

HDA

TECH RETREAT 2022

Introduction & Technology Year in Review

Mark Schubin

Thanks to You



hpaonline.com/event/2022-hpa-tech-retreat/?tab=schedule

HPA

2022 Tech Retreat is SOLD OUT!



2022 Tech Retr

Schedule

Tech Retreat 2022 Conference Program. Schedule is subject to c

Monday, February 21 | HPA TR-X

9:00 am – 5:30 pm

Registration Open

Upcoming Events

- Women In Post - HPA Tech Retreat Lunch
- HPA Tech Retreat 2022

Past Events

[Program Presentations](#)

[Event Photo Galleries](#)

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2022 Tech Retreat

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Tech Retreat 2022 Conference Program. Schedule is subject to change.

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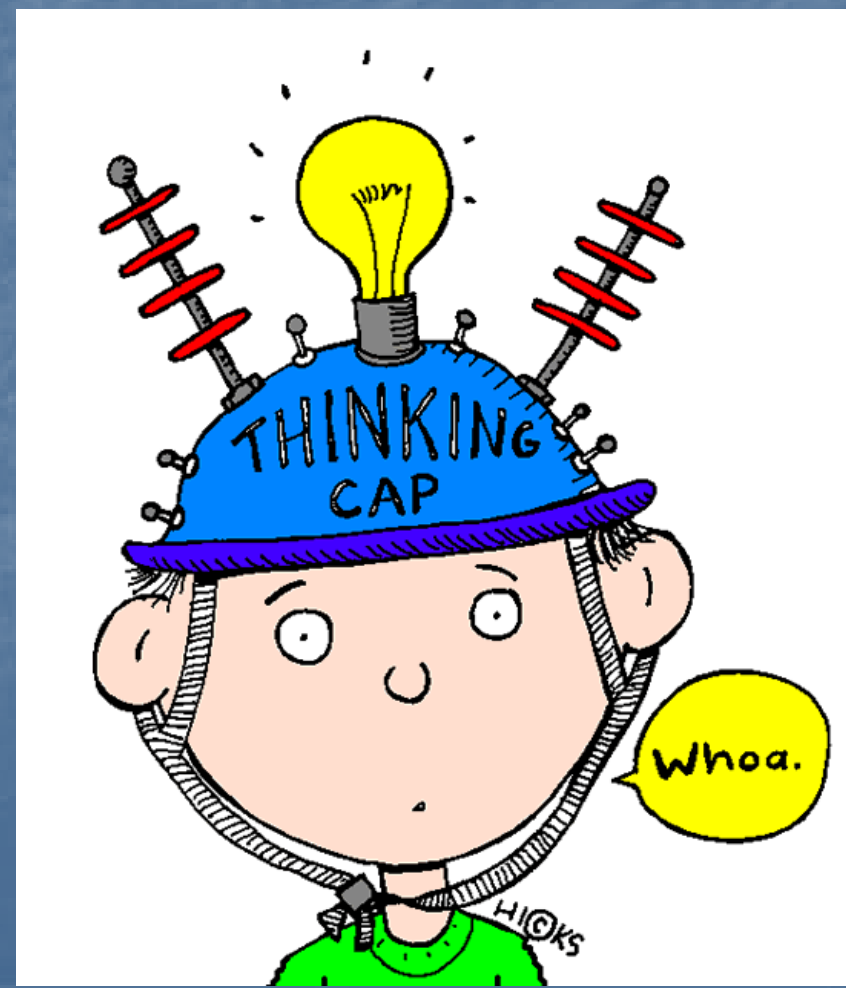
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password: techretreat22

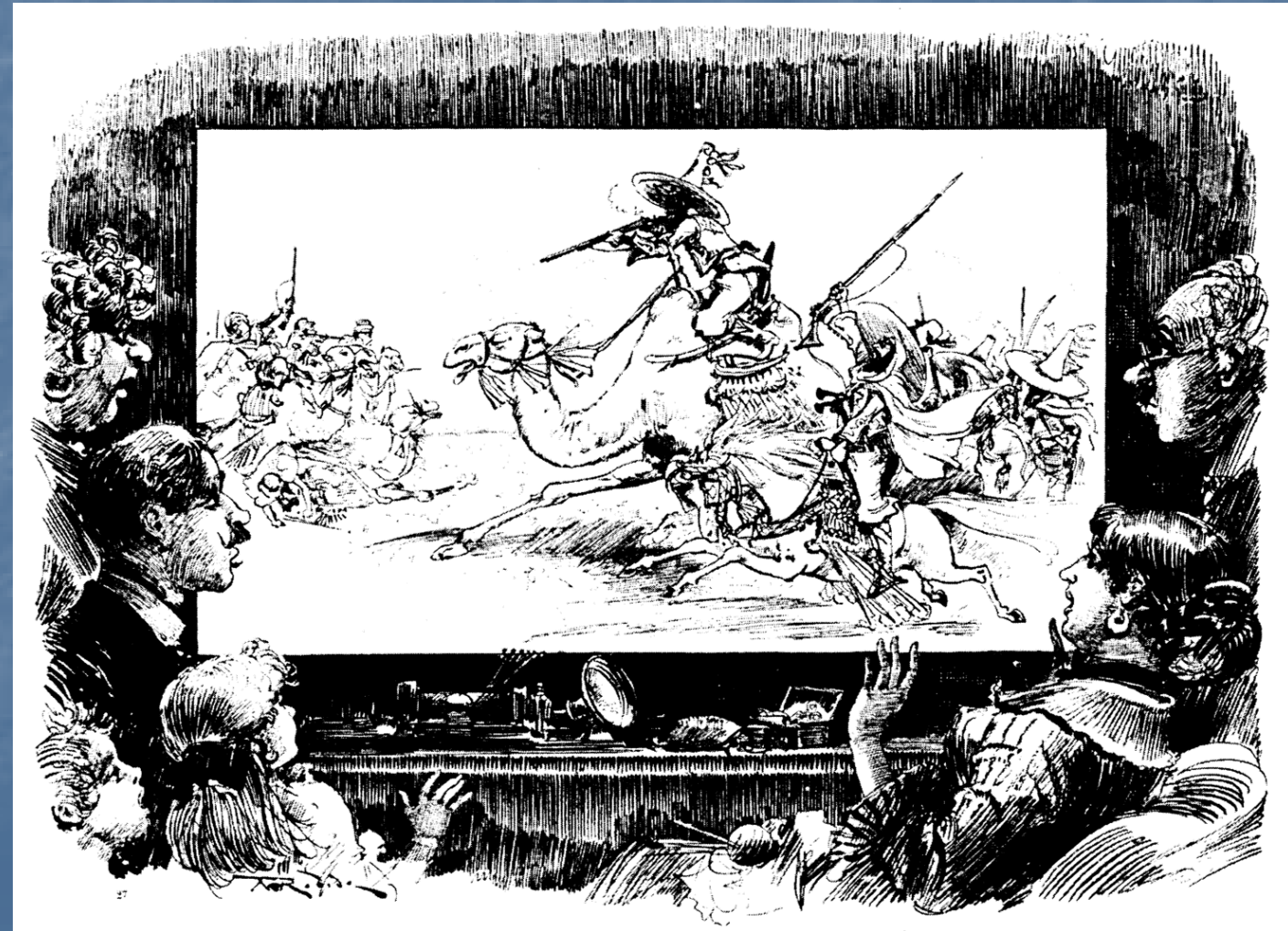
The Quizzes

- all are eligible (except me); any research is ok; cheating is not possible (so go ahead & try)
 - answers *can* be found online (if you know where to look)
- place entries in bowl by session end (quiz #5 by last refreshment break)
- have name and quiz # on entry
- no penalty for wrong answers
- win at least a sticker or pin!



Active Quizzes

- 1: In these images from a book first published in France in 1882, what part of the tech is now obsolete?
 - closes by afternoon session unless unanswered



Active Quizzes

- 5: How did JAFP affect our industry?
 - first hint: not by Ptolemy, Alhazen, Regiomontanus, D'Arcy, Roget, or Faraday
 - active until last refreshment break
 - cool prize

A pdf of the rest of these slides is at
bit.ly/tr22-year

Irwin Young 1927-2022



Douglas Trumbull 1942-2022



George Spiro Dibie 1931-2022



T-Mobile Has Rolled Out 5G



Cinema Is Not Dead



#3 (in 2 mos.) All-Time Domestic Box Office



A Bit More on the Numbers

- almost more than the next four 2021 movies combined
- none of the ten 2021 Academy-Award Best Picture nominees are in the list of 2021 top-10 domestic box office movies



The Big Issue Affecting Us

- What breakfast roundtable to attend tomorrow morning

The Big Issue Affecting Us

~~■ What breakfast roundtable to attend tomorrow morning~~

■ Sustainability

Sustainability

- Barbara Lange's new venture: Kibo121.io
- 2021 HPA Tech Retreat:
Remote Working and Environmental
Impact: Another Take on the Future of
Production, Cédric Lejeune, Workflowers
accessible to HPA members at:
hpaonline.com/event/2021-hpa-tech-retreat/



portion of photo by Tatiane Santos USC News
<https://news.usc.edu/82740/usc-duo-gets-behind-the-wheel-on-ways-to-relieve-la-traffic/>

NFTs

- Tomorrow 5:15 pm "Technical Foundations of Non-Fungible Tokens for Video Engineers," Michelle Munson, Eluv.io

www.theverge.com/2022/1/2/22858698/samsung-2022-tvs-nft-support-announced-cryptocurrency

THE VERGE

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TECH

CES 2022 NEWS

SAMSUNG

Samsung promises 'groundbreaking' new TV feature: NFT support

Learn about an NFT's blockchain history from the comfort of your couch

By [Chris Welch](#) | [@chriswelch](#) | Jan 2, 2022, 9:00pm EST

NFTs

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CES 2022 NEWS

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Samsung promises 'groundbreaking' new TV feature: NFT support

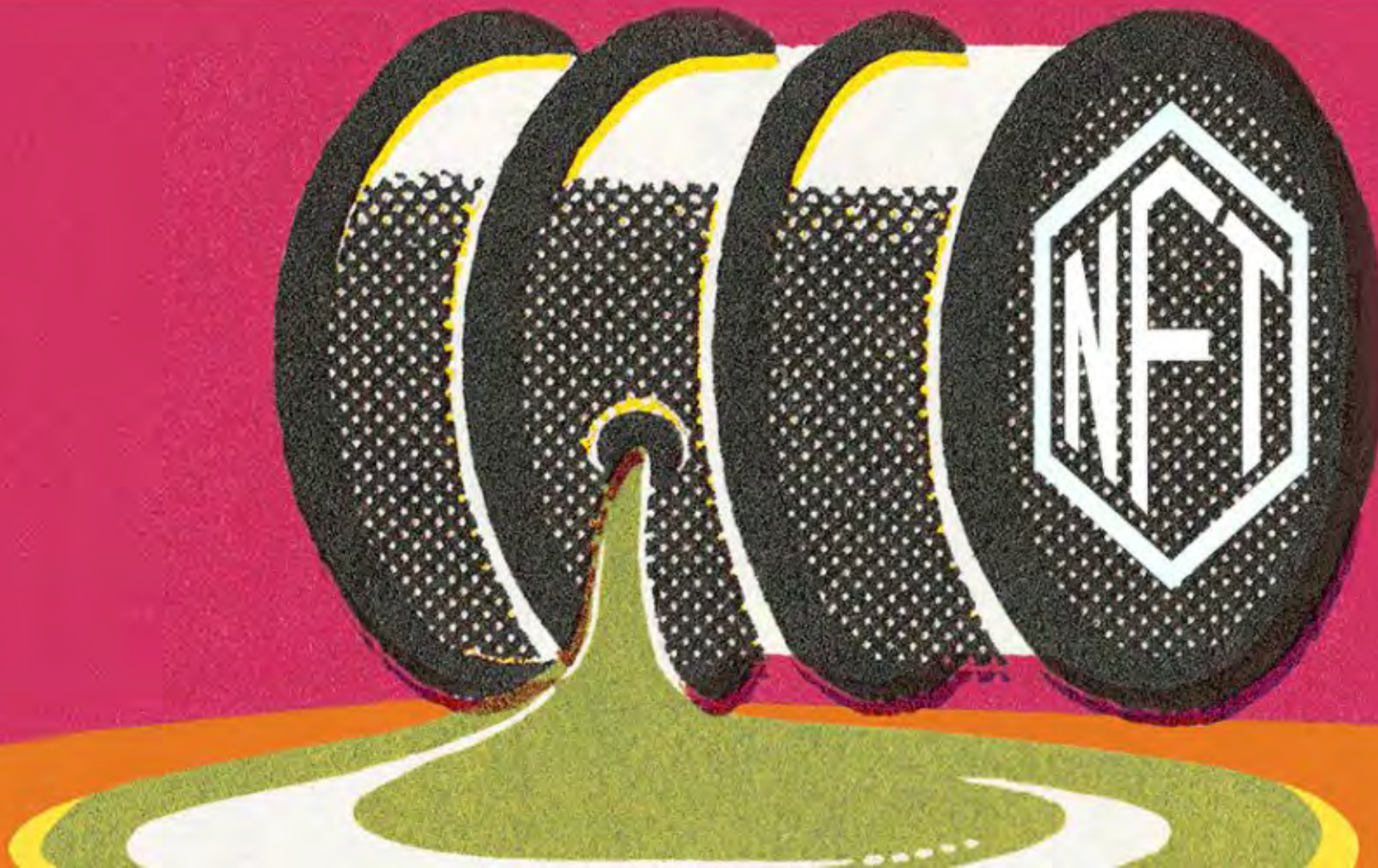
CES presentations today from Pete Putman & Mark Harrison

Learn about an NFT's blockchain history from the comfort of your couch

By [Chris Welch](#) | [@chriswelch](#) | Jan 2, 2022, 9:00pm EST

NFTs Face a Setback as Brands and Publishers Consider Environmental Implications

Still looking for that lean, green, nonfungible token minting machine



**PREMIUM**By Lucinda Southern

20 HOURS AGO

If you've given even a cursory look into the environmental impact of cryptocurrencies, you can quickly get lost in the wash of near-meaningless analogies. The Ethereum network uses as much energy annually as the country of Chile, and selling a nonfungible token uses as much energy as a European Union resident's electricity consumption for one-and-a-half months. Mining Bitcoin uses more electricity than entire countries like Argentina.

ADWEEK[®]+**WORK SMARTER - LEARN, GROW AND BE INSPIRED.**

NFTs Are Shaking Up the Art World. They May Be Warming the Planet, Too.

Making the digital artworks requires colossal amounts of computing power, and that means greenhouse gases.



By Hiroko Tabuchi



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Newsletter

FEBRUARY 14, 2022

Op-Ed: 8K and Sustainability

By Ben Schwarz

Intro and disclaimers

What on earth did I think when I offered to write about 8K and sustainability for the 8K Monitor? How could this title not be a contradiction in terms?

Disclaimer: This piece isn't balanced; I'm making a case for 8K in a world where sustainability is ever more critical, and our planet is in pain TODAY.



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Streaming eclipses cable and satellite TV viewing in US

Joseph O'Halloran | 11 February 2022

More grim predictions have been made for the US traditional TV market as a survey conducted by The Harris Poll on behalf of TransUnion has found more consumers are streaming now than watching cable and satellite TV.



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RTBF wants to switch off FM and DVB-T

JANUARY 5, 2022 12.48 EUROPE/LONDON BY [JULIAN CLOVER](#)



Streaming scores touch down at Super Bowl

Joseph O'Halloran | 15 February 2022

The Super Bowl on 13 February saw a number of sporting first on the field of play and also on screen as, according to data from Conviva, a number of landmarks were made, especially with streaming.

- 78.4% large screen, 13.9% phones, tablets 2%
- 132 minutes per device (up 23 minutes from 2021)
 - Super Bowl LVI ran 219 minutes
- minor gripes: quality, 6% video start failures



ENTERTAINMENT

TECH

SUPER BOWL

Sports streaming is busted — the Super Bowl likely won't be any different

Hoping to micro-bet on game day? Good luck

By [Catie Keck](#) | Feb 7, 2022, 1:00pm EST

“Even Comcast is delayed versus being in the stadium,” Rich Greenfield, analyst and partner at LightShed Partners, tells *The Verge*. He notes that technologies like Phenix can work to reduce latency in livestreams, but Greenfield adds that when it comes to streaming live events, users can experience “upwards of 45 seconds of delay.”

“It’s a real issue for betting — not for betting on who wins, but when you get into micro-betting on plays, it’s certainly an issue,” he says.

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Bowl](#)

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[Per NBC Sports](#), the Los Angeles Rams' 23-20 win over the Cincinnati Bengals drew an average audience of 112.3 million, including 101.1 million TV viewers and another 11.2 million streamers. The game was available on NBC, Telemundo, Peacock, NBC Sports Digital, NFL Digital and Yahoo Sports mobile properties. It ranked as the most-watched program in five years since [Super Bowl LI](#), featuring the New England Patriots' improbable comeback win over the Atlanta Falcons, drew 113.7 million.

different #s - <https://advanced-television.com/2022/02/16/data-super-bowl-ads-reached-106m-viewers/>

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AI BROADBAND BROADCAST BUSINESS CONTENT IN HOME MOBILE OTT RESEARCH SOCIAL MEDIA UHD WHITE PAPERS

BBC Three returns on Feb 1

January 11, 2022

Share 0 Tweet Share

The BBC has announced that BBC Three will return as a broadcast channel on February 1st.

LATEST NEWS

- ▶ Apple, MLB in streaming talks
- ▶ BBC Three returns on Feb 1
- ▶ Report: HBO Max adds 635,000 Nordic subs
- ▶ Sky Italia launching Sky Cinema 4K

Matthew Goldman, Sinclair Broadcast Group

[← Back to insights](#)

The LoCaT Project's report on the energy consumption of different methods of watching TV released Report



The LoCaT project's study has been released and we are thrilled to have been a part of this significant project, bringing together broadcasters from across Europe to analyse the energy consumption of different methods of watching TV – antennas, Freeview boxes, satellites and online apps.

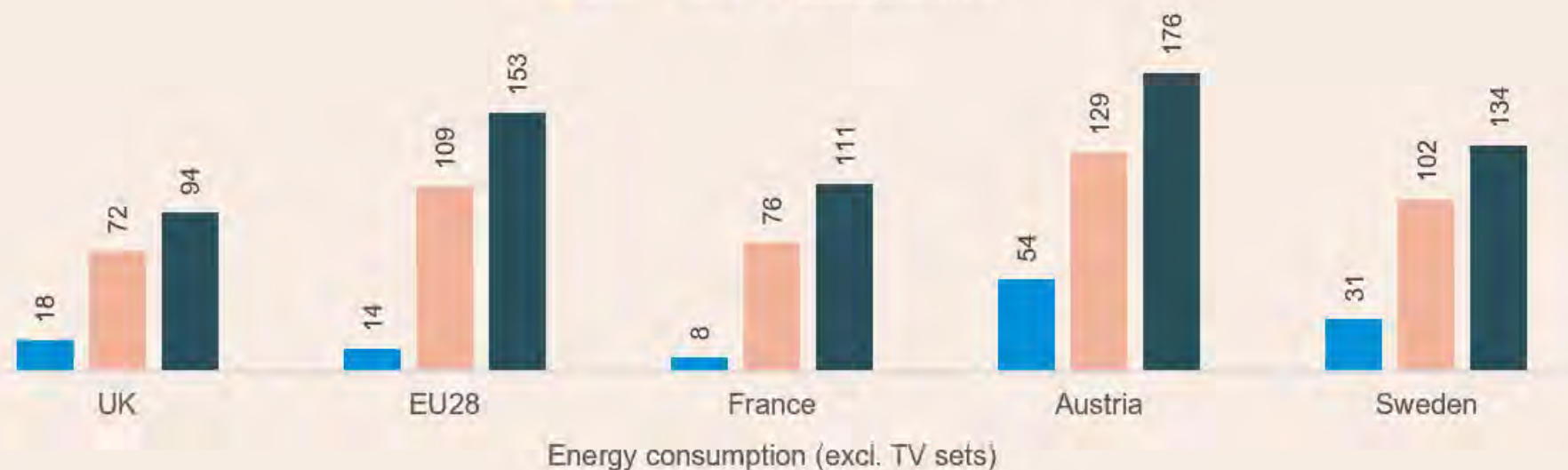
We developed our own approach, in collaboration with leading academics in this area. We are pleased that the findings from our independent methodology was aligned with other studies in this area, whilst also providing some unique

Results

- Divergence in Energy mainly responds to viewership (%) differences.
- Divergence in Emissions mainly responds to different energy network intensities.

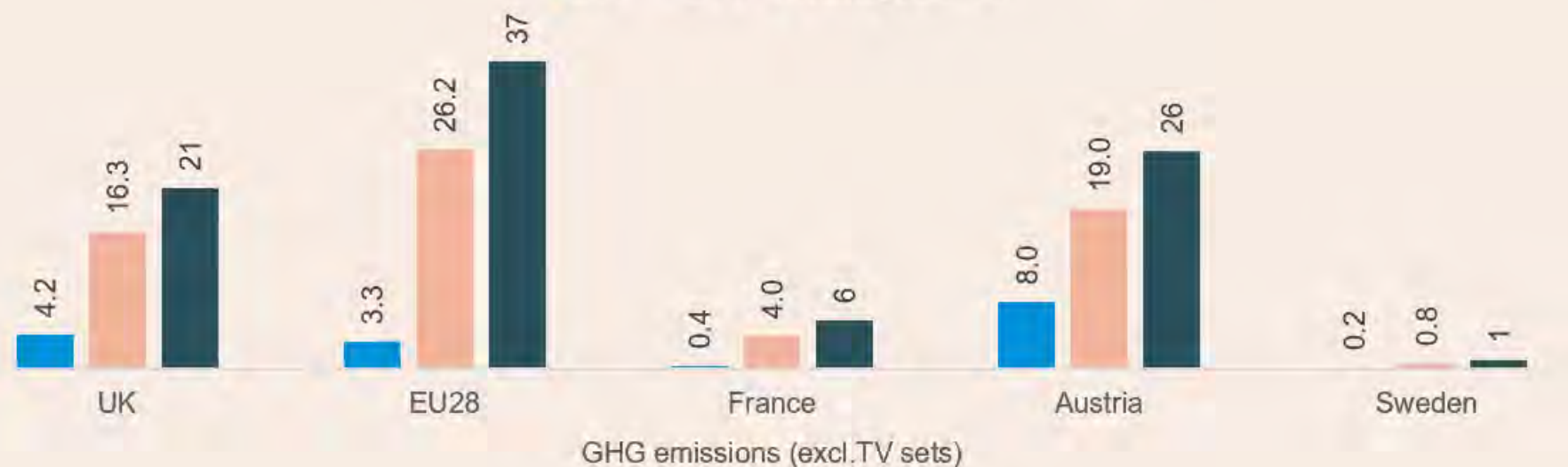
Energy (Wh) per device viewing hour

■ DTT ■ OTT ■ Managed IPTV



Emissions (gCO₂e) per device viewing hour

■ DTT ■ OTT ■ Managed IPTV

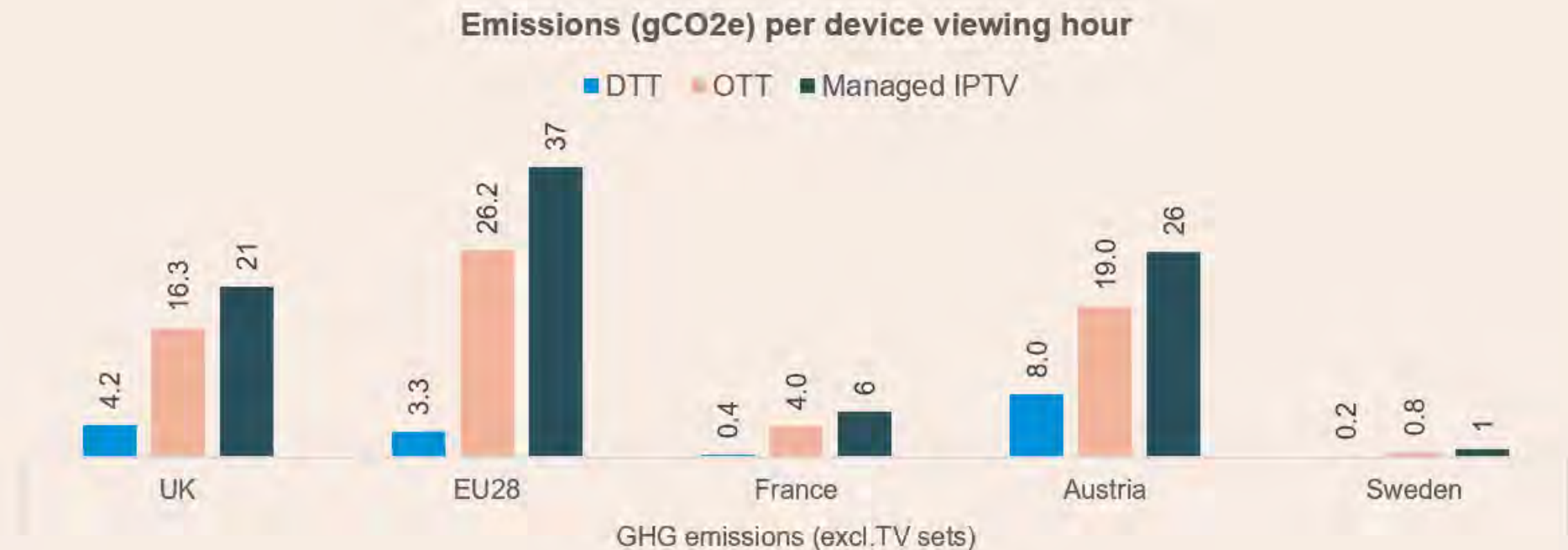
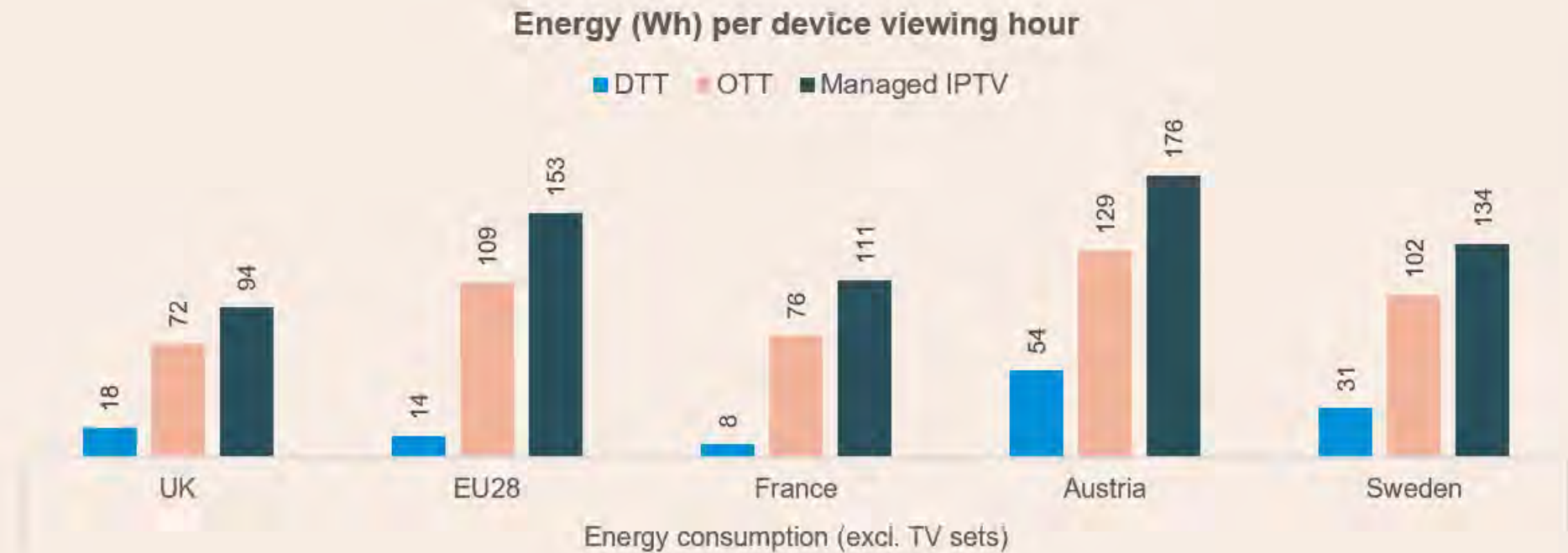


Results

Quiz #0 winners:

Michael Guncheon, Barbara Lange, Bill Redmann, Andy Setos

- Divergence in Energy mainly responds to viewership (%) differences.
- Divergence in Emissions mainly responds to different energy network intensities.





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Sky Q ▾

Broadband ▾

Mobile ▾

Deals



My Sky

🍷 Sky Glass on sale now 🍷 | Hurry while stocks last >



The streaming TV from Sky

Buy now

Explore Sky Glass

Sky does not now market its products for use on any satellite systems, concentrating on fixed line only. Sky satellite receivers will be phased out.

Sky does not now market its products for use on any satellite systems, concentrating on fixed line only. Sky satellite receivers will be phased out.

Meanwhile...



Welcome to the space jam: Canadian startup Kepler stirs debate with huge planned fleet of internet satellites

The Canadian company is jockeying with SpaceX, Amazon and Telesat for room in orbit for tens of thousands of new machines. Critics say the space race could come at a cost on Earth

SEAN SILCOFF > TECHNOLOGY REPORTER

PUBLISHED DECEMBER 10, 2021

A Canadian space startup has caused a global stir with a proposal that would see the skies filled with tens of thousands of communications satellites bearing its technology – 114,852 satellites to be exact.

Last month Kepler Communications Inc. applied to the International Telecommunications Union for permission to put a constellation of satellites into Earth's lower orbit (LEO) – a band between 200 and 2,000 kilometres above the planet's surface. It would comprise more than nine times the total number of satellites launched from Earth since the Russians sent up Sputnik in 1957, of which 7,630 are still in orbit, according to the European Space Agency.



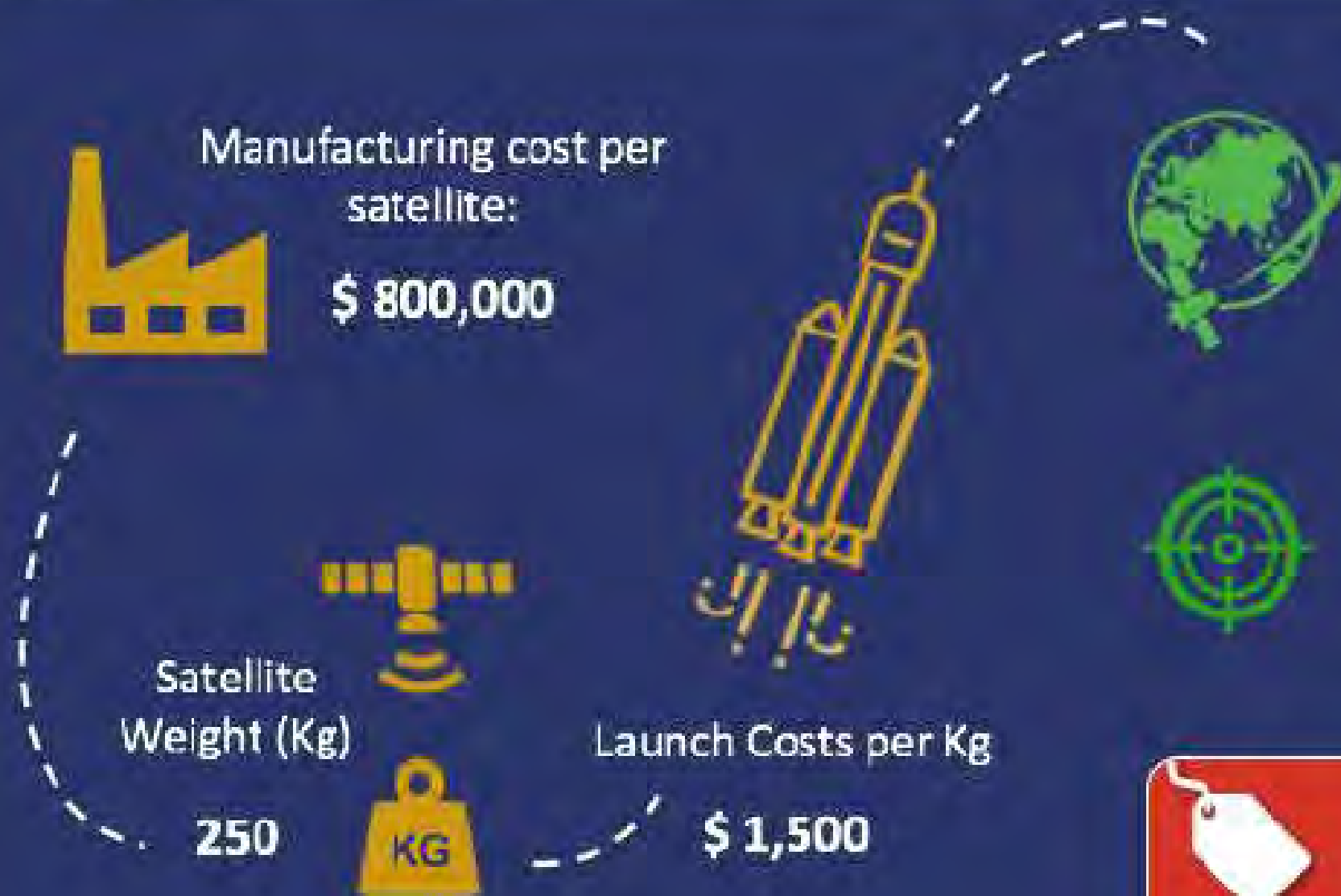
WEBINAR

Mega-Constellation Impacts on SatCom

NSR's NCAT2 Insights

January 26, 2022

<https://www.nsr.com/?research=non-geo-constellations-analysis-toolkit-v2-0>



Breakeven Price:
per Usable Mbps per Month

\$ 33

Source: NSR Non-GEO Constellations Analysis Toolkit.

Output based on average costs calculated from configurable model inputs. Assumes investment in space assets only (manufacturing + launch). Breakeven price for capacity ignores time value of money and capital investments in other core network assets such as gateway stations and terrestrial links.

A Bit More on Non-GEO Satellites

- Kepler 114,852; Rwanda Space Agency 327,320
- Debris
 - European Space Agency: currently 36,500 debris ≥ 10 cm
 - 2016 cracked window on ISS
 - China 2007 destruction of defunct weather satellite 3k tracked
 - 2009 collision between an Iridium satellite & defunct Russian military satellite generated 1K pieces >10 cm

SAG Issue?

[nytimes.com/2021/10/05/science/russia-space-launch.html](https://www.nytimes.com/2021/10/05/science/russia-space-launch.html)

The New York Times

Russian Actress and Director to Start Making First Movie on Space Station

The pair arrived at the International Space Station on Tuesday, aiming to shoot scenes for the first feature film made in orbit.





Solar Storm Destroys 40 New SpaceX Satellites in Orbit

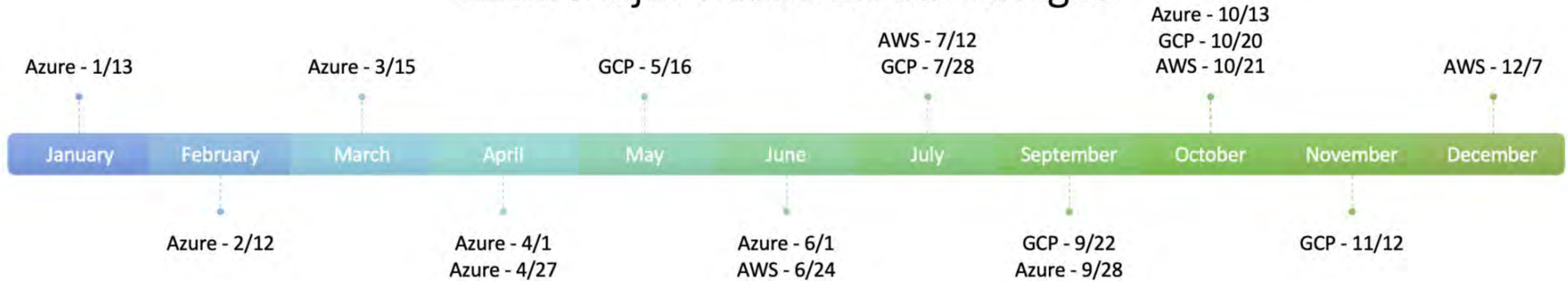
The geomagnetic incident resulted in the Starlink transmitters drifting back into Earth's atmosphere, where they will burn up, potentially costing the company about \$100 million.

When The Cloud Is Cloudy



Outages

2021 Major Public Cloud Outages





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After AWS outage, Larry Ellison says a major customer told him that Oracle's cloud 'never ever goes down'

PUBLISHED THU, DEC 9 2021 7:27 PM EST



Jordan Novet
@JORDANNOVET



Ari Levy
@LEVYNEWS

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securityreport.com/oracle-cloud-went-down-in-global-outage/

SECURITY REPORT

Oracle Cloud went down in global outage

Ax Sharma March 11, 2021 3 min read

totaluptime.com/notable-network-and-cloud-outages-of-2021/

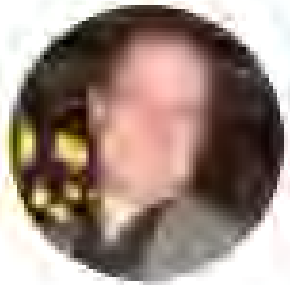


TOTAL UPTIME
The Cloud Availability Platform™

July 7, 2021 – Oracle: Oracle Corp. first experienced a network disruption affecting customers and downstream partners in the U.S., Japan and other countries interacting with Oracle Cloud services. The interruption, which apparently centered on nodes in Chicago and Washington, D.C., lasted 23 minutes and was cleared about 11:30 a.m. ET.

July 7, 2021 – NTT America: An interruption impacted downstream partners and customers of NTT Global's internet service provider unit NTT America Inc. in the U.S., the U.K. and eight

Wait? Hybrid? Multi?



Larry Thaler • 1st

CEO at The Video Call Center, LLC, & CEO Positive Flux LLC

1d • 🌐



It's great to have choices!

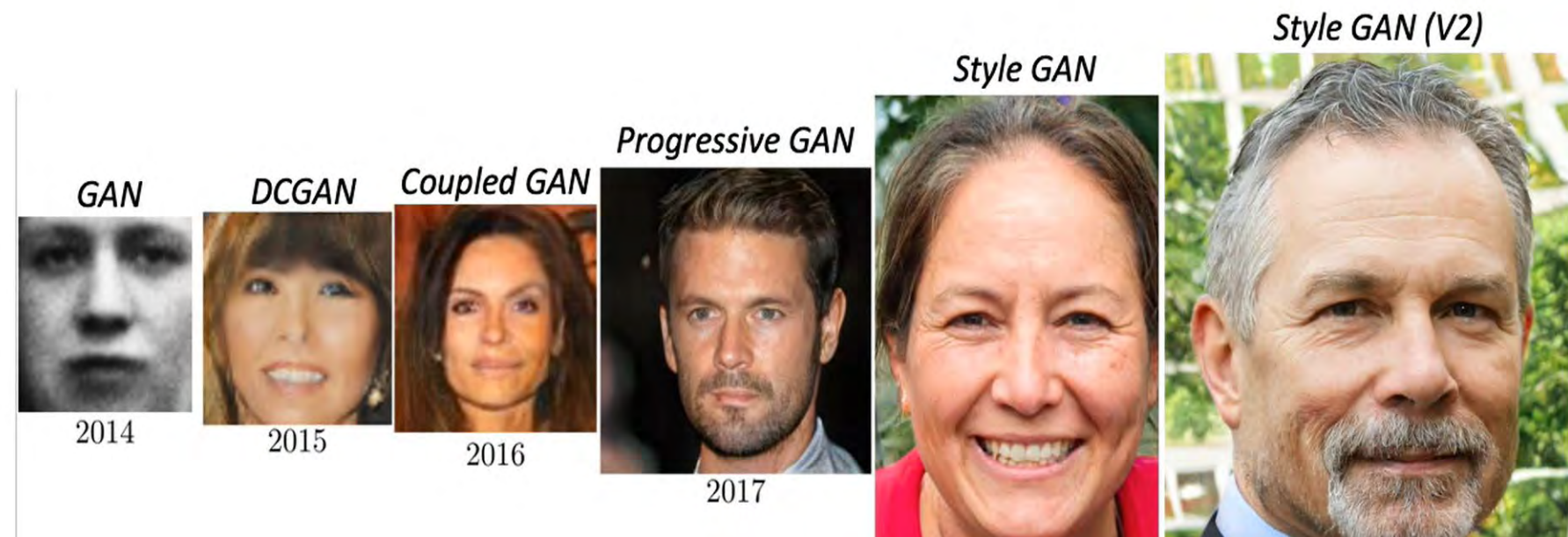
Despite the plethora of apology emails in your inbox today from all the web service providers affected by the AWS outage, you will not see one from VCC. Our operations continued, unaffected by the outage - mostly thanks to our architecture which supports multiple connection methods with diverse services, and our great team, so skilled in shifting between them when the going gets tough.

LinkedIn post

AI

- today:
 - Rowan de Pomerai
 - Michael Chambliss and panel
 - Rob Gonsalves
 - Renard Jenkins
 - Rich Welsh

Deep Learning for Face Synthesis



from "Learning to Render Virtual Humans," Tinghui Zhou, CEO and co-founder of Humen.ai, 2021 HPA Tech Retreat
used with permission



THE BYTE.

YESTERDAY

by TONY TRAN

/ ARTIFICIAL INTELLIGENCE



FAKE FACES

SCIENTISTS WARN THAT NEW AI-
GENERATED FACES ARE SEEN AS
MORE TRUSTWORTHY THAN REAL
ONES

THIS COULD BE A PROBLEM.



from "Learning to Render Virtual Humans," Tinghui Zhou, CEO and co-founder of Humen.ai, 2021 HPA Tech Retreat
used with permission

Monday Debut: Canon Free Viewpoint System



<https://www.sportsvideo.org/2022/02/20/live-from-nba-all-star-canon-free-viewpoint-to-make-u-s-broadcast-debut/>

FEATURE BIOMEDICAL

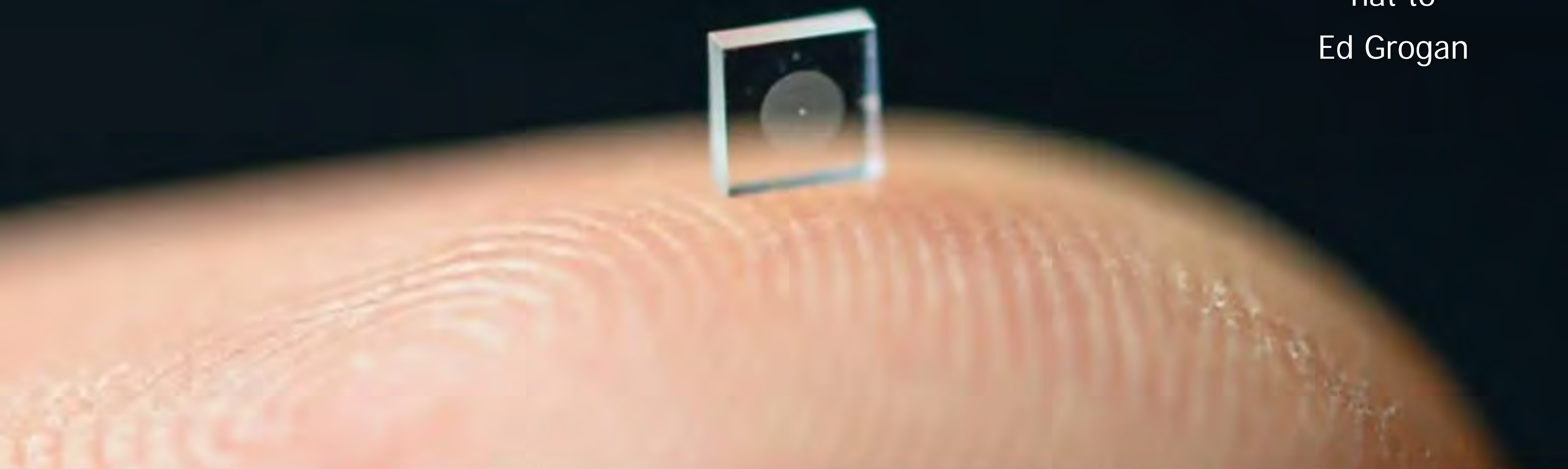
THEIR BIONIC EYES ARE NOW OBSOLETE AND UNSUPPORTED

Second Sight left users of its retinal implants in the dark

Democratization of Hardware



Tip o' the
hat to
Ed Grogan



The salt-grain-sized camera. (Princeton University)

TECH

This New Ultra-Compact Camera Is The Size of a Grain of Salt And Takes Stunning Photos

Home / Nanotechnology / Nanophysics
Home / Nanotechnology / Nanomaterials

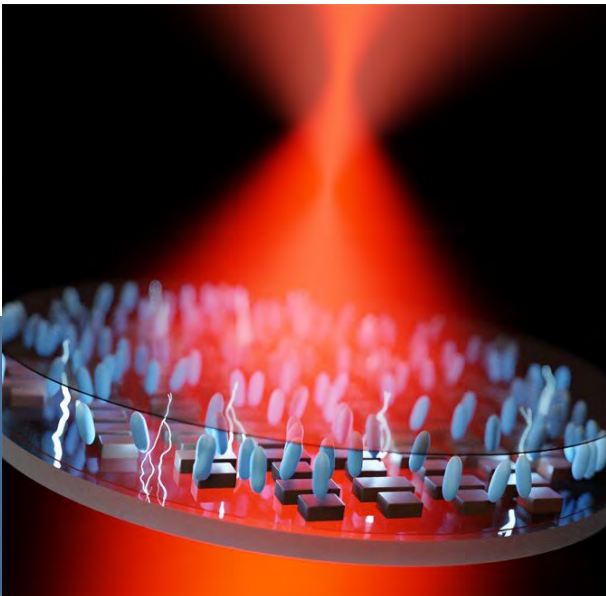
Tip o' the
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JUNE 10, 2021

Novel liquid crystal metalens offers electric zoom

by Chris Dawson, Cornell University



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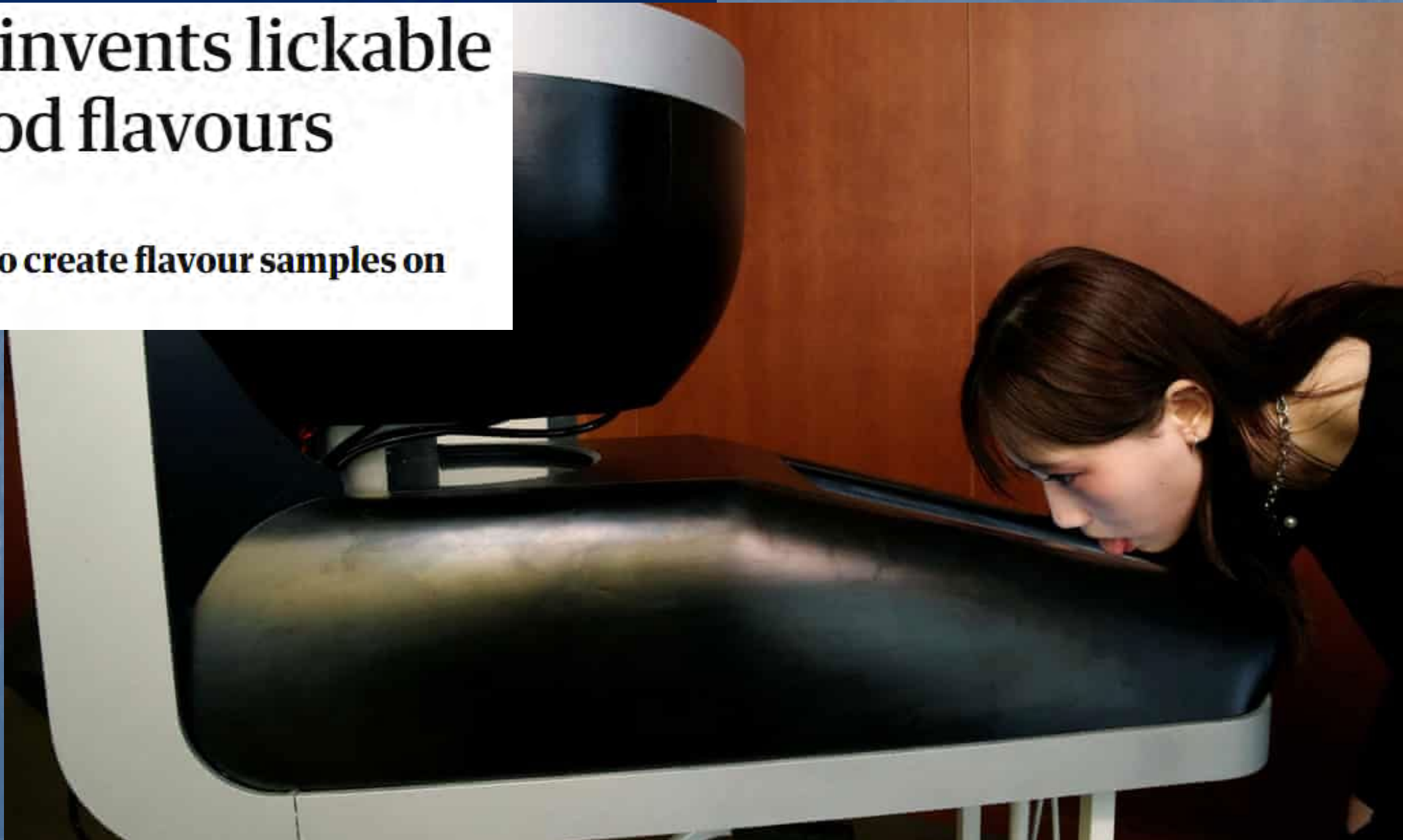
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US edition ▾

The
Guardian
For 200 years

Taste the TV: Japan invents lickable screen to imitate food flavours

Prototype uses carousel of canisters to create flavour samples on hygienic film over flatscreen TV



Questions?

(if time allows)

A pdf of these slides is at bit.ly/tr22-year