UNIVERSIDAD
NACIONAL
DE COLOMBIA

Cátedra Pedro Nel Gómez:
Mindset innovador a prueba de futuro

PROYECTO **CULTURAL, CIENTÍFICO Y COLECTIVO** DE NACIÓN

Cátedra Pedro Nel Gómez:

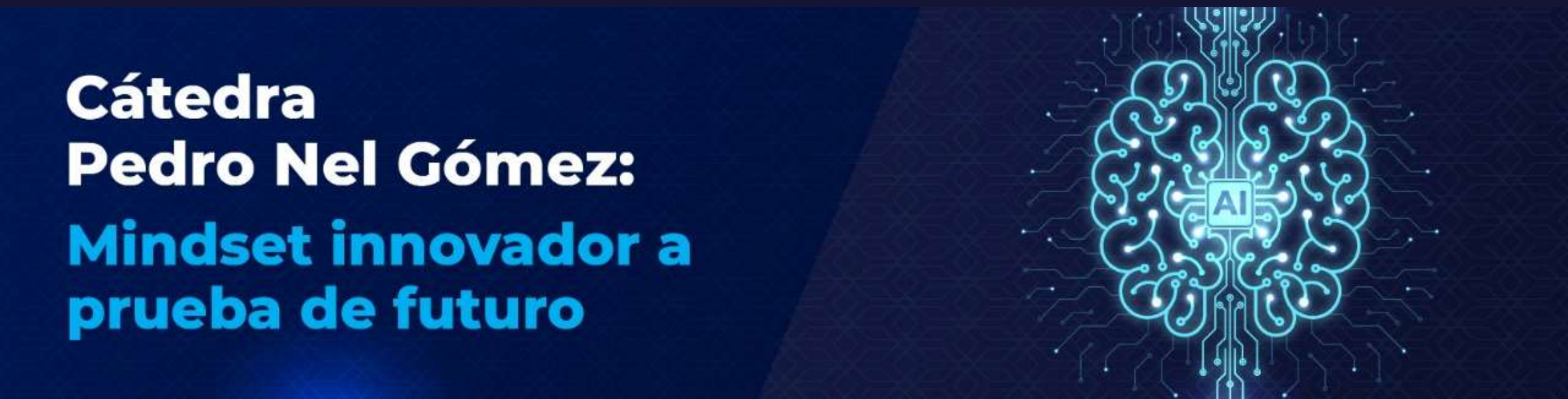
Mindset innovador a prueba de futuro

Docente:
Ingeniero administrador
Juan David Correa Toro

Código: 3011073 - asignatura de Libre Elección de 3 créditos

Sacándole provecho a las **tecnologías exponenciales** parte 9A:

La revolución del hardware



Silicon Valley
Fairfax
San Rafael
Corte Madera
Martinez
Richmond
Berkeley
CONTRA COSTA
Concord
Walnut Creek
Knightsen
SAN JOAQUIN
Brentwood
Byron
Mount Diablo S.P.
Oakland
San Francisco
Daly City
Pacifica
Danville
San Ramon
Dublin
Bethany Res. S.R.A.
Tracy
Livermore
Pleasanton
Lathrop
Carnegie S.V.R.A.
Hayward
San Francisco
Redwood City
Fremont
ALAMEDA
Menlo Park
Palo Alto
Milpitas
Half Moon Bay
Woodside
Mountain View
Sunnyvale
Santa Clara
Saratoga
San Jose
Lick Observatory
SAN MATEO
SANTA CLARA
Los Gatos
Redwood Estates
Morgan Hill
Henry W. Coe S.P.
San Gregorio St. Beach
Pescadero St. Beach
Pescadero
Butano S.P.
Pt. Año Nuevo
Año Nuevo St. Res.
Big Basin Redwoods
Boulder Creek
Nisene Marks
580
880
101
280
84
85
205
J2
J4

Silicon Valley Bank
3003
SOUTH ENTRANCE

GTP 3

GTP 4

https://www.linkedin.com/posts/alex-velinov_gpt4-activity-7040266721286344705-7Qsf/

Agenda

- Breve repaso.
- Otro problema para entender este mundo.
- Recapitulando otro poco.
- Infraestructura de nube.
- Computación de borde.
- Subproductos y conexiones.
- La revolución de las máquinas.
- Entendiendo al hardware.
- Periféricos.
- Almacenamiento.
- Los chips.
- Un paréntesis de geopolítica.
- Computación cuántica.
- Volviendo al data center.
- Conectando con la tercera macrotendencia.

320
340
360
400
200
180
160
140
120
100
80
60
40
20
0
km/h

MEGA TRENDS AND TECHNOLOGIES 2017-2050

A mind map to stimulate discussion about current events and possible trajectories*

TRAVEL INFORMATION

This map has been drawn with a calm hand and a kind heart to help people entering the corridors of uncertainty. It is a mind-map for those seeking to explore new landscapes. It takes many perspectives to perceive what is happening now let alone predict what might happen next and this is merely my own modest attempt to do both. Hopefully people will use this map to have courageous conversations about where they are now and where they might wish to travel next. Every care has been taken to ensure that the thinking contained within this map is robust at the time of publication, but it will not be error free and no responsibility can be taken for people blindly following conventional wisdom. Paths are no indication of rights of way and travellers should be careful not to confuse a clear view for a short distance. If in doubt stop moving and quietly sit down and think for a while. Finally, remember that while the future is largely unknowable it is not uninventible. Tomorrow is created from what we decide to do today. We should therefore spend less time worrying about what might happen and far more time discussing where it is that we want to travel and how we'd like to get there.

LOST PERSONS

Persons feeling lost or disorientated, especially those aged fifty plus, can contact the mapmaker for guidance, although it is ultimately each individual's responsibility to find their own way. Guided tours of key sights are available to people that ask politely. Lunch will be provided. Please note that alteration works can take place and some routes will be replaced without notice, in which case replacement shuttle services will operate.

ACKNOWLEDGEMENTS

This map was conceived and created by Richard Watson using material from his website nowandnext.com and various books, notably Future Files and Digital Vs. Human. Invaluable enthusiasm and support has been received from many people most of whom would like to remain anonymous for career reasons. Individuals happy to be named include Alan Sekers, Adam Morgan, Alex Ayad, Oliver Freeman, Jolanta Leonaite, Jules Goddard and Dave Birch.

Common sense and final information design by Zeljko Zoricic.

LARGE PRINTED COPIES

Large colour prints of this roadmap (A3, A1 and the rather magical A0 size) can be ordered by contacting Richard Watson via nowandnext.com or LinkedIn. There is no charge for these prints except to cover printing, postage and large cardboard tubes. Please note that shipping A0 sized prints to far-flung corners of the world can be rather expensive. If you want to print this map yourself from a digital file found online it is suggested that A3 should be the minimum size unless you have magnificent eyesight or a magnifying glass. If you need a very high resolution file this can be ordered via nowandnext.com and there is no charge, zero, zip, zilch.

Copyright: Creative Commons Attribution 4.0 International.
Essentially this says you can do anything you like with or to this map, including commercial uses, but please say where it originally came from, which is me. Commentary and history for this map can be found at

http://toptrends.nowandnext.com/2017/05/08/map/

Version one. London, UK, May 2017

* Or thereabouts, who can say?

TREND LINES

- Society
- Work
- Economy
- Money
- Food
- Technology
- Retail
- Environment
  - Stream of Consciousness
- Media
- Transport
- Politics
- Energy
- Education
- Health
- Security
- Values

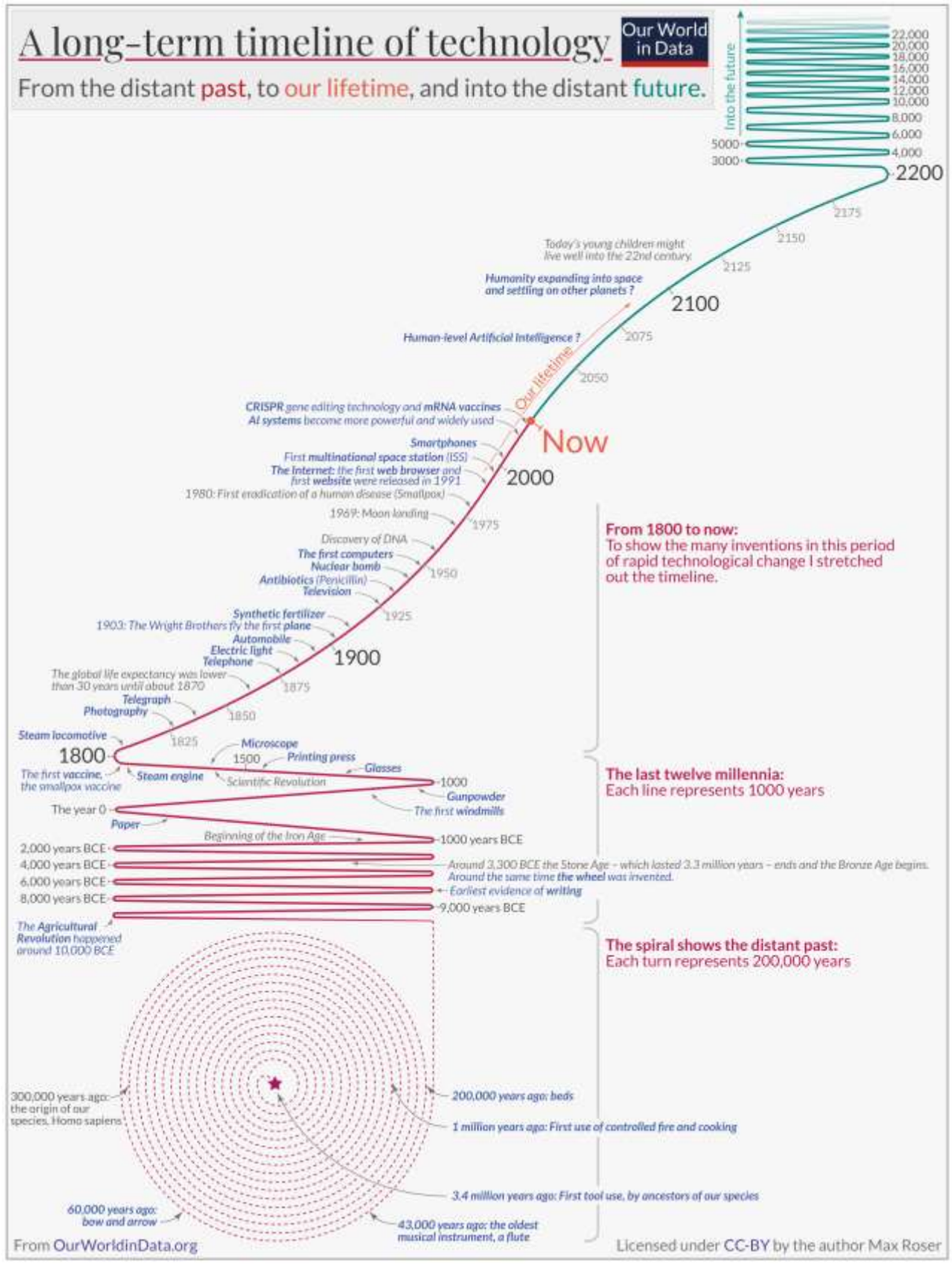
LEGEND

- Mega Trends
- Now
- Next?
- Counter-trend
- Partial ruin
- Dangerous current
- ! Place of interest

Projection: Subjective

GLOBAL GAMECHANGERS (What could possibly go wrong?)

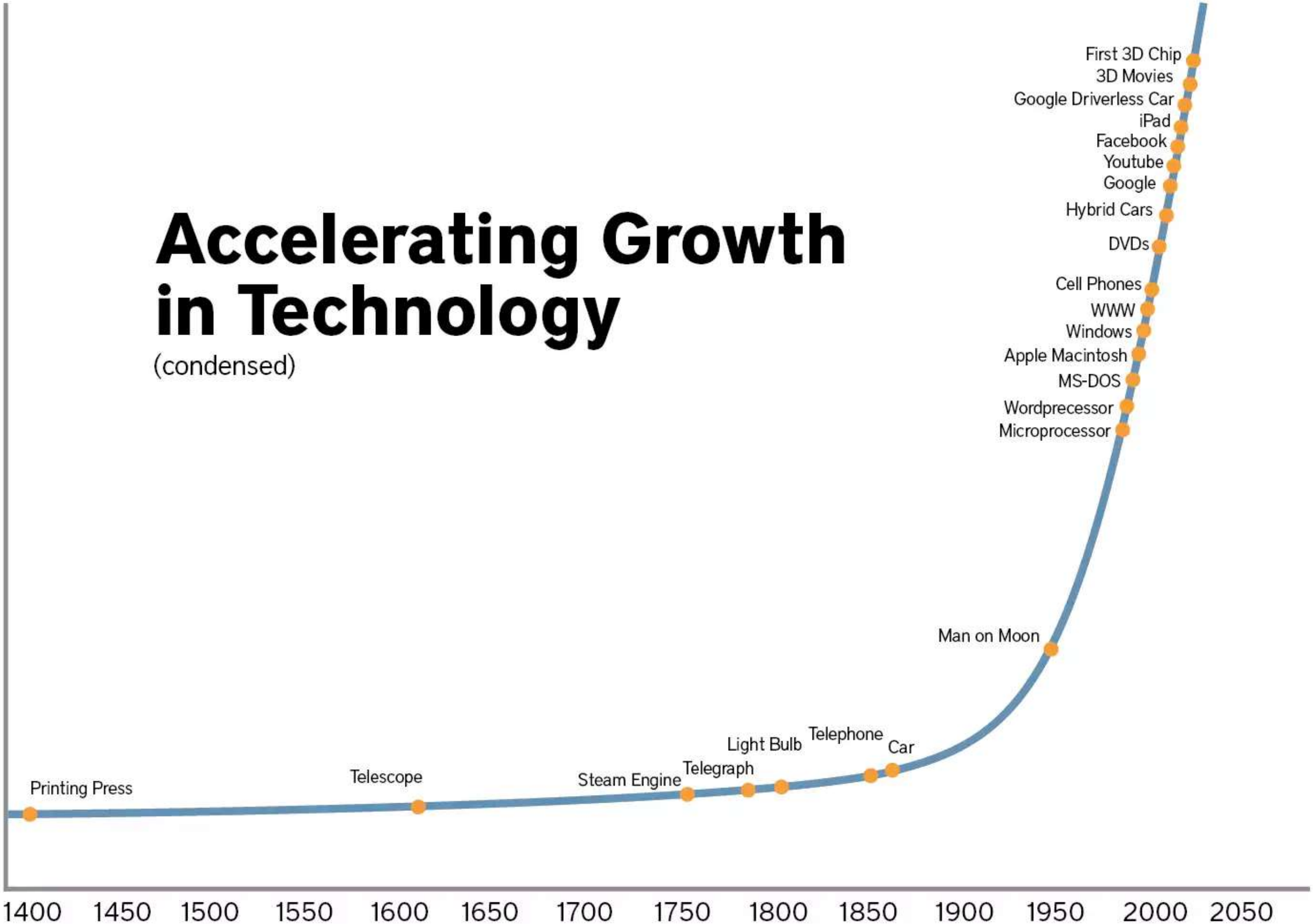
- △ Regulatory change
- △ Systemic financial collapse
- △ Inflation running at > 10%
- △ Rapid rise in US interest rates
- △ Major Chinese slowdown
- △ Global trade collapse
- △ Severe food shortages
- △ Super volcano eruption
- △ Severe space weather
- △ Rogue asteroid
- △ Gamma ray burst
- △ Giant methane burp
- △ Extreme climate change
- △ Major Syn-bio accident
- △ Loss of antibiotic efficacy
- △ Global pandemic virus
- △ Failure to treat obesity
- △ Mental health epidemic
- △ Radiation from mobile devices
- △ Doubling of the Chinese birth rate
- △ Oil price shock
- △ Extended drought
- △ Mass unemployment caused by AI
- △ Biological terrorism
- △ Destabilisation of China
- △ Collapse of EU
- △ Russian expansionism
- △ Water trading & speculation
- △ Collapse of EU pensions funding
- △ Major sovereign debt default
- △ Weaponisation of near space
- △ Collapse of North Korea
- △ US/China war
- △ India/Pakistan war
- △ Blockage of the Strait of Hormuz
- △ Self-replicating killer robots
- △ Decline of human intelligence
- △ Message received from outer space
- △ Finding out the Matrix is real (OMG)
- △ Return of the Messiah (look busy)
- △ People taking these things seriously
- △ Something I haven't thought of



https://ourworldindata.org/technology-long-run

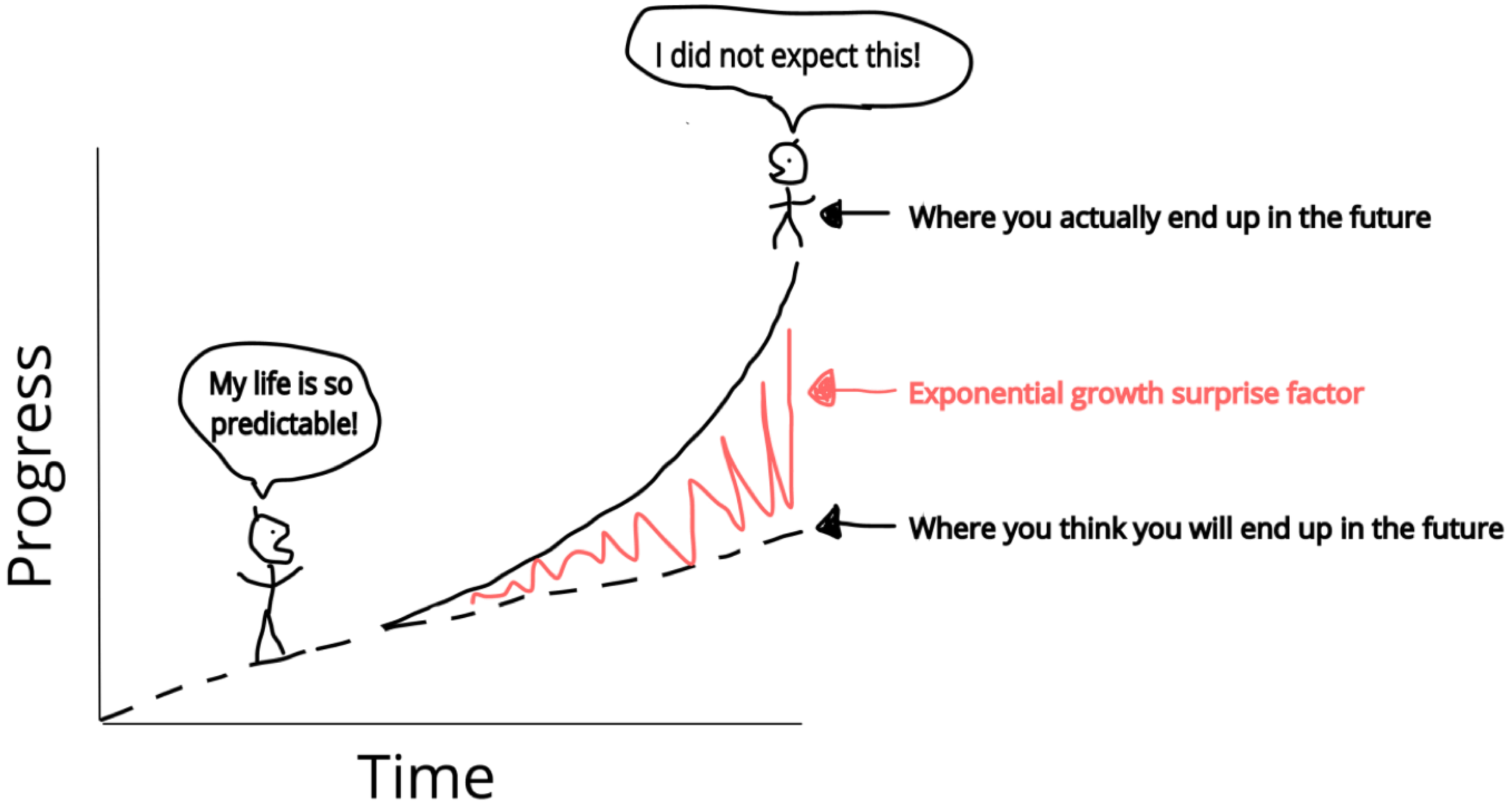
Accelerating Growth in Technology

(condensed)

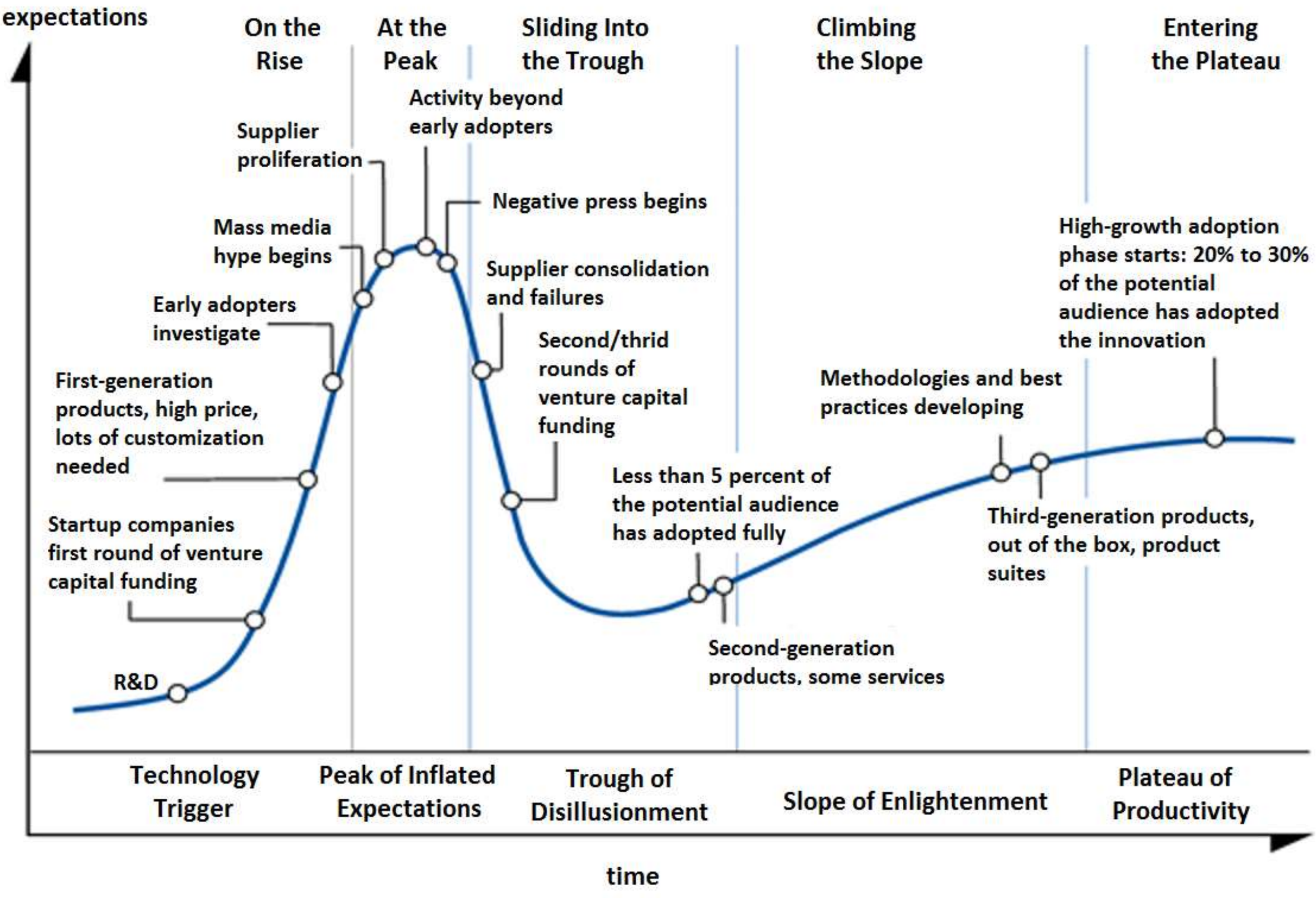


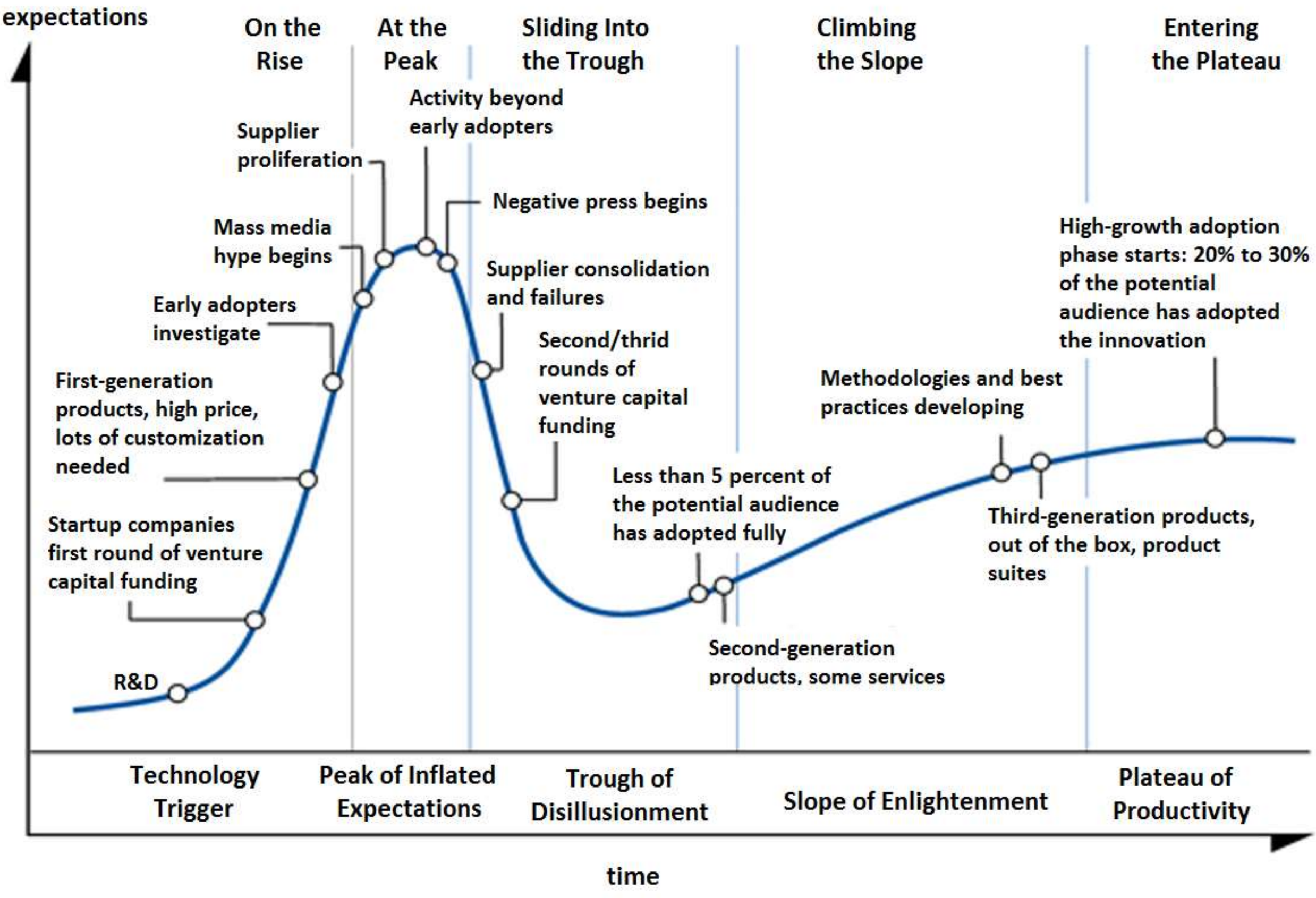
Raymond **Kurzweil**

http://www.kurzweilai.net/


I did not expect this!
Where you actually end up in the future
Exponential growth surprise factor
Where you think you will end up in the future
My life is so predictable!
Progress
Time

Pero hay otro **problema**


expectations
On the Rise
At the Peak
Sliding Into the Trough
Climbing the Slope
Entering the Plateau
Activity beyond early adopters
Supplier proliferation
Negative press begins
Mass media hype begins
Supplier consolidation and failures
Early adopters investigate
Second/thrid rounds of venture capital funding
First-generation products, high price, lots of customization needed
Less than 5 percent of the potential audience has adopted fully
Methodologies and best practices developing
High-growth adoption phase starts: 20% to 30% of the potential audience has adopted the innovation
Third-generation products, out of the box, product suites
Startup companies first round of venture capital funding
Second-generation products, some services
R&D
Technology Trigger
Peak of Inflated Expectations
Trough of Disillusionment
Slope of Enlightenment
Plateau of Productivity
time



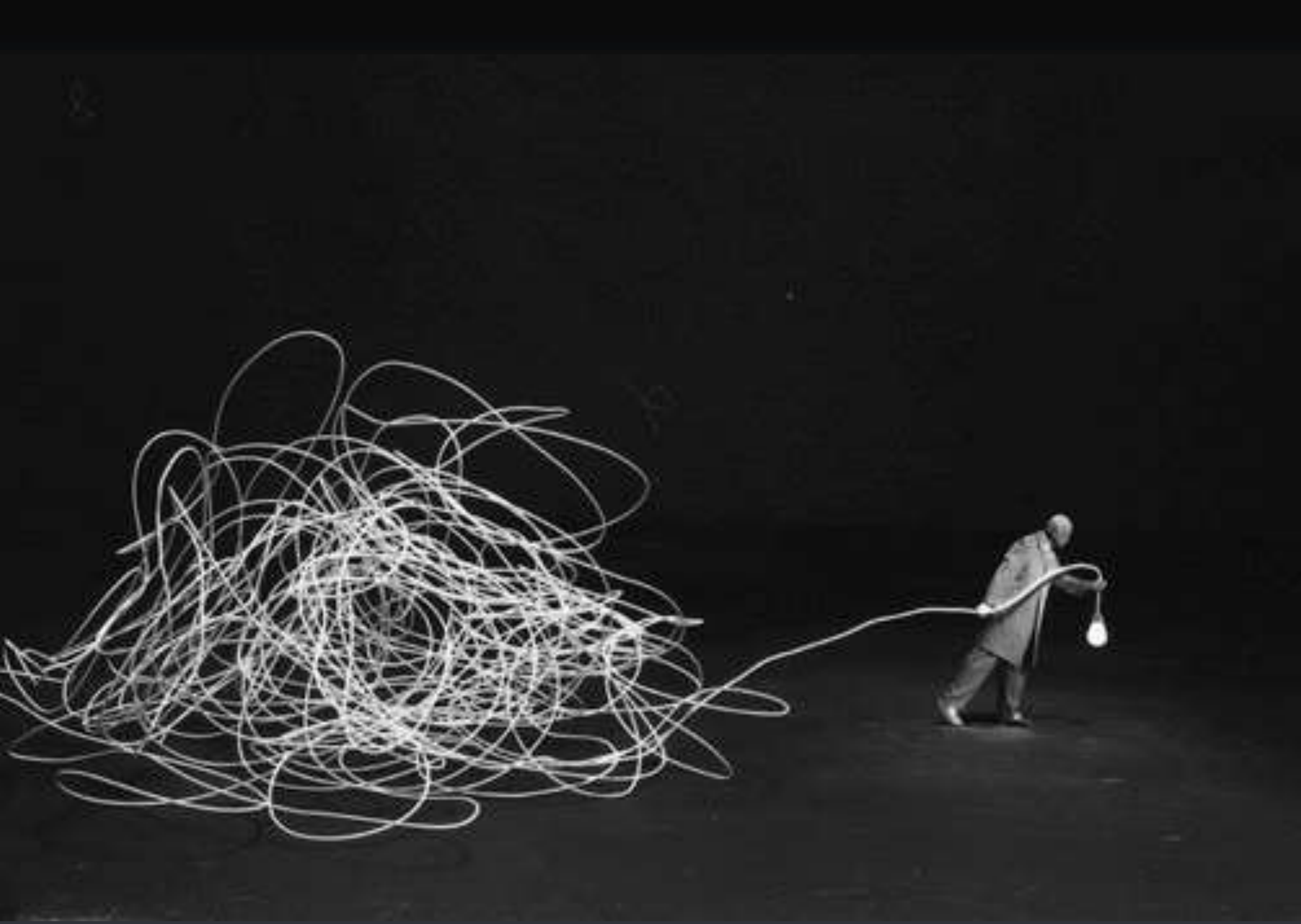
General **hype cycle** for technology

GLASS

Ciclo de **exageración** de la tecnología

MARKETS
GROWTH
STOCK
45%
TRANSACTIONS
BUDGET
PLAN
ASSETS
PRODUCT
SERVICE
BRAND
BRAND
MARKETING
SALES
SUCCESS

maybe
yes
lost
no
never
certainly
I'm stuck



KEEP IT
SIMPLE

3

Internet potenciado

La **revolución** de las máquinas

Realidades **extendidas (xR)**

Valor

Infraestructura

Conectividad

Blockchain

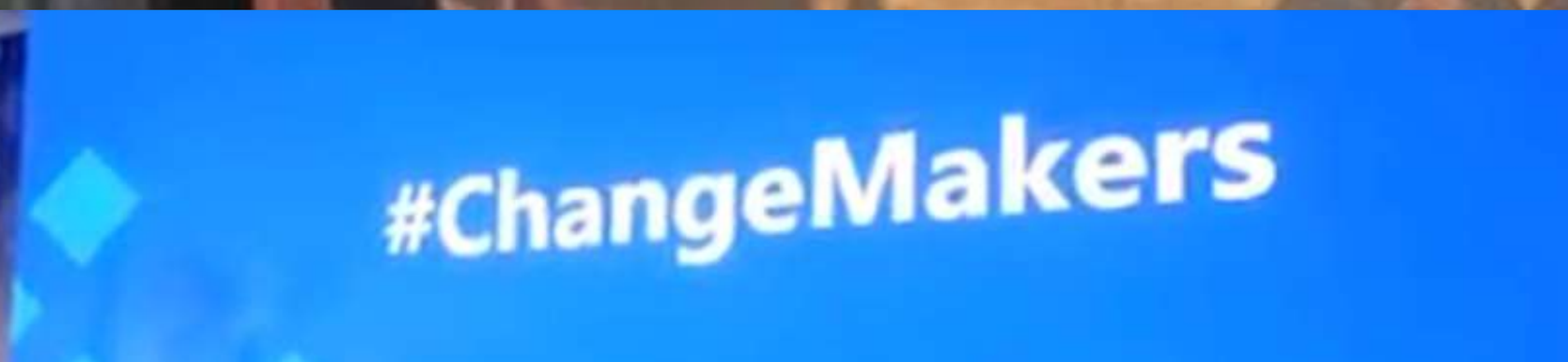
Valor

Infraestructura

iot

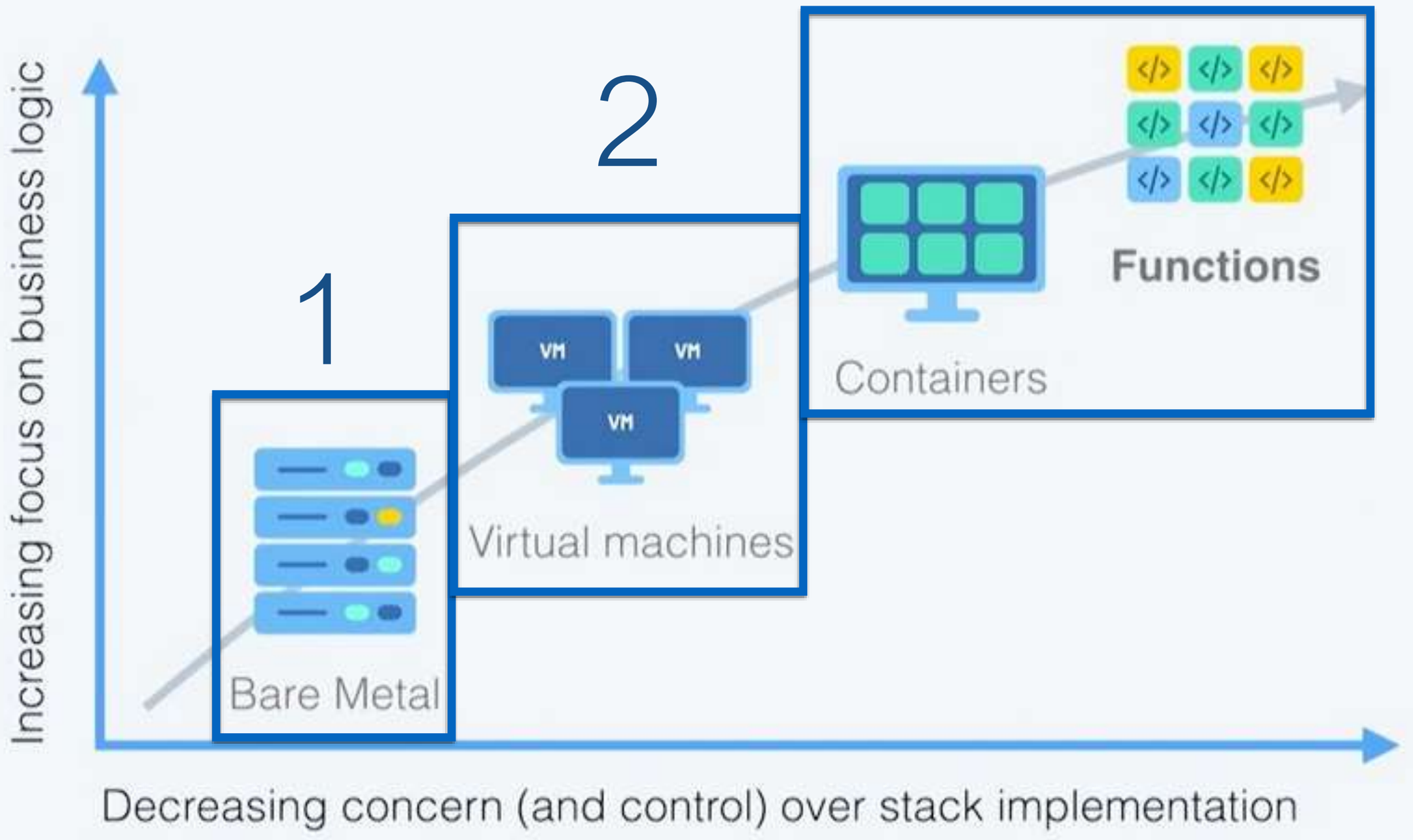
Conectividad

Infraestructura

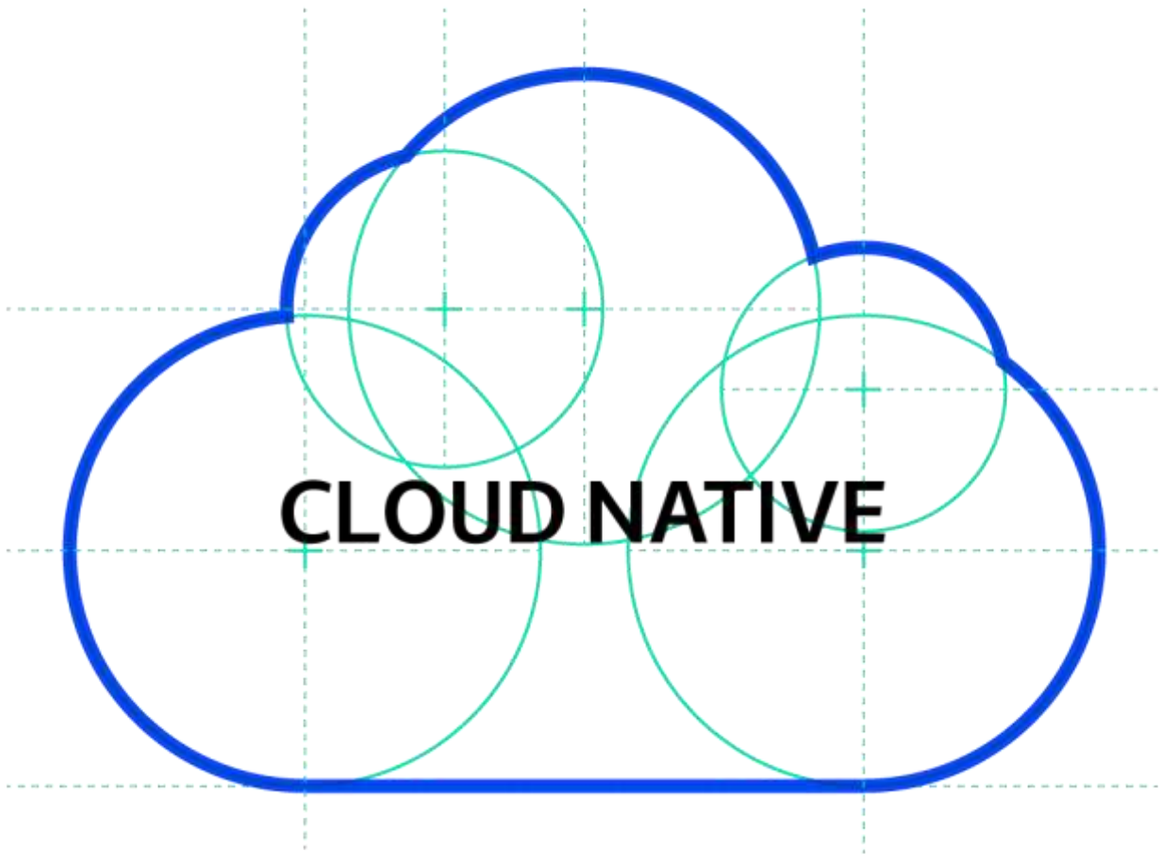

#ChangeMakers

Google Cloud Platform

3


2
1
VM
VM
VM
Functions
Containers
Virtual machines
Bare Metal
Increasing focus on business logic
Decreasing concern (and control) over stack implementation

serverless



Flexibilidad,
interoperabilidad

Flexibilidad, interoperabilidad

Escalabilidad / elasticidad

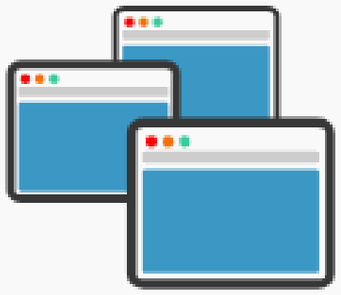
Flexibilidad, interoperabilidad

Escalabilidad / elasticidad

Abundancia de recursos

Flexibilidad, interoperabilidad

Escalabilidad / elasticidad



Abundancia de recursos

Despreocuparse de los fierros

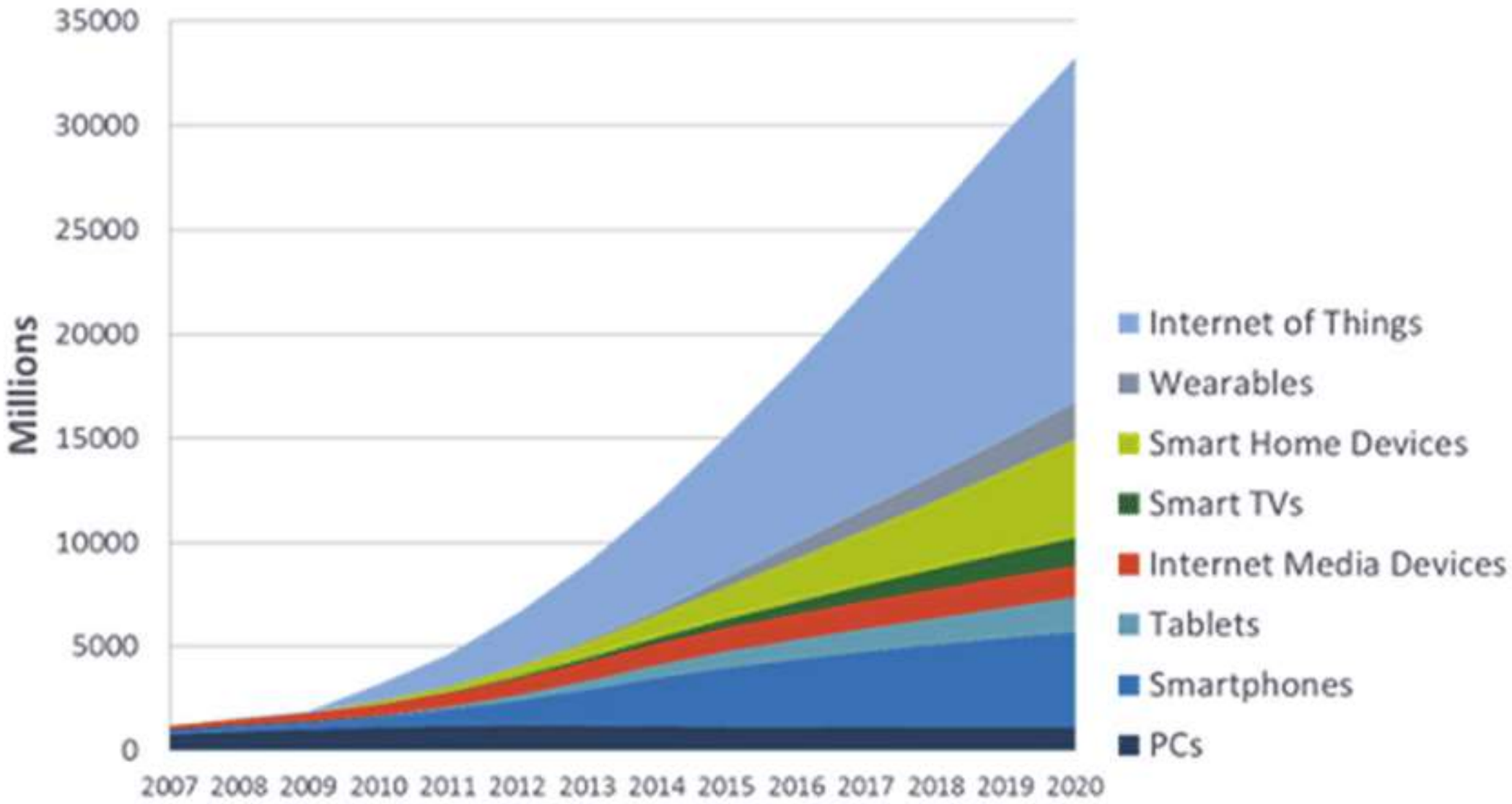
Flexibilidad, interoperabilidad

Escalabilidad / elasticidad

Abundancia de recursos

Despreocuparse de los fierros

Conectividad


35000
30000
25000
20000
15000
10000
5000
0
Millions
2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Internet of Things
Wearables
Smart Home Devices
Smart TVs
Internet Media Devices
Tablets
Smartphones
PCs

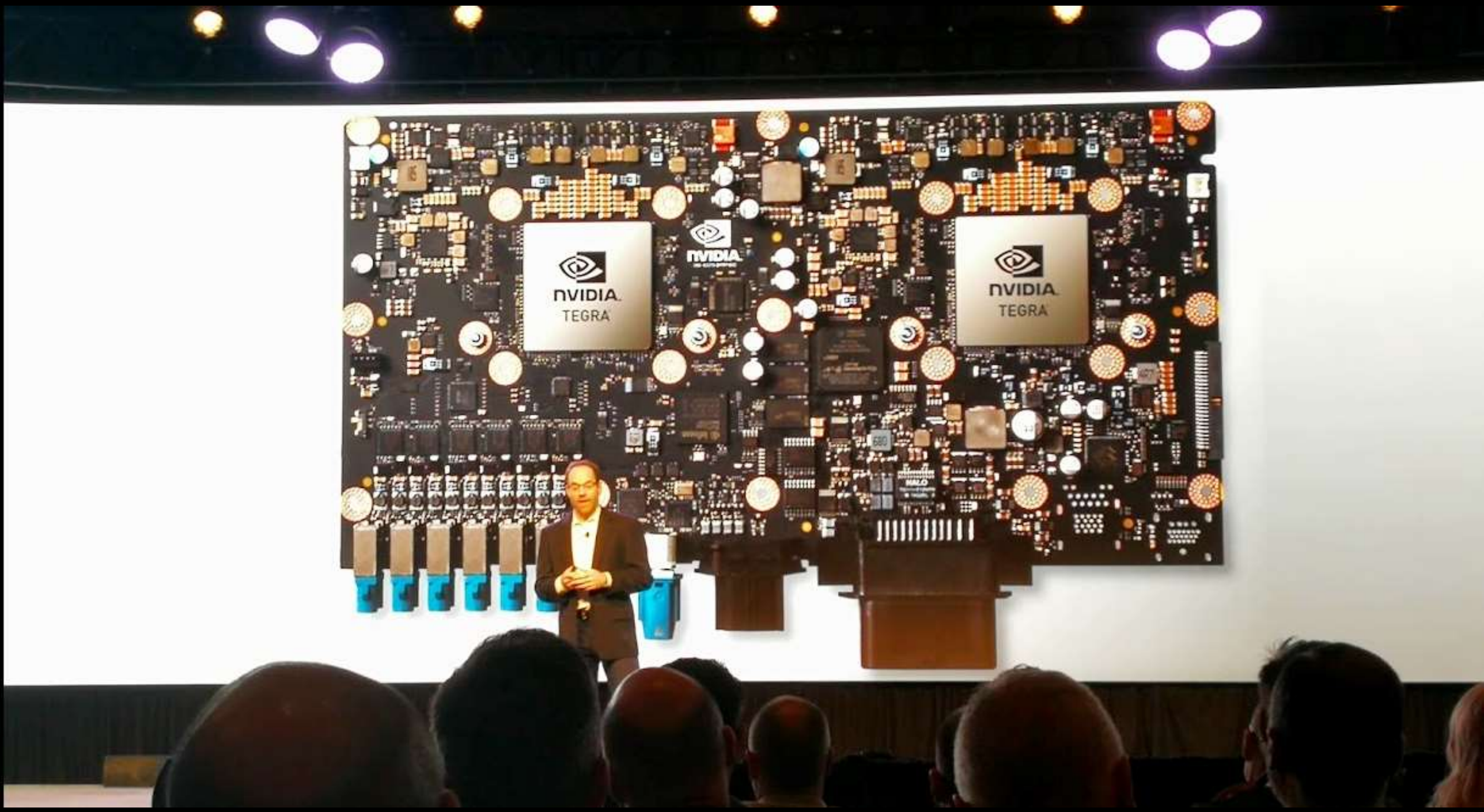
Return to the Edge and the End of Cloud Computing
Peter Levine, General Partner
ANDREESSEN HOROWITZ

Client-Server
Distributed
1980–2000

Edge Intelligence
Distributed
2020–

Mainframe
Centralized
1960–1970

Mobile-Cloud
Centralized
2005–2020


NVIDIA
TEGRA
NVIDIA
NVIDIA
TEGRA

Data-centric Programming

Less code, more math

Humans label data, computers learn from labeled examples

Un subproducto de esta evolución

Valor

Infraestructura

Conectividad

DATOS

A lo ***grande***, que sirven para ***alimentar*** la ***tercera*** tendencia

DATA CENTER EXPLORER

By Andy Patrizio, Network World | DEC 3, 2018 2:30 AM PST

About

Andy Patrizio is a freelance technology writer based in Orange County, California. He's written for a variety of publications, ranging from Tom's Guide to Wired to Dr. Dobbs Journal.

IDC: Expect 175 zettabytes of data worldwide by 2025

By 2025, IDC says worldwide data will grow 61% to 175 zettabytes, with as much of the data residing in the cloud as in data centers.

https://www.networkworld.com/article/3325397/idc-expect-175-zettabytes-of-data-worldwide-by-2025.html

SAVE

Data spies: The dark and shady practices of Silicon Valley

This is how data harvesting really works. You're not going to like it.

ROGER MCNAMEE

Roger McNamee has been a Silicon Valley investor for 35 years. He co-founded successful funds in venture, crossover and private equity. His most recent fund, Elevation, included U2's Bono as a co-founder. He holds a B.A. from Yale University and an M.B.A. from the Tuck School of Business at Dartmouth College.

15 March, 2019

La **mecánica** de este **proceso alimenticio** puede ser **inquietante**:
https://bigthink.com/

1

La **revolución** de las máquinas

HARD

SOFT

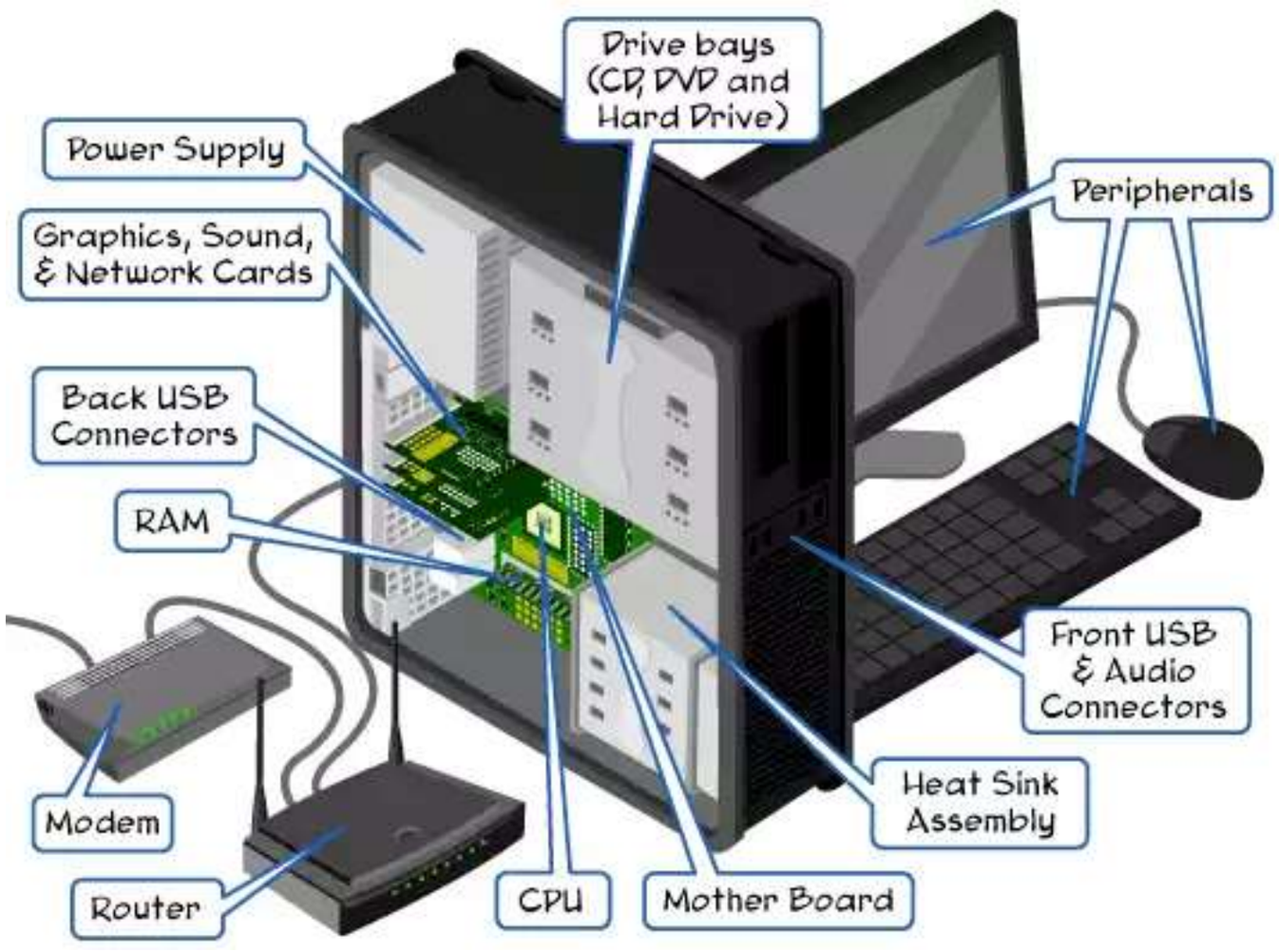
HARD

SOFT

ware

HARD

ware


Drive bays
(CD, DVD and
Hard Drive)
Power Supply
Graphics, Sound,
& Network Cards
Back USB
Connectors
RAM
Peripherals
Front USB
& Audio
Connectors
Heat Sink
Assembly
Modem
Router
CPU
Mother Board

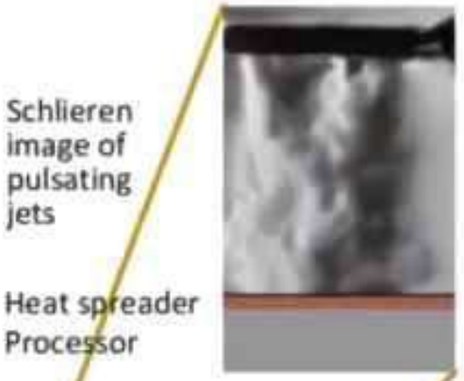
Fro
& A
Coni
Heat Sink
Assembly
u
Mother Board

Esta tecnología sustituirá a los ventiladores de tu PC

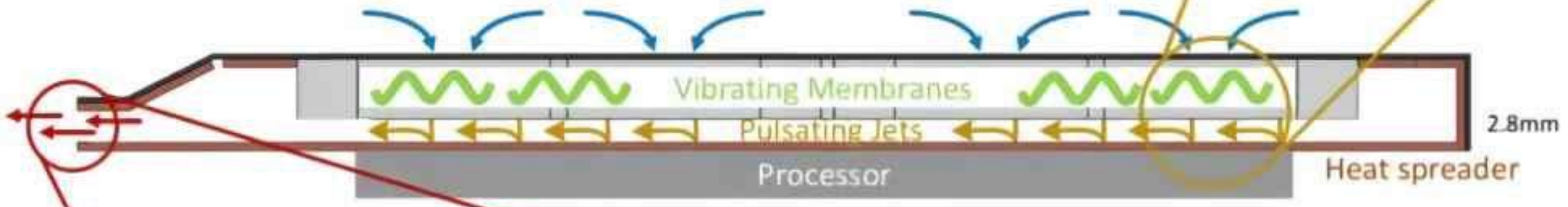
Josep Roca | Publicado el 24 de enero, 2023 · 11:30

https://hardzone.es/noticias/componentes/airjet-mini-pro/

The pulsating jets of air remove heat from the heat spreader at the bottom of the AirJet® with high efficiency. The flowing air reaches the same temperature as the heat spreader which is in contact with the processor. Hot air exits to the side via an integrated spout.

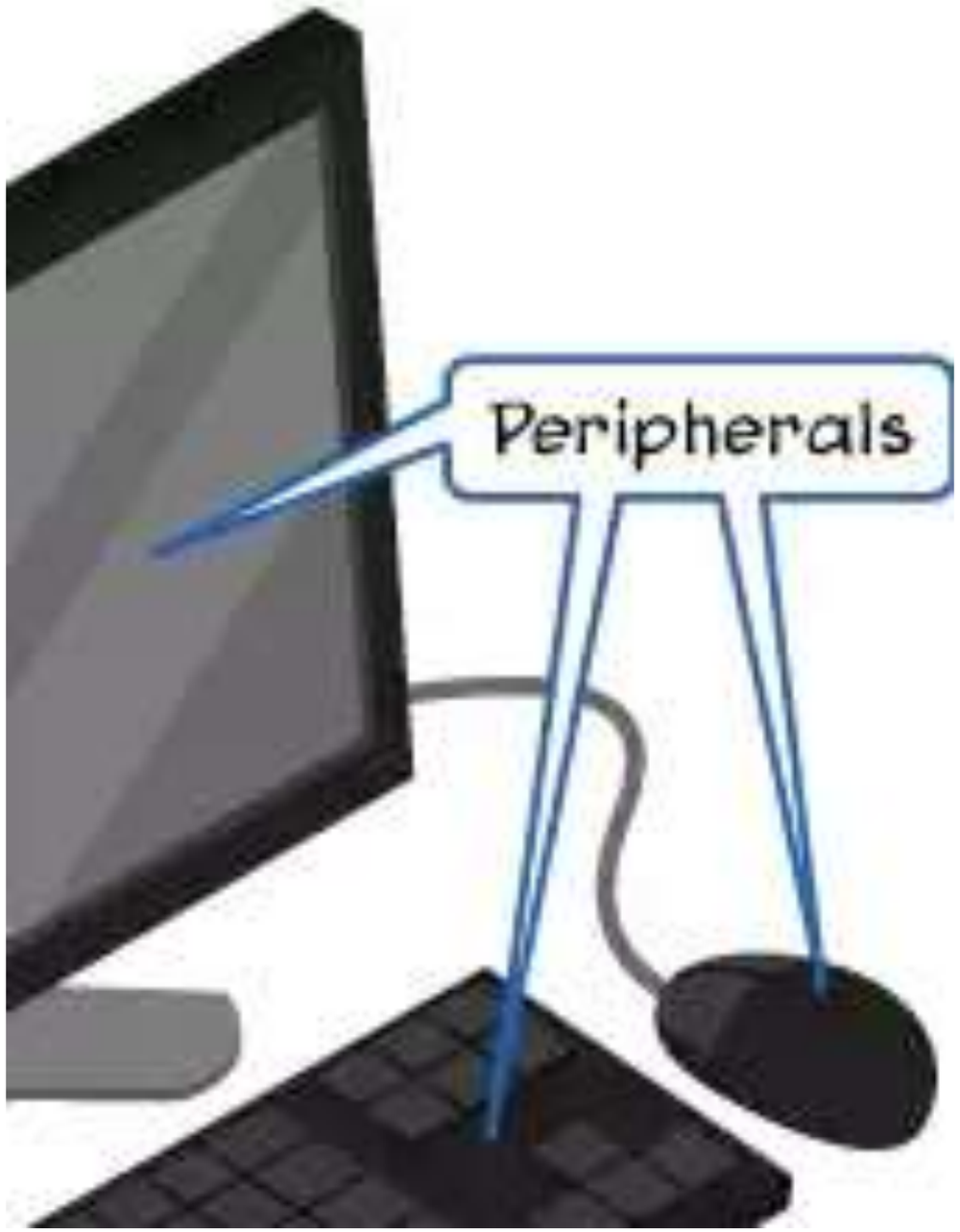


Cross section of AirJet® module



Schlieren image of air flow exiting AirJet® via the integrated spout

https://hardzone.es/noticias/componentes/airjet-mini-pro/

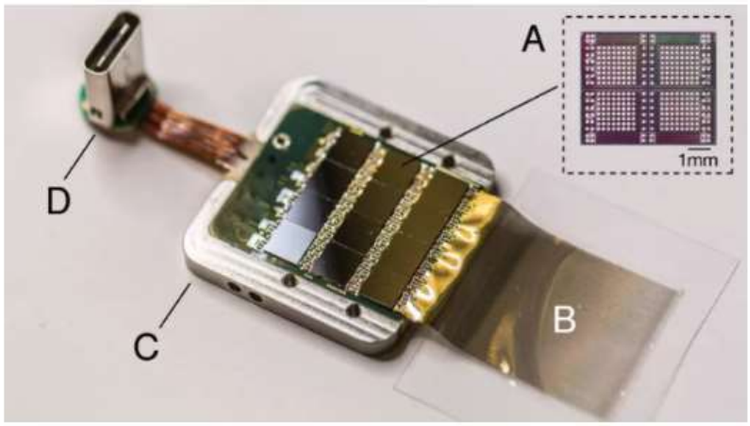

Peripherals

SPACES

THE PRESENT — JULY 17, 2019

Elon Musk's Neuralink unveils device to connect your brain to a smartphone

"A monkey has been able to control a computer with its brain," Musk said, referring to tests of the device.



Neuralink

KEY TAKEAWAYS

● Neuralink seeks to build a brain-machine interface that would connect human brains with computers. ● No tests have been performed in humans, but the company hopes to obtain FDA approval and begin human trials in 2020. ● Musk said the technology essentially provides humans the option of "merging with AI."

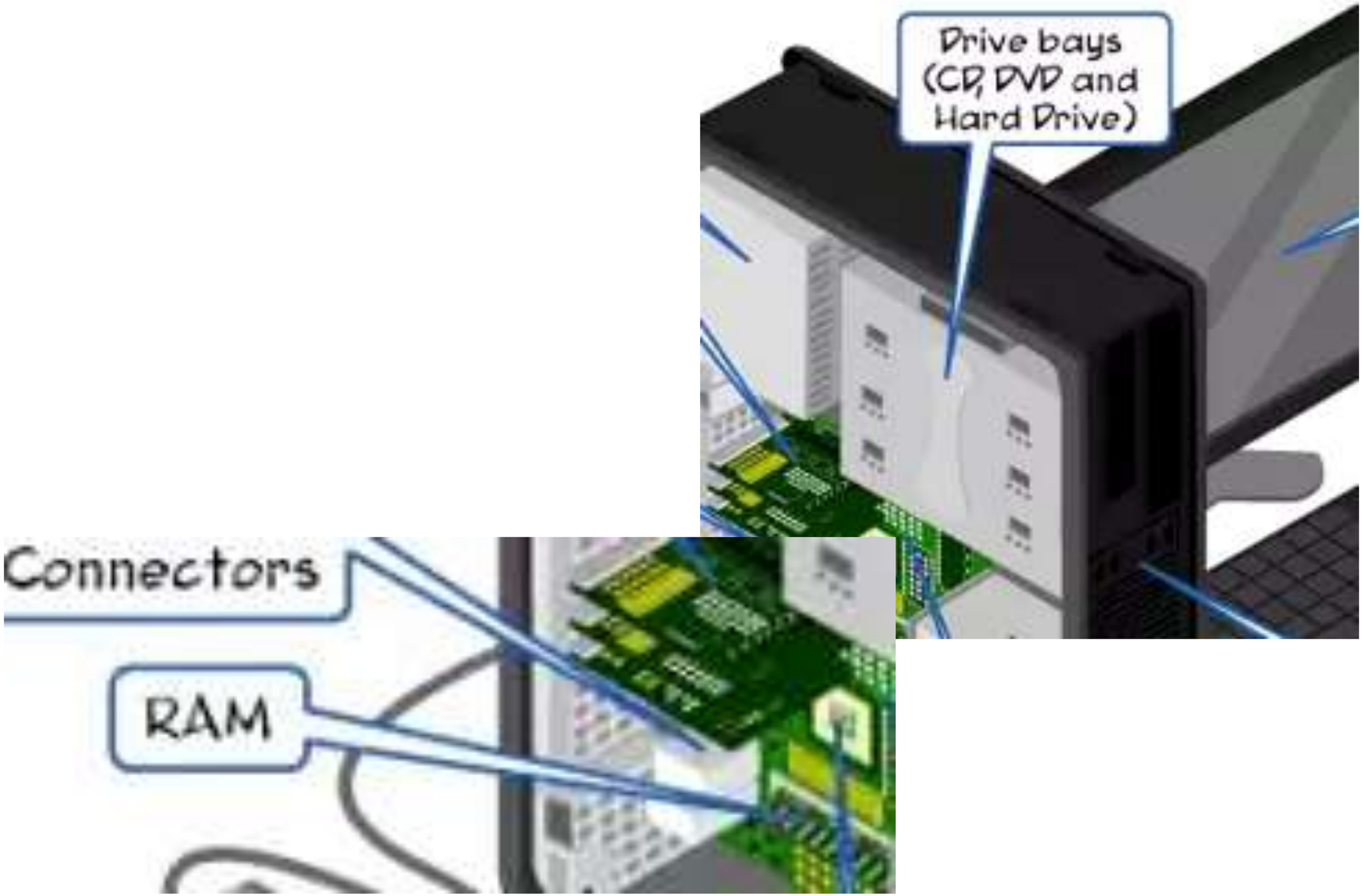
https://bigthink.com/the-present/neuralink-musk-presentation/

02/03/2023

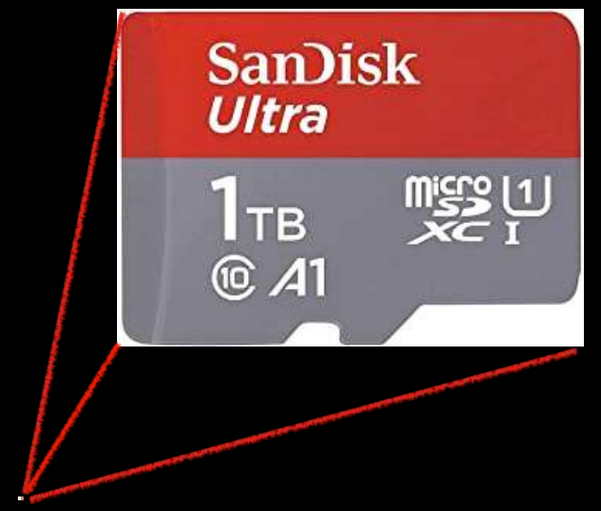
A REUTERS SPECIAL REPORT

U.S. regulators rejected Elon Musk's bid to test brain chips in humans, citing safety risks

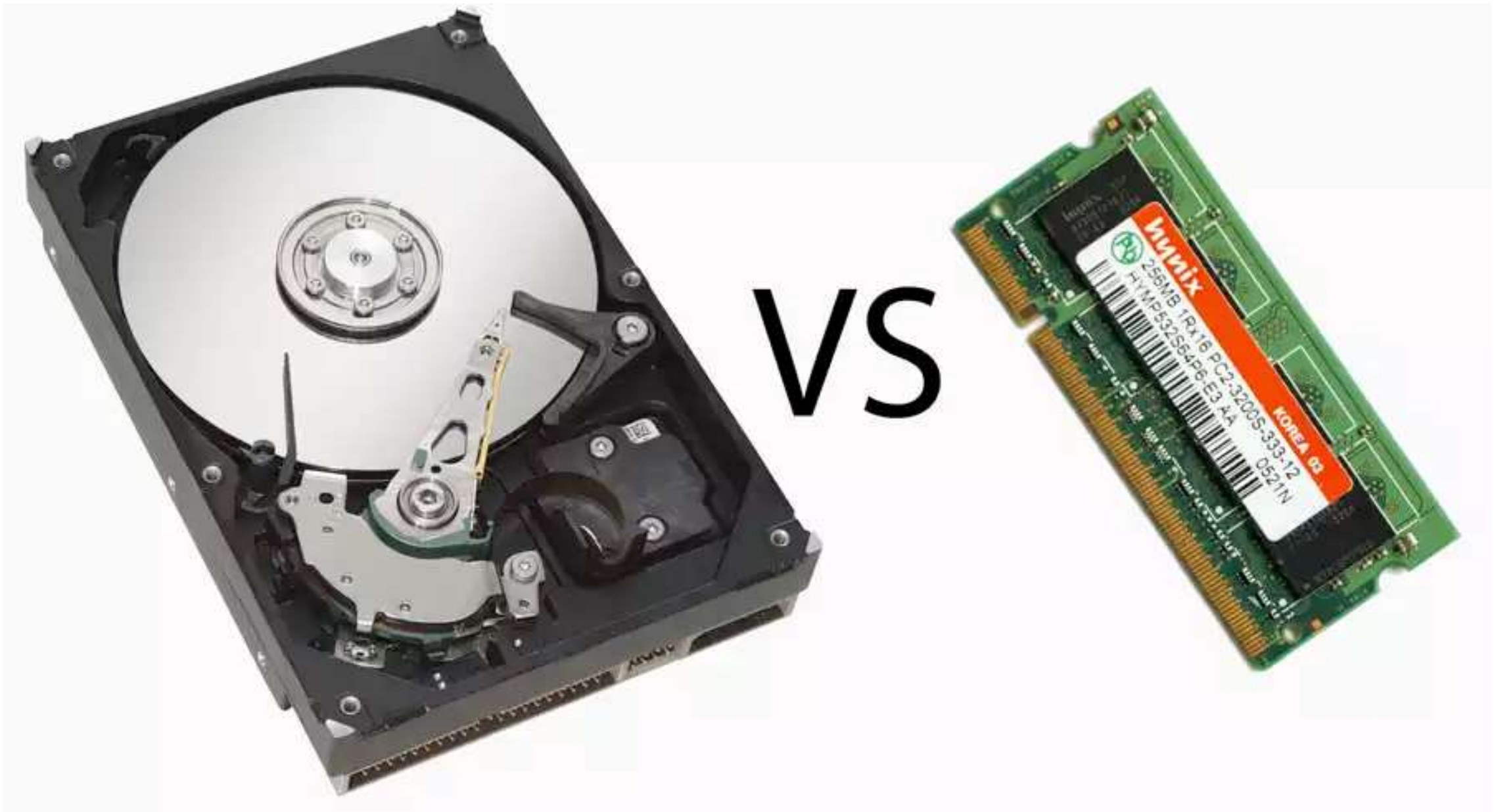
https://www.reuters.com/investigates/special-report/neuralink-musk-fda/

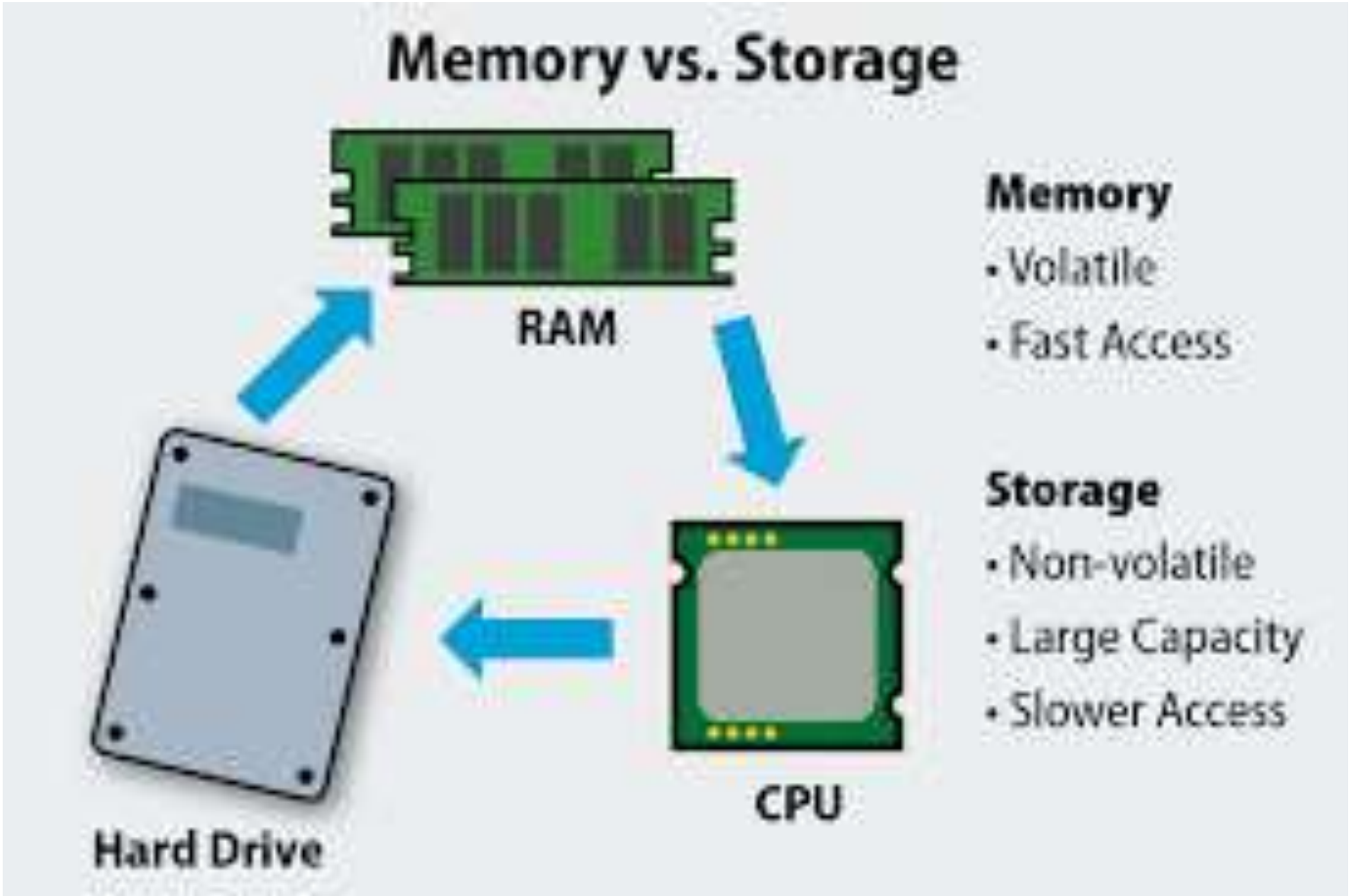

Drive bays
(CD, DVD and
Hard Drive)
Connectors
RAM

1956, 5MB, USD 3200 / mes



2022, 1TB, USD 125


VS
hynix
256MB 1Rx16 PC2-3200S-333-12
HYMP532S64P6-E3 AA
0521N
KOREA


Memory vs. Storage
RAM
Memory
• Volatile
• Fast Access
Storage
• Non-volatile
• Large Capacity
• Slower Access
CPU
Hard Drive

Hard Drive
VS
RAM

RAM vs HDD

Comparison Chart

RAM	HDD
RAM is a volatile memory that stores information or data temporarily for easy and instant access.	HDD is a non-volatile memory that is the main data storage hardware device in a computer.
The data is erased when the device is turned off.	The data remains even if the device loses power.
RAM is typically used to store working data and machine code.	HDD stores all your digital content and data on the computer.

RAM vs HDD

Comparison Chart

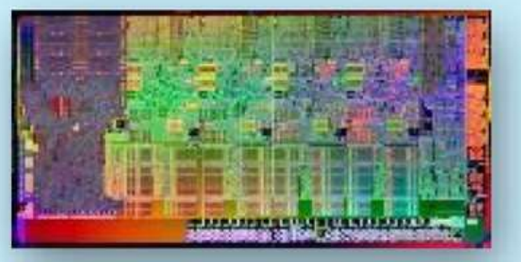
RAM	HDD
RAM affects the speed of the computer.	HDD does not affect the speed of the computer.
RAM is smaller than HDDs.	HDDs are usually larger than RAM.
RAM has shorter read and write time.	HDDs have longer read and write time.

3D XPOINT™ MEMORY MEDIA

Breaks the memory/storage barrier

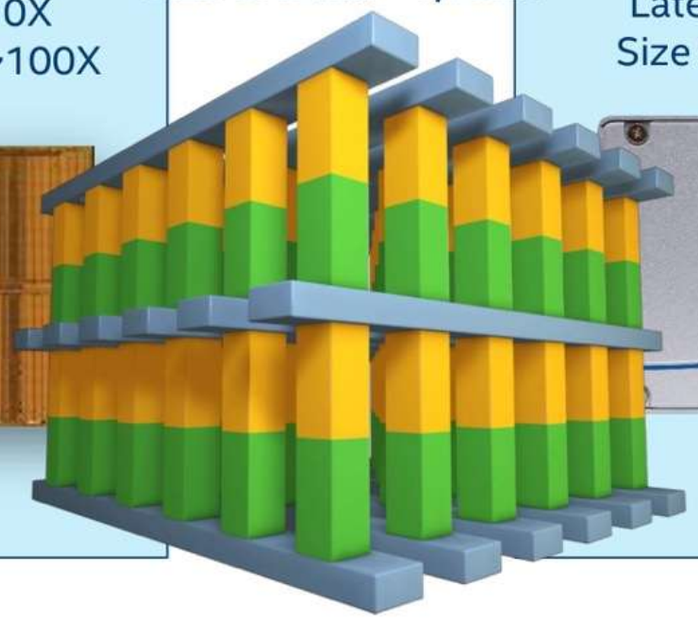
MEMORY + STORAGE

SRAM
Latency: 1X
Size of Data: 1X

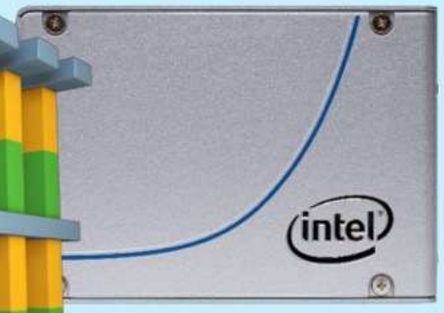


DRAM
Latency: ~10X
Size of Data: ~100X

3D XPoint™
Latency: ~100X
Size of Data: ~1,000X



NAND SSD
Latency: ~100,000X
Size of Data: ~1,000X



HDD
Latency: ~10 Million X
Size of Data: ~10,000X

Technology claims are based on comparisons of latency, density and write cycling metrics amongst memory technologies recorded on published specifications of in-market memory products against internal Intel specifications.

3D XPoint

1,000 times faster than flash and can store about 10 times more data than DRAM.

Vs

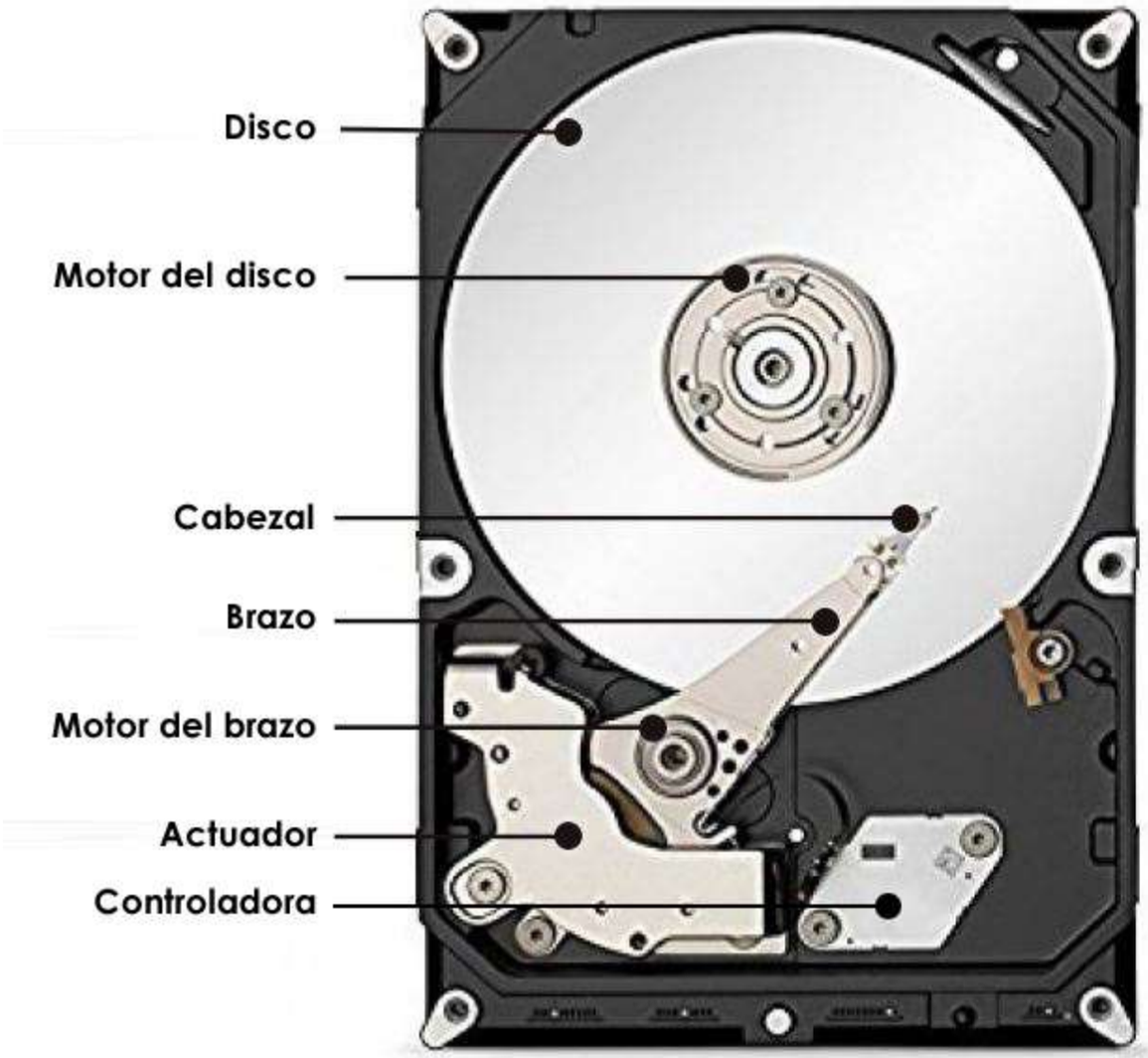
SSD

Solid State Drive

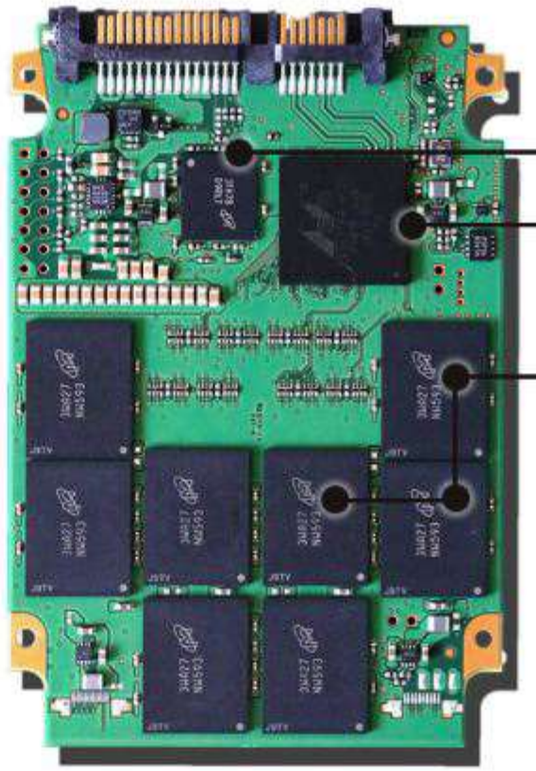
HDD

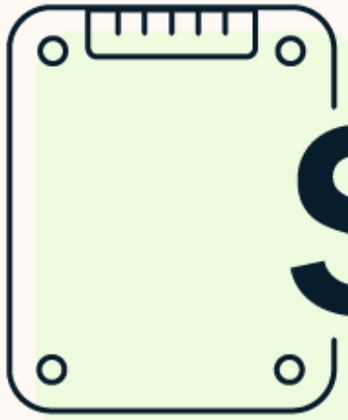
Hard Disk Drive

HDD
3.5"


Disco
Motor del disco
Cabezal
Brazo
Motor del brazo
Actuador
Controladora

SSD
2.5"


Caché
Controladora
Memoria Flash NAND



SSD vs HDD

SSD		HDD
faster	✓ ✗	slower
shorter lifespan	✗ ✓	longer lifespan
more expensive	✗ ✓	cheaper
non-mechanical (flash)	✓ ✗	mechanical (moving parts)
shock-resistant	✓ ✗	fragile
best for storing operating systems, gaming apps, and frequently used files		best for storing extra data, such as movies, photos, and documents

Memory capacity hierarchy and conversion chart

UNIT	ABBREVIATION	APPROXIMATE SIZE
bit	b	Binary digit, single 1 or 0
nibble	—	4 bits
byte/octet	B	8 bits
kilobyte	KB	1,024 bytes or 10^3 bytes
megabyte	MB	1,024 KB or 10^6 bytes
gigabyte	GB	1,024 MB or 10^9 bytes
terabyte	TB	1,024 GB or 10^{12} bytes
petabyte	PB	1,024 TB or 10^{15} bytes
exabyte	EB	1,024 PB or 10^{18} bytes
zettabyte	ZB	1,024 EB or 10^{21} bytes
yottabyte	YB	1,024 ZB or 10^{24} bytes

TechTarget

SearchMobileComputing

FOTOLIA

NEWS

2

Samsung's 1 TB internal phone storage means headaches for IT

Samsung's new embedded Universal Flash Storage brings 1 TB of potential problems for IT.

https://searchmobilecomputing.techtarget.com/

SanDisk
Extreme
1TB
V30
A2

Enterprise-Class Storage In a Rack

Every aspect of the Broadberry Petabyte Rack has been carefully crafted to ensure easy maintenance, maximum performance, and the enterprise-class reliability Broadberry storage solutions have become renowned for.

Maintenance

Mounted on high quality ball bearing slider rails, the Broadberry™ CyberStore QM4600H JBODs can be easily accessed for maintenance, as can its 60 hot-swappable enterprise class hard drives.

Performance

Configurable with Enterprise-class SAS hard drives, Fibre-channel connectivity, SSD Caching/Teiring and Dual head nodes, the Petabyte Rack provides the ultra-high perfromance your organisation needs.

Reliability

Dual 1,400W (80plus platinum) Redundant Power Supplies, ZFS based operating systems and the highest quality components mean you can rely on the Petabyte Rack for mission critical applications.

https://www.broadberry.com/petarack.php

https://www.broadberry.com/petarack.php

THE SCIENCE TIMES

World's First Petabyte Hard Disk Drive Contains Glass for Better Storage Capacity

Erika P. Sep 21, 2020 11:22 PM EDT

Glass is the future of data storage, as proven by Microsoft in 2016 when they showed the world how could the DNA strands be used to store data. It serves as the biological counterpart to the traditional flash- or disk-based storage.

But as Microsoft has tested, they found that glass storage is more practical. Somewhat like the traditional DVD recording media, they also used infrared layers to distort the glass but placed it inside the glass and away from the open air. According to Microsoft, the data recorded is read by lasers and decoded by the machine learning as light reflects off the glass.

https://www.sciencetimes.com/articles/27396/20200921/petabyte-hard-disk-drive-glass.htm

https://www.youtube.com/watch?v=n_xvUoHm9Ho

DNA data storage landmark: Now it's 215 petabytes per gram or over 100 million movies

Synthetic DNA could be the answer to the world's accelerating data-storage needs, and now researchers have shown that it can have a much higher density than previously demonstrated.

By Liam Tung | March 6, 2017 -- 13:19 GMT (05:19 PST) | Topic: Storage

http://www.zdnet.com/article/dna-data-storage-landmark-now-its-215-petabytes-per-gram-or-over-100-million-movies/

SHARE

18K

101

1K

A new method of storing data in the nucleotide bases of DNA is the highest-density storage scheme ever invented.

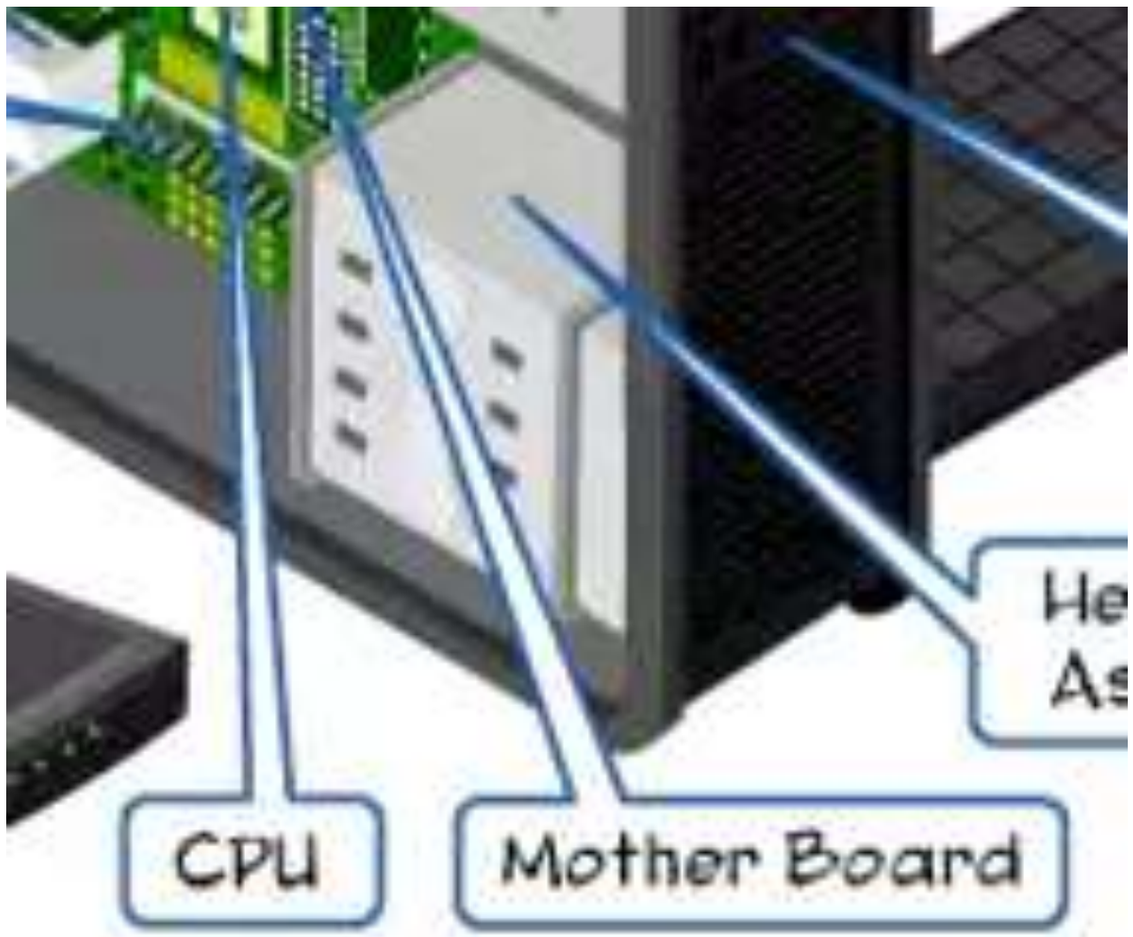
Novi Elisa/shutterstock

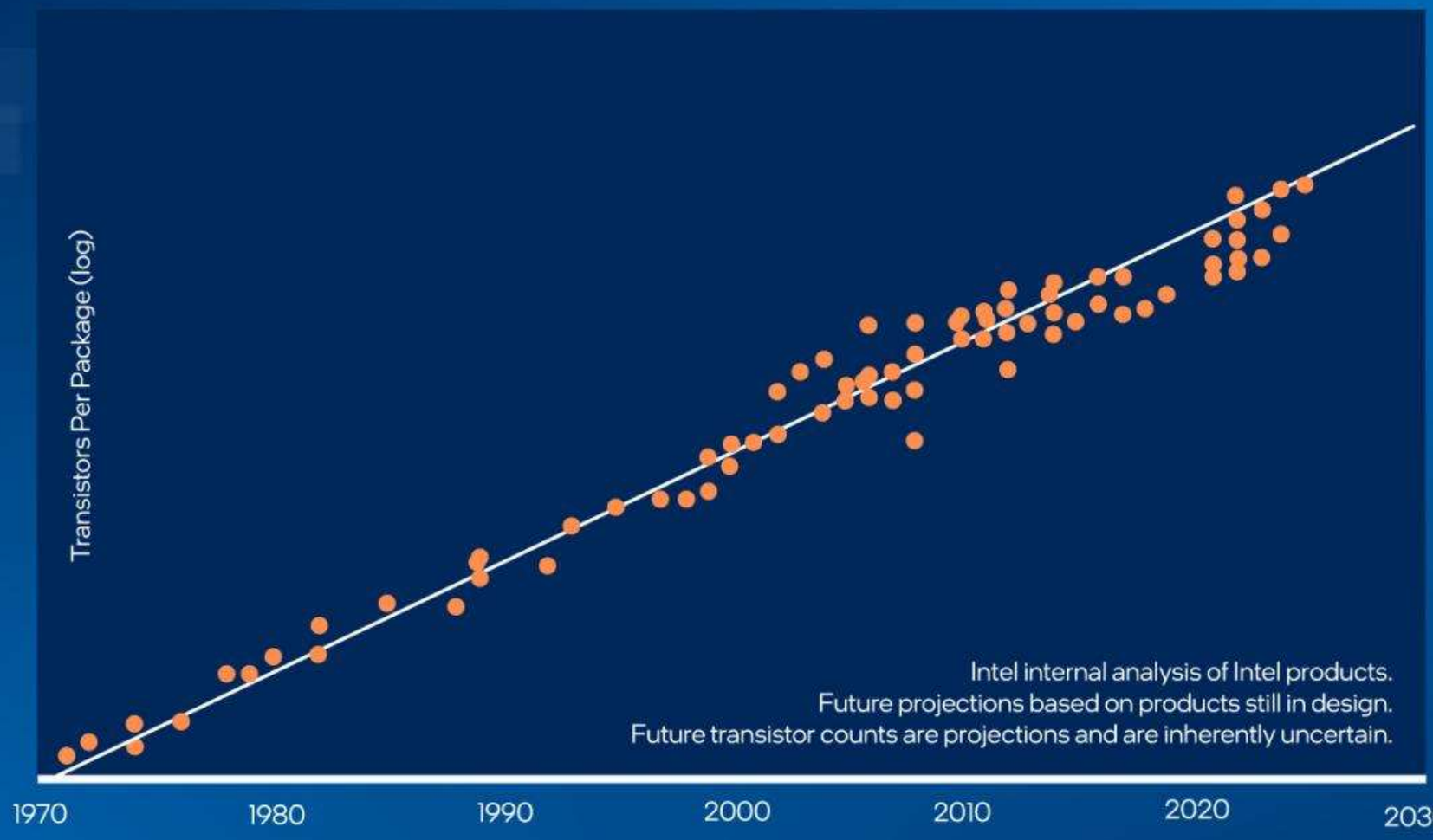
DNA could store all of the world's data in one room

By Robert Service | Mar. 2, 2017 , 2:00 PM

http://www.sciencemag.org/news/2017/03/dna-could-store-all-worlds-data-one-room

https://www.youtube.com/watch?v=wxStIzunxCw


CPU
Mother Board



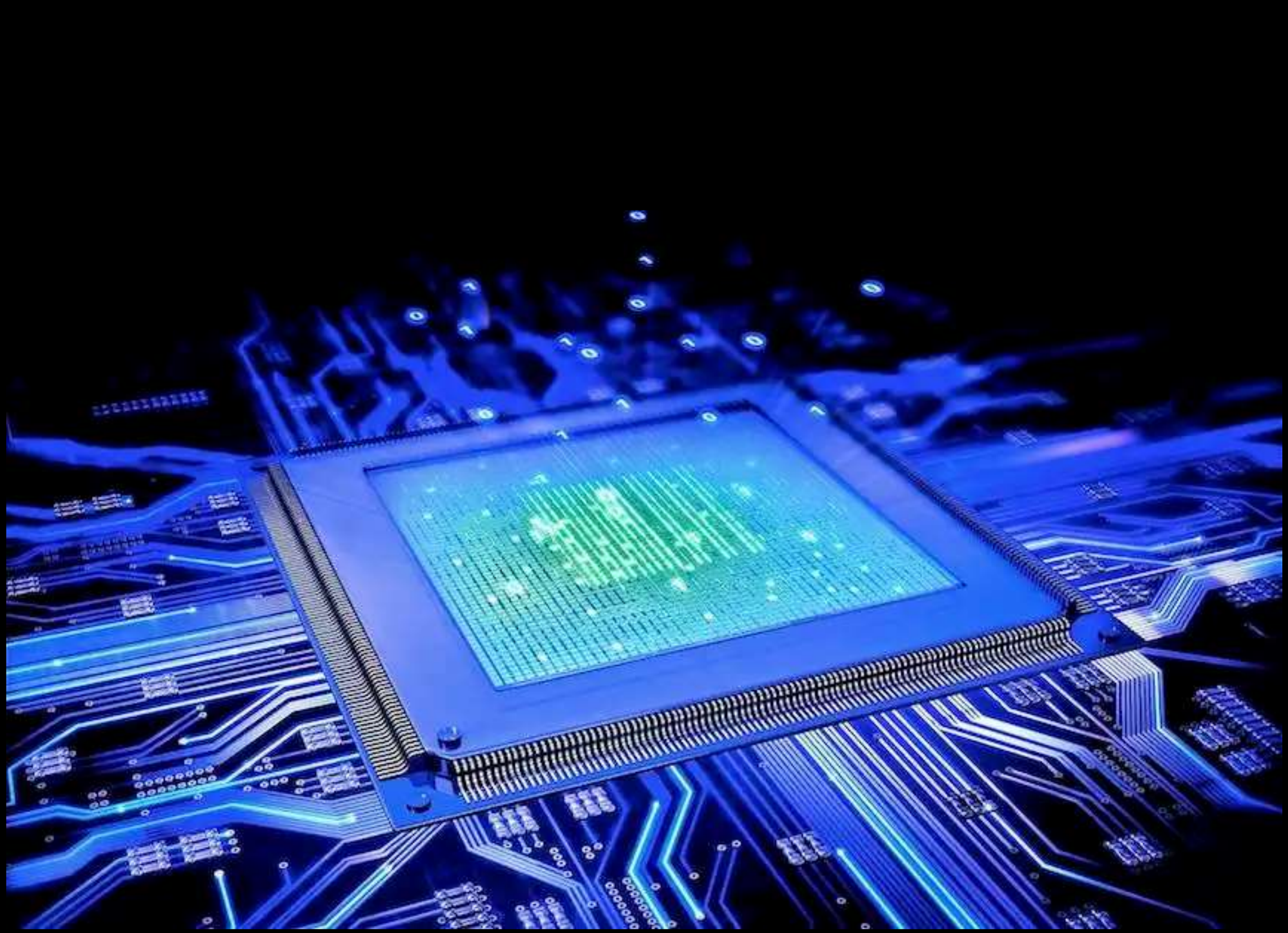
Aspiring to

1 Trillion

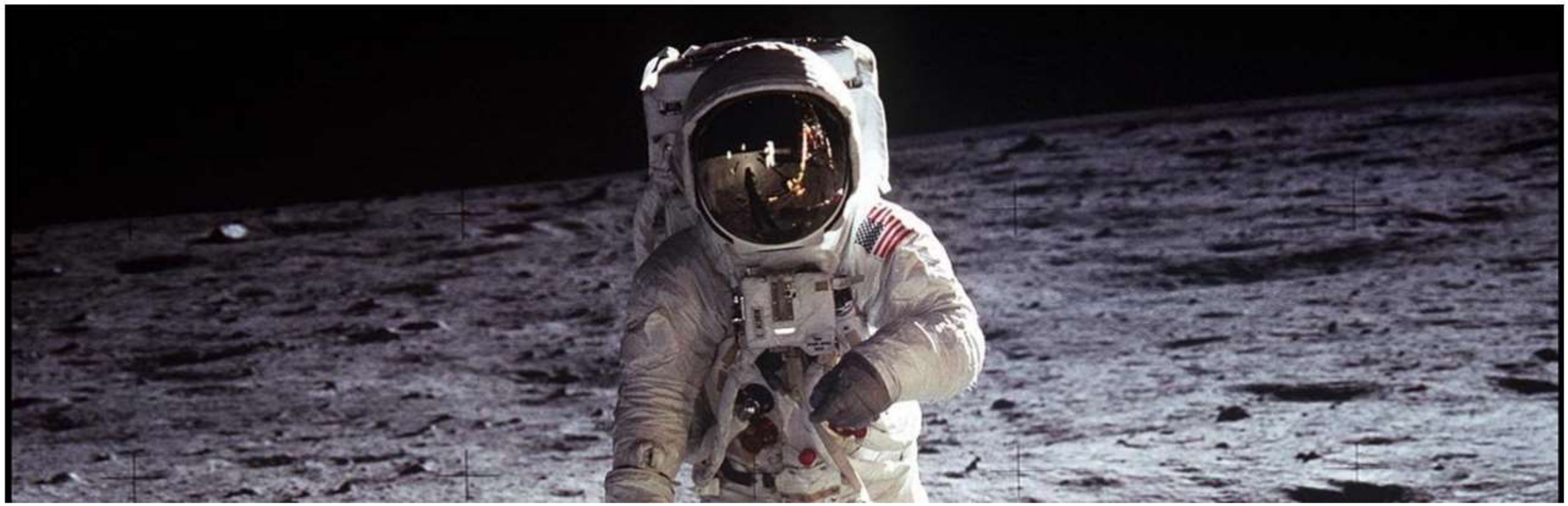
transistors in 2030

- ✓ RibbonFET
- ✓ PowerVia
- ✓ High NA
- ✓ 2.5D/3D packaging

intel.



El chip de un cargador USB-C moderno es 563 veces más potente que la computadora que se usó en el Apollo 11



https://www.xataka.com/espacio/chip-cargador-usb-c-moderno-563-veces-potente-que-computadora-que-se-uso-apollo-11

18 núcleos

Say hello to the world's first 1,000-core chip that runs off an AA battery

Defense Department-funded researchers at the University of California, Davis, and IBM have built a 1,000-processor chip that they say is the most energy-efficient many-core processor ever built.

By Liam Tung | June 20, 2016 -- 10:51 GMT (03:51 PDT) | Topic: Data Centers

http://www.zdnet.com/article/say-hello-to-the-worlds-first-1000-core-chip-that-runs-off-an-aa-battery

The five technical challenges Cerebras overcame in building the first trillion-transistor chip

Danny Crichton @dannycrichton / 5:38 PM GMT-5 • August 19, 2019

Comment

https://techcrunch.com/2019/08/19/the-five-technical-challenges-cerebras-overcame-in-building-the-first-trillion-transistor-chip/

Paréntesis de geopolítica

2018

https://info.fusionww.com/blog/the-global-chip-shortage-a-timeline-of-unfortunate-events

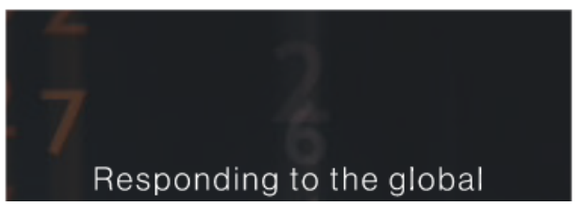
UNCATEGORIZED

Microchips are key to understanding Trump's trade war with China

By Will Knight

October 30, 2018

The Trump administration has launched a new salvo in its escalating trade war with China by adding Fujian Jinhua Integrated Circuit, a state-backed company, to a list of businesses that may not buy components from US firms.



https://www.technologyreview.com/2018/10/30/139272/microchips-are-key-to-understanding-trumps-trade-war-with-china/

ELECTRONICS

4 sectors hardest hit by the global chip shortage

By **Dan Dooley** • Jun 7, 2021 11:15am

autonomous vehicle | chip shortage | desktop computer | LED lighting

https://www.fierceelectronics.com/electronics/4-sectors-hardest-hit-by-global-chip-shortage

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MADE IN CHINA

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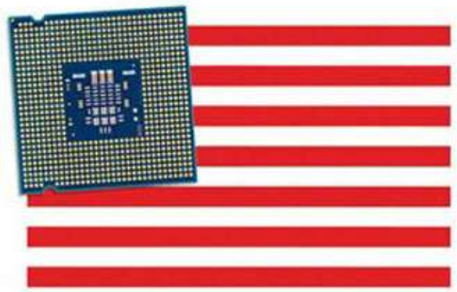
—PAUL KENNEDY, bestselling author of *The Rise and Fall of the Great Powers*

CHIP WAR



THE FIGHT FOR THE WORLD'S MOST CRITICAL TECHNOLOGY

CHRIS MILLER

CHINA
Beijing
Hong Kong
Taiwan Strait
Taipei
TAIWAN

https://www.xataka.com/componentes/tsmc-domina-industria-chips-forma-aplastante-que-fin-crisis-esta-parte-sus-manos

La guerra de los chips entre Estados Unidos y China es total: Holanda y Japón se han visto metidos de lleno en ella

https://www.xataka.com/componentes/guerra-chips-estados-unidos-china-total-holanda-japon-se-han-visto-metidos-lleno-ella

Esta desconocida máquina decidirá la guerra de los microchips (y China no puede copiarla)

Para fabricar algo tan diminuto como el procesador de un iPhone, se necesita un 'robot' de 180 toneladas. Y los únicos que pueden fabricarlos son unos holandeses que se han destapado como un actor crítico en la industria

Empleados de ASML, finalizando el montaje de una de las máquinas de litografía extrema ultravioleta. (Reuters)

https://www.elconfidencial.com/tecnologia/2021-09-12/asml-cotizacion-maquinas-industria-microchips_3284662/

¿Cómo Estados Unidos está obstaculizando a China?

El gobierno de Biden está tratando de obstruir el acceso de China a la tecnología para la fabricación de microchips.

En octubre del año pasado, Washington anunció una amplia serie de controles que hacen prácticamente imposible para las compañías exportar a China microchips, las máquinas que los fabrican o programas que contienen tecnología estadounidense sin importar en qué parte del mundo estén basadas.

También prohibió a sus ciudadanos o residentes en su país apoyar el "desarrollo o producción" de microchips en ciertas fábricas en China.

Esto ha golpeado al gigante asiático, dependiente de la importación de *hardware* y talento humano para impulsar su naciente industria de chips.

https://www.bbc.com/mundo/noticias-internacional-64297108

Estados Unidos, por su parte, también quiere producir más microchips. Con la ley CHIPS y Ciencia se dotan unos US$53.000 millones en subvenciones y subsidios a compañías que decidan fabricar semiconductores en territorio estadounidense.

https://www.bbc.com/mundo/noticias-internacional-64297108

Por Ana Swanson

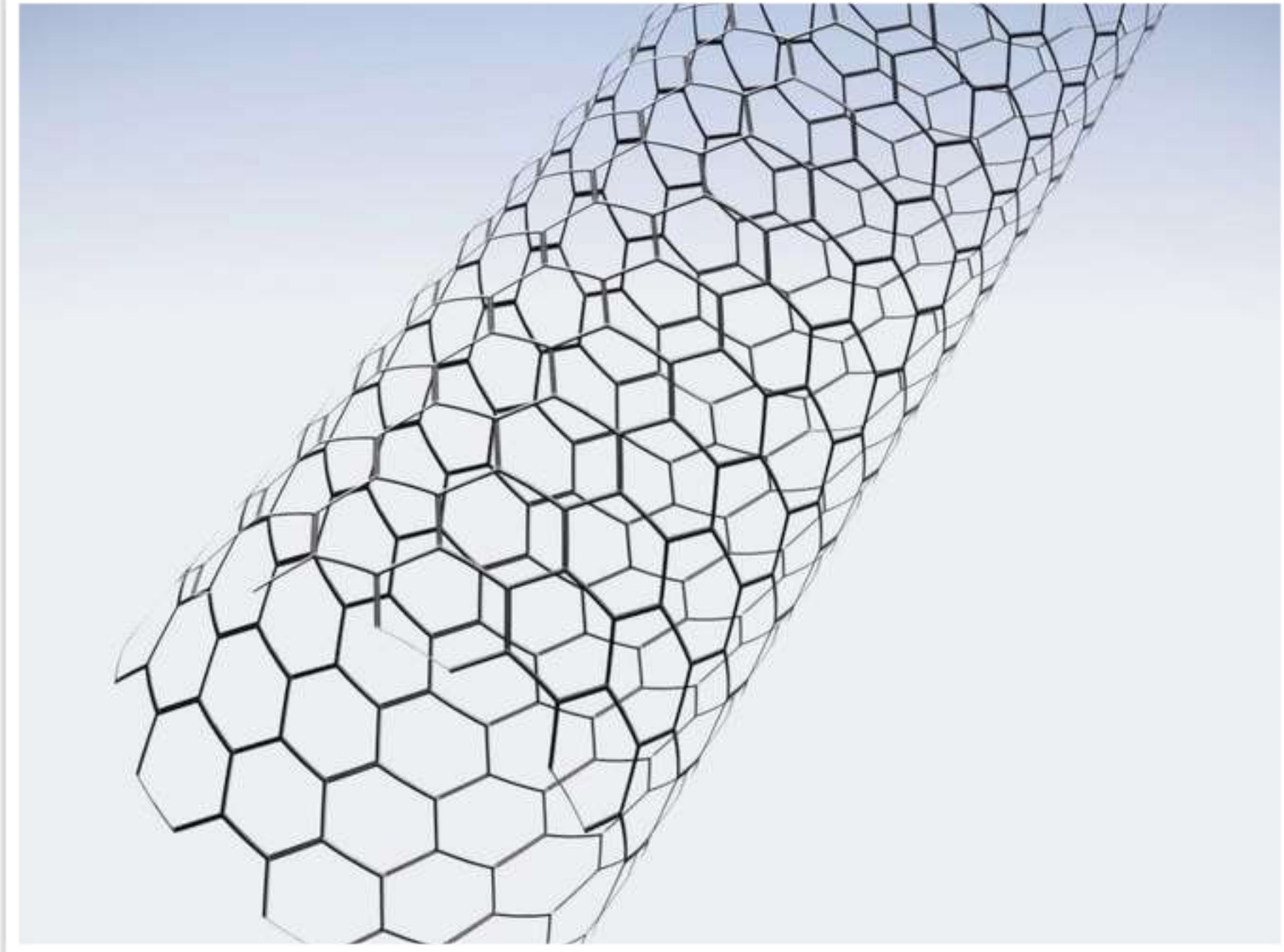
1 de marzo de 2023

Read in English

El 28 de febrero, el gobierno de Joe Biden anunció las reglas de "Chips para Estados Unidos", un programa que busca fortalecer la investigación y fabricación de semiconductores en el país, con lo cual inicia una nueva avalancha de financiamiento federal en el sector.

https://www.nytimes.com/es/2023/03/01/espanol/ley-chips-semiconductores-usa.html

Fin del paréntesis



https://www.wired.com/2016/11/ibm-using-tiny-tubes-grow-chips-future/

ARTIFICIAL INTELLIGENCE

Making AI algorithms crazy fast using chips powered by light

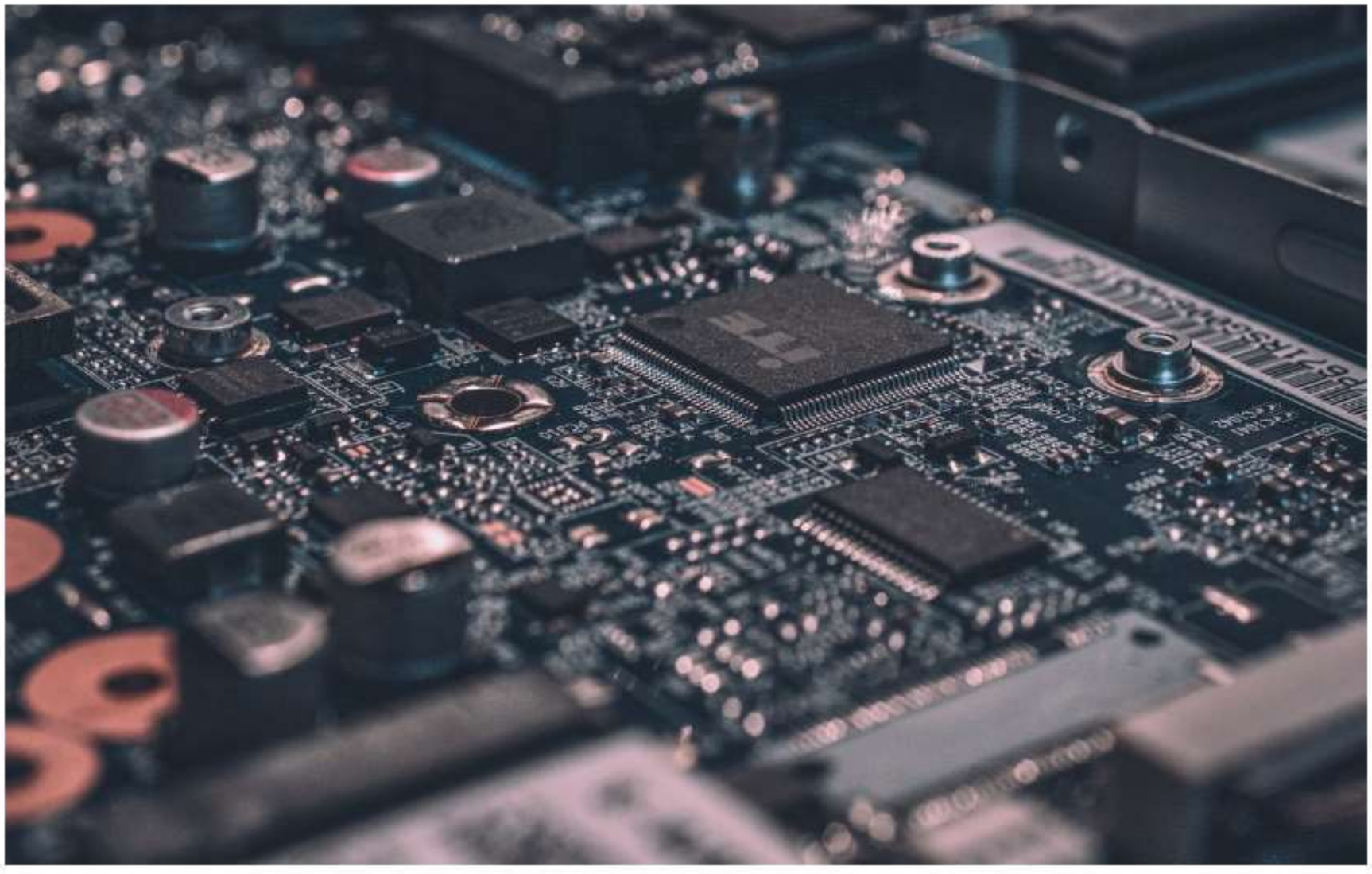
Optical chips have been tried before—but the rise of deep learning may offer an opportunity to succeed where others have failed.

By Will Knight

November 29, 2018

https://www.technologyreview.com/2018/11/29/138899/making-ai-algorithms-crazy-fast-using-chips-powered-by-light/

Morpheus, el procesador que regenera su código cada 50 milisegundos para evitar ser hackeado

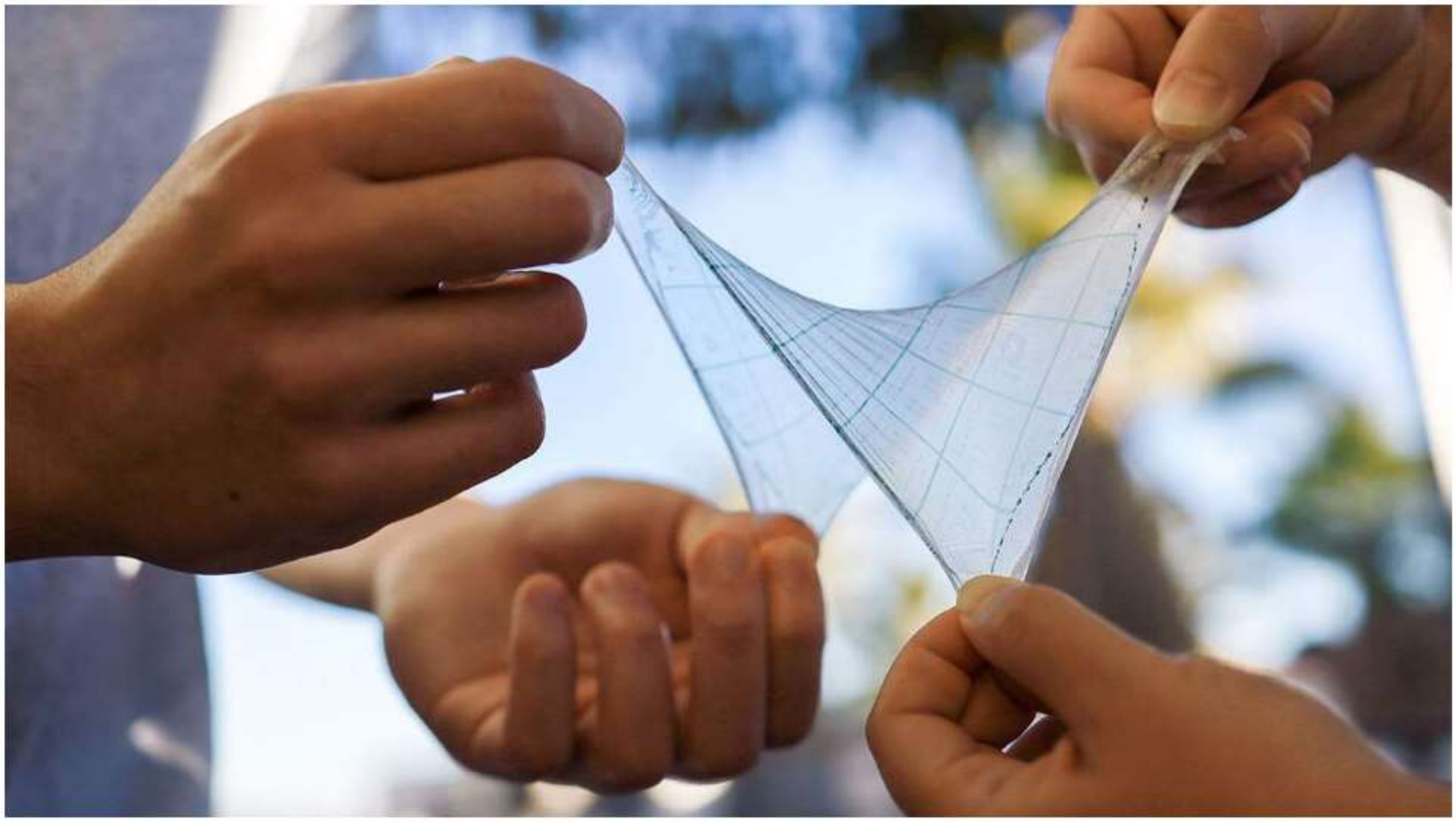


18 Julio 2019

17 Comentarios

https://www.xataka.com/seguridad/morpheus-procesador-que-regenera-su-codigo-cada-50-milisegundos-para-evitar-ser-hackeado

Este circuito integrado es como la piel: se estira, se pliega y se puede torcer sin dañarse



https://www.xataka.com/investigacion/este-circuito-integrado-como-piel-se-estira-se-pliega-se-puede-torcer-danarse

CIENCIA

Científicos trabajan en biocomputadoras con células cerebrales ¿Reemplazarán la IA?

marzo 1, 2023 / Digna Irene Urrea

https://www.enter.co/cultura-digital/ciencia/cientificos-trabajan-en-biocomputadoras-impulsadas-por-celulas-cerebrales-reemplazaran-la-ia/

FayerWayer®

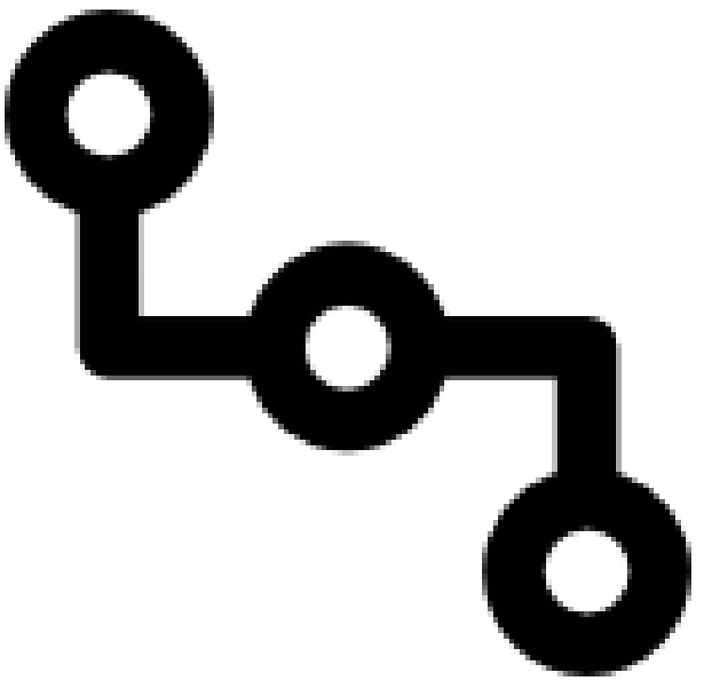
Los científicos han desarrollado una "computadora viva" fabricada con hongos

El wetware es real.

Computadora viva

Por Guy Acurero | 11 de marzo 2023 a las 10:00 hrs.

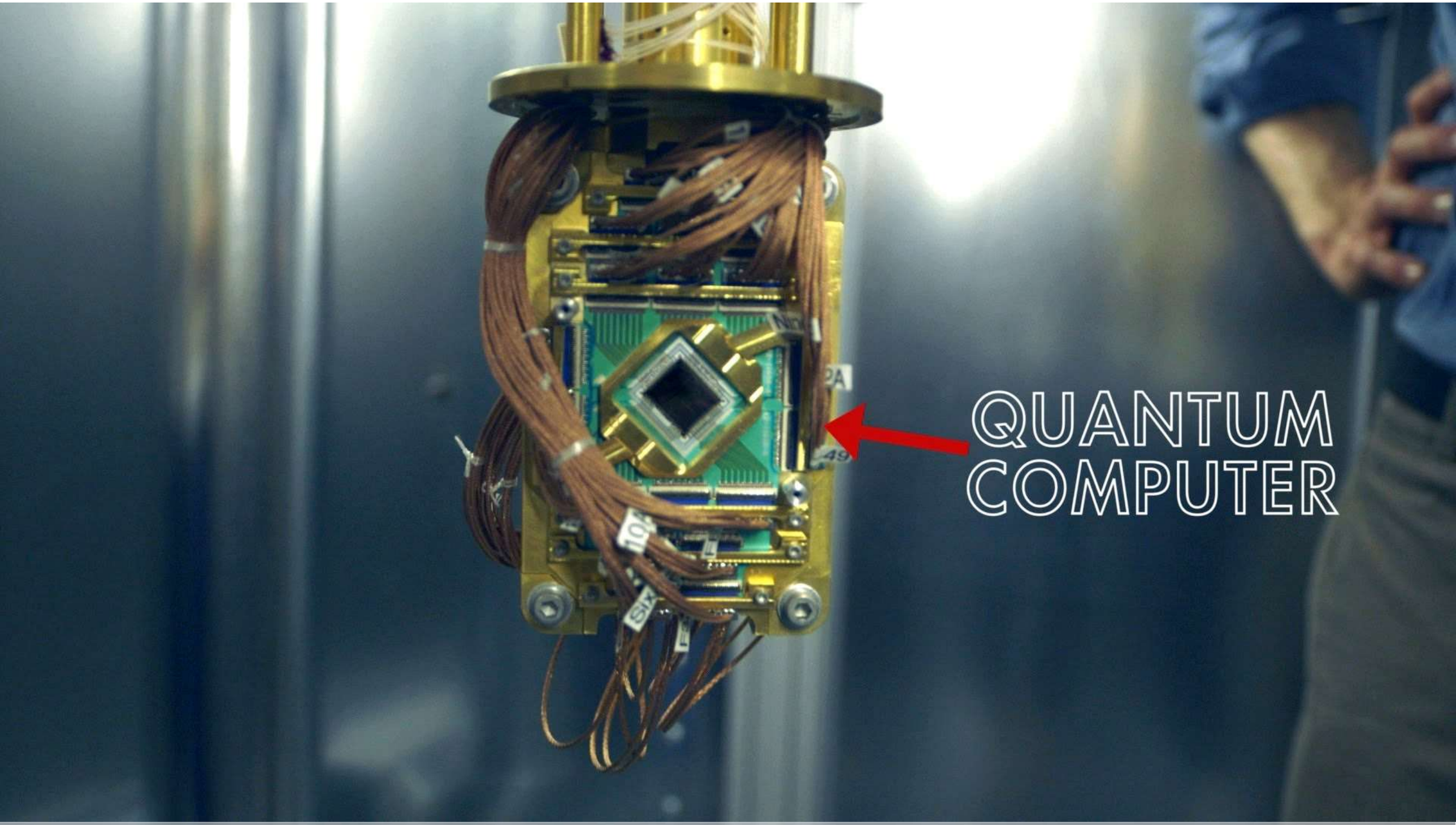
https://www.fayerwayer.com/ciencia/2023/03/11/los-cientificos-han-desarrollado-una-computadora-viva-fabricada-con-hongos/

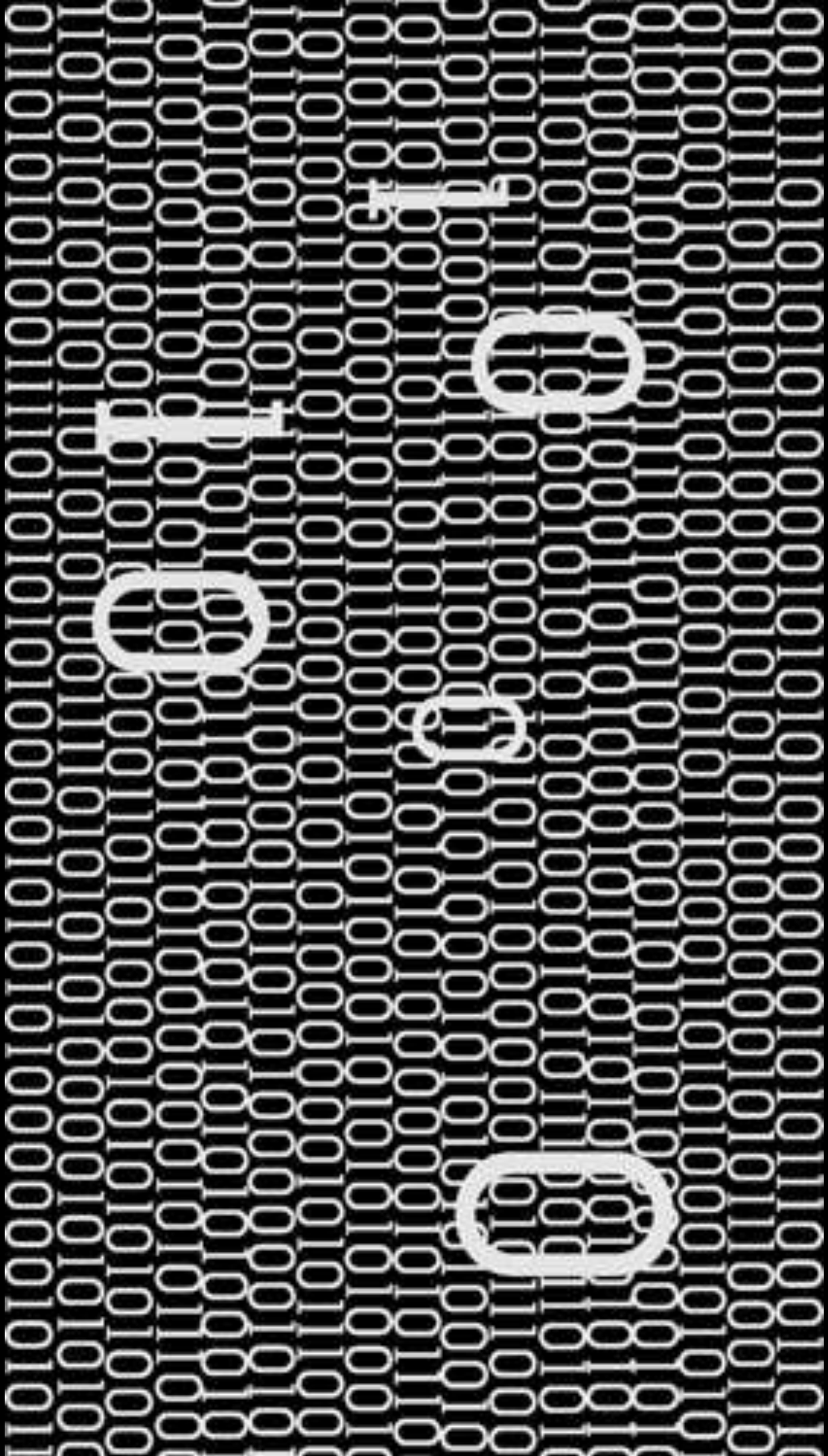


SOPHIA CHEN SCIENCE 03.15.17 07:00 AM

WHAT IF QUANTUM COMPUTERS USED HARD DRIVES MADE OF DNA?

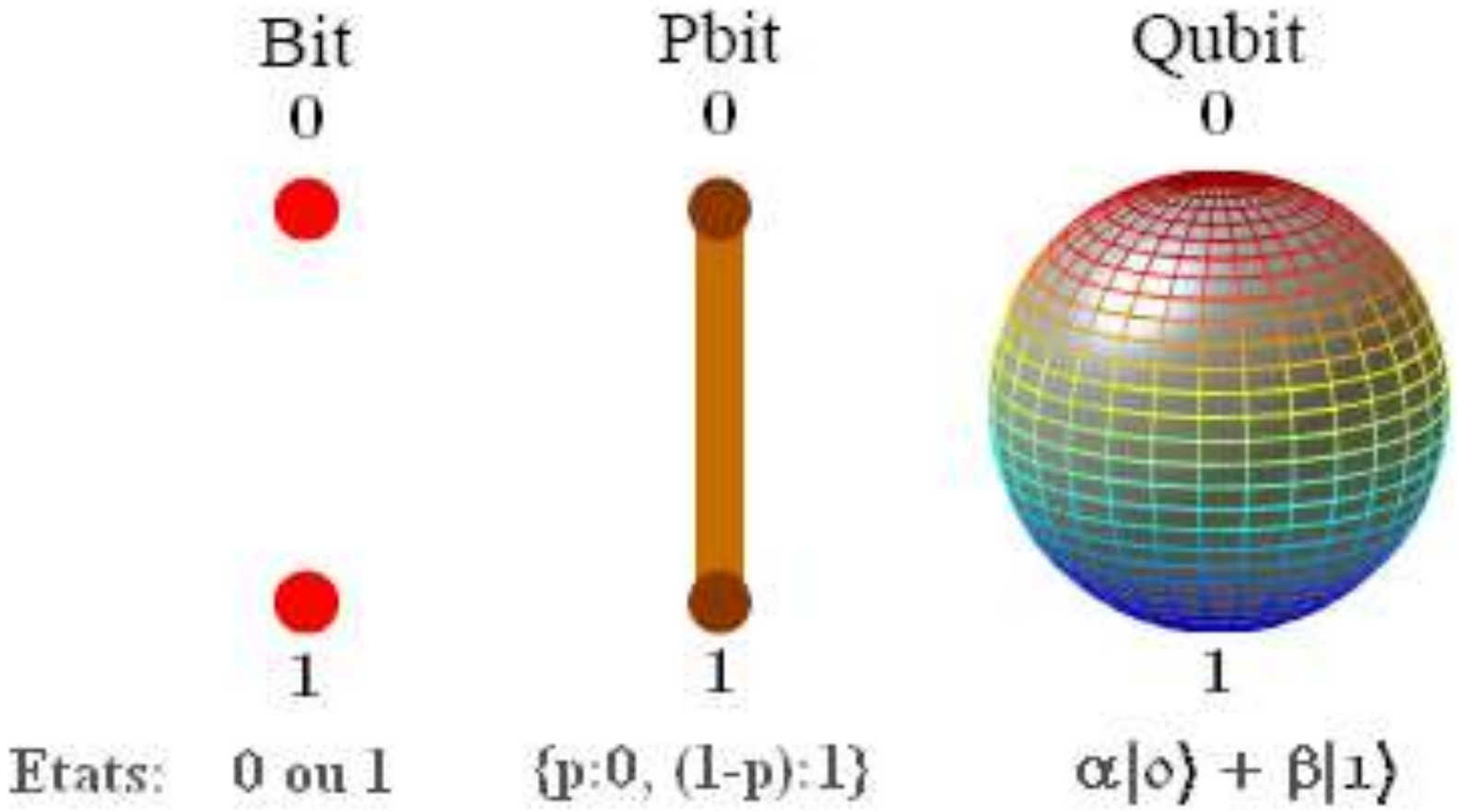
https://www.wired.com/2017/03/quantum-computers-used-hard-drives-made-dna/

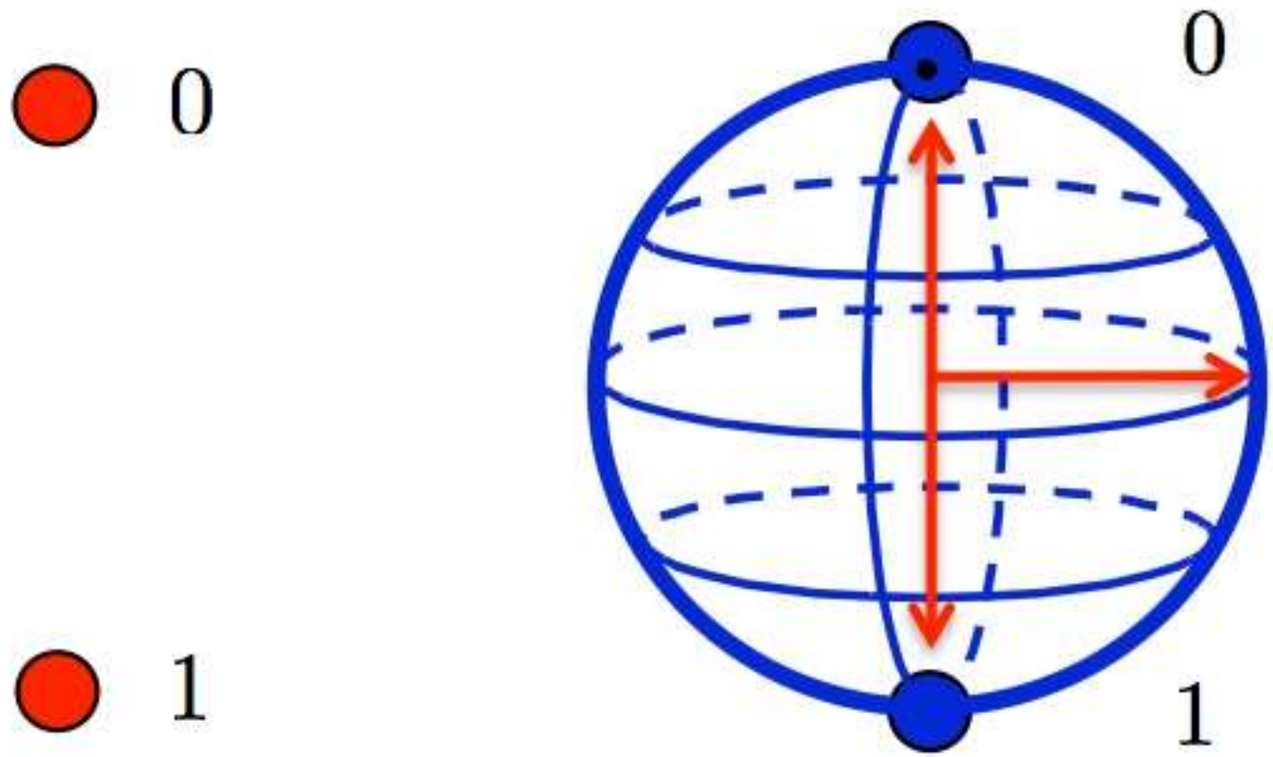

QUANTUM
COMPUTER



BIT

QUBIT

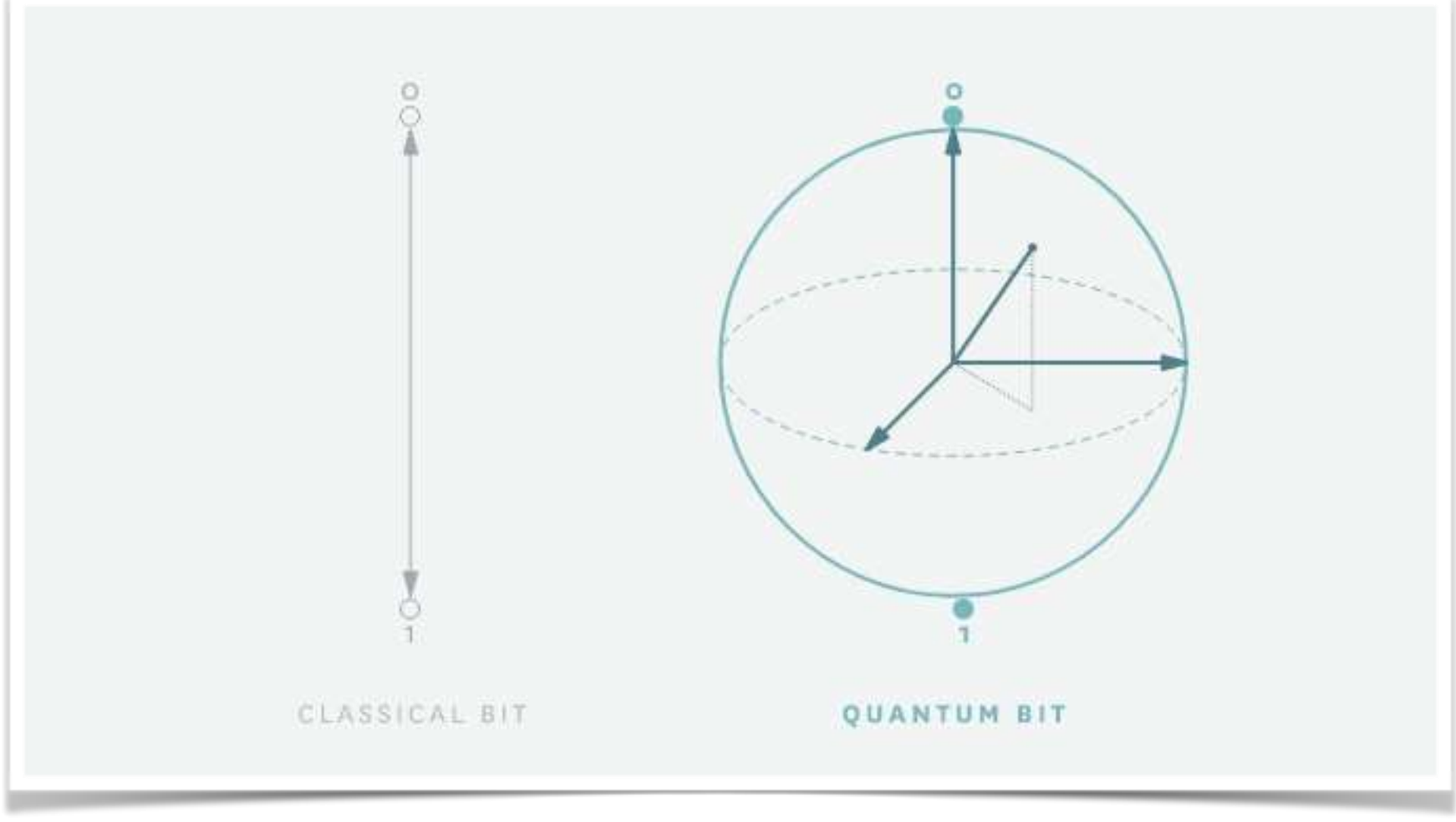

Bit
0
1
Pbit
0
1
Qubit
0
1
Etats:
0 ou 1
{p:0, (1-p):1}
α|0⟩ + β|1⟩



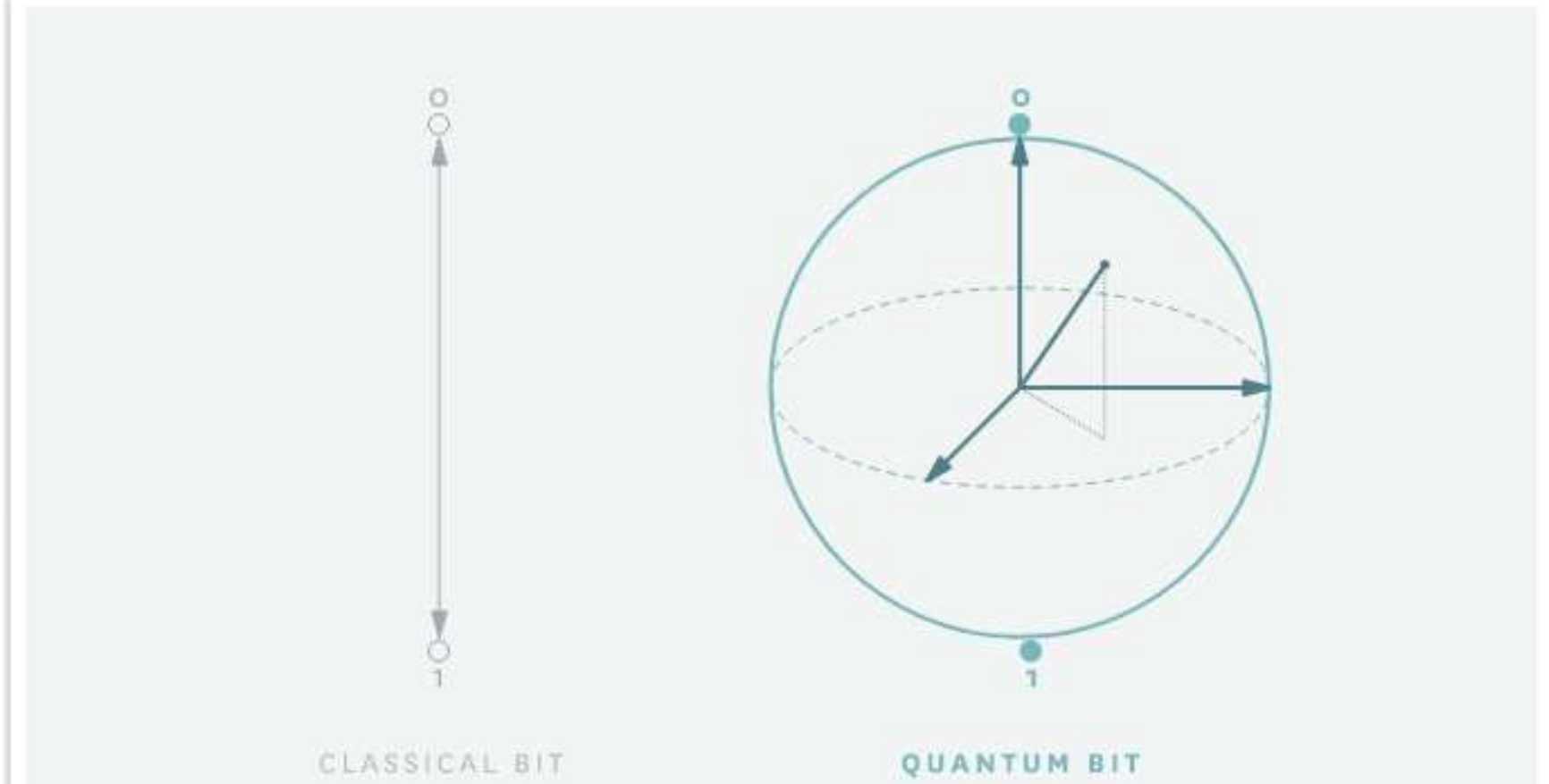
Classical Bit

Qubit

Solo puede ser
1 o **0**



Está en un estado de superposición, y por lo tanto **puede ser 0 y 1 al mismo tiempo**



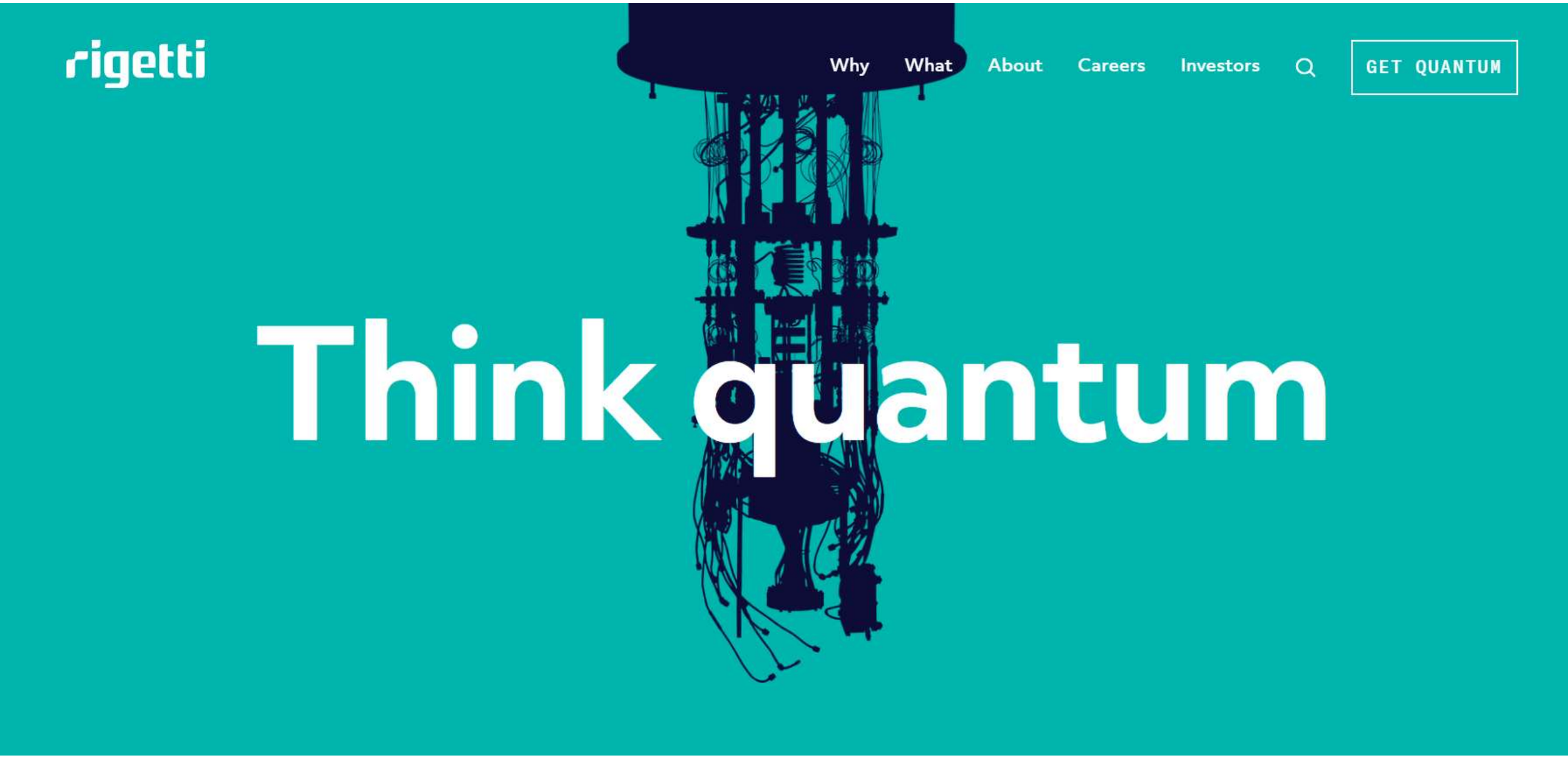
Esto permitirá que los computadores cuánticos sean ***exponencialmente*** más poderosos que los convencionales

EQUIVALENT CLASSICAL MEMORY DRAM	QUANTUM BITS
64 kB	10
64 MB	20
64 GB	30
...	...
64 Exa-byte 64 BILLION GB	60

Every additional quantum bit ("qubit") on a chip doubles its computing power.

A quantum computer with just 60 qubits would be able to perform calculations inaccessible to today's most powerful computers.

EL SALTO
CUÁNTICO



http://www.rigetti.com/

Open Source

https://www.wired.com/2017/01/d-wave-turns-open-source-democratize-quantum-computing/

Ocean

Powerful Open Source Tools Make It Easy to Get Started

Ocean™ software is a suite of open source Python tools accessible via the Ocean software development kit (SDK) on both the D-Wave GitHub repository and within the Leap quantum cloud service. Ocean empowers developers to experiment, rapidly develop, and harness the power of the Advantage quantum computer to solve complex problems.

Explore Ocean ›

https://www.dwavesys.com/solutions-and-products/ocean/

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SERGIO BOIXO

SABIO 34 | EXPERTO EN INFORMÁTICA CUÁNTICA

«Un chip cuántico tarda tres minutos en hacer lo que a un ordenador normal le lleva diez mil años»

https://www.abc.es/xlsemanal/personajes/sergio-boixo-experto-informatica-cuantica.html

El mejor ordenador cuántico de Google a la basura: 512 GPU lo dejan KO

POR BORJA COLOMER / 08/08/2022 / HARDWARE

En 2019 **Google** demostró que había alcanzado la supremacía cuántica con **Sycamore**, la cual alcanzo un rendimiento de **53 qubits**. En aquel momento, demostraron que hasta el superordenador **Summit** no era capaz de dar la talla en cuanto a velocidad. Sin embargo, según unos científicos de **China**, empleando **GPU**, se puede **superar** al **ordenador cuántico** de Google.

Bajo esta premisa, los 53 qubits del ordenador cuántico de Google podían codificar cualquier número del **0 al 253** (**9 cuatrillones**). Bajo este gran potencial de cálculo, la compañía aseguró que superaba a Summit, el **superordenador** de **IBM** con **9.216 CPU** y **27.648 GPU**. Pero ahora, lo más sorprendente es que **Pan Zhang**, físico de la Academia China de las Ciencias y sus compañeros han demostrado que pueden vencer al ordenador cuántico de Google usando **512 GPU**.

https://elchapuzasinformatico.com/2022/08/google-ordenador-cuantico-superado-gpu/

China ha dado un empujón a los ordenadores cuánticos. Y lo ha hecho reescribiendo una operación fundamental

26 Diciembre 2022

20 Comentarios

https://www.xataka.com/ordenadores/china-ha-dado-empujon-a-ordenadores-cuanticos-ha-hecho-reescribiendo-operacion-fundamental

"En computación cuántica tan solo hemos fabricado 'máquinas de juguete'": Serge Haroche, el premio Nobel que estudia los misterios de la luz a nivel subatómico

Carlos Serrano
HayFestivalCartagena@BBCMundo

2 febrero 2023

https://www.bbc.com/mundo/noticias-64368838

Este ordenador cuántico chino de bajo coste no se parece nada a los demás ordenadores cuánticos: quiere parecer un PC

8 Febrero 2023 - Actualizado 9 Febrero 2023, 03:17

50 Comentarios

https://www.xataka.com/investigacion/este-ordenador-cuantico-chino-coste-no-se-parece-nada-a-demas-ordenadores-cuanticos-quiere-parecer-pc

TECNOLOGÍA

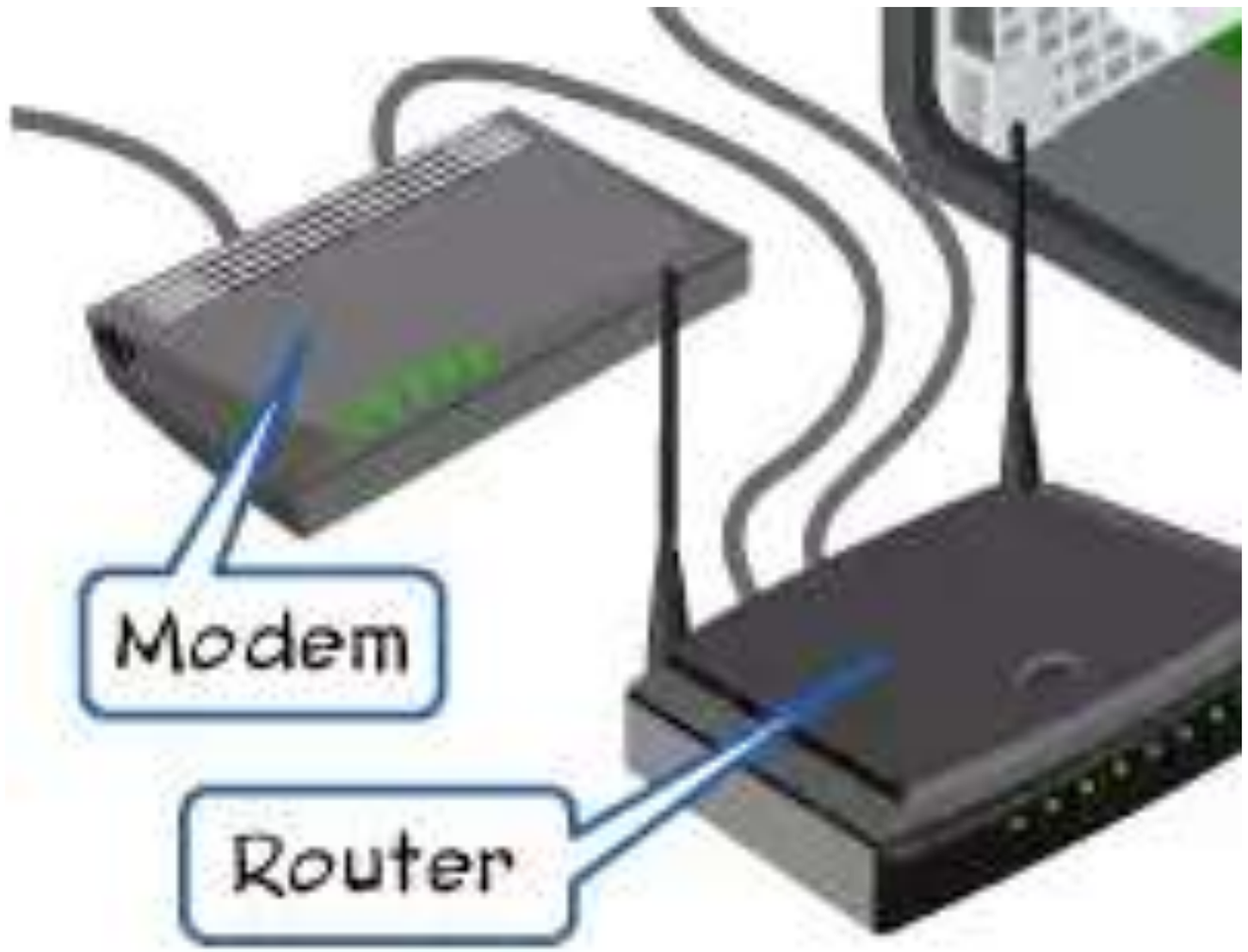
Google anuncia nuevo hito en la computación cuántica

Google ha superado uno de los mayores más grandes impedimentos para que la computación cuántica sea realmente posible.

por **Félix Palazuelos** 23 de febrero de 2023

> Lo han logrado gracias al desarrollo de un nuevo sistema que mantiene bajo control la gran tasa de errores inherentes a esta tecnología debido a que los bits cuánticos solo mantienen su estado y fase durante un instante de tiempo. Además de lo susceptibles que son sus componentes físicos a cualquier injerencia ambiental.

https://hipertextual.com/2023/02/nuevo-hito-computacion-cuantica-google


Modem
Router

Tecnología - Redes

Una conexión wifi que consume hasta 10 mil veces menos energía y es once veces más rápida que el Bluetooth

» Se trata de una conexión única capaz de transmitir una señal de 11 Mbps en distancias menores a los 30 metros

http://www.abc.es/tecnologia/redes/abci-conexion-wifi-consume-hasta-10-veces-menos-energia-y-once-veces-mas-rapida-bluetooth

https://x.company/loon/

STARLINK

La NASA está preocupada por los 30.000 satélites que SpaceX quiere poner en órbita para Starlink

10 Febrero 2022 - Actualizado 10 Junio 2022, 04:38

31 Comentarios

https://www.xataka.com/espacio/nasa-esta-preocupada-30-000-satelites-que-spacex-quiere-poner-orbita-para-starlink

7 feb 2023 - 1:01 p. m.

Darling Tatiana Jiménez Jiménez
Periodista de la sección Colombia

Starlink, el internet satelital de Elon Musk, ya está en Colombia: ¿cuánto cuesta?

El servicio de internet de Elon Musk ya se encuentra disponible en todo el país.

0 Guardar

https://www.elespectador.com/tecnologia/starlink-el-internet-satelital-de-elon-musk-ya-esta-en-colombia-cuanto-cuesta/

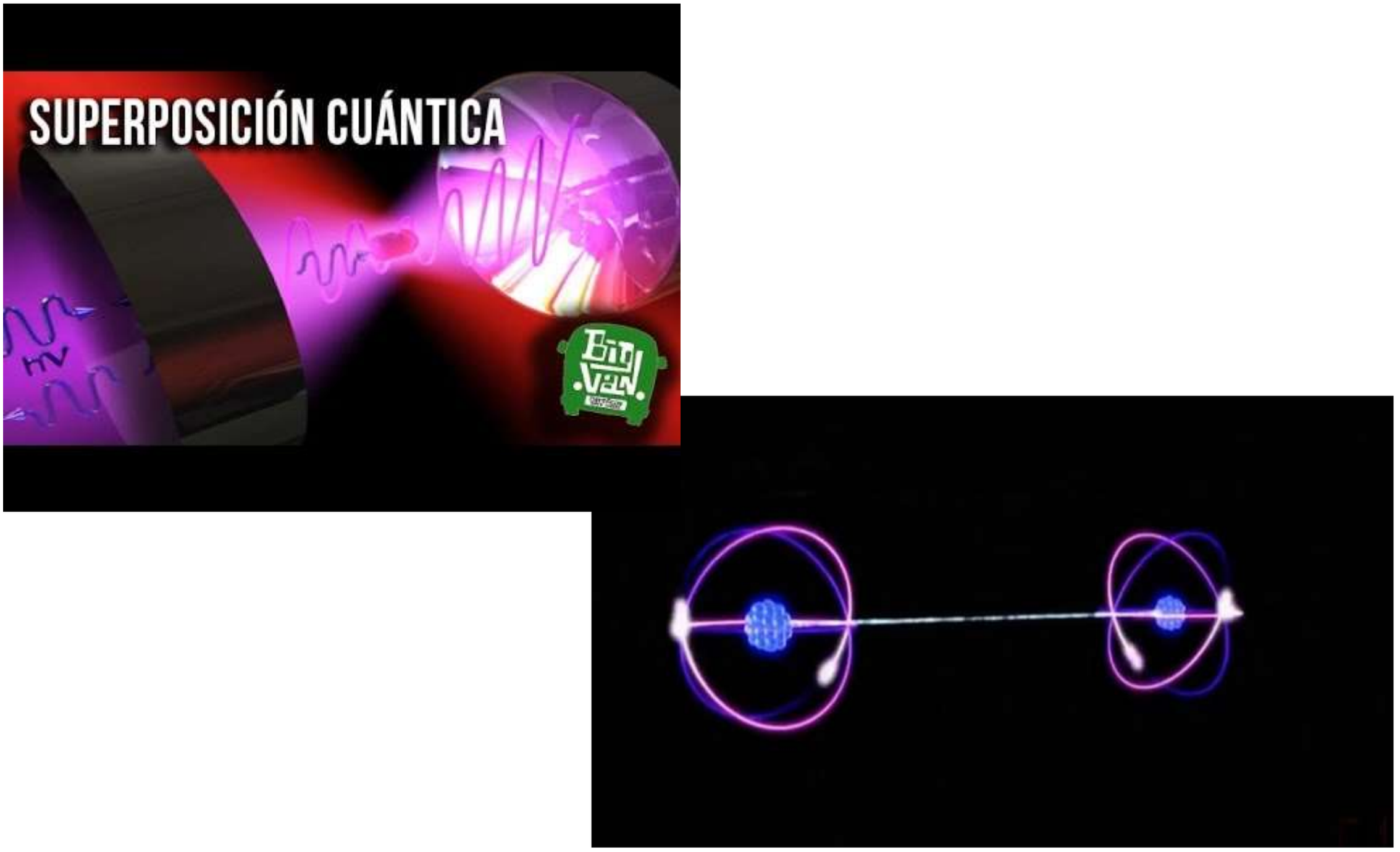
Physics

Record-breaking quantum memory brings quantum internet one step closer

By Leah Crane

12 February 2020

https://www.newscientist.com/article/2233317-record-breaking-quantum-memory-brings-quantum-internet-one-step-closer/



https://www.bbvaopenmind.com/tecnologia/mundo-digital/el-internet-cuantico-explicado/

Si alguien no queda confundido por la física cuántica, es que no la ha entendido bien.

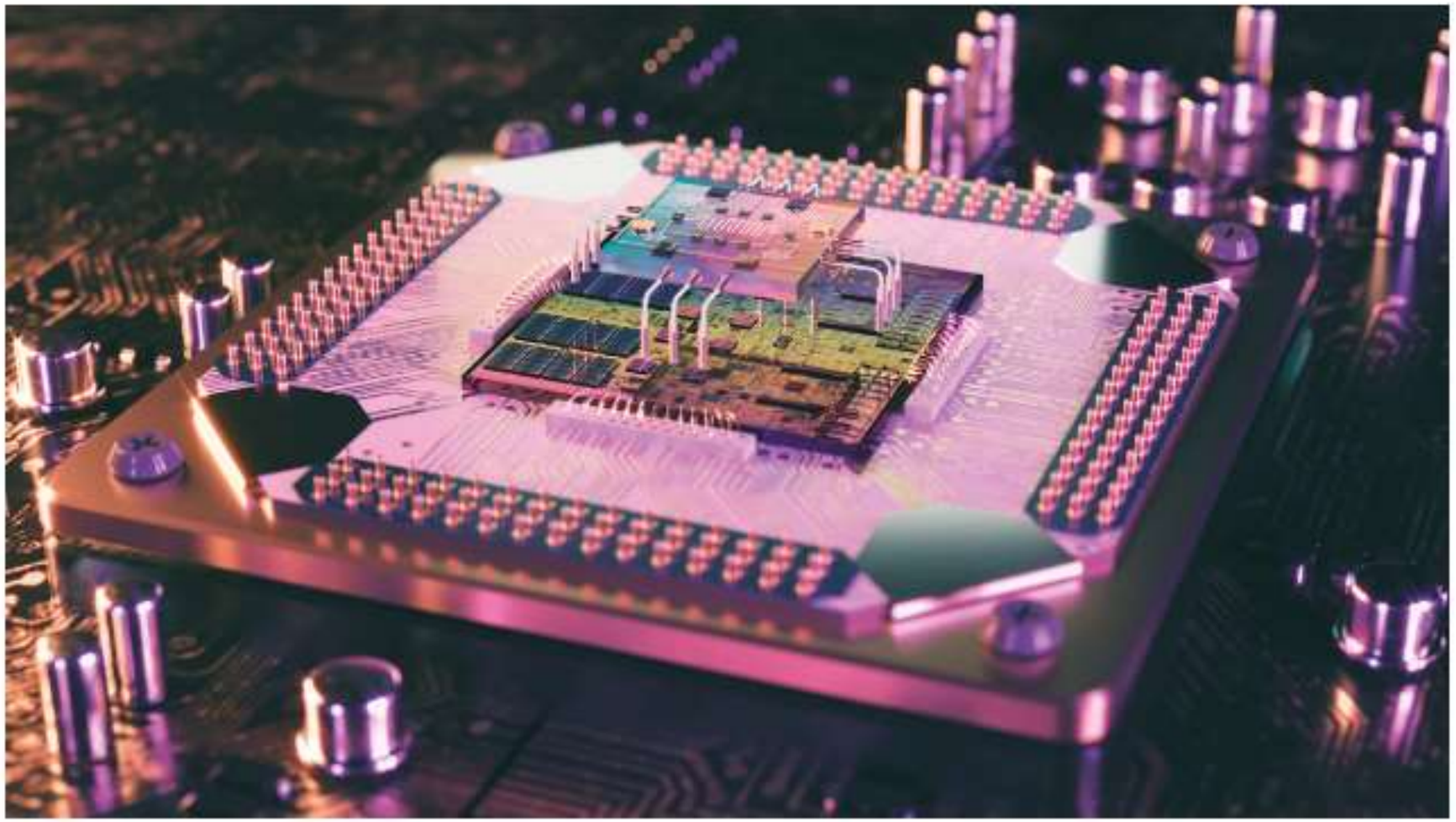
(Niels Bohr)

¿EL INTERNET CUÁNTICO?

El internet cuántico es una red que permitirá a dispositivos cuánticos intercambiar información en un entorno que aprovecha las leyes de la mecánica cuántica. En teoría, el internet cuántico tendría una capacidad nunca vista, con niveles de funcionamiento inalcanzables para las aplicaciones web actuales. [3]

https://www.bbvaopenmind.com/tecnologia/mundo-digital/el-internet-cuantico-explicado/

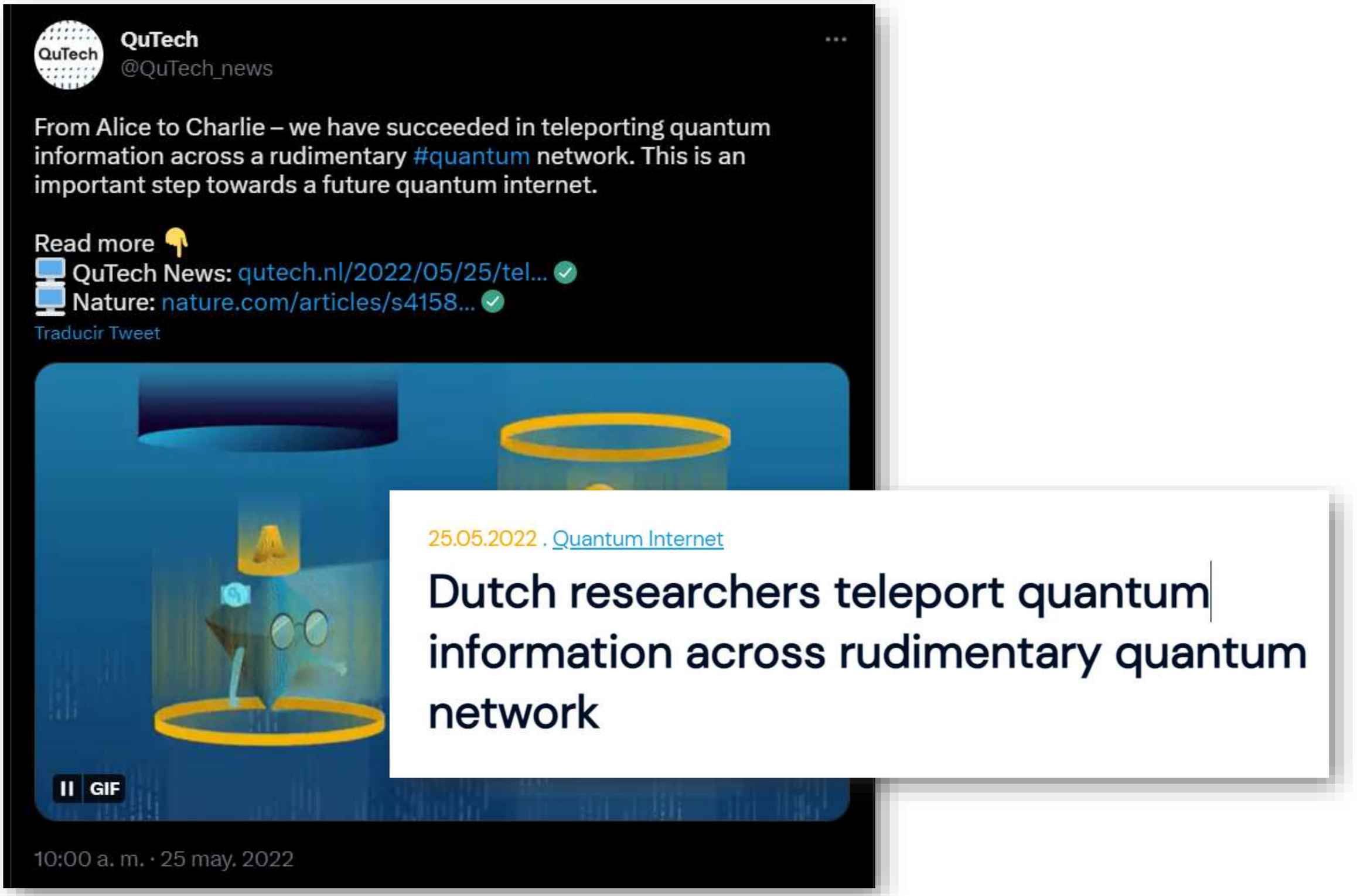
Por primera vez consiguen "teletransportar" información entre dos chips sin estar conectados física o electrónicamente, según la Universidad de Bristol



27 Diciembre 2019

96 Comentarios

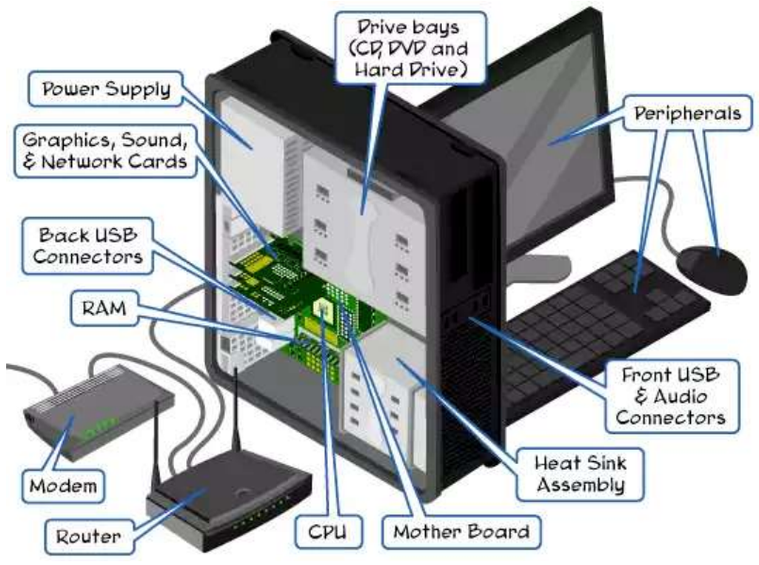
https://www.xataka.com/investigacion/primera-vez-consiguen-teletransportar-informacion-dos-chips-estar-conectados-fisica-electronicamente-universidad-bristol

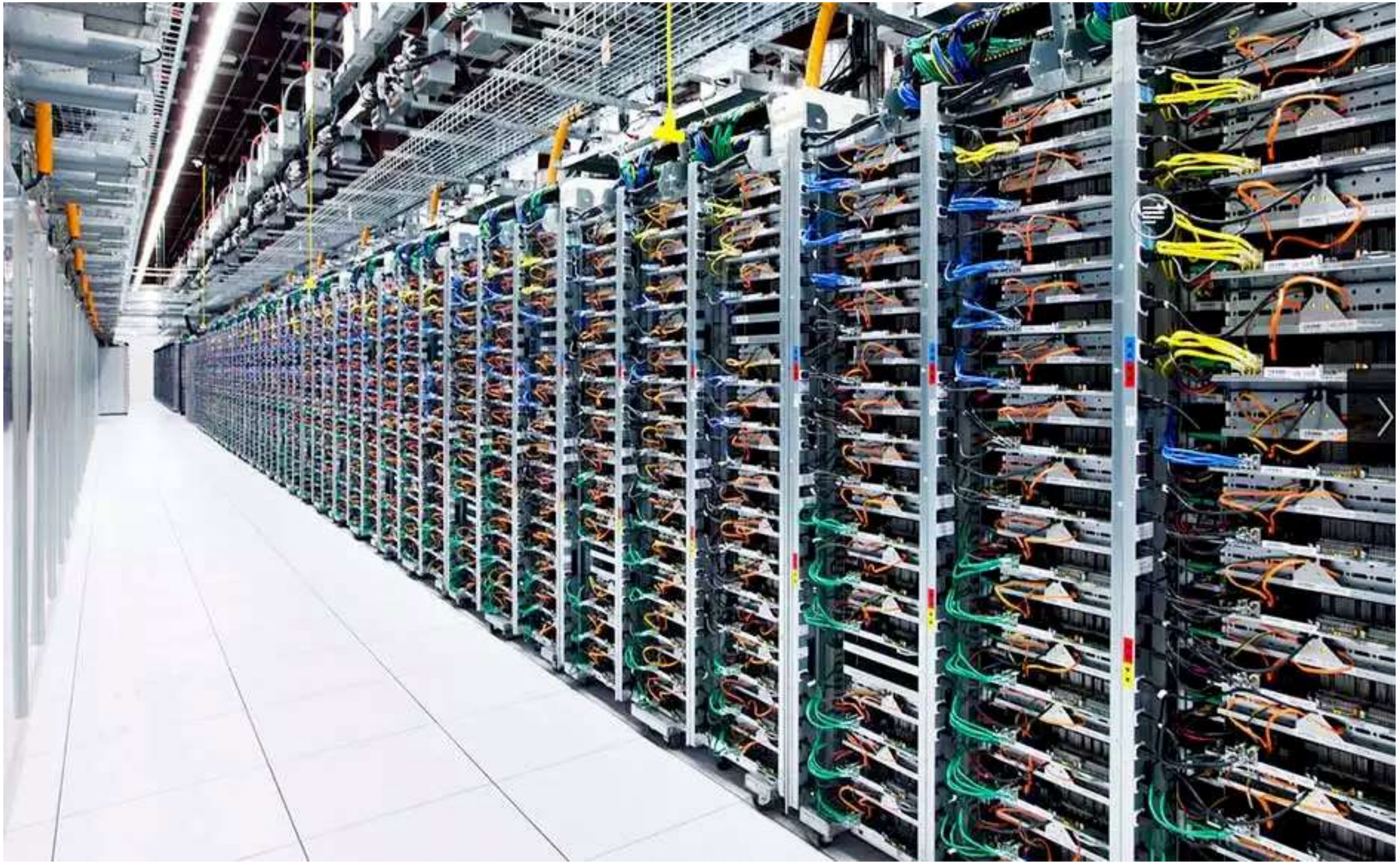


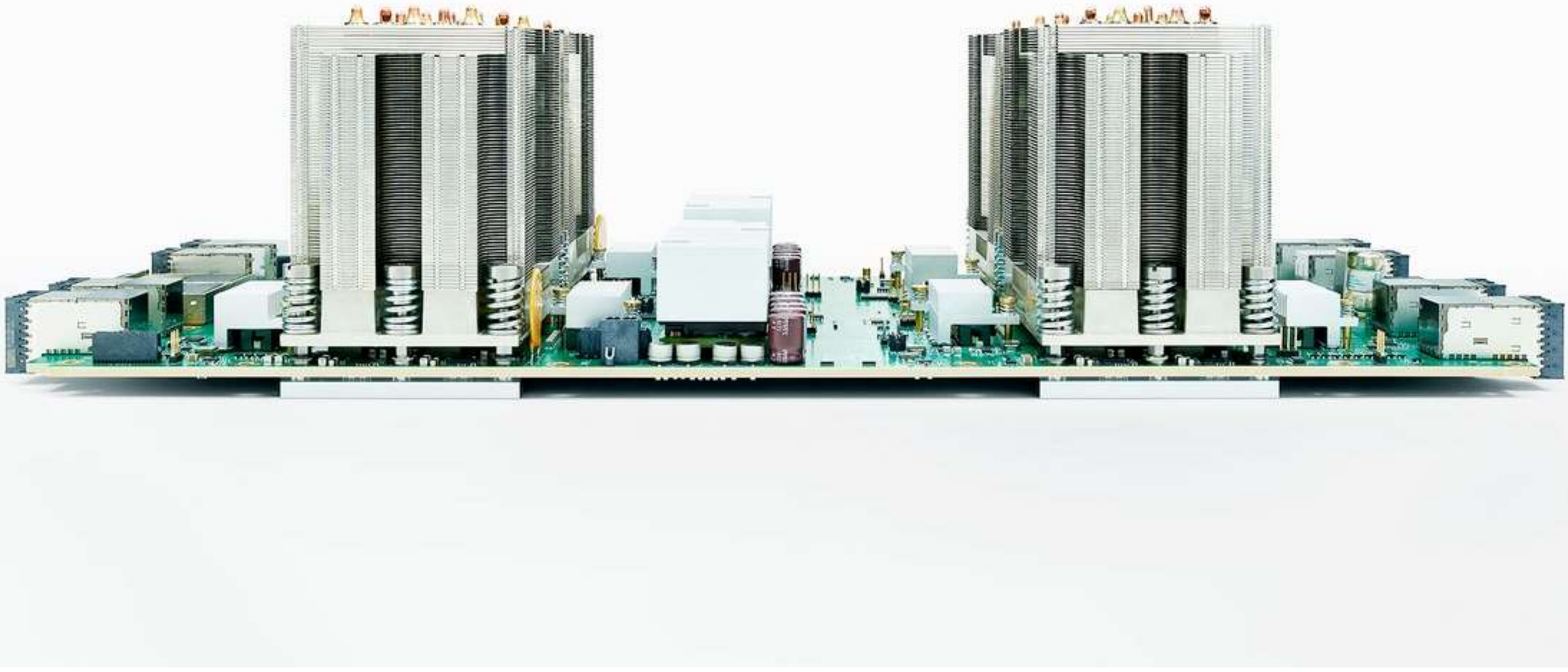
https://twitter.com/QuTech_news/status/1529477491248726018

08 35
20 35

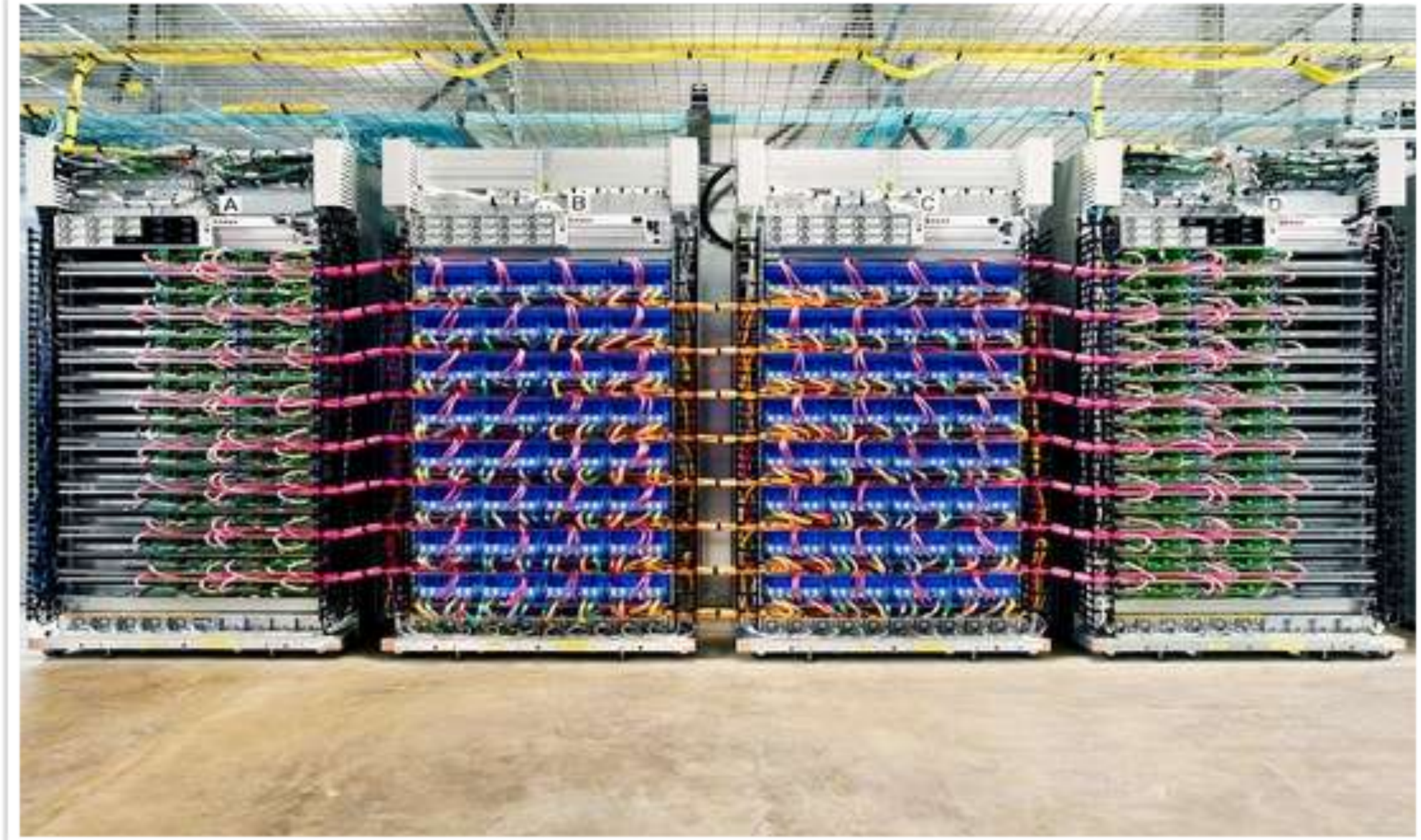
Valor Infraestructura Conectividad







https://www.wired.com/2017/05/google-rattles-tech-world-new-ai-chip/



https://www.wired.com/2017/05/google-rattles-tech-world-new-ai-chip/

https://en.wikipedia.org/wiki/Tensor_processing_unit

SOPHIA CHEN SCIENCE 03.15.17 07:00 AM

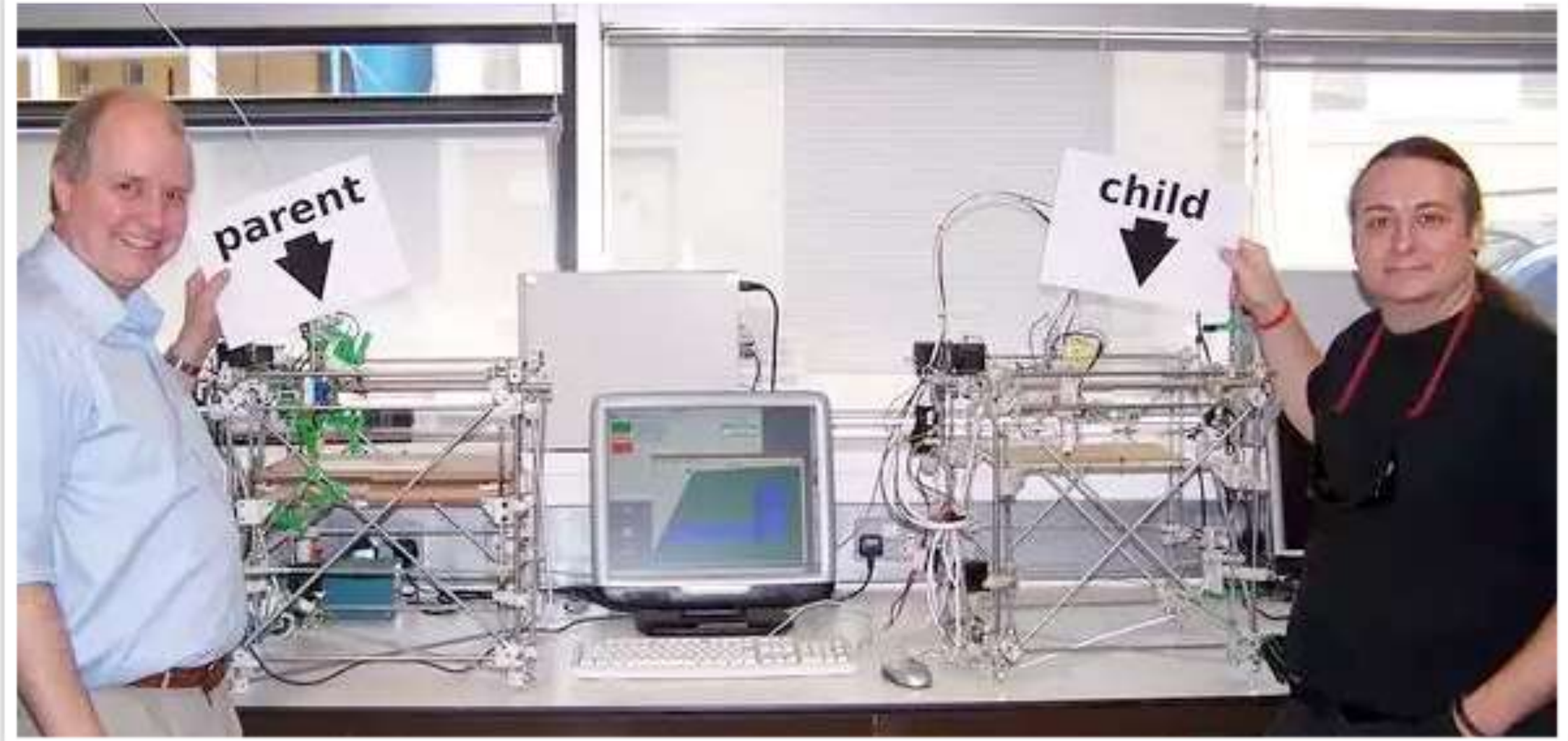
WHAT IF QUANTUM COMPUTERS USED HARD DRIVES MADE OF DNA

and they can **replicate** themselves?

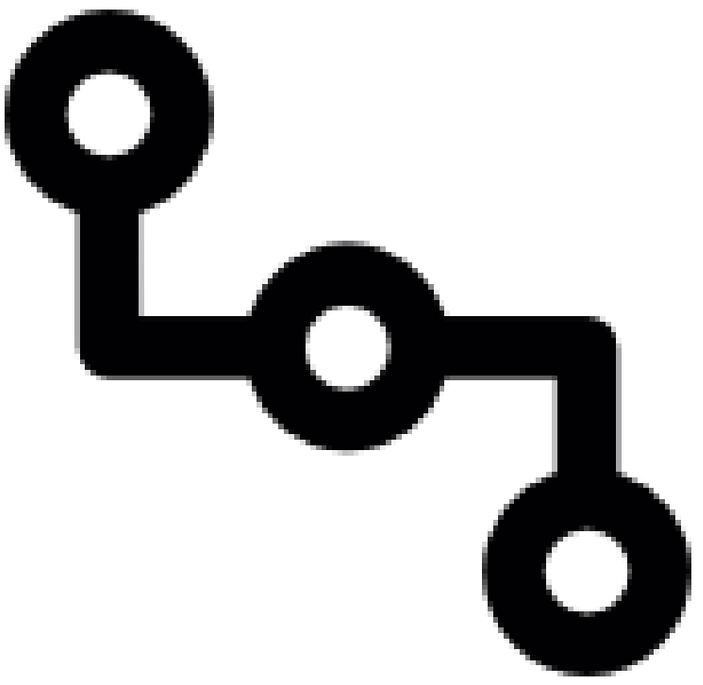
SOPHIA CHEN SCIENCE 03.15.17 07:00 AM

WHAT IF QUANTUM COMPUTERS USED HARD DRIVES MADE OF DNA

y se puedan **replicar** a sí mismos?



http://reprap.org/



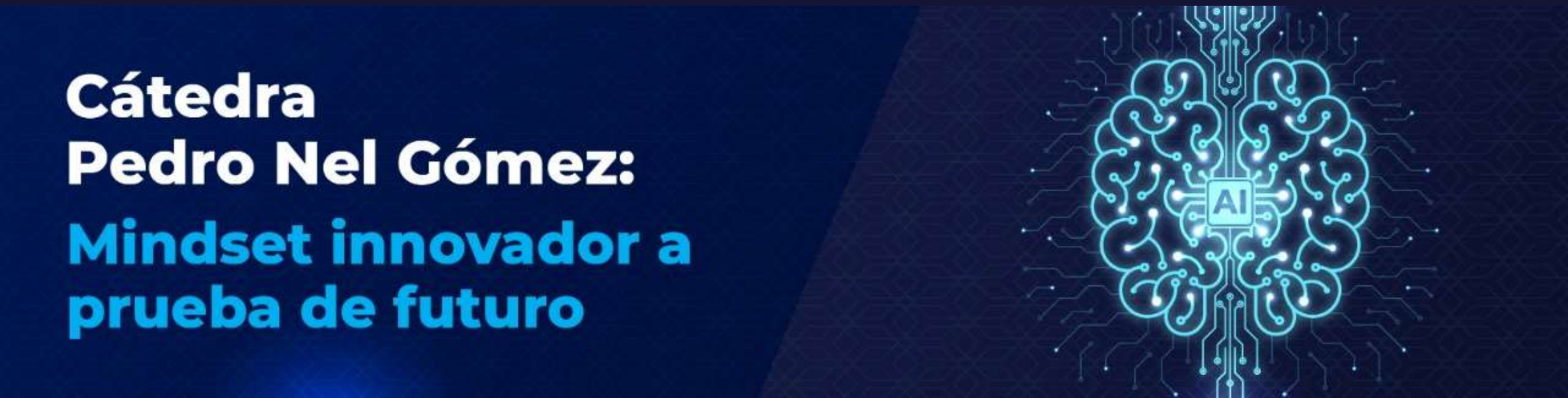
CADE METZ BUSINESS 04.16.17 7:00 AM

A CHIP REVOLUTION WILL BRING BETTER VR SOONER THAN YOU THINK

https://www.wired.com/2017/04/chip-revolution-will-bring-better-vr-sooner-think/

Sacándole provecho a las **tecnologías exponenciales** parte 10 y 11:

Introducción a las realidades extendidas



Realidades extendidas (**xR**)

Realidad **V** ***I*** **A** ***I*** **M**

More real

MR

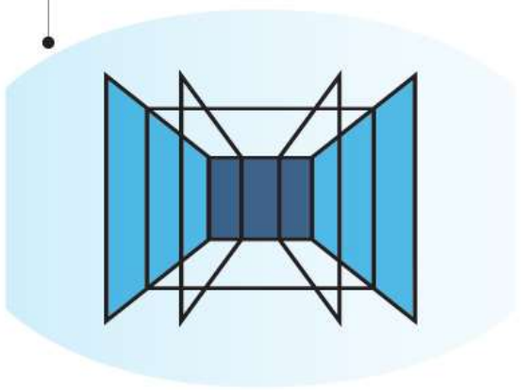
VR

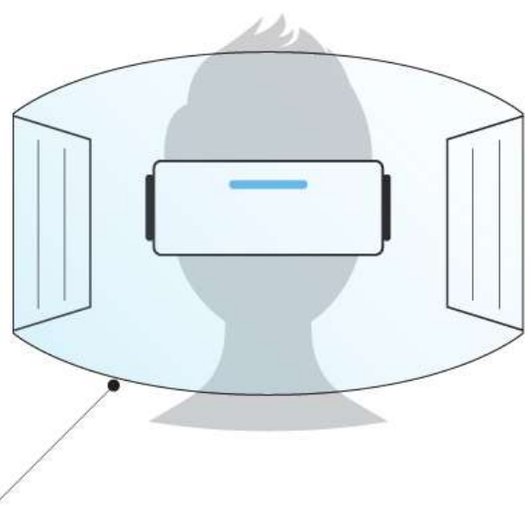
AR

More virtual

VIRTUAL REALITY (VR)

Completely digital environment

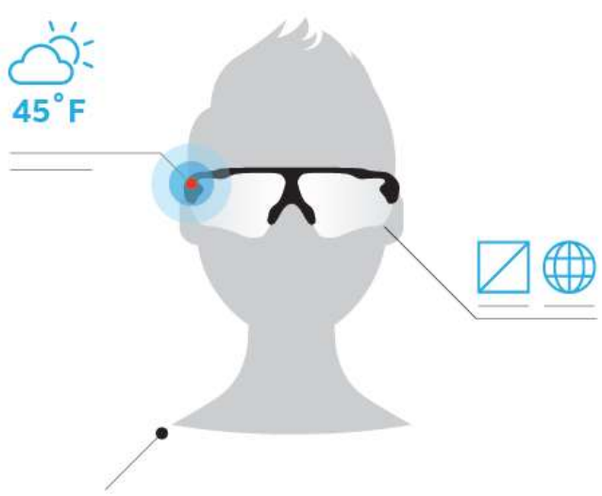




Fully enclosed, synthetic experience with no sense of the real world.

AUGMENTED REALITY (AR)

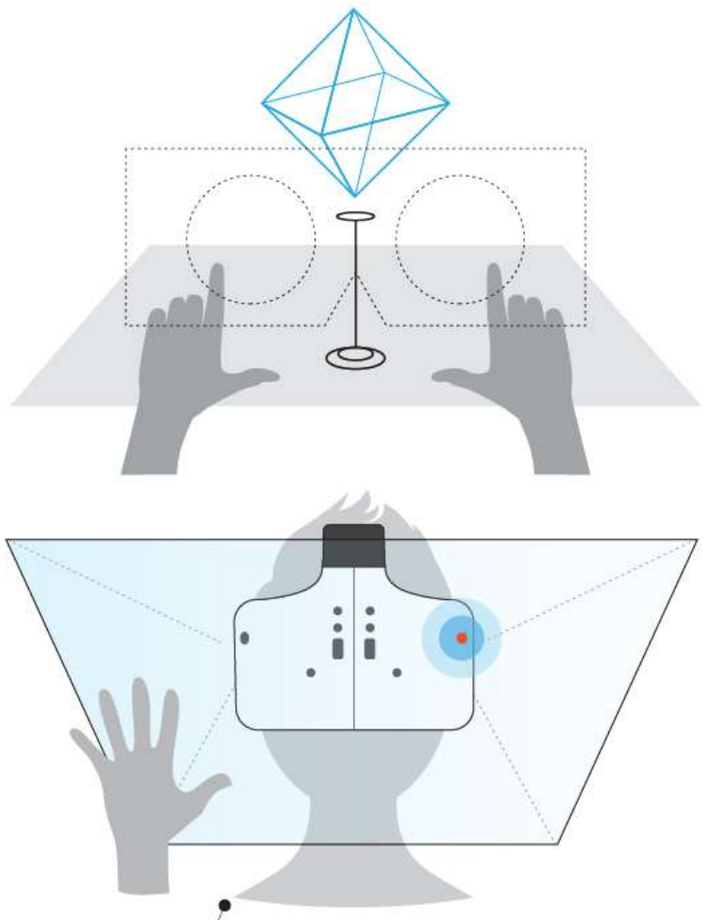
Real world with digital information overlay



Real world remains central to the experience, enhanced by virtual details.

MERGED REALITY (MR)

Real and the virtual are intertwined



Interaction with and manipulation of both the physical and virtual environment.

▶ AVAILABILITY VR MR

Facebook

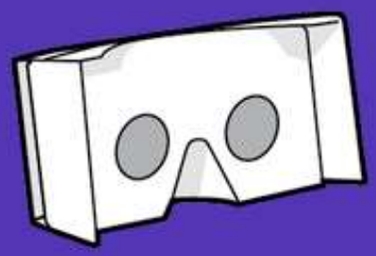
▶ NOW

HTC

▶ NOW

Sony

▶ OCTOBER 2016



Google

▶ NOW

Samsung

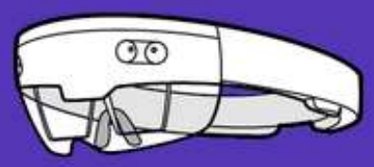
▶ NOW

OSVR

▶ DEV KIT AVAILABLE

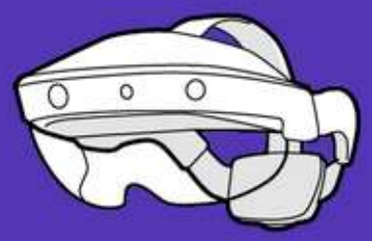
Fove

▶ FALL 2016



Microsoft

▶ DEV KIT AVAILABLE



Meta

▶ DEV KIT, FALL 2016

DISPLAY DEVICES

VR:

Special headsets or smart glasses

AR/MR:

Headsets optional-can include holodisplays and other tech

16:54

V ≡ Virtual

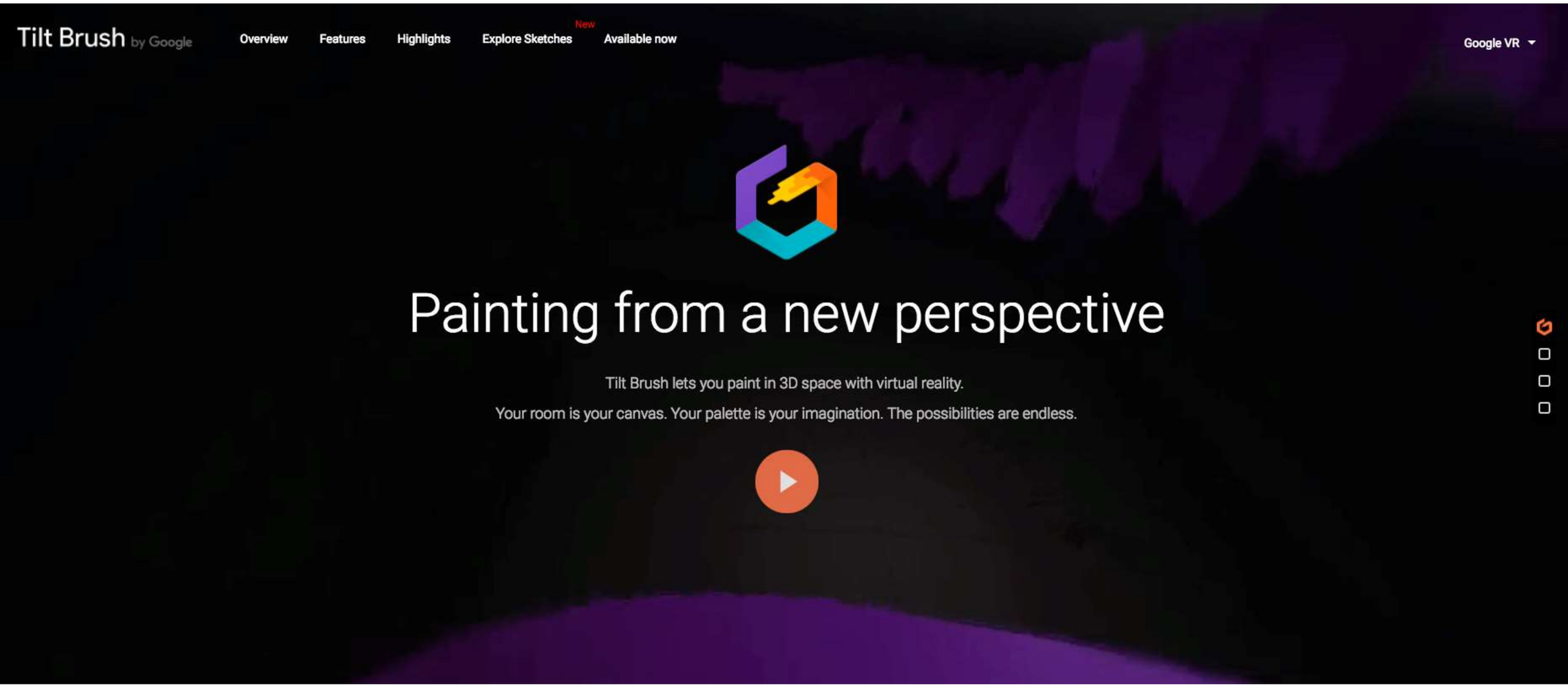
https://www.diigo.com/user/juandacorrea/realidad_virtual

Cardboard Get Cardboard Apps Developers Manufacturers Google VR

Google Cardboard

Experience virtual reality in a simple, fun, and affordable way.

https://vr.google.com/cardboard/



https://tiltbrush.com/

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- Personajes históricos
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- Favoritos
- Quiénes somos
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EXPLORAR

Tour virtual 360º de la exposición "Miguel de Cervantes: De la vida al mito (1616-2016)"

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Barcelona, España

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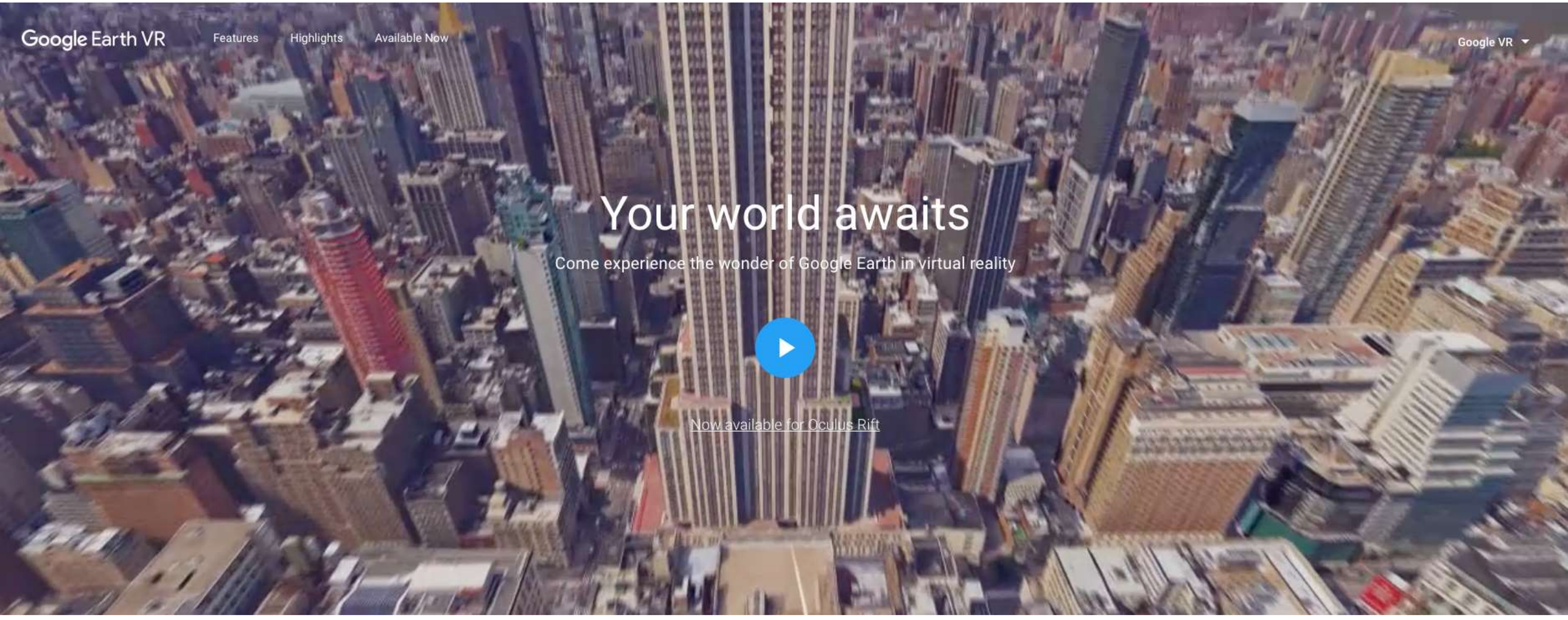
Museo de Artes y Costumbres Populares

https://www.google.com/culturalinstitute/beta/project/streetviews



https://vr.google.com/earth/

https://www.google.com/streetview/publish/

https://www.youtube.com/live/yLWXJ22LUEc?feature=share&t=1231

Facebook CEO Mark Zuckerberg has called VR the next frontier for "great software experiences."
CONTRIBUTOR

El cambio de nombre refleja el giro de la empresa hacia el “metaverso”, haciendo referencia al mayor enfoque de la compañía en la tecnología de realidad virtual y aumentada.

https://www.forbes.com.mx/tecnologia-por-que-facebook-cambio-nombre-meta-que-innovaciones-traera/

https://www.youtube.com/watch?v=R8mj1kTT4hk

El problema de Meta no es haber perdido 13.000 millones en el metaverso: es no haberlos invertido en la IA

6 Febrero 2023 - Actualizado 26 Febrero 2023, 03:43

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https://www.xataka.com/empresas-y-economia/problema-meta-no-haber-perdido-13-000-millones-metaverso-no-haberlos-invertido-ia

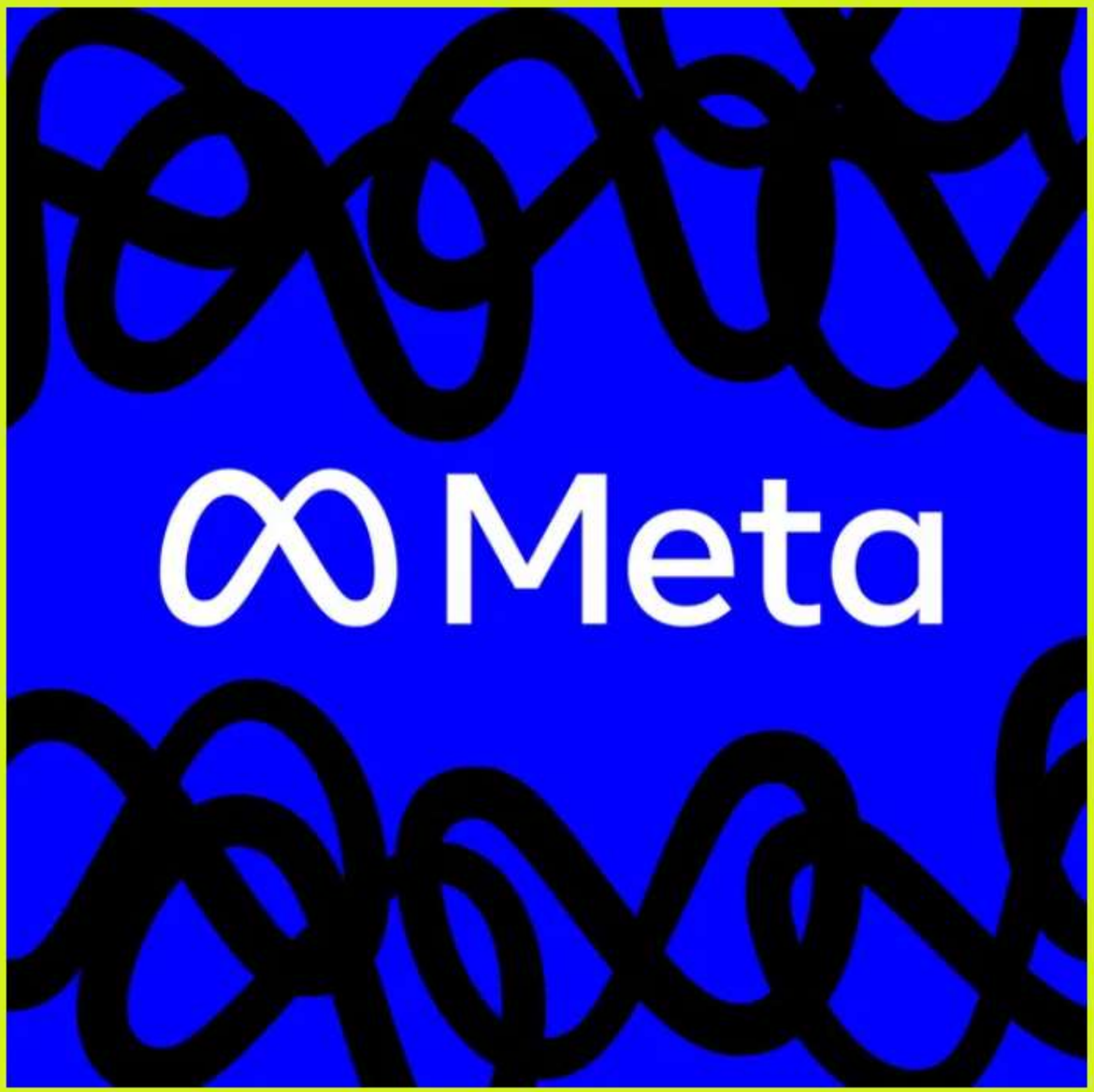


Illustration: Nick Barclay / The Verge

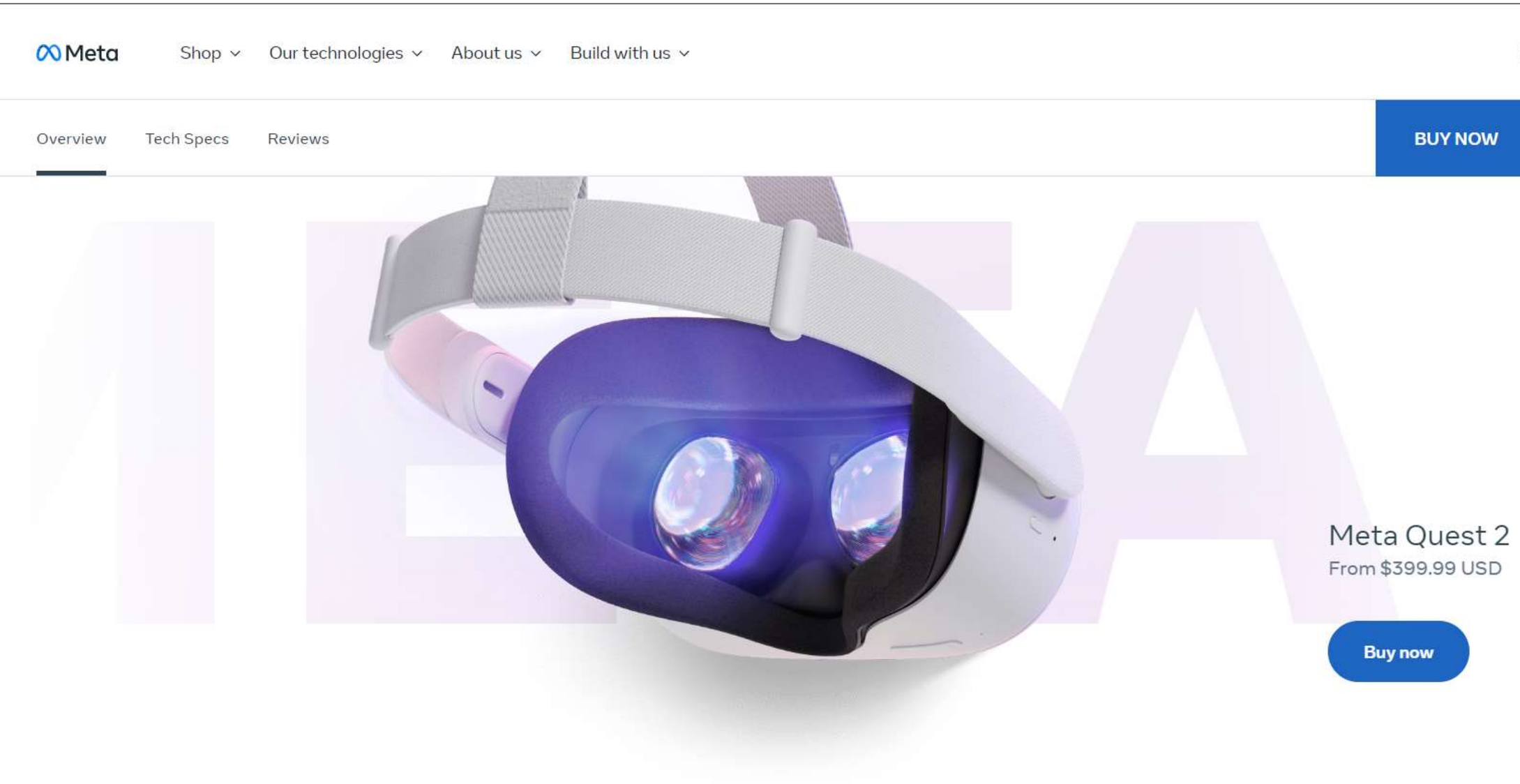
META

This is Meta's AR / VR hardware roadmap for the next four years

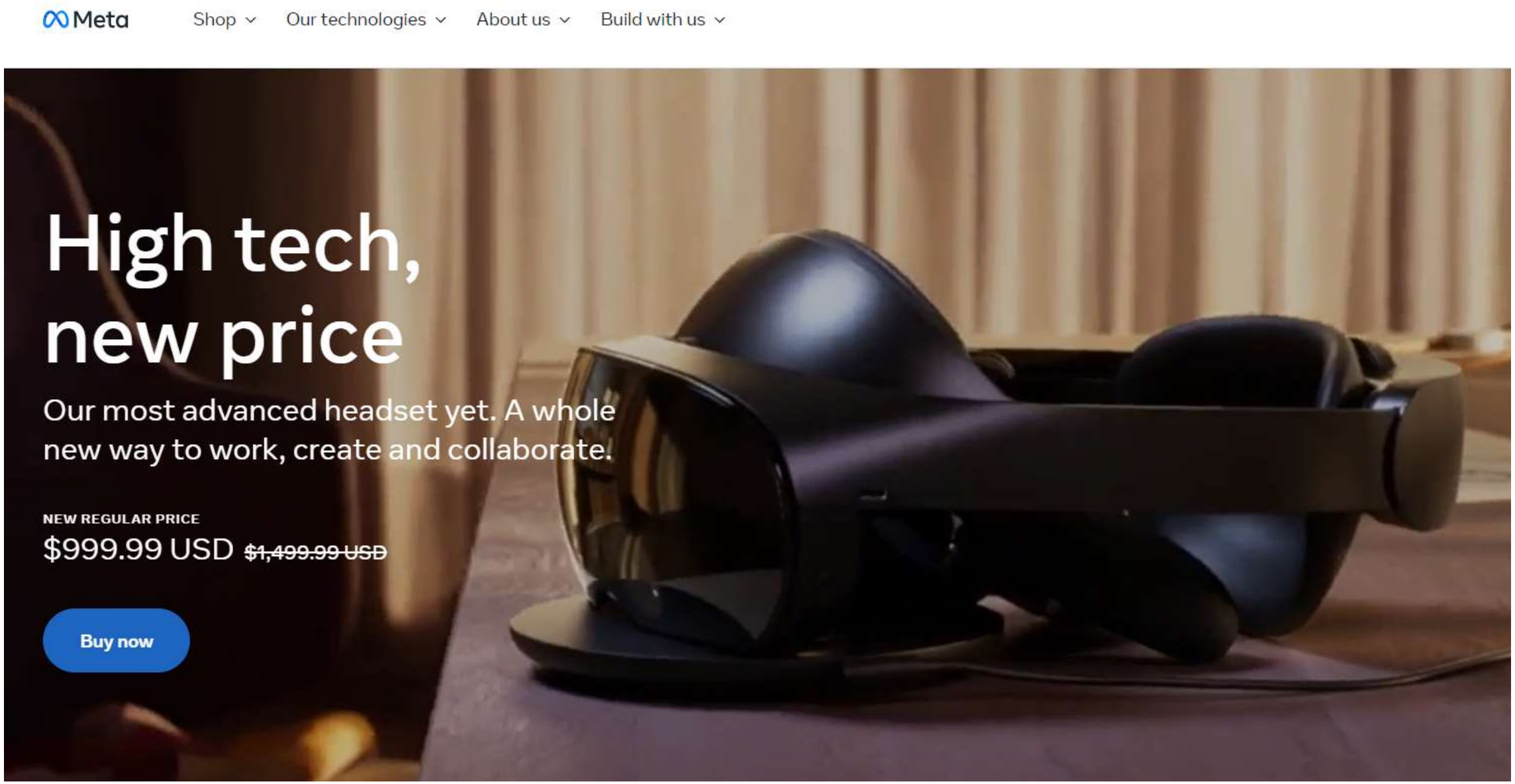
During an internal presentation, Meta execs laid out plans for three new Quest headsets, AR glasses in 2027, and a 'neural interface' smartwatch.

By **ALEX HEATH** / **@alexeheath**
Feb 28, 2023, 9:33 PM GMT-5 | 49 Comments / 49 New

https://www.theverge.com/2023/2/28/23619730/meta-vr-oculus-ar-glasses-smartwatch-plans



https://www.meta.com/quest/products/quest-2/



https://www.meta.com/quest/quest-pro/

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http://mashable.com/2017/06/08/gopro-fusion-360-degree-camera-hands-on/

A = Aumentada

M = Mixta o mezclada

https://www.diigo.com/profile/juandacorrea/realidad_aumentada

GLASS

Alphabet

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With Google Lens, your smartphone camera won't just see what you see, but will also understand what you see to help you take action. #io17

12:13 PM - 17 May 2017

http://mashable.com/2017/05/17/google-lens/

amazon

Latest in Culture

How to be a human being in the comments: A refresher

05.01.17

Portland wants to get driverless cars on its roads this year

04.19.17

Amazon considers opening augmented reality furniture stores

It may also launch pure electronics stores.

Jon Fingas, @jonfingas
03.26.17 in Business

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El futuro según Facebook es realidad aumentada

Tecnología 18 Abr 2017 - 2:12 PM
Por: Redacción tecnología

La compañía reveló su estrategia alrededor de esta tecnología, que implica desarrollos grandes en términos de inteligencia artificial y la pone a competir, aún más directamente, con Snapchat.

¿Sigues usando socialmediajdc@nodrizza.com? Ve a la developer settings para actualizar tu dirección de correo electrónico y la configuración de notificaciones. ×

por Ficus Kirkpatrick
18 de abril

Noticias para desarrolladores
Novedades sobre anuncios
Noticias sobre artículos instantáneos
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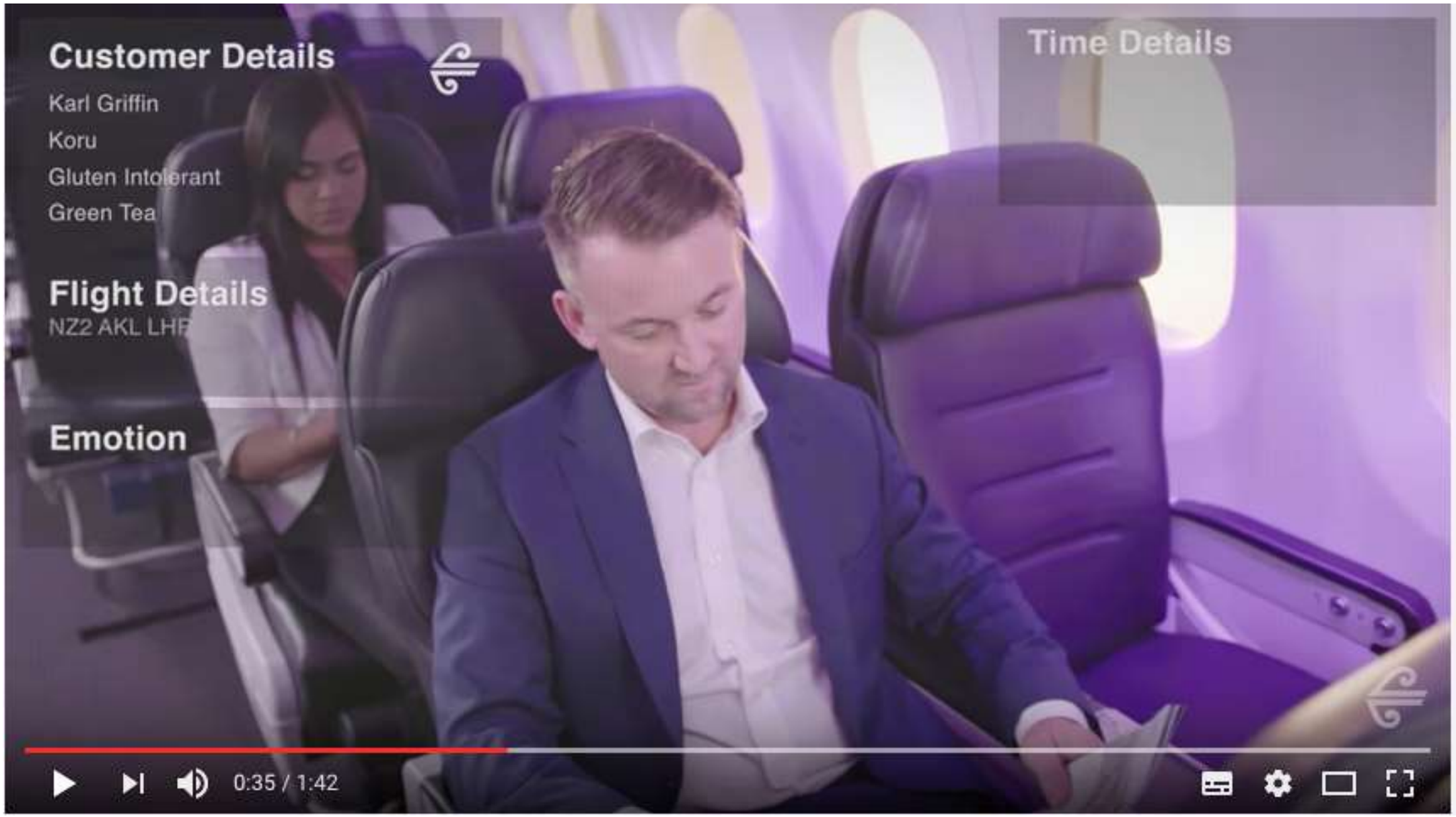
2013
2012
2011

Me gusta 319 Compartir

Harness the Power of Augmented Reality with Camera Effects Platform

Facebook has long been a place where people connect and communicate with one another by sharing personal stories, photos, and videos about their lives. Last month we introduced the Facebook camera to make photo and video sharing even more expressive with fun masks, frames, interactive filters, and fresh art from featured guests, but we believe that self-expression needs more than just the effects we create. So today we're making it possible for the whole world's creative community to build for the Facebook camera with the launch of **Camera Effects Platform**.



https://youtu.be/zD1bsl3AEeI?t=30s

https://youtu.be/zD1bsl3AEeI?t=30s

Development Edition $3,000

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https://www.microsoft.com/en-us/hololens/developers

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Apple CEO Tim Cook says AR could be as big as the smartphone

2.7k
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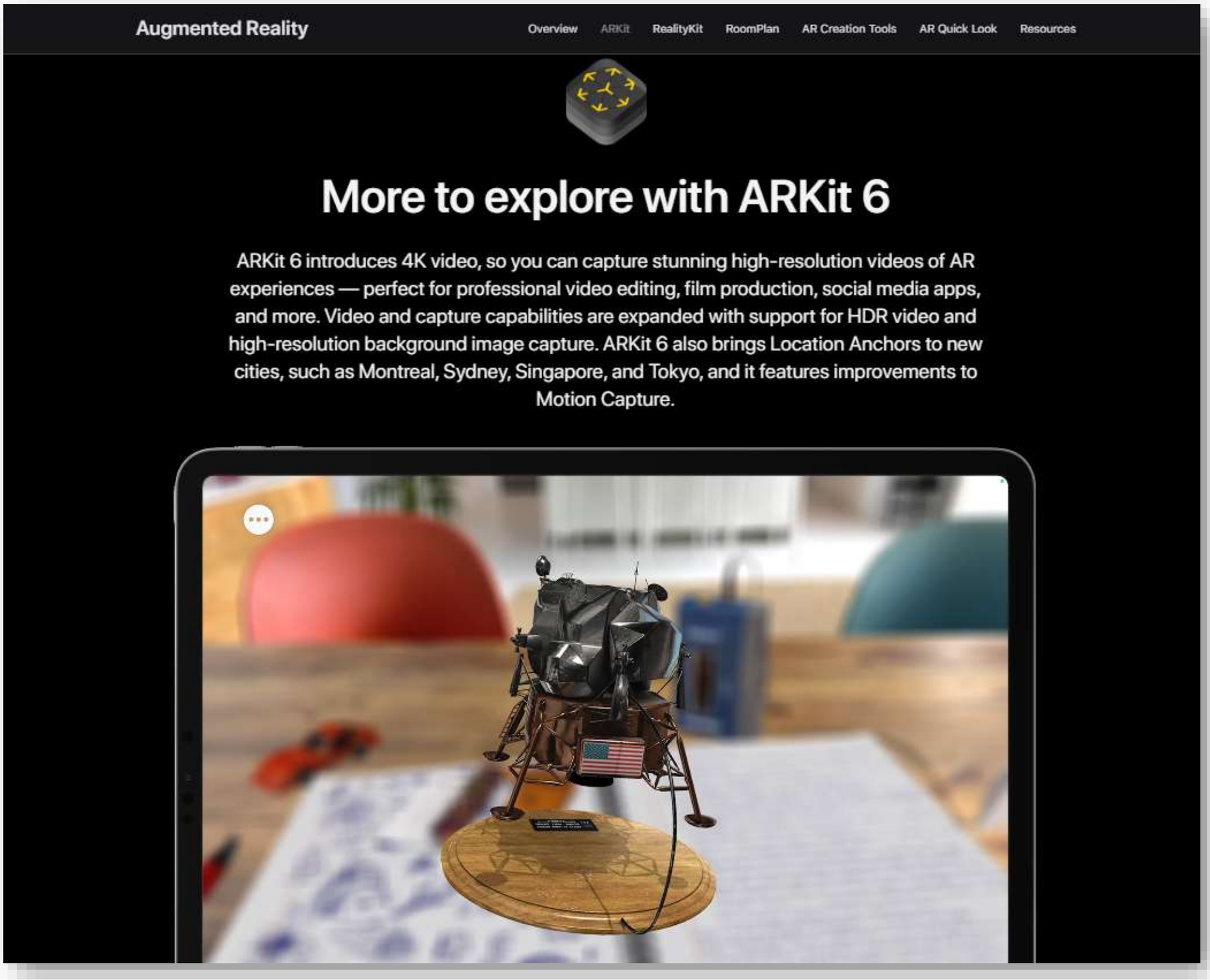
http://mashable.com/2017/02/10/tim-cook-augmented-reality-opportunity-apple/#pnEMQOgz6aqd



https://developer.apple.com/augmented-reality/arkit/

APPLE

Se filtran más detalles sorprendentes de las Apple Glass

Las Apple Glass llegarán con un dial para cambiar entre el mundo real y virtual, una batería externa que se coloca en la cintura, y más detalles que se han filtrado.

por **Rubén Chicharro**
3 de enero de 2023

https://hipertextual.com/2023/01/apple-glass-filtraciones-detalles-sorprendentes

https://www.xataka.com/analisis/hemos-visto-cerca-gafas-inteligentes-xiaomi-futuro-realidad-aumentada-pinta-muy-muy-bien

TCL

创意感动生活
The Creative Life

https://www.youtube.com/watch?v=XrHKqx_DjXs&t=1s

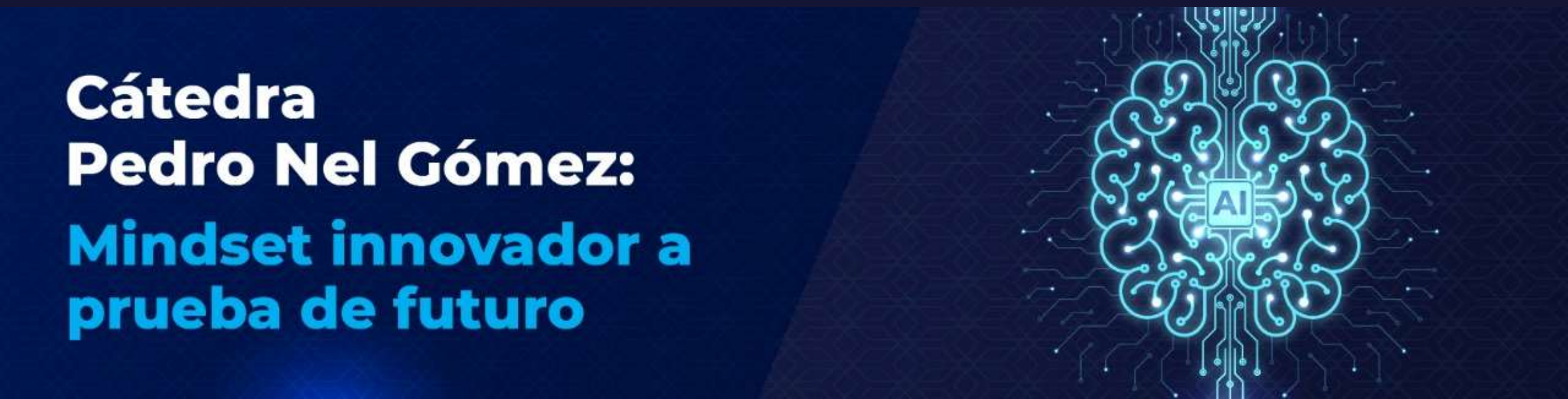
A HOMBROS DE GIGANTES

https://vimeo.com/46304267

← Soft contact lens
encapsulates electronics

← Sensor
detects glucose in tears

← Chip & antenna
receives power and sends info

Sacándole provecho a las **tecnologías exponenciales** parte 9A:

La revolución del hardware