Confoo 2024
Keynote

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WHY WE SHOULD KEEP INTERNET DECENTRALIZED

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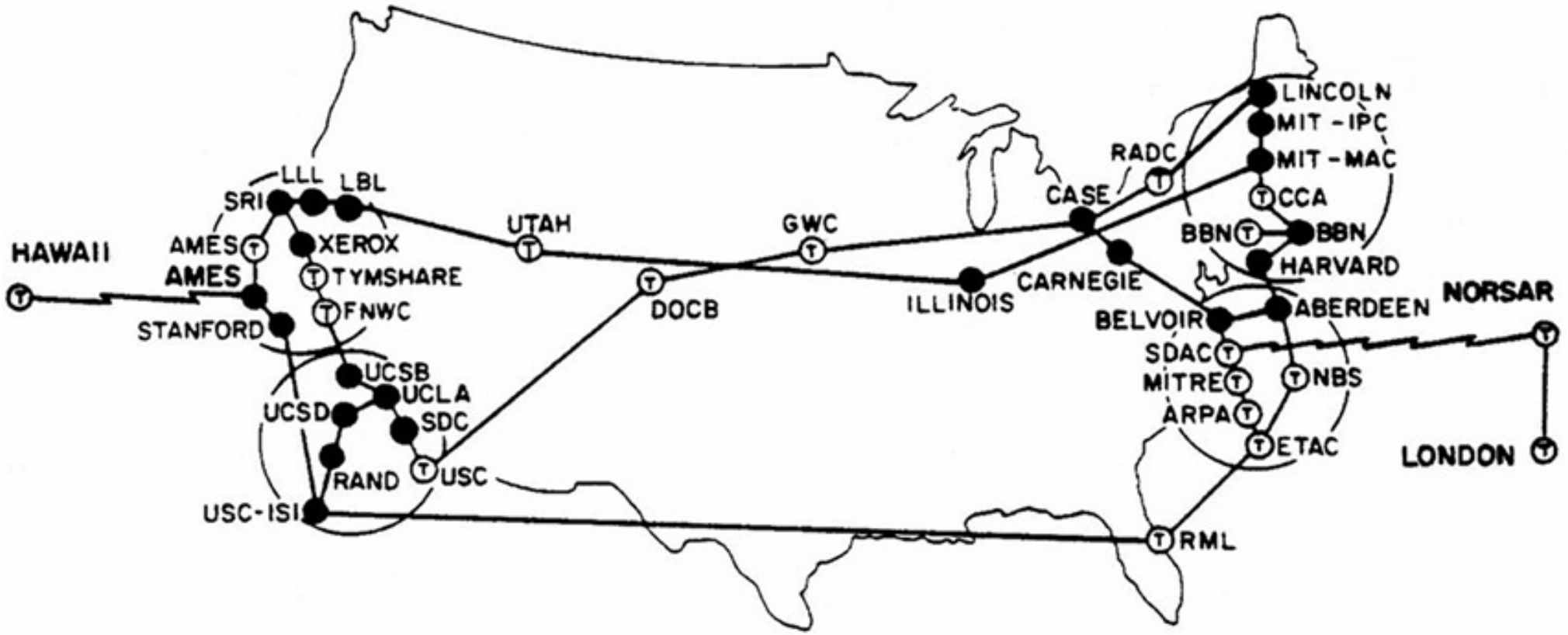
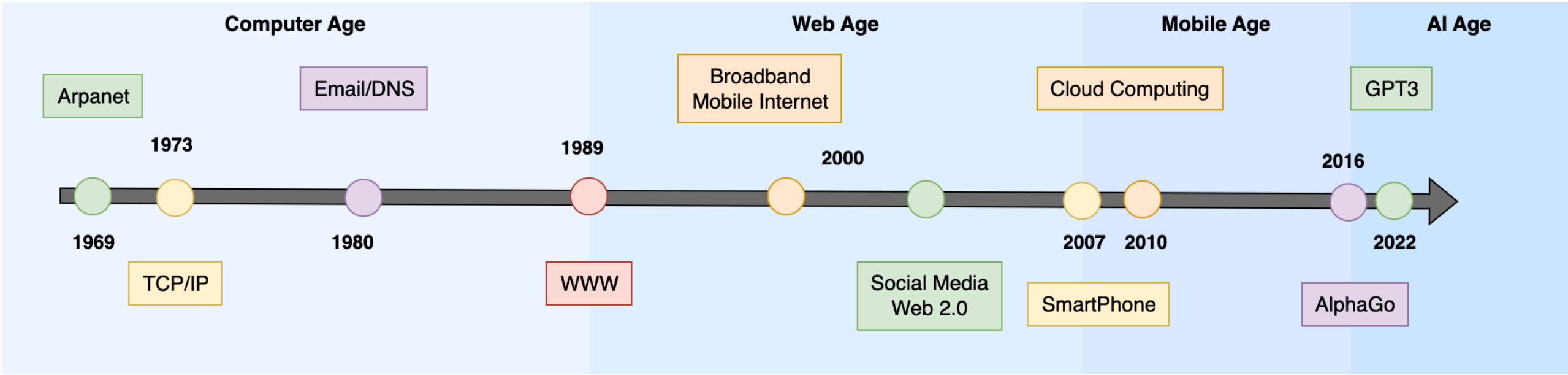
Network

Infrastructure

Services

Internet in 1973




Computer Age
Web Age
Mobile Age
AI Age
Arpanet
Email/DNS
Broadband
Mobile Internet
Cloud Computing
GPT3
1973
1989
2000
2016
1969
1980
2007
2010
2022
TCP/IP
WWW
Social Media
Web 2.0
SmartPhone
AlphaGo

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Cyber risks leads gov to increase control over Internet

2013 Edward Snowden leak: revealing extensive global surveillance programs run by the NSA and other intelligence agencies.

China's Great Firewall: massive surveillance measures aimed at controlling access to information.

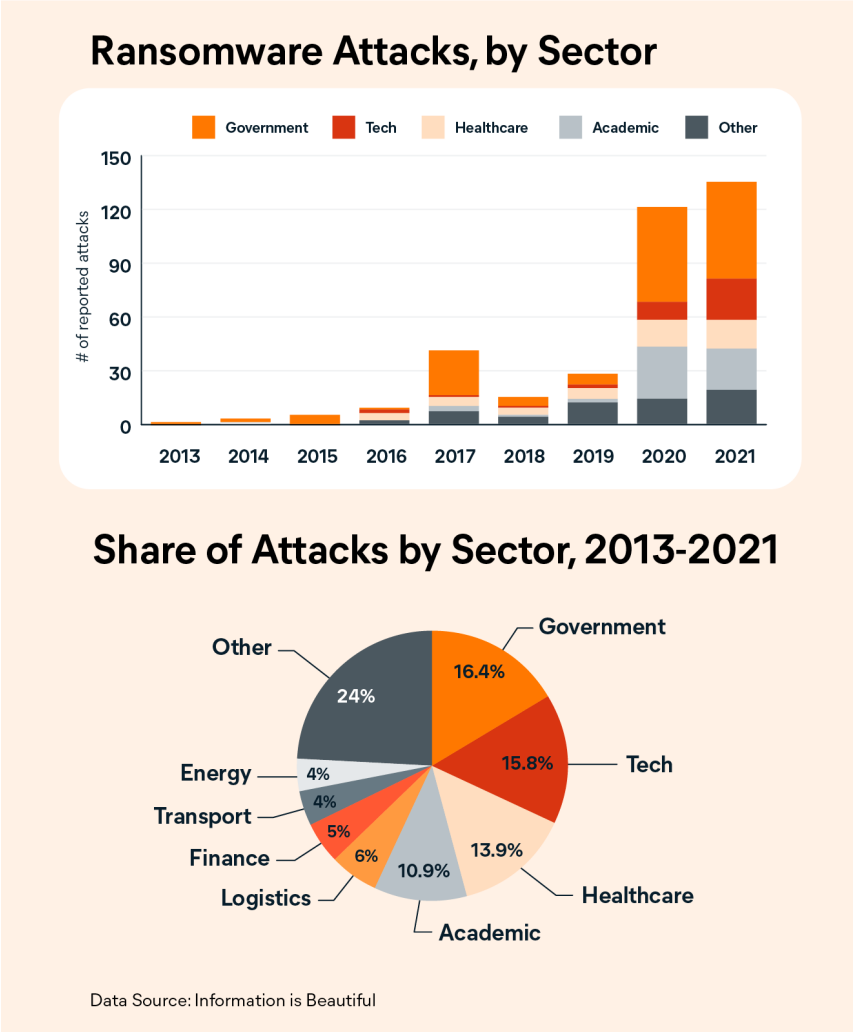
2021 Colonial Pipeline ransomware attack: A cyberattack on the Colonial Pipeline, a major fuel pipeline in the US, caused fuel shortages and price hikes, demonstrating the potential impact of attacks on critical infrastructure relying on centralized systems.

The 2011 Egyptian internet blackout: During the Egyptian Revolution, authorities shut down internet access nationwide in an attempt to stifle communication and suppress protests.

2021 Myanmar military coup internet blackout: Following the military coup, Myanmar's junta ordered internet blackouts, hindering international scrutiny and communication within the country.

2023 Cuba internet shutdown: During protests against the government, Cuban authorities restricted internet access, limiting communication and information sharing among protestors and citizens.

July 2023 Russian Runet: the Russian government tried to disconnect its Internet infrastructure from the larger global Web. This test of Russia's "sovereign Internet"



https://www.avast.com/c-biggest-ransomware-attacks

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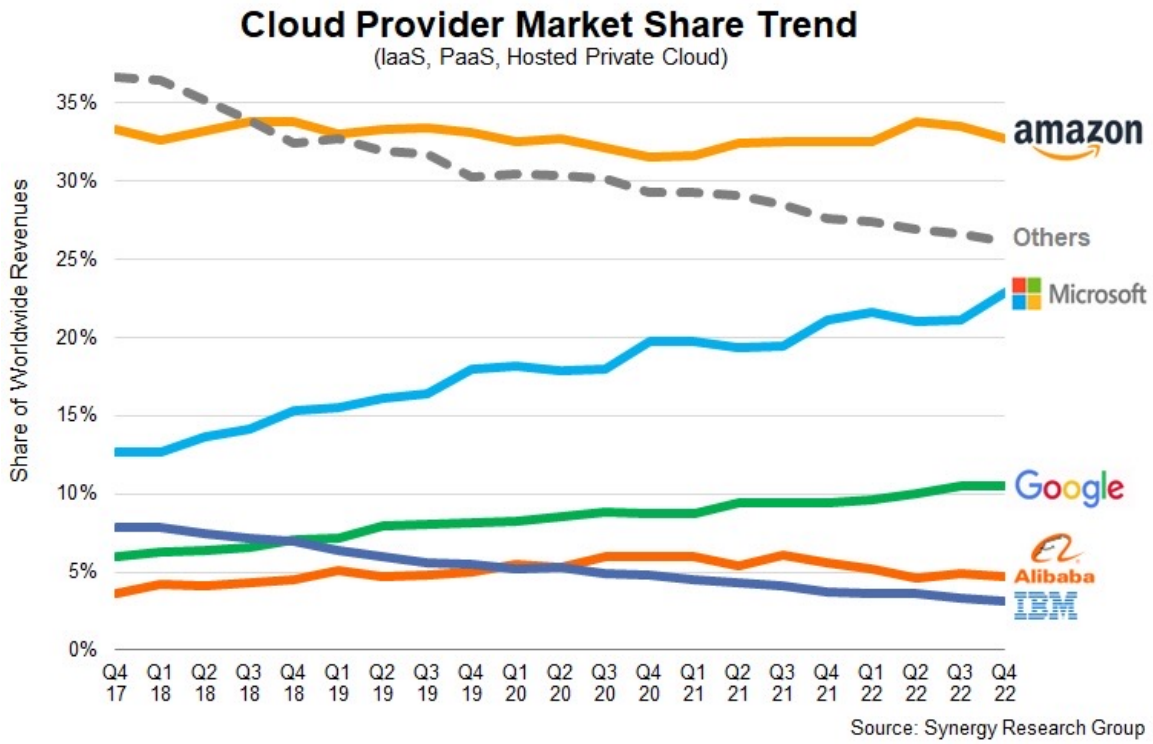
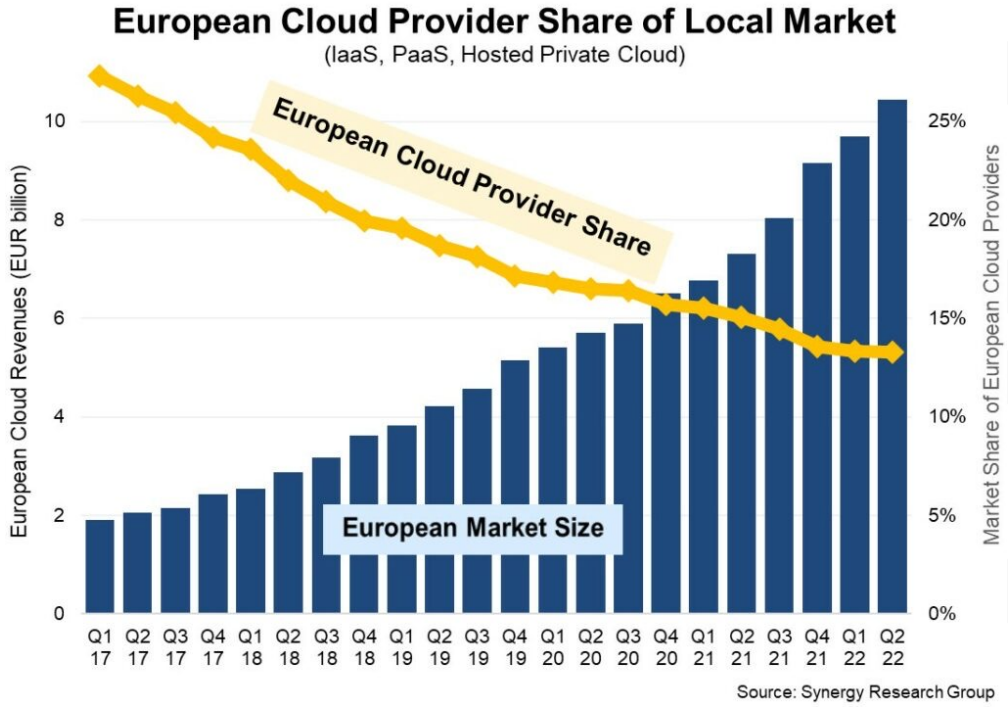
Infrastructure concentration in the cloud computing





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Machine Learning requires always more

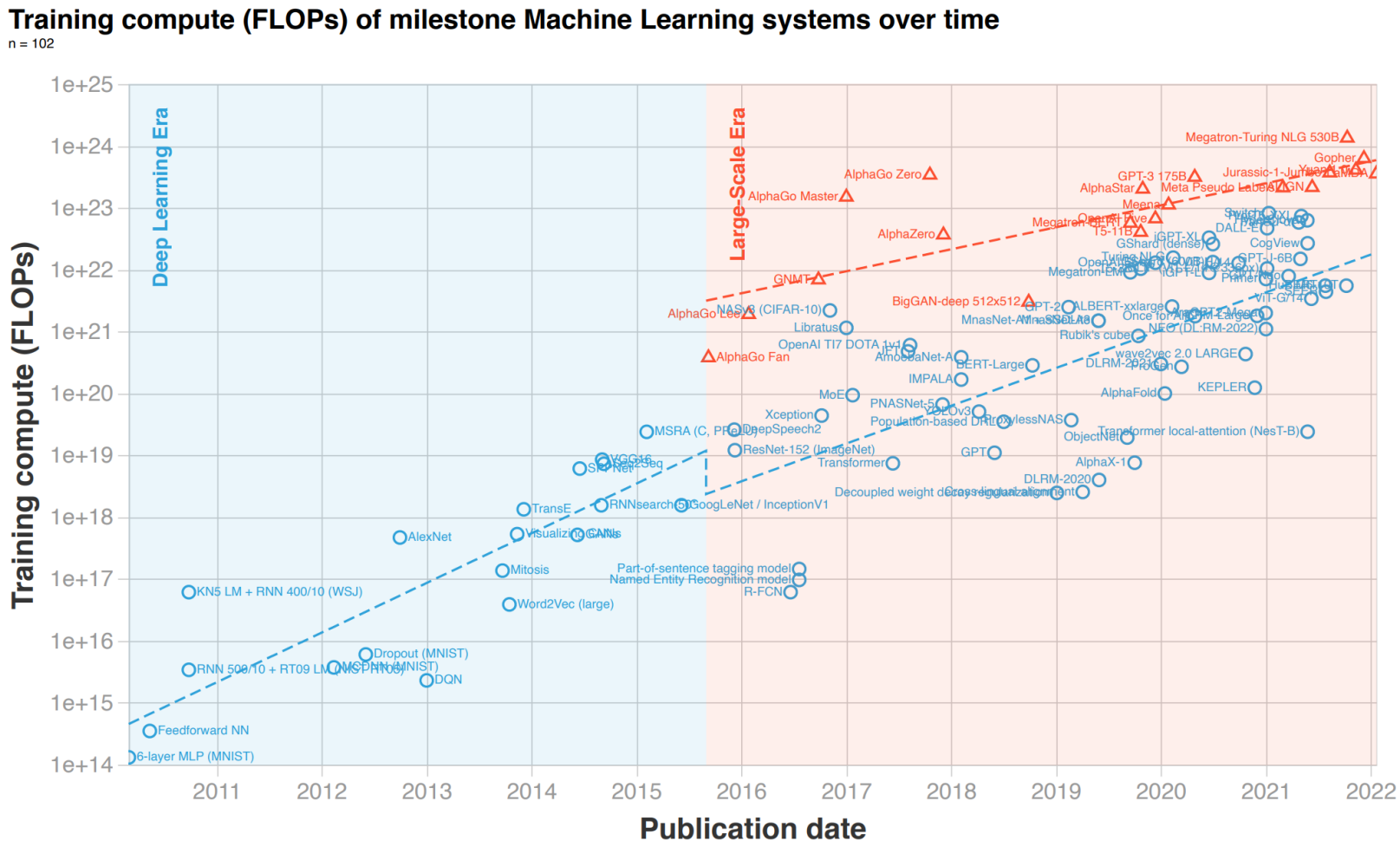
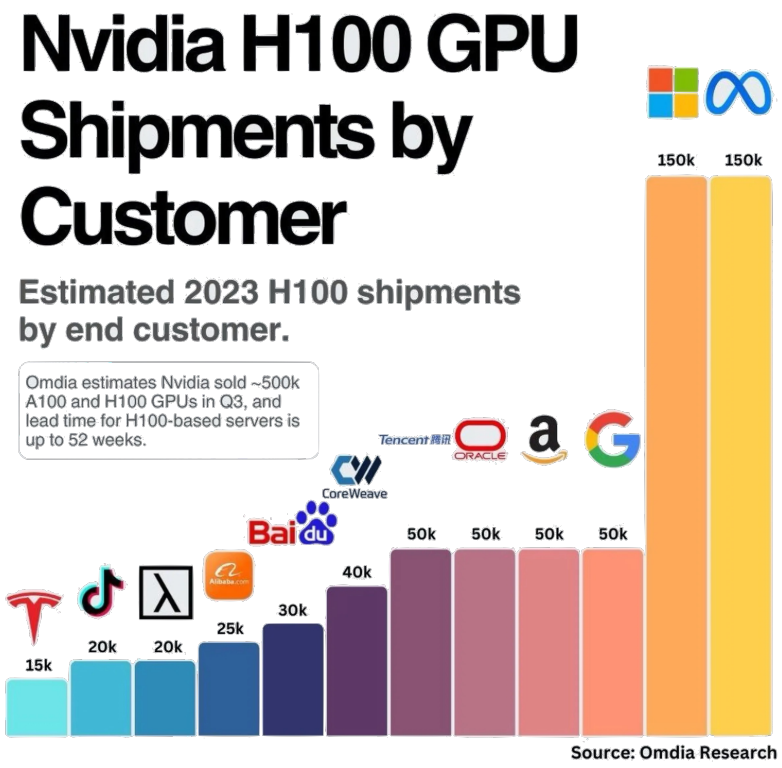


Figure 3: Trends in training compute of $n102$ milestone ML systems between 2010 and 2022. Notice the emergence of a possible new trend of large-scale models around 2016. The trend in the remaining models stays the same before and after 2016.

But requires substantial financial investments



"We have built up the capacity to do this at a scale that may be larger than any other individual company"

Mark Zuckerberg Jan 18th 2024

Sam Altman Seeks Trillions of Dollars to Reshape Business of Chips and AI

OpenAI chief pursues investors including the U.A.E. for a project possibly requiring up to $7 trillion

Singularity or Superintelligence

Vernor Vinge

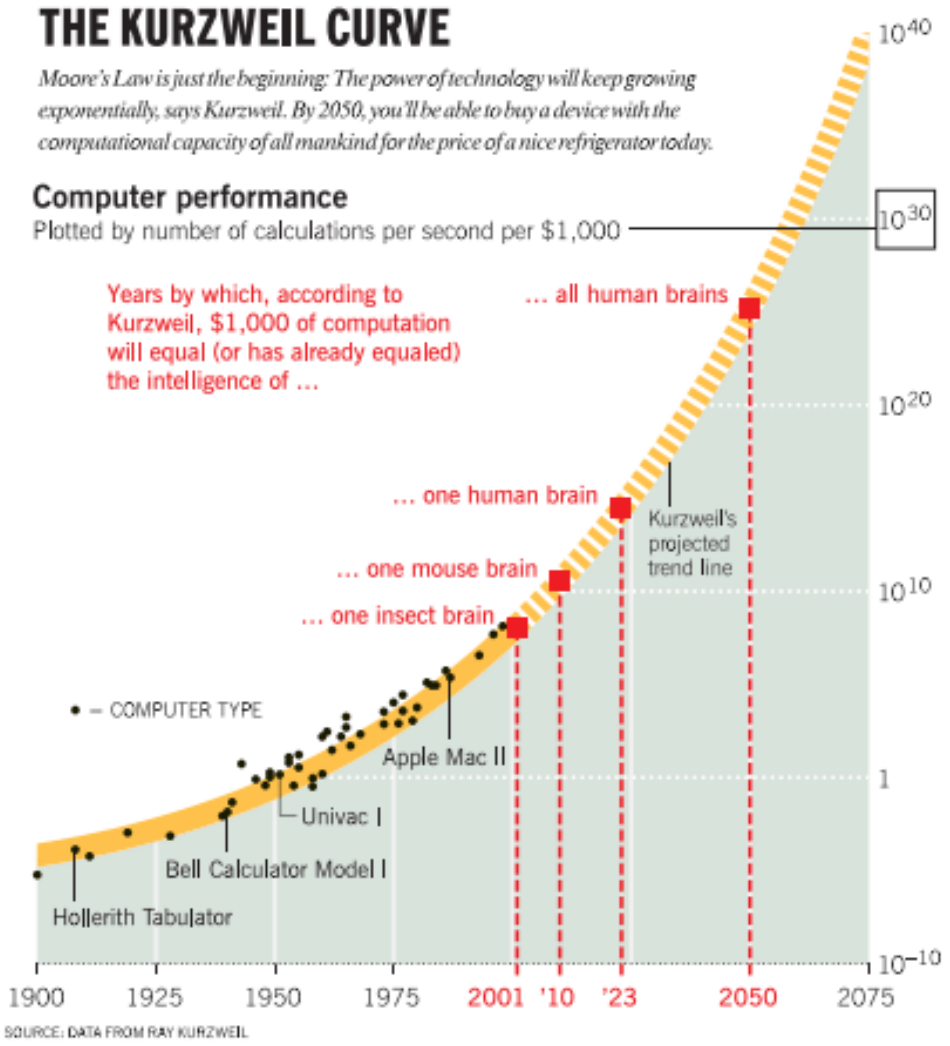
Technological Singularity

Escalation Risks from Language Models in Military and Diplomatic Decision-Making

Juan-Pablo Rivera[a,*], **Gabriel Mukobi**[b,*], **Anka Reuel**[b,*], **Max Lamparth**[b], **Chandler Smith**[c], **Jacquelyn Schneider**[b,d]

[a] Georgia Institute of Technology [b] Stanford University
[c] Northeastern University [d] Hoover Wargaming and Crisis Simulation Initiative

https://arxiv.org/abs/2401.03408



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Risks

Censorship and Surveillance

Manipulation and Propaganda

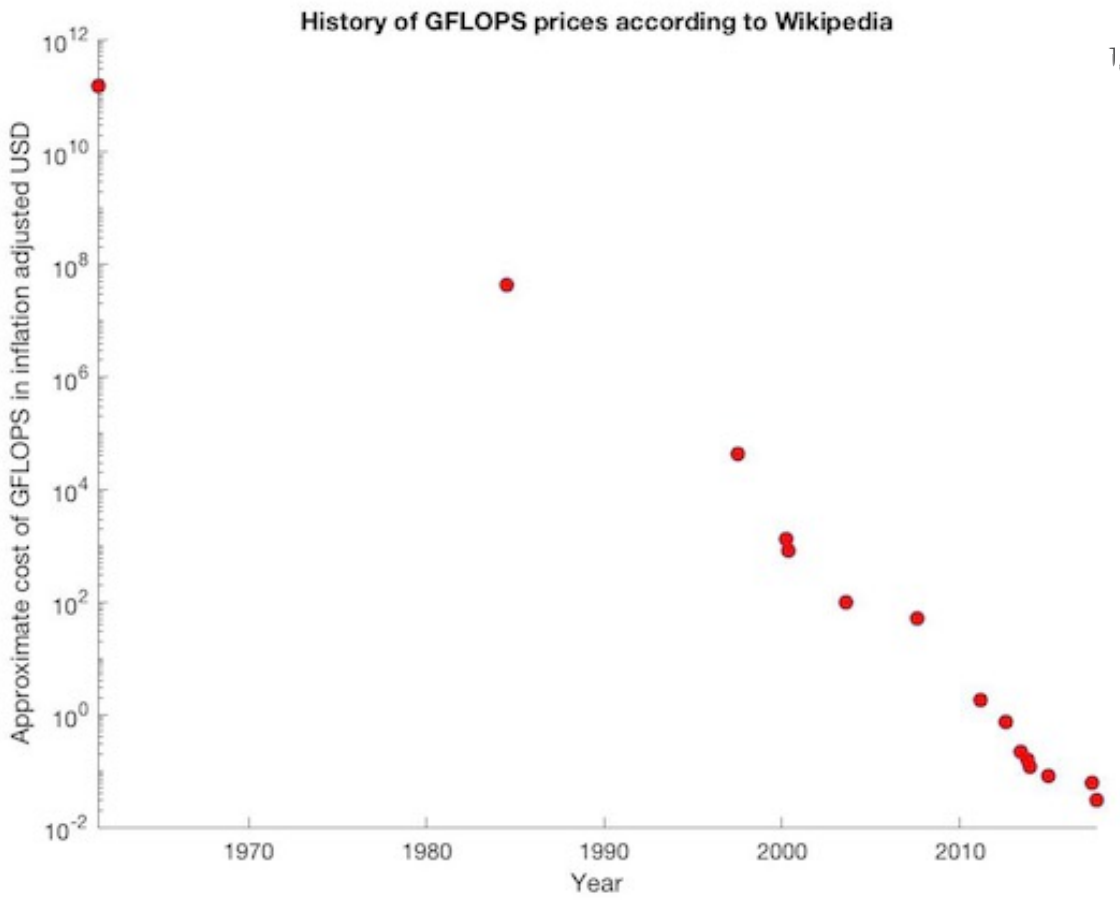
Dependency, Lack of Redundancy and Resilience

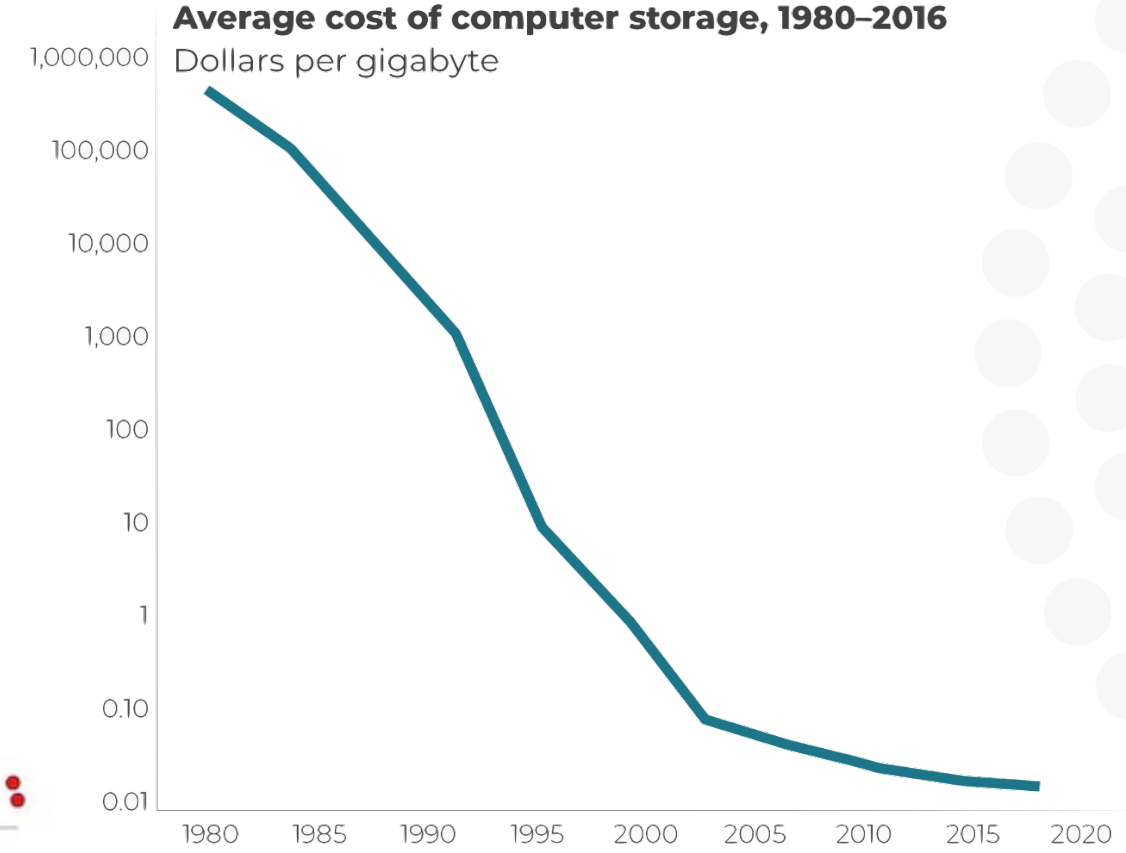
Limited Innovation and Competition

Concentration of Power

What can we do?

Computers get cheaper





Source: AcceleratingBiz, "Average Magnetic Storage Price Fell Drastically from $437,500 per Gigabyte in 1980 to $0.019 in 2016, a 99.99% Decline," Proof Point, October 5, 2017.

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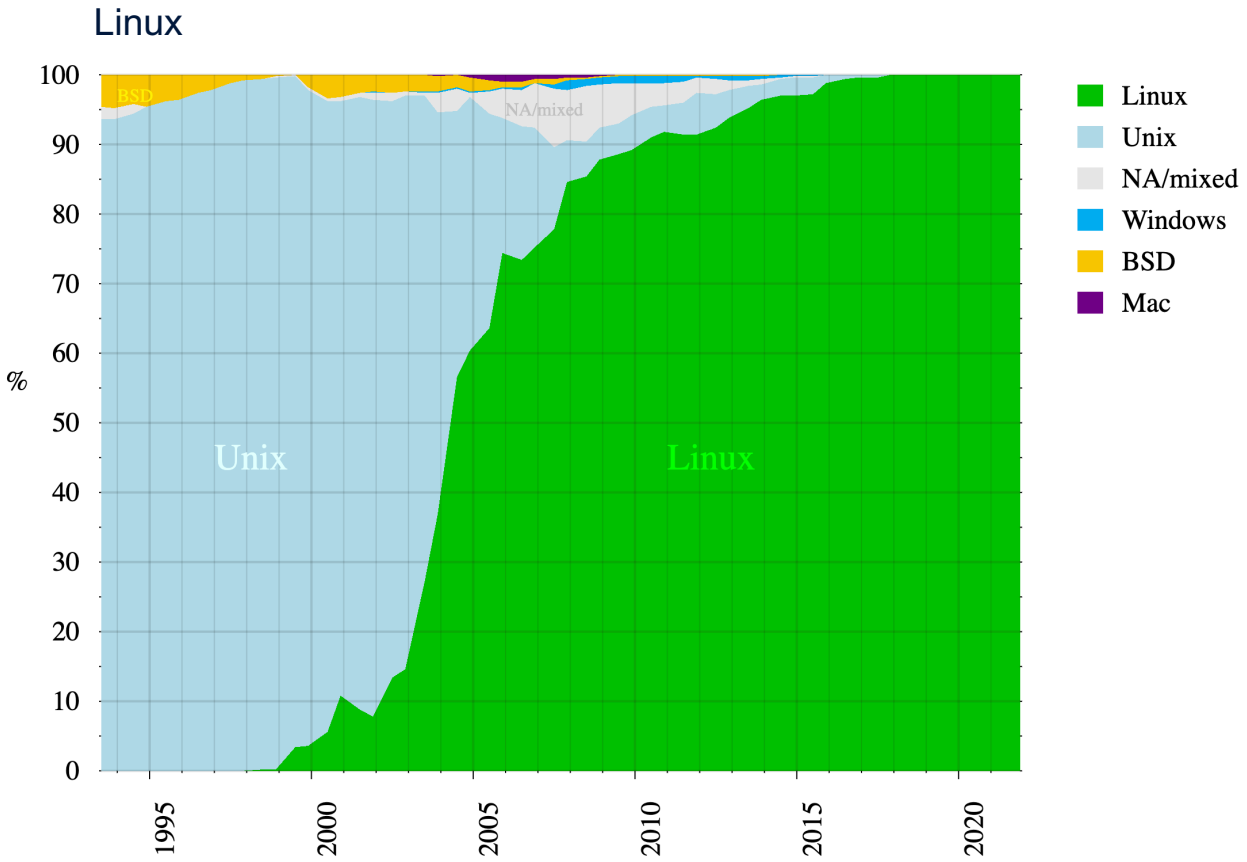
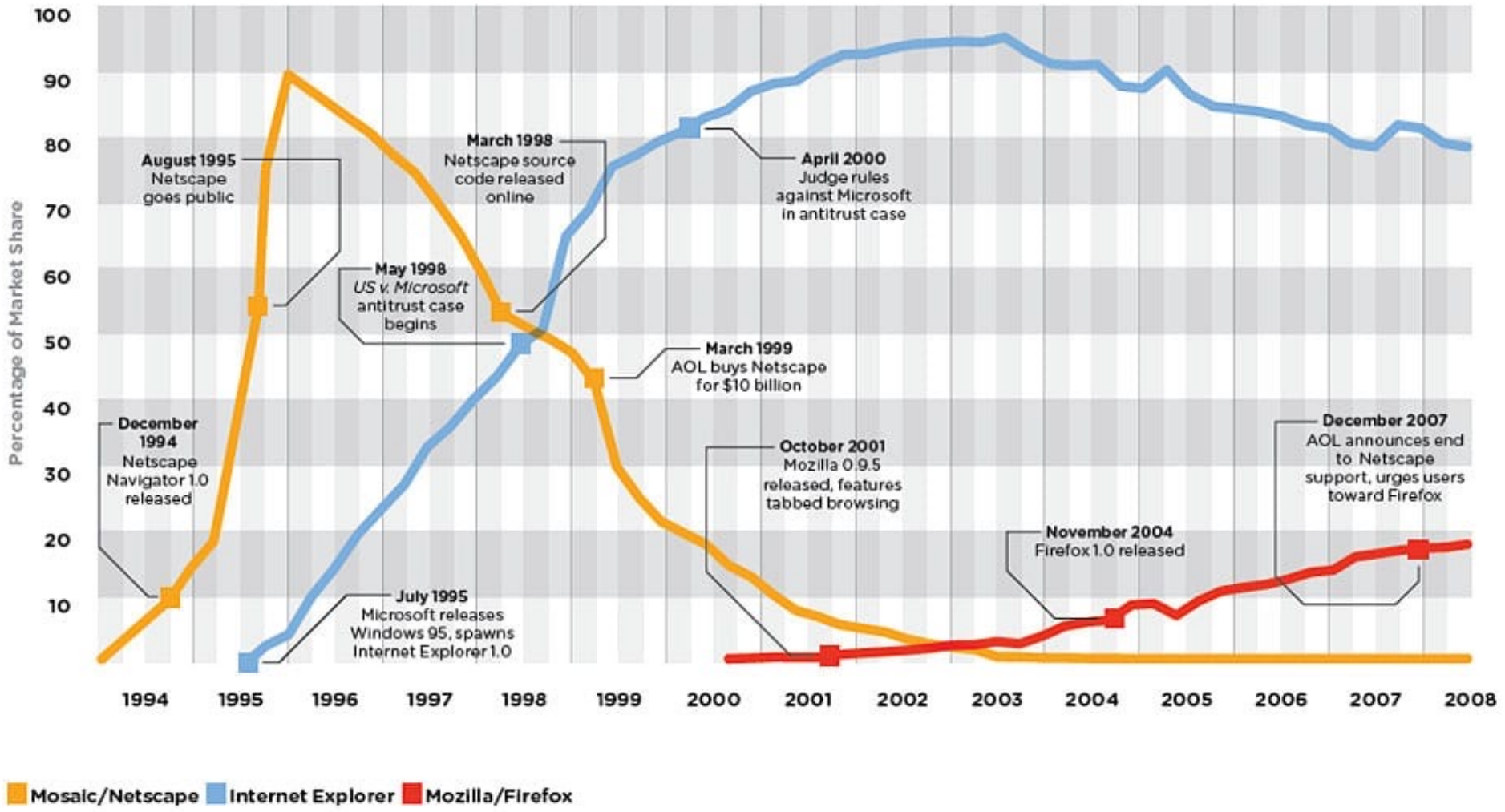
The power of the community




```
From: torvalds@klaava.Helsinki.FI (Linus Benedict Torvalds)
Newsgroups: comp.os.minix
Subject: What would you like to see most in minix?
Summary: small poll for my new operating system
Message-ID:
Date: 25 Aug 91 20:57:08 GMT
Organization: University of Helsinki


Hello everybody out there using minix -

I'm doing a (free) operating system (just a hobby, won't be big and
professional like gnu) for 386(486) AT clones.  This has been brewing
since april, and is starting to get ready.  I'd like any feedback on
things people like/dislike in minix, as my OS resembles it somewhat
(same physical layout of the file-system (due to practical reasons)
among other things).

I've currently ported bash(1.08) and gcc(1.40), and things seem to work.
This implies that I'll get something practical within a few months, and
I'd like to know what features most people would want.  Any suggestions
are welcome, but I won't promise I'll implement them :-)

                Linus (torvalds@kruuna.helsinki.fi)

PS.  Yes - it's free of any minix code, and it has a multi-threaded fs.
It is NOT protable (uses 386 task switching etc), and it probably never
will support anything other than AT-harddisks, as that's all I have :-(.

 Judging from the post, 0.01 wasn't actually out yet, but it's close.
 I'd guess the first version went out in the middle of September -91. I
 got some responses to this (most by mail, which I haven't saved), and
 I even got a few mails asking to be beta-testers for linux. After that
 just a few general answers to quesions on the net:
```

Technical domination can fade away



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The power of crowd resources

Seti@Home

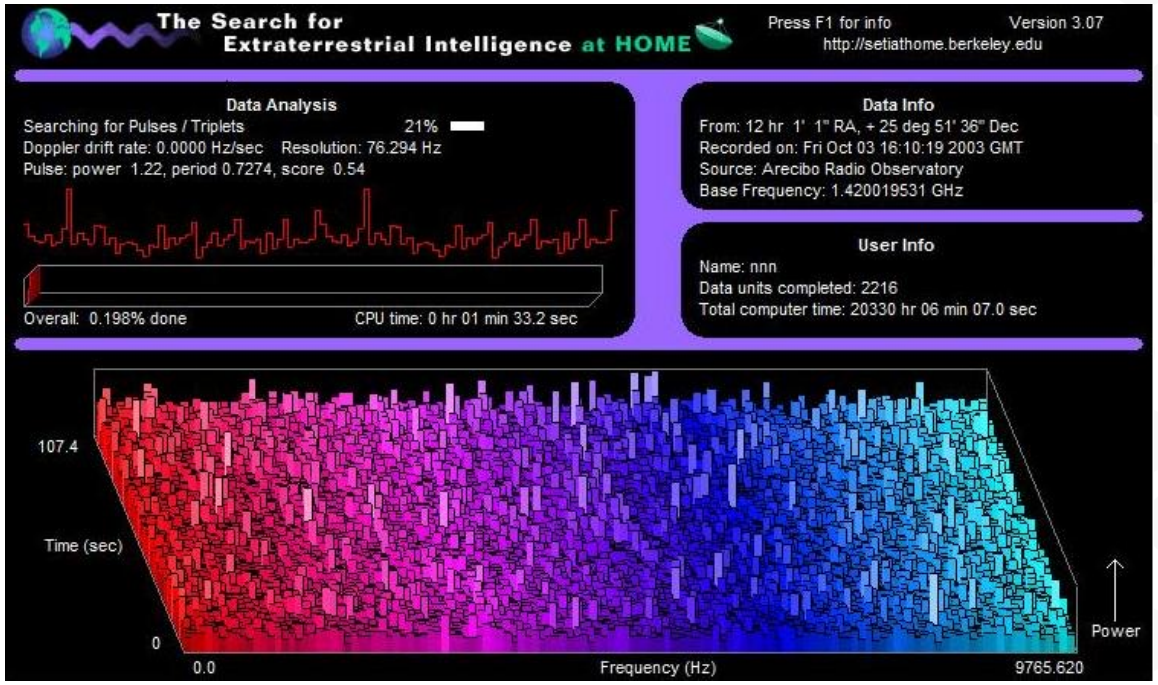
5.2 million participants worldwide

Folding@home

Reached 2.43 exaflops by April 12, 2020

1 ExaFLOPS, or 1,000,000,000,000,000,000 floating point operations per second.

Giga > Tera > Peta > Exa



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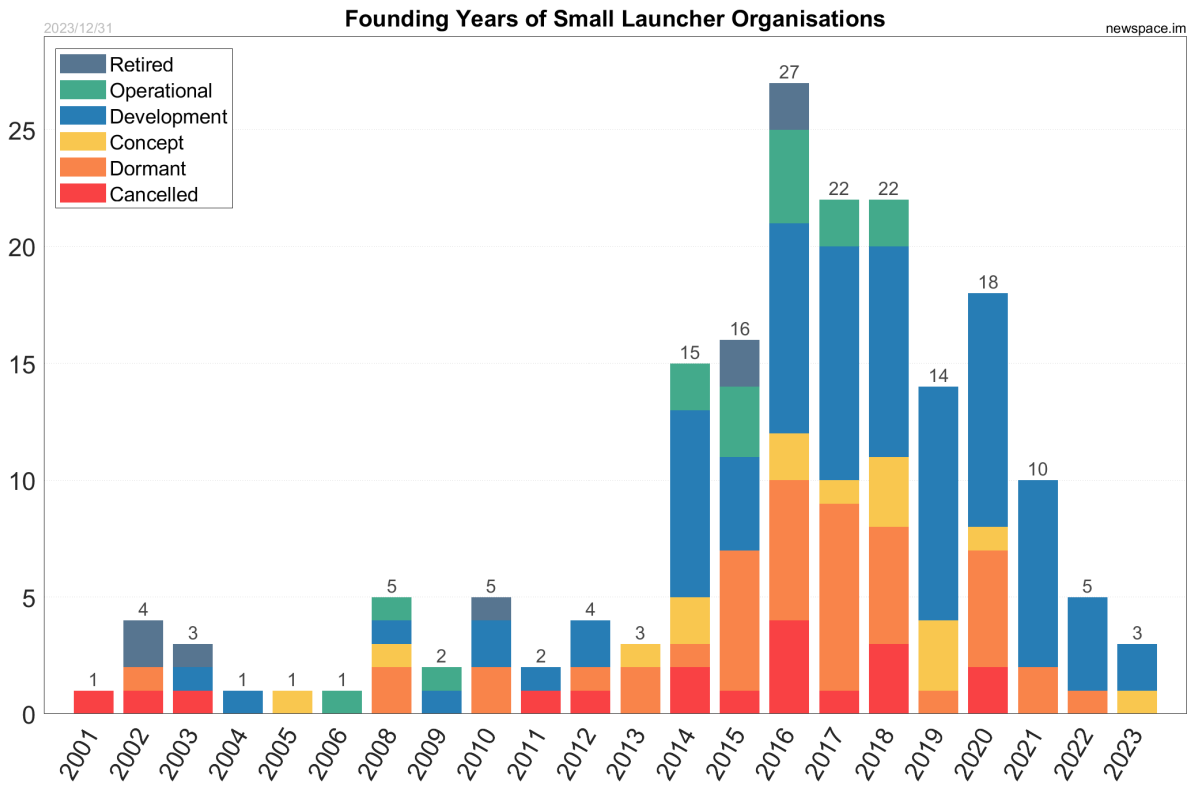
And for the next decade?

Satellite Networks

Cost reduction and commoditization of the satellite



RIDESHARE PROGRAM

DESIRED ORBIT: SSO
NO EARLIER THAN: 06/2024
INPUT PAYLOAD MASS: 50 kg
ESTIMATED PRICE: $0.3 M

AVAILABLE FLIGHTS

SEE ALL FLIGHTS > SEE DEDICATED RIDESHARE FLIGHTS >

DATE	ORBIT	PERIGEE	APOGEE	SEMI-MAJOR AXIS ALT.	INCL.	AVAILABILITY
10/2025	SSO	500-600km	500-600km	500-600km	SSO	XL
Q1 2026	SSO	500-600km	500-600km	500-600km	SSO±0.1	1/4, 1/2, Full, XL
Q2 2026	SSO	500-600km	500-600km	500-600km	SSO±0.1	1/4, 1/2, Full, XL
Q4 2026	SSO	500-600km	500-600km	500-600km	SSO±0.1	1/4, 1/2, Full, XL
Q1 2027	SSO	500-600km	500-600km	500-600km	SSO±0.1	1/4, 1/2, Full, XL
Q2 2027	SSO	500-600km	500-600km	500-600km	SSO±0.1	1/4, 1/2, Full, XL
Q4 2027	SSO	500-600km	500-600km	500-600km	SSO±0.1	1/4, 1/2, Full, XL

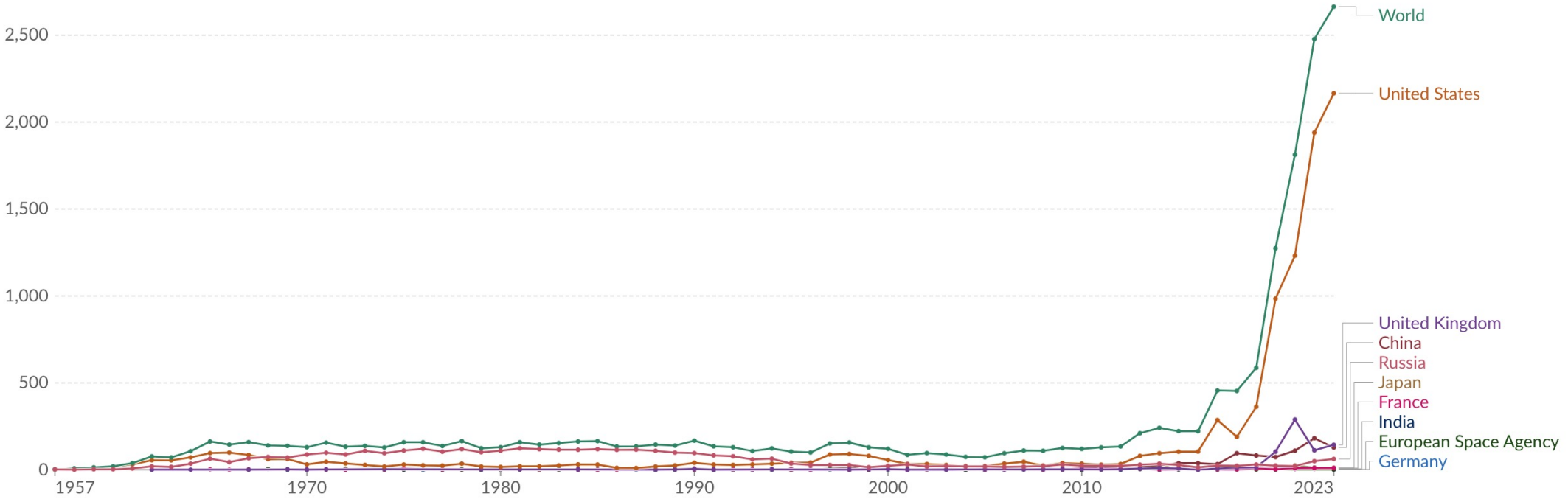
Annual number of objects launched into space

This includes satellites, probes, landers, crewed spacecrafts, and space station flight elements launched into Earth orbit or beyond.

Our World in Data

Table | Map | Chart

Edit countries and regions | Settings



Play time-lapse | 1957 | 2023

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5G-GOA

5G Globally Accessible

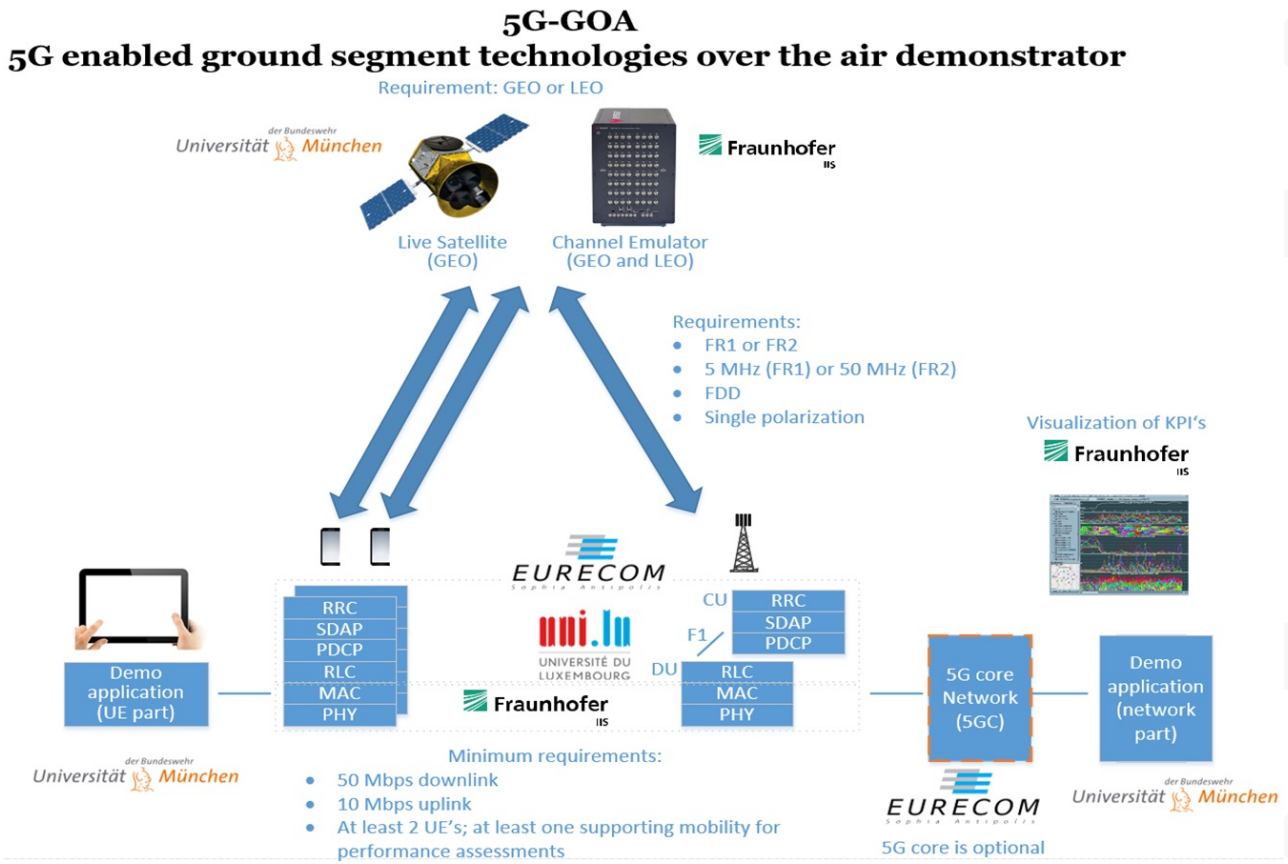
Internet via Satellite: direct radio access of terrestrial communication networks via satellite, specifically integrating a 5G RAN (Radio Access Network) with Non-Terrestrial Networks (NTNs) through satellites.

Open Air Interface

Open-source platform for mobile network implementations.

Direct Geostationary Satellite Connectivity

Wider coverage and ease of access (though other satellite orbits might be considered in the future)

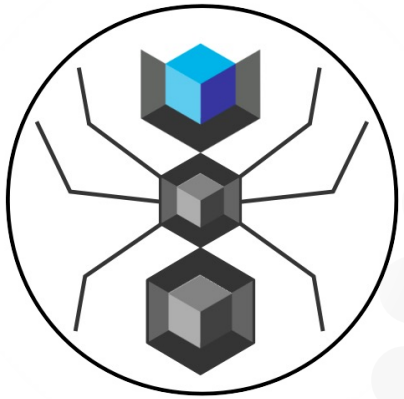


https://connectivity.esa.int/projects/5ggoa

Crowd shared resources

Learning@home – hivemind

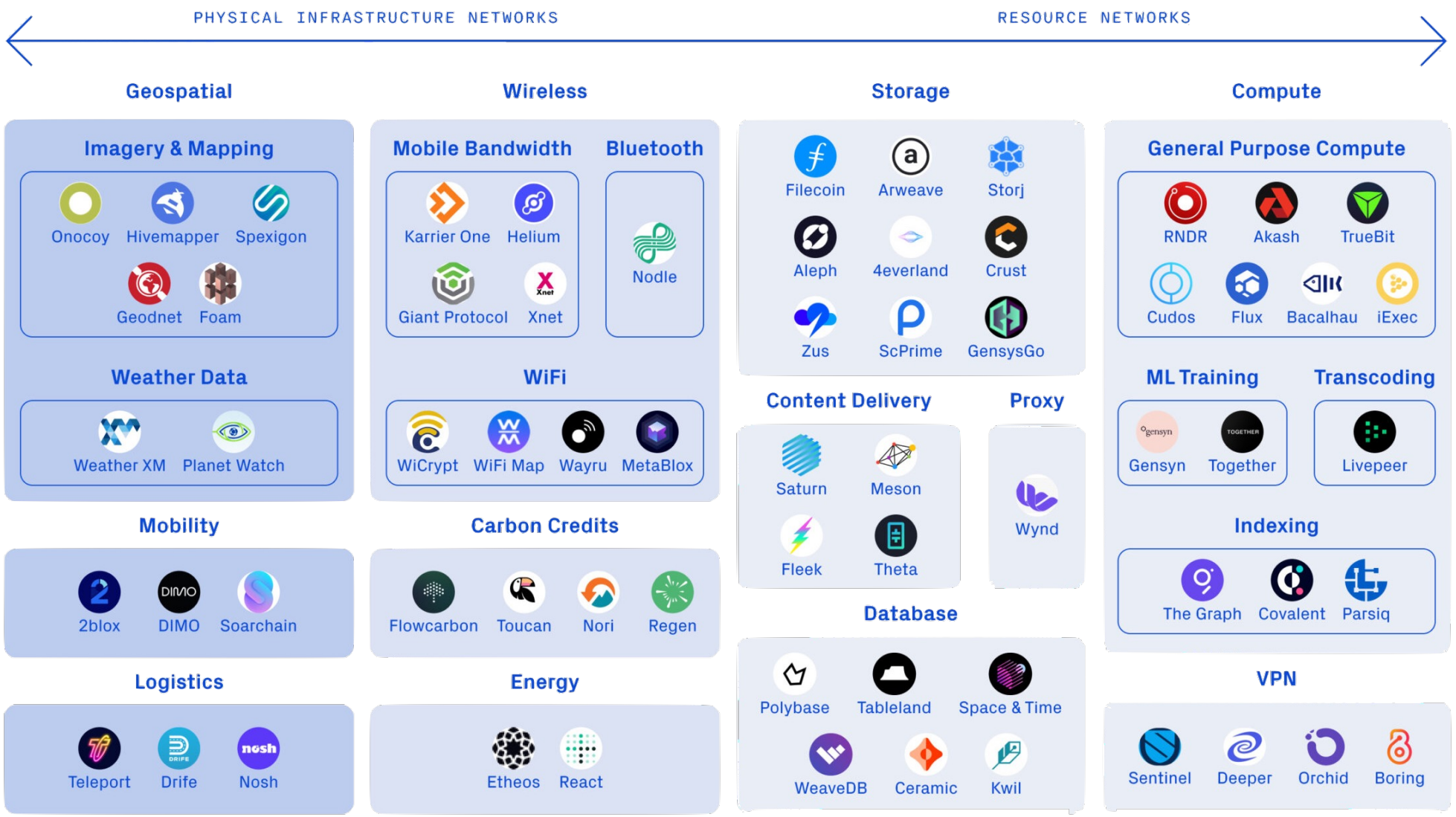
Allows multiple computers, ranging from individual workstations to powerful servers, to collaboratively train a single large deep learning model without the need for a central server.
https://github.com/learning-at-home/hivemind



AI Horde

This is a crowdsourced distributed cluster of Image generation workers and text generation workers.
https://aihorde.net/

Decentralized Physical Infrastructure (DePIN)



Blockchain based resource marketplace

gensyn

Deep learning computation marketplace performing ML tasks (proof-of-learning)
https://www.gensyn.ai/

golem

Decentralized marketplace for computing power, focusing on rendering and scientific tasks (Proof-of-Use consensus).

HOLOCHAIN

Framework for building distributed applications with its own hosted network (Holochain).

vast.ai

Decentralized cloud computing platform for AI and other workloads (Blockchain Polygon)

iExec

Decentralized marketplace for computing power, data, and applications (Blockchain Ethereum)

Blockchain based resource marketplace

Low-cost, long-term file storage
(Blockchain Siacoin)

Storage utilization

1.56 PB

7.24 PB

Active hosts

459

84,988

Average download price

$6.99/TB

522.254 SC/TB

Average upload price

$0.76/TB

56.555 SC/TB

Secure, reliable storage for businesses and individuals
(Blockchain Ethereum & custom)

Content-addressed, distributed file system (peer-to-peer network, Merkle DAG)

“You must understand that there is more than one path to the top of the mountain”

Miyamoto Musashi

A Book of Five Rings: The Classic Guide to Strategy

$$F = T \nabla S_T$$

“ Intelligence is a force, F, that acts so as to maximize future freedom of action.”

Alexander Wissner-Gross

DiliTrust

Thank you

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