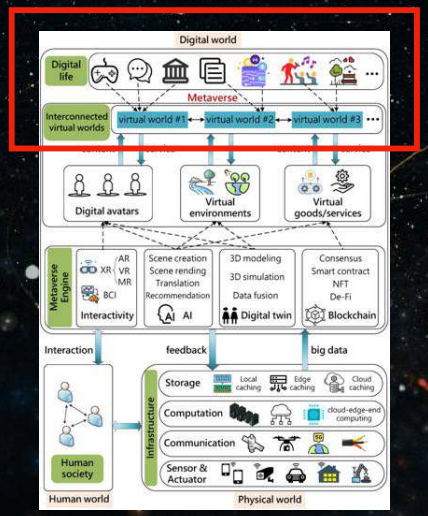
Launched 2003

One of the largest virtual worlds actually

METAVERSE:~# ./research.sh

wang, yuntao & Su, Zhou & Zhang, Ning & Liu, Dongxiao & xing, rui & Luan, Tom Hao & Shen, Xuemin. (March, 2022). A Survey on Metaverse: Fundamentals, Security, and Privacy. 10.36227/techrxiv.19255058.v1.





wang, yuntao & Su, Zhou & Zhang, Ning & Liu, Dongxiao & xing, rui & Luan, Tom Hao & Shen, Xuemin. (2022). A Survey on Metaverse: Fundamentals, Security, and Privacy. 10.36227/techrxiv.19255058.v1.

Digital world

Digital life

Metaverse

Interconnected virtual worlds

virtual world #1

virtual world #2

virtual world #3

content

service

content

service

Digital avatars

Virtual environments

Virtual goods/services

Metaverse Engine

XR

AR

VR

MR

BCI

Scene creation

Scene rending

Translation

Recommendation

3D modeling

3D simulation

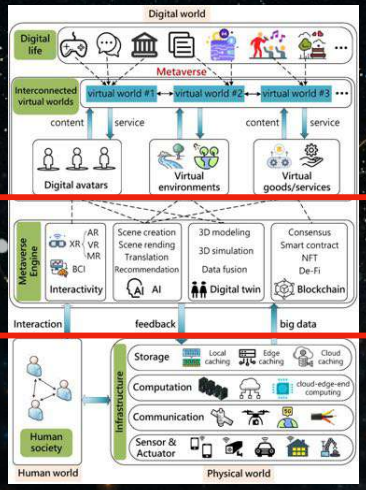
Data fusion

Consensus

Smart contract

NFT

De-Fi



wang, yuntao & Su, Zhou & Zhang, Ning & Liu, Dongxiao & xing, rui & Luan, Tom Hao & Shen, Xuemin. (2022). A Survey on Metaverse: Fundamentals, Security, and Privacy. 10.36227/techrxiv.19255058.v1.

Digital avatars

Virtual environments

Virtual goods/services

Metaverse Engine

XR

AR

VR

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BCI

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Digital twin

Consensus

Smart contract

NFT

De-Fi

Blockchain

Interaction

feedback

big data

Storage

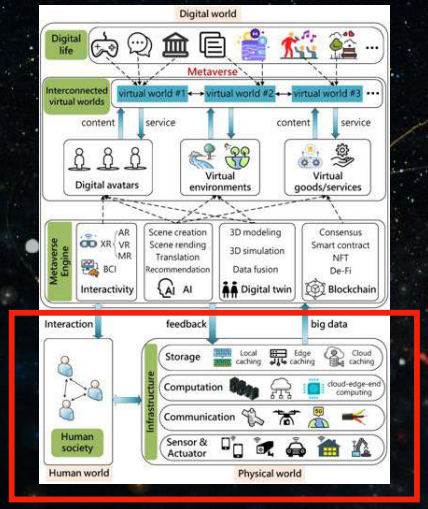
Local caching

Edge caching

Cloud caching

Computation

cloud-edge-end computing

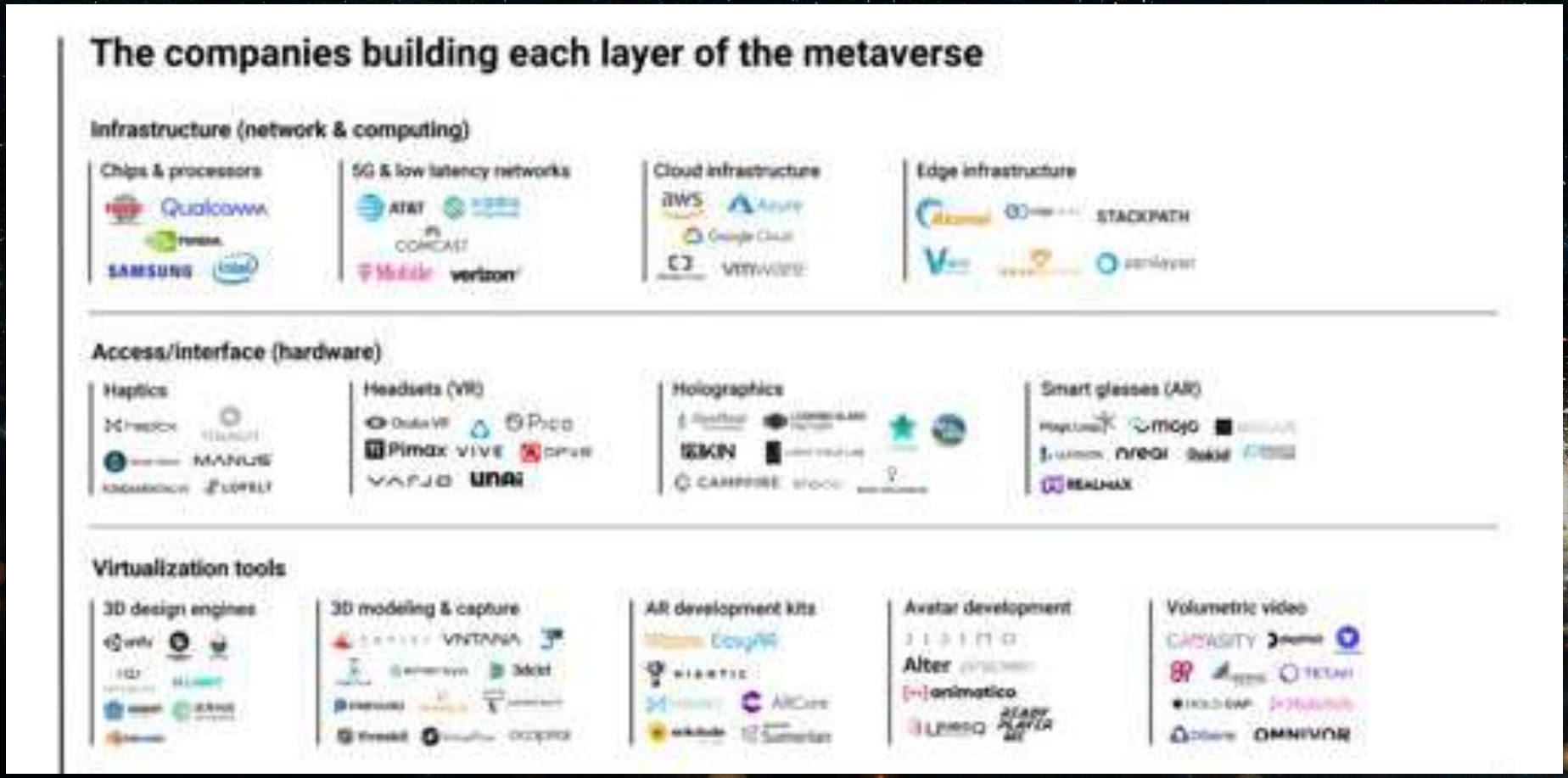


wang, yuntao & Su, Zhou & Zhang, Ning & Liu, Dongxiao & xing, rui & Luan, Tom Hao & Shen, Xuemin. (2022). A Survey on Metaverse: Fundamentals, Security, and Privacy. 10.36227/techrxiv.19255058.v1.

```
METAVERSE:~# ./companies.sh
```

- Infrastructure
- Access
- Visualization
- Virtual Worlds
- Economics
- Experiences

Research Brief by CBINSIGHTS:
The metaverse could be tech's next trillion-dollar opportunity: These are the companies making it a reality



https://www.cbinsights.com/research/metaverse-market-map/

Research Brief by CBINSIGHTS:
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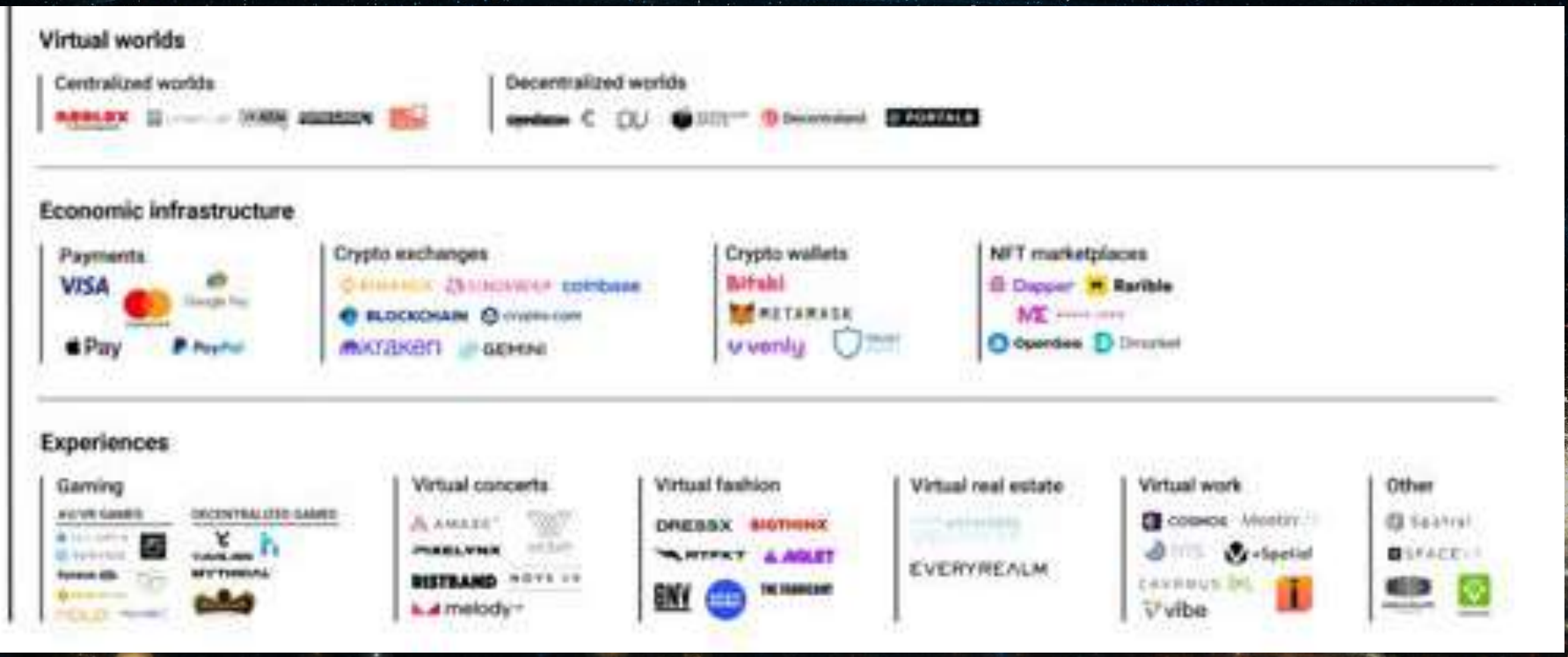
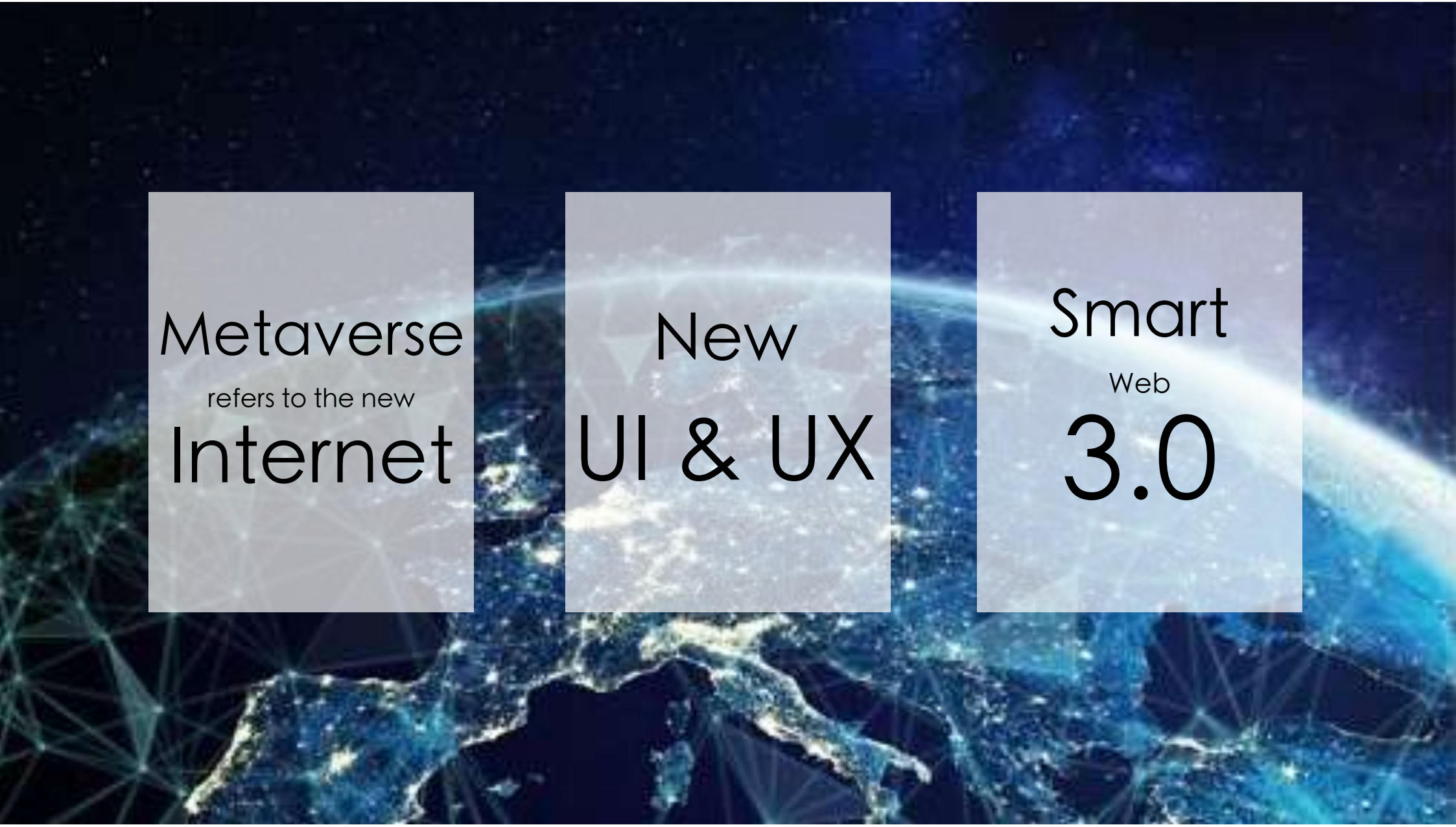
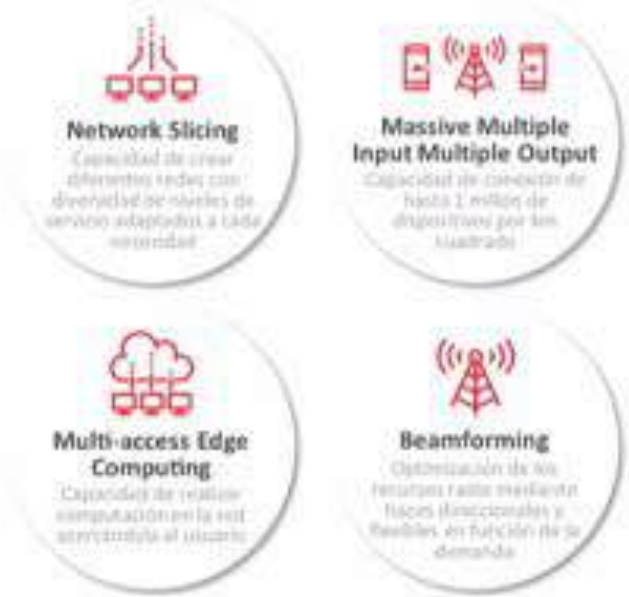



Metaverse
refers to the new
Internet
New
UI & UX
Smart
Web
3.0

```
METAVERSE:~# ./connectivity.sh
```

CONNECTIVITY: Speed, latency, concurrency

Comparativa LTE vs 5G

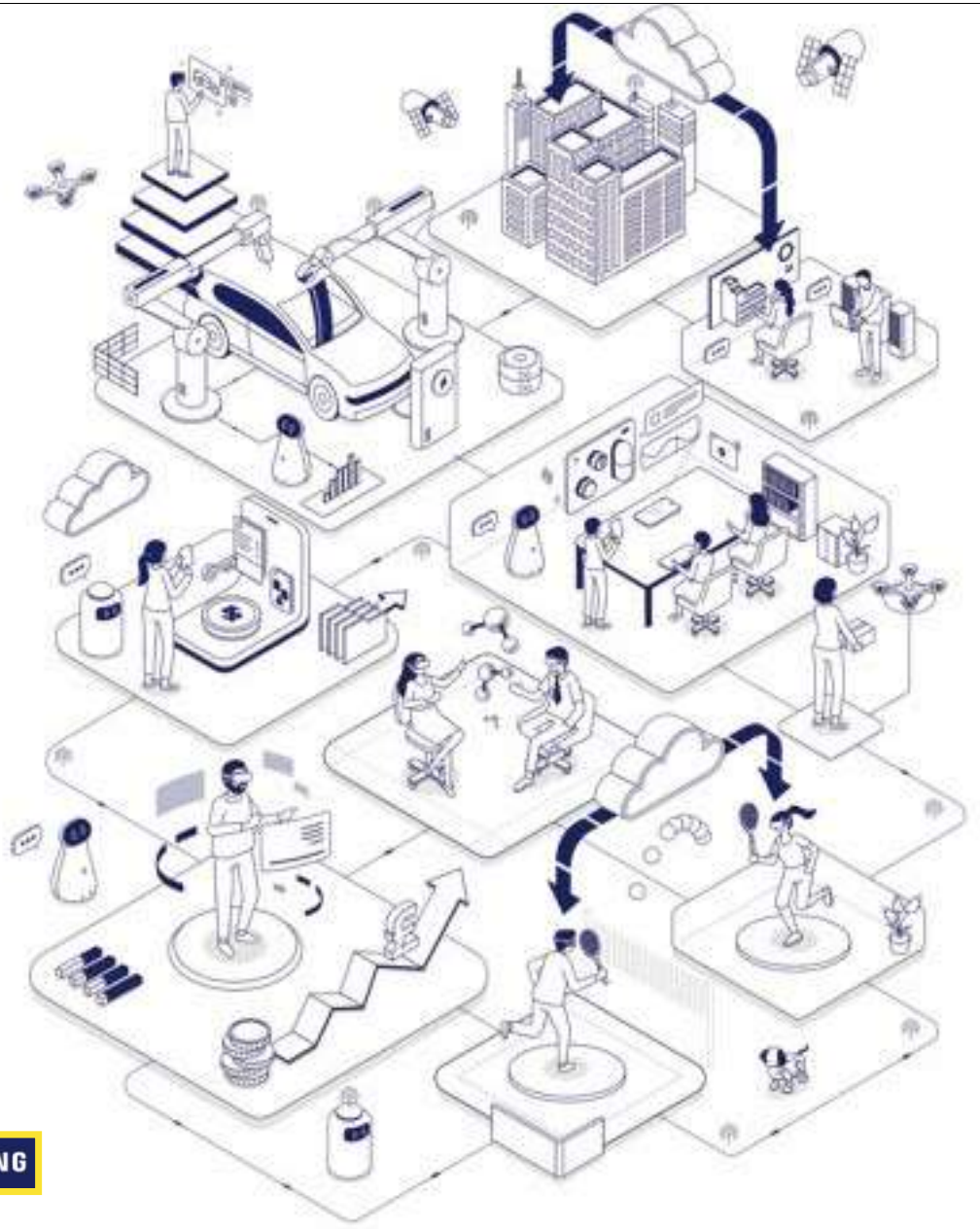


by Vodafone

6G

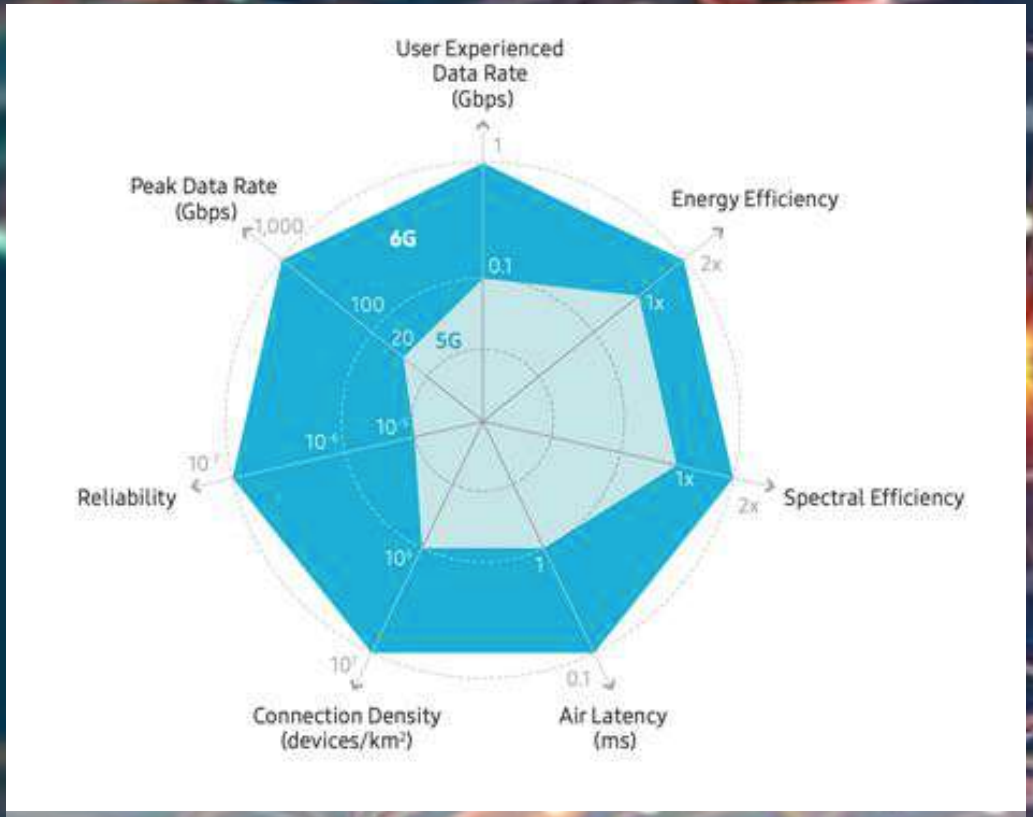
The Next Hyper Connected Experience for All.

https://cdn.codeground.org/nsr/downloads/researchareas/6G%20Vision.pdf



SAMSUNG

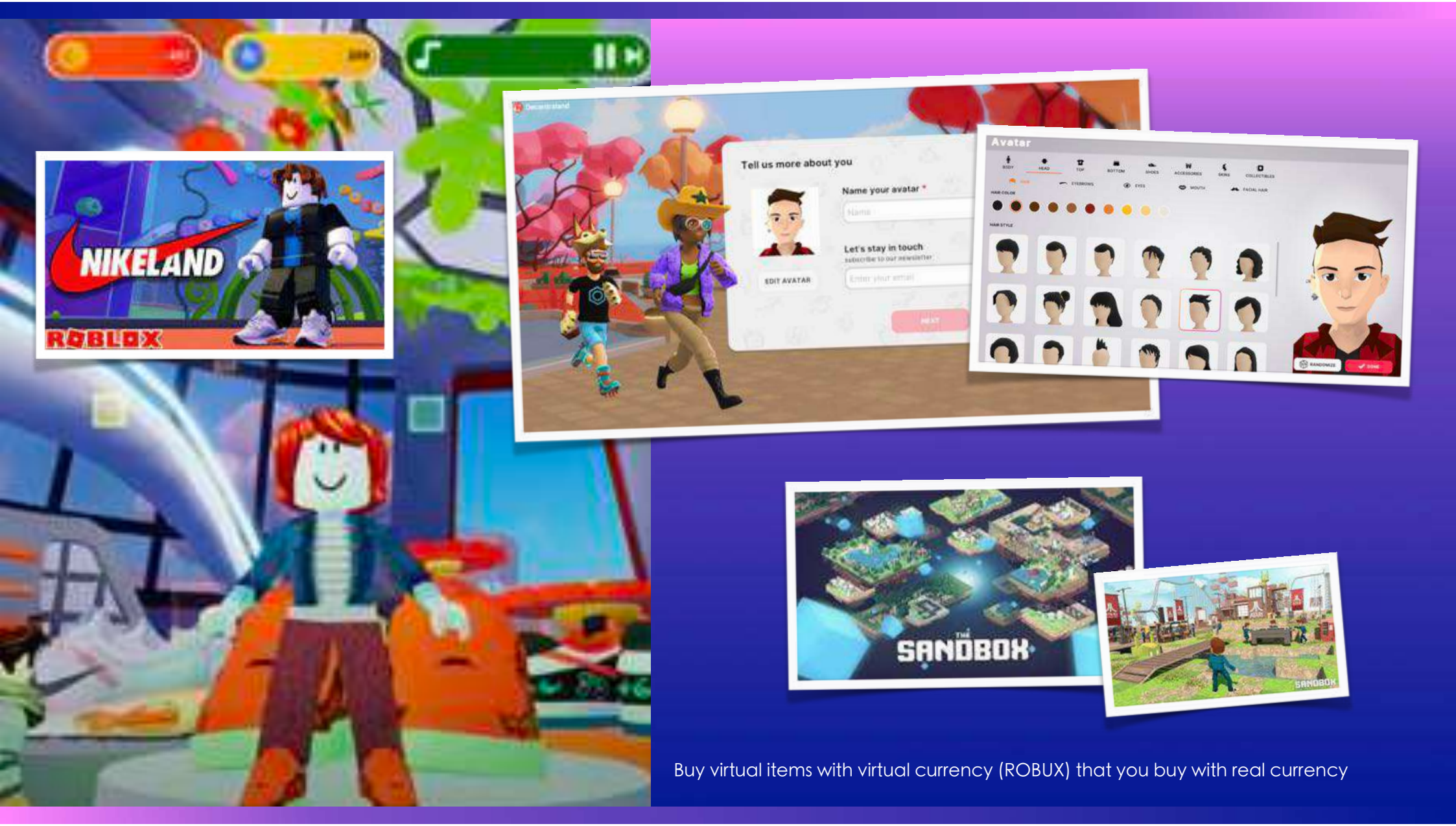
Key points comparison between 5G and 6G (by Samsung)



Reasons why 5G is not successful

- Slow deployment (EU 10%)
  - Regulatory aspects (frequencies)
  - ROI network infrastructure
- Nobody need it!
  - 5G commercial: I do not want more speed!!
  - 5G private network: “no killer APP!!”

```
METAVERSE:~# ./worlds.sh
```



Buy virtual items with virtual currency (ROBUX) that you buy with real currency

```
METAVERSE:~# ./use_cases.sh
```

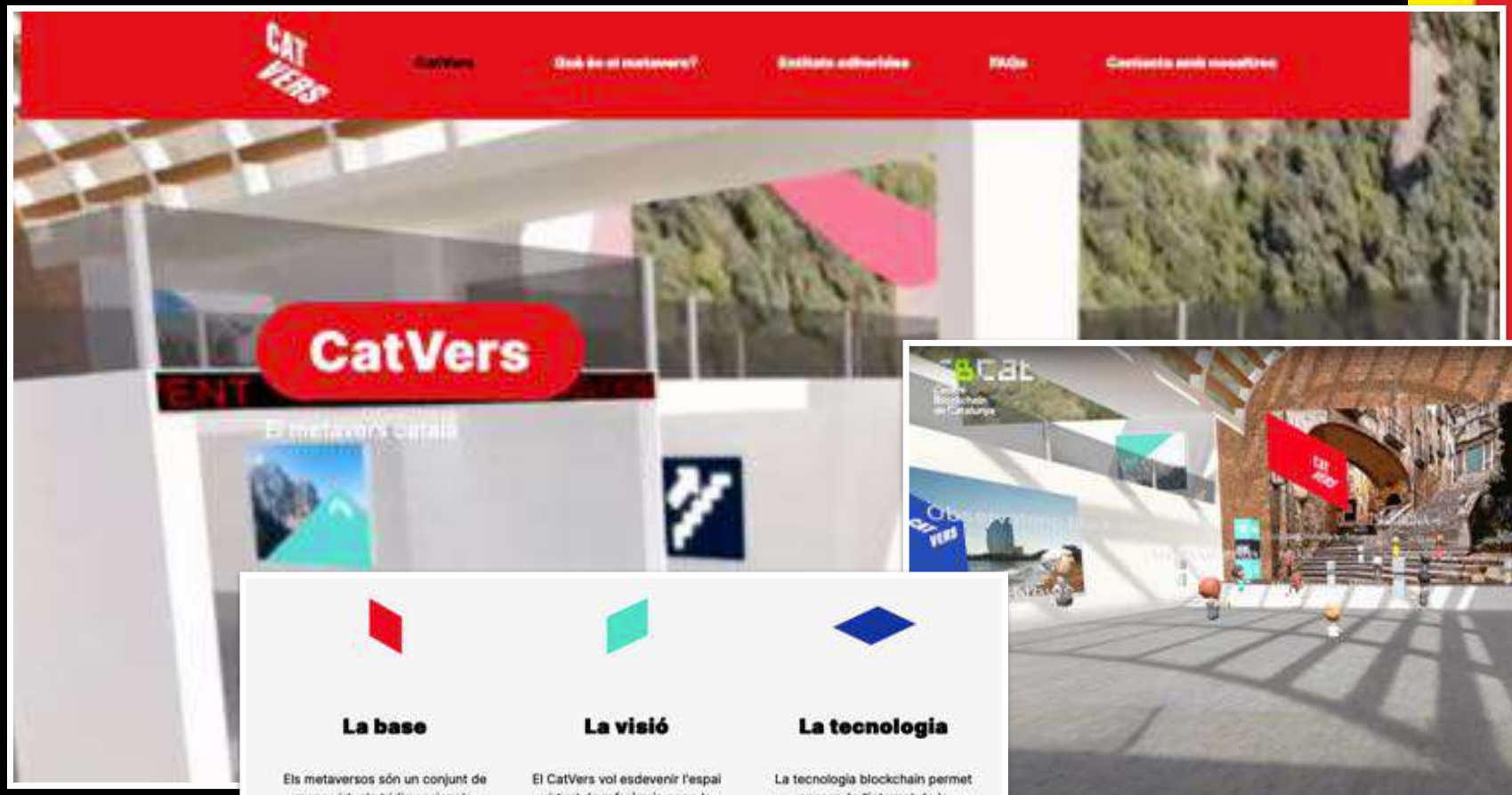
Metaverse Fashion Week

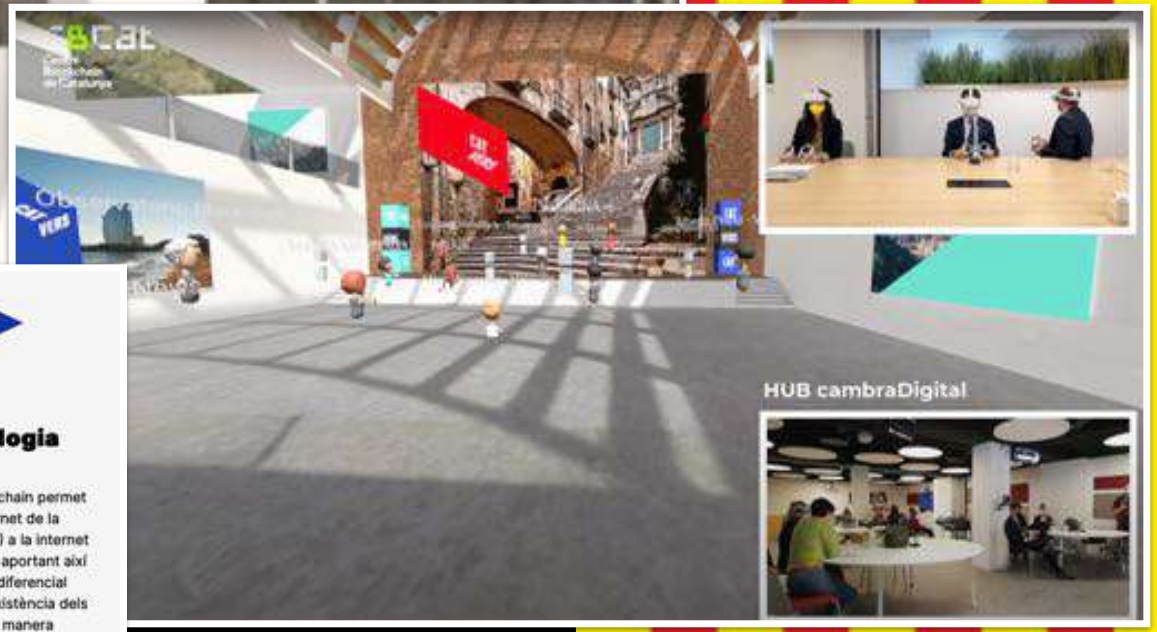
Arkio, an example of new ways for design and architecture

VIDEO: https://player.vimeo.com/video/690443482?autoplay=true&loop=true&autopause=0&playsinline=true&controls=false&muted=true

A Florida charter school, the Optima Classical academy is setting up a virtual, metaverse school for the term beginning in August 2022

VIDEO: https://vrschool.optimaclassical.org/?gclid=CjwKCAjwj42UBhAAEiwACIhADrPWYsYAbqraCrJuNr_RefOj-Etx7SqQq7fEV5jqRiCxucRoo1fi3xoCwAIQAvD_BwE





La base

Els metaversos són un conjunt de mons virtuals tridimensionals, interconnectats, en els quals persones situades a qualsevol lloc poden socialitzar a temps real per a formar una economia d'internet persistent, propietat dels usuaris, que abasta els mons digital i físic.

La visió

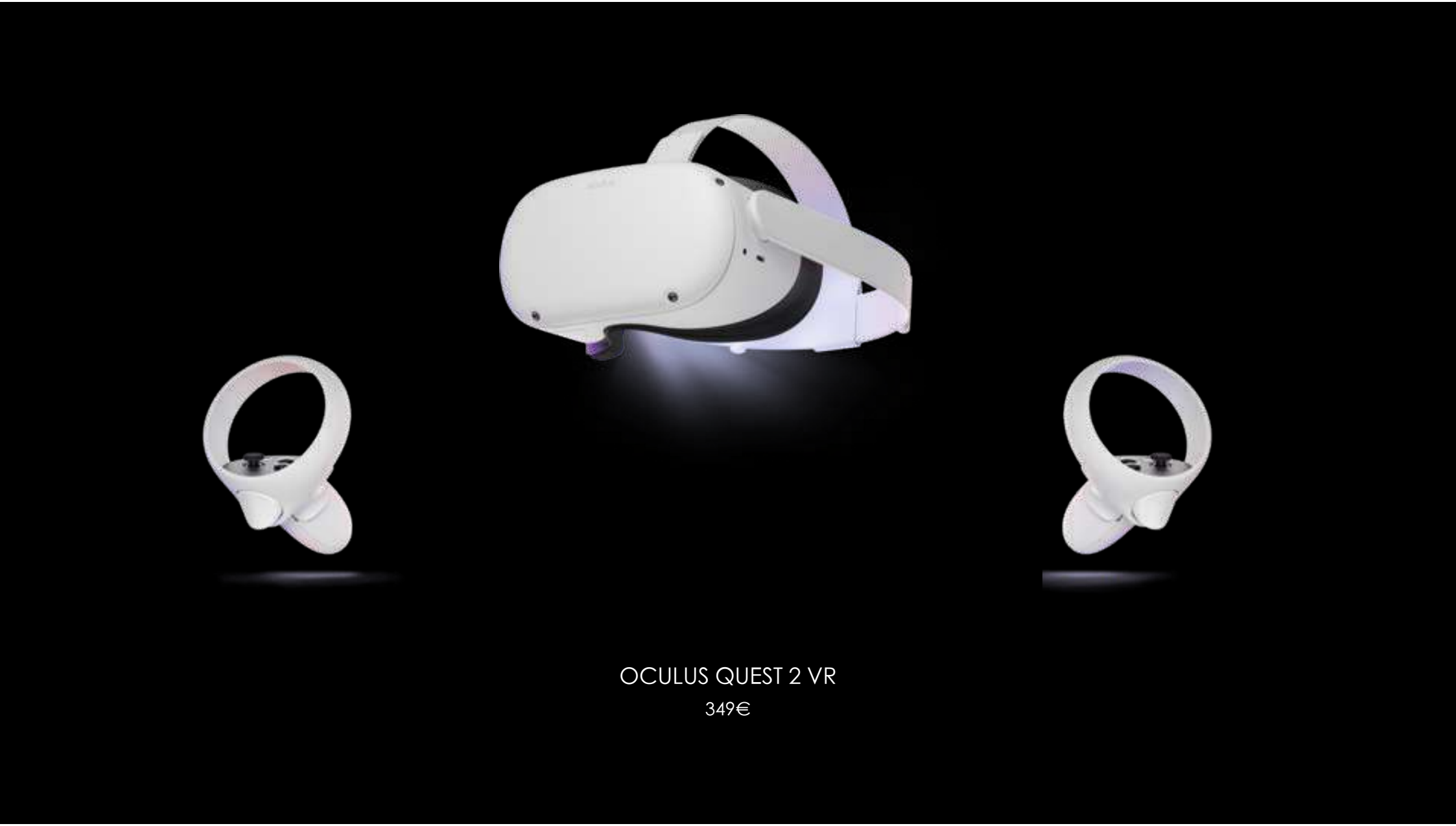
El CatVers vol esdevenir l'espai virtual de referència per a la societat catalana. No només serà un metavers desenvolupat a Catalunya, i inspirat en la nostra cultura, sinó que, a més, l'idioma vehicular serà el català, ja que creiem que la pervivència de la nostra llengua passa pel seu ús en l'entorn digital.

La tecnologia

La tecnologia blockchain permet passar de l'internet de la informació (Web 2.0) a la internet del valor (Web 3.0), aportant així la característica diferencial necessària per a l'existència dels metaversos de manera continuada, segura i eficaç.

This video demo is not public

```
METAVERSE:~# ./interfaces.sh
```



OCULUS QUEST 2 VR

349€

VIDEO: https://www.youtube.com/watch?v=v9bbbYcgMqQ

Haptic glove

Meta

HL2 devices

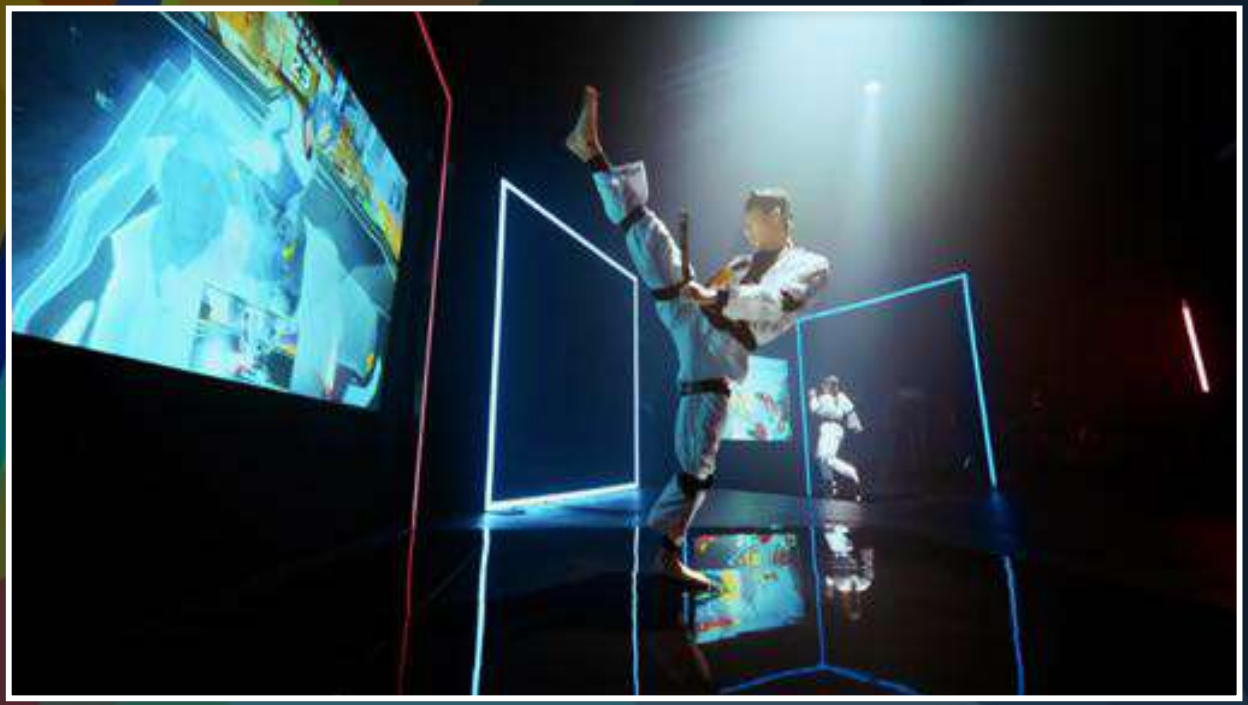
Virtual reality immersion equipment

Haptic dress

- Up to 128 biometric sensors
- Thermal sensations of hot and cold
- Feeling the weight of an object or the impact against the body
- Motion-capture
- Etc.

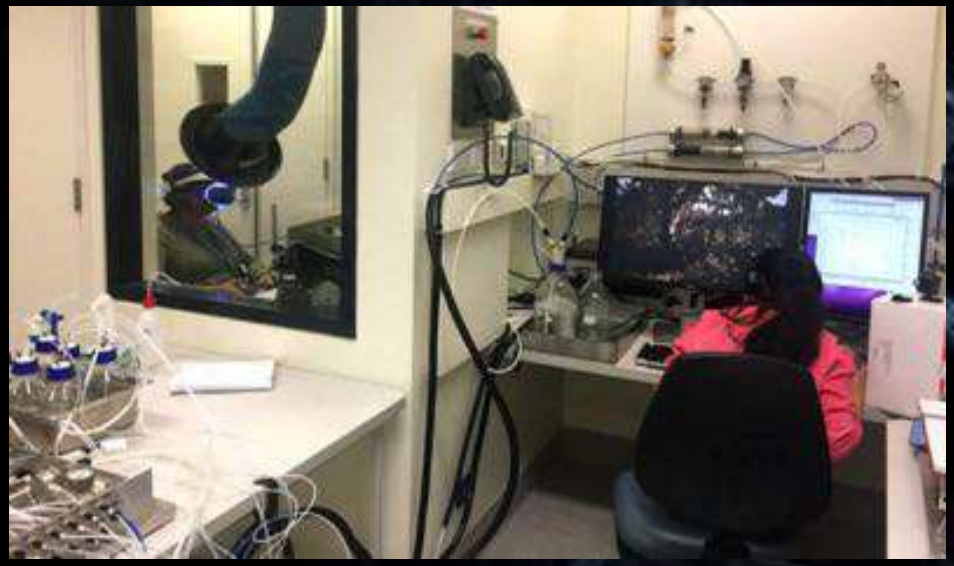
VIDEO: https://www.youtube.com/shorts/4DdFmv4qqS0

The World Taekwondo Federation will host the first virtual event at the
Los Angeles 2028 Olympic Games



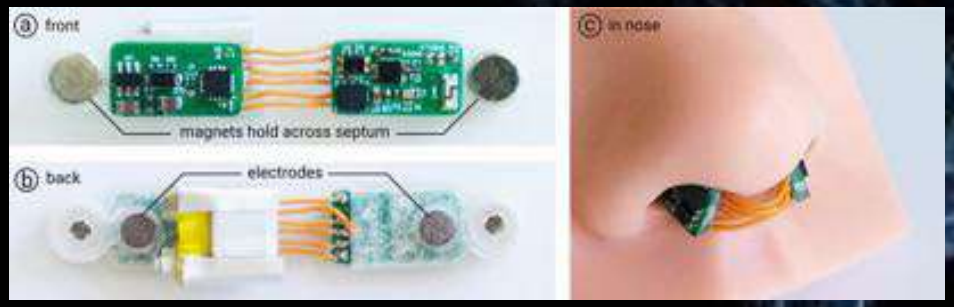
VIDEO: https://www.youtube.com/watch?v=EMjNvdLEs2k

Smell significantly enhances sense of realism in virtual reality, researchers find



Nicholas S. Archer et al, Odour enhances the sense of presence in a virtual reality environment, PLOS ONE (2022). DOI: 10.1371/journal.pone.0265039

Smell-O-Vision: This nose-zapping wearable simulates smell using electricity



Human-Computer Integration Laboratory, University of Chicago

Want to smell in virtual reality? A Vermont-based startup has the technology

```
METAVERSE:~#  ./web3.sh
```

- Decentralized network
    - No central authority acting as referee and verification
- Interoperability -> consensus -> normalization != interests != control != lobbies
- Block chain
    - Traceable
    - Auditable
    - Safe
    - Immutable
- Digital identity
- DeFi
- NFT

NFT
NON-FUNGIBLE TOKEN
A non-fungible token is a digital asset that represents a single thing, no two are the same.

ANDY WARHOL

Una Marilyn de Andy Warhol se convierte en la obra de arte más cara del siglo XX

MARÍA ANTONIA SÁNCHEZ-VALLEJO | Nueva York | 10 MAY 2022 - 19:14 CEST

Christie's subasta en Nueva York una serigrafía del artista pop por 195 millones de dólares, por encima del récord que ostentaba un Picasso vendido en 2015 por 170 millones

El País, 10 de maig 2022

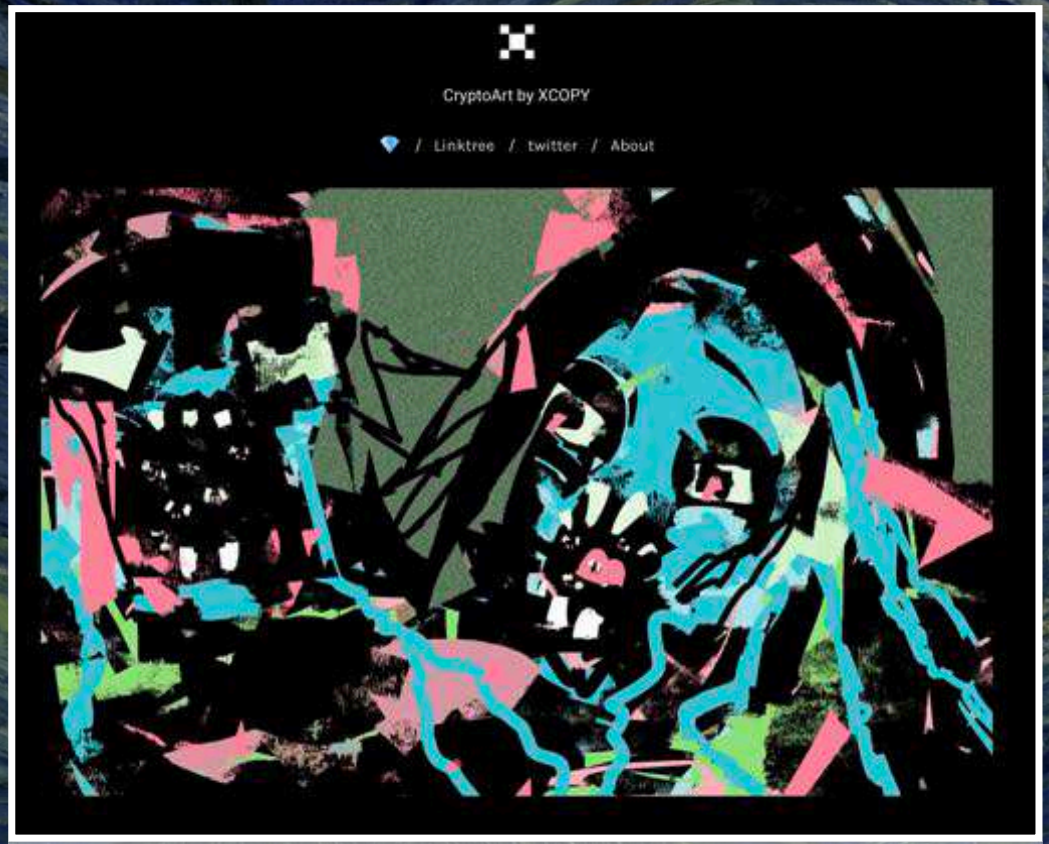
The Bored Ape Yacth Club Collection has 10,000 NFTs of different characteristics.

The prices range from $314 to $3,4 milion.

One person has several Bored Apes for a total value of $24,5 million.

A few days ago they sold 11% of the company for €450M, obtaining a total valuation of the company of $4 billion.

Last year they invoiced $127 milion at 92% profit.



XCOPY has sold a collection of +7,000 pieces in just 10 minutes!!

$23 million!!

Man who paid $2.9m for NFT of Jack Dorsey's first tweet set to lose almost $2.9m

First attempt approx. $300, second approx. $7,000

'This is the Mona Lisa of the digital world', says crypto entrepreneur Sina Estavi who bought the NFT in March 2021

Sina Estavi, CEO of crypto exchange Bridge Oracle Photograph: Mehran Harati/Reuters

What do these brands have in common?

Alfa Romeo, McDonald’s, Nike, Adidas, Prada, Gucci,
Tommy Hilfiger, Coca-cola, Pepsi, The Beatles, Ubisoft,
Premier League, Disney, NBA, Taco Bell, Electronic Arts, Habbo, …

They are all experimenting with NFT

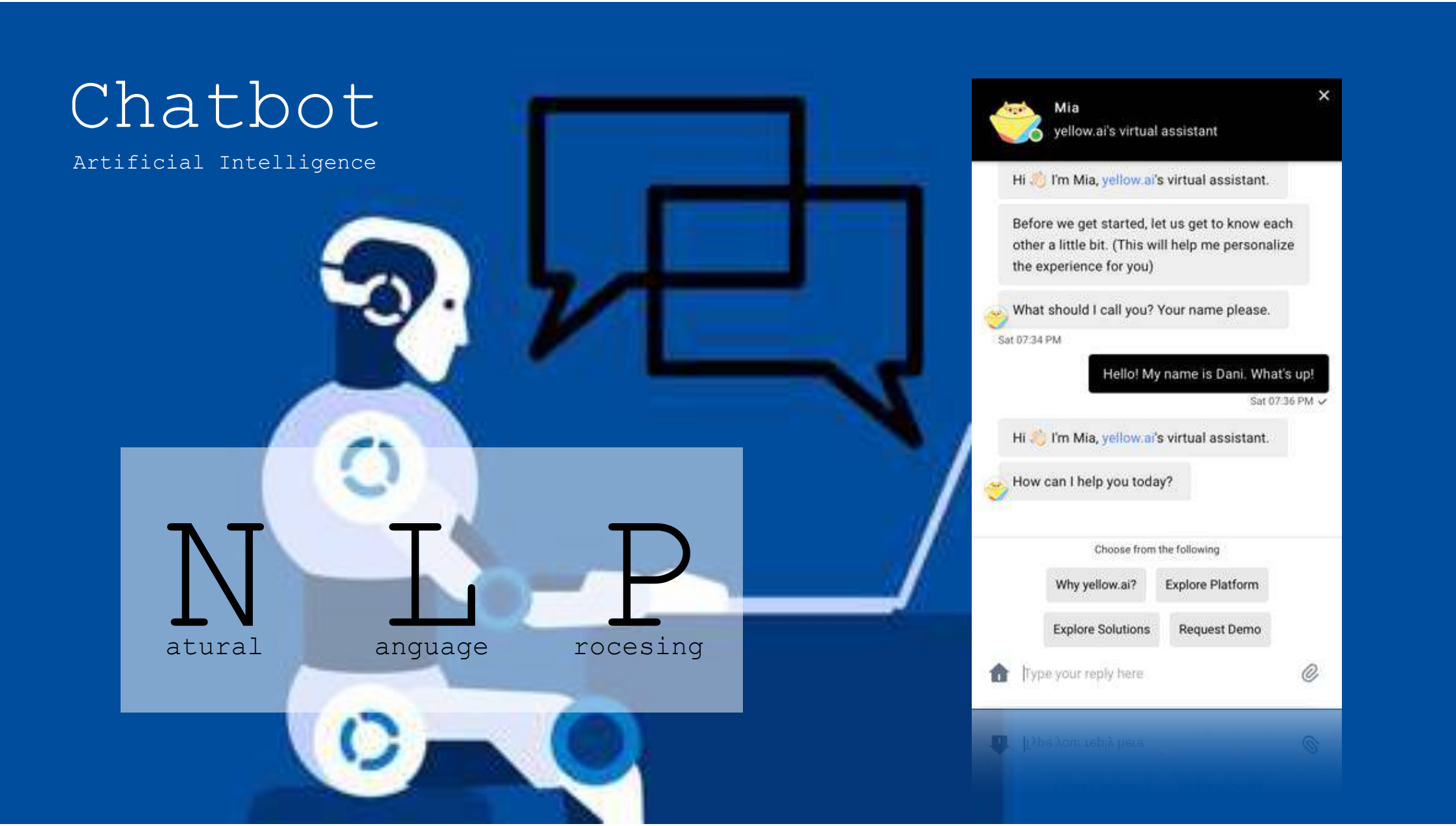
Exclusive and limited collectibles,
unique and traceable identifiers
Depending on the class and type, there will be some privileges or others
Tickets for private events
Special discounts
Early access to offers
Participation in exclusive sessions
Access to courses
Talk with personalities
Special editions
Virtual and real worlds association
Commission for sale and resale
Owners identification

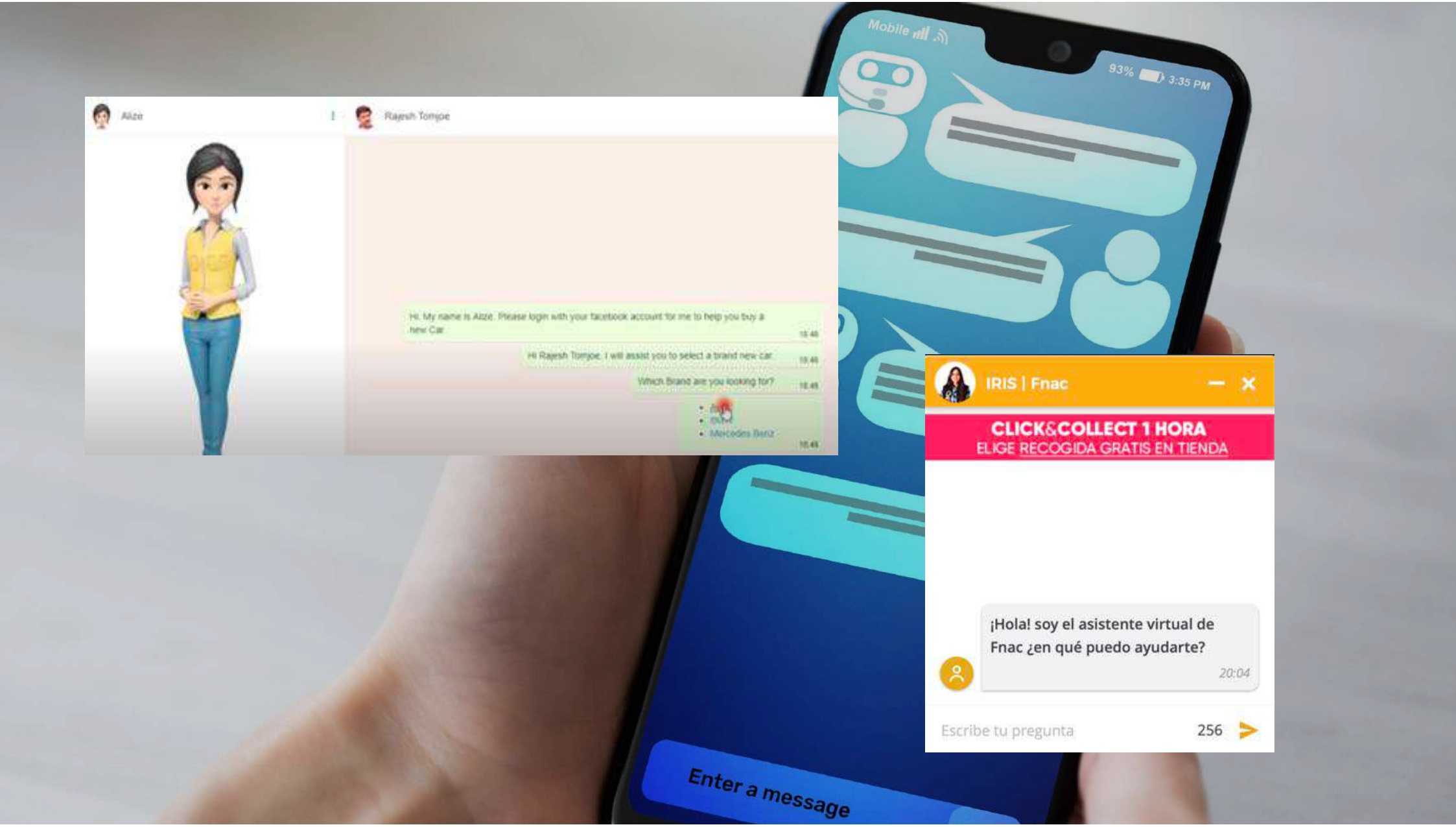
VIDEO: https://www.youtube.com/watch?v=D9K45rDbA4

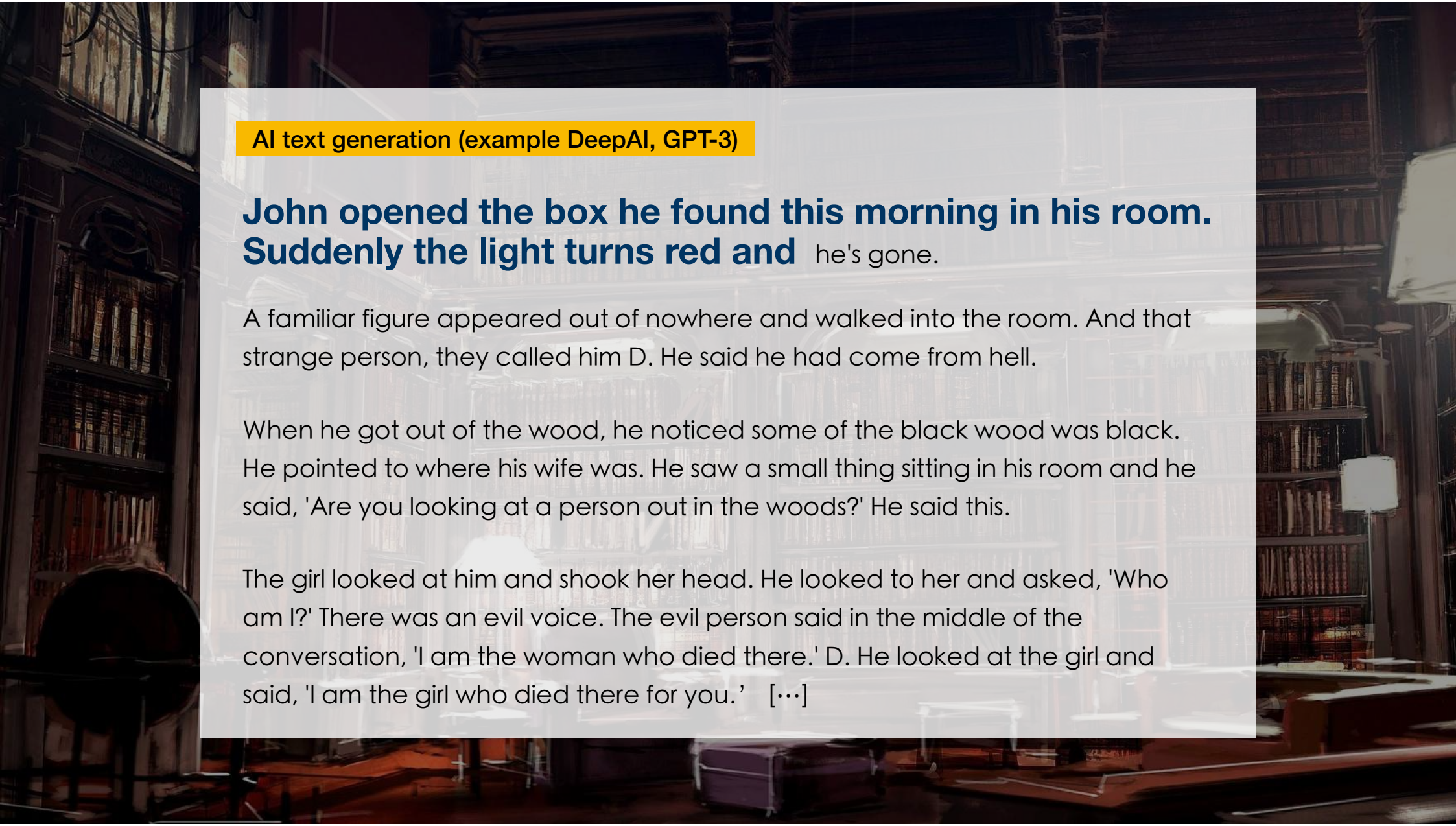
METAVERSE:~# ./ai.sh

Chatbot

Artificial Intelligence




Aliza
Rajesh Tompe
Hi, My name is Aliza. Please login with your facebook account for me to help you buy a new Car
Hi Rajesh Tompe, I will assist you to select a brand new car
Which Brand are you looking for?
Mercedes Benz
Mobile
93%
3:35 PM
Enter a message
IRIS | Fnac
CLICK&COLLECT 1 HORA
ELIGE RECOGIDA GRATIS EN TIENDA
¡Hola! soy el asistente virtual de Fnac ¿en qué puedo ayudarte?
20:04
Escribe tu pregunta
256



AI text generation (example DeepAI, GPT-3)

John opened the box he found this morning in his room. Suddenly the light turns red and he's gone.

A familiar figure appeared out of nowhere and walked into the room. And that strange person, they called him D. He said he had come from hell.

When he got out of the wood, he noticed some of the black wood was black. He pointed to where his wife was. He saw a small thing sitting in his room and he said, 'Are you looking at a person out in the woods?' He said this.

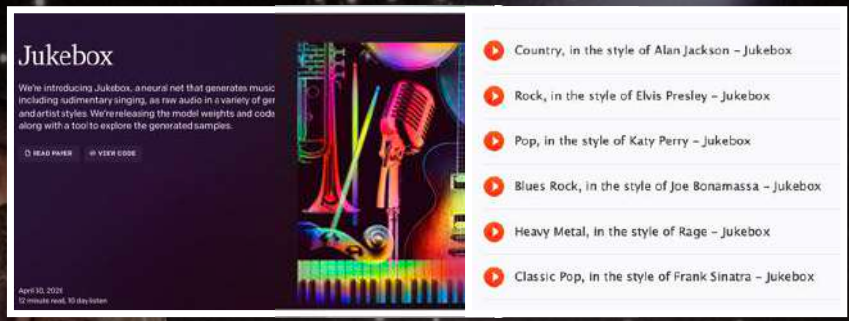
The girl looked at him and shook her head. He looked to her and asked, 'Who am I?' There was an evil voice. The evil person said in the middle of the conversation, 'I am the woman who died there.' D. He looked at the girl and said, 'I am the girl who died there for you.' [⋯]

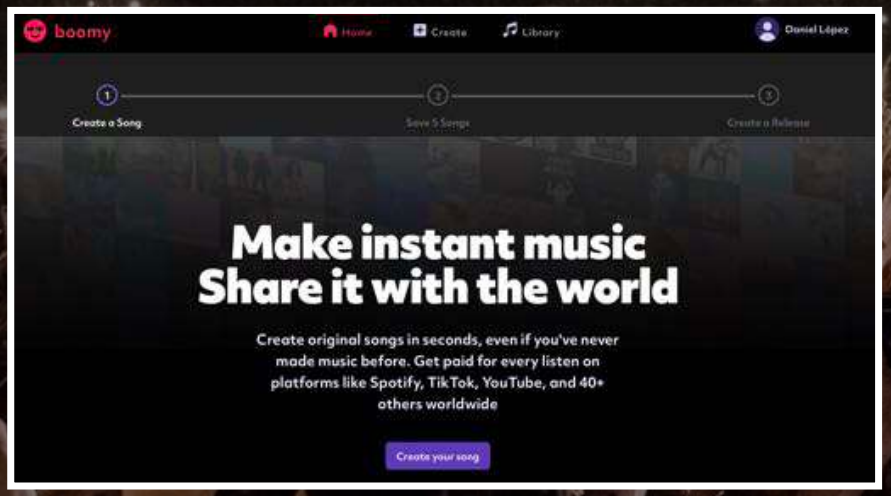
sónar 2021

AI and music

27.28
Octubre 2021
Barcelona

S+T+ARTS



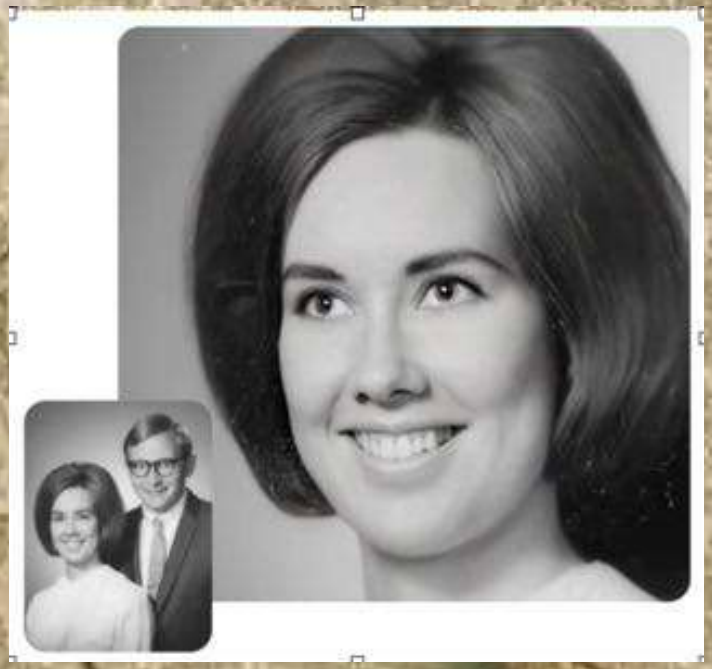


AI image generation (example DALL·E 2, openai)

a shiba inu wearing a beret and black turtleneck

a teddy bear on a skateboard in times square

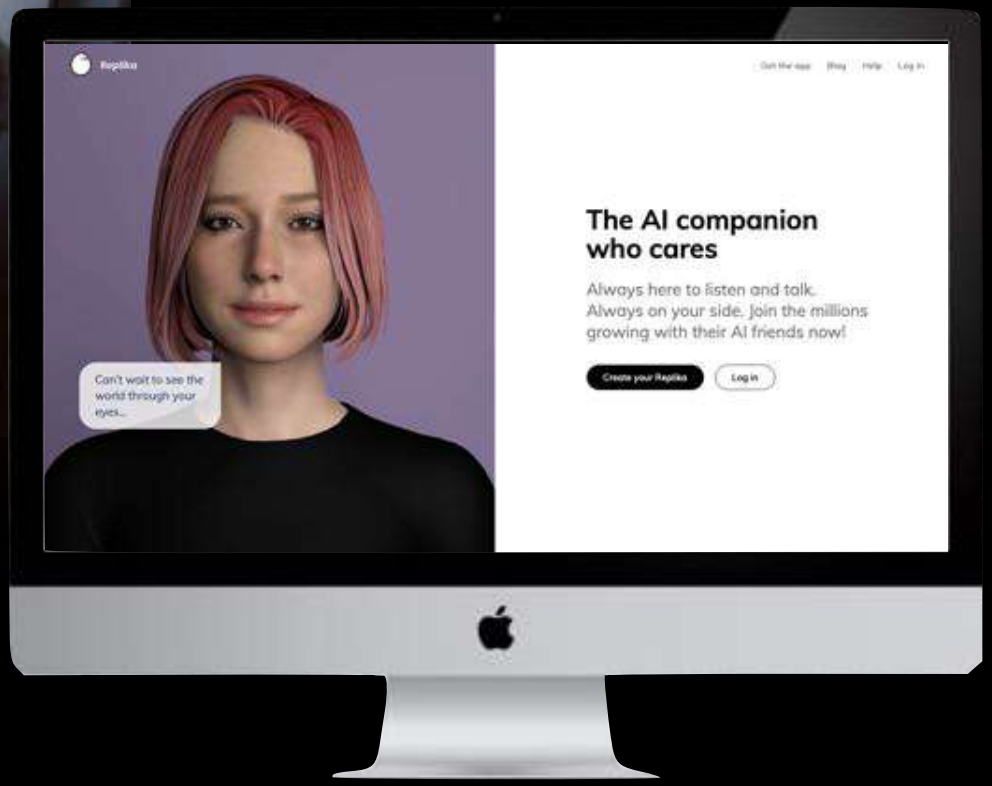
panda mad scientist mixing sparkling chemicals, artstation



MyHeritage Deep Nostalgia

VIDEO: https://www.remember.place

REPLIKA



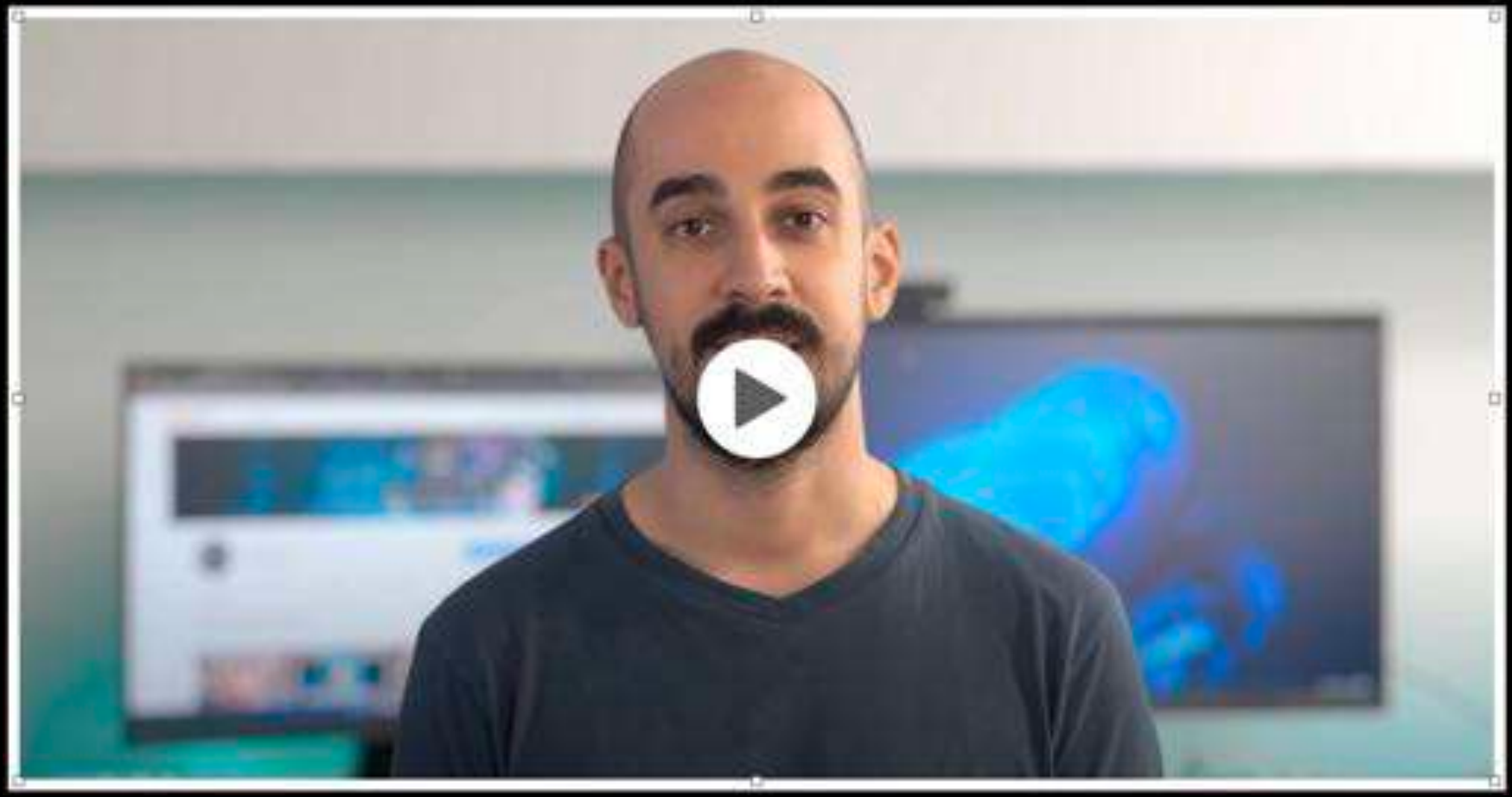
Create a replica of yourself and chat with yourself.

The more you interact with the replica, the more it will learn from you.

VIDEO: https://www.youtube.com/watch?v=0p8HZVCZSkc

UNREAL® 5 VIDEO UPDATE: https://www.youtube.com/watch?v=7ZLibi6s_ew

Metahumans, powered by UNREAL® engine
VIDEO: https://www.youtube.com/watch?v=S3F1vZYpH8c&t=11s&pp=ugMICgJIcxABGAE%3D



Carlos Santana, powered by Synthesia
VIDEO: https://www.youtube.com/watch?v=gSmnrXqHpiI

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