Internet Governance - The Future is what we make of it

Maarten Botterman

University of Twente, 17 September 2025

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The only constant is change.

“The best way to predict your future is to be part of it’s creation.”

Abraham Lincoln

A 2035 vision …

“The Internet of 2035 will be a very different place than what we know today. It will be faster, more secure, and more accessible than ever. It will be a place where people can come together to share ideas, collaborate, and create something special. It will be a platform for innovation and creativity, and a tool for social change. The possibilities are limitless, and it will be a place where anything is possible.”

https://medium.com/@20210001214/the-future-of-the-internet-and-social-media-a-2035-vision-45b1b7cc5b45

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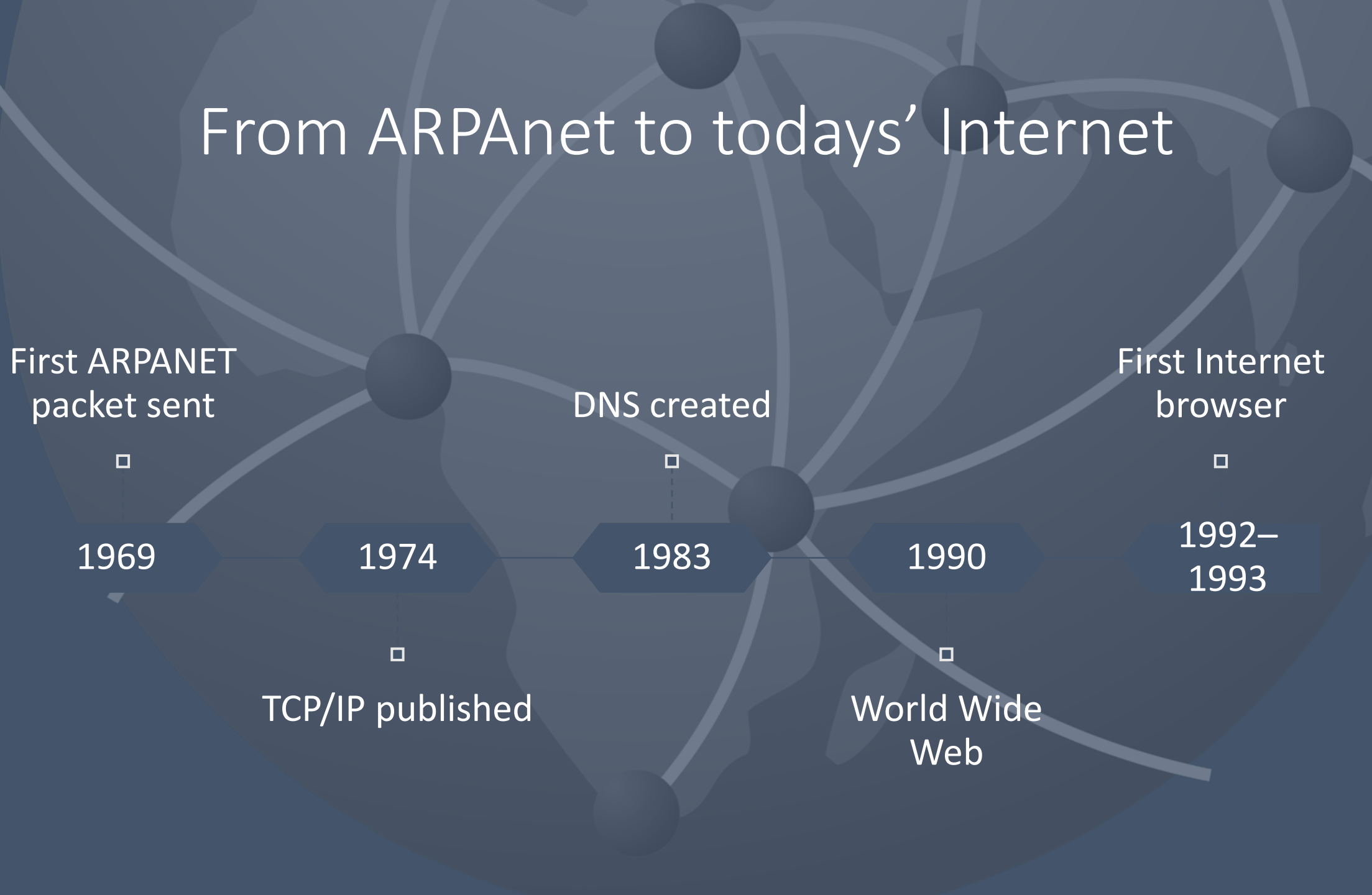
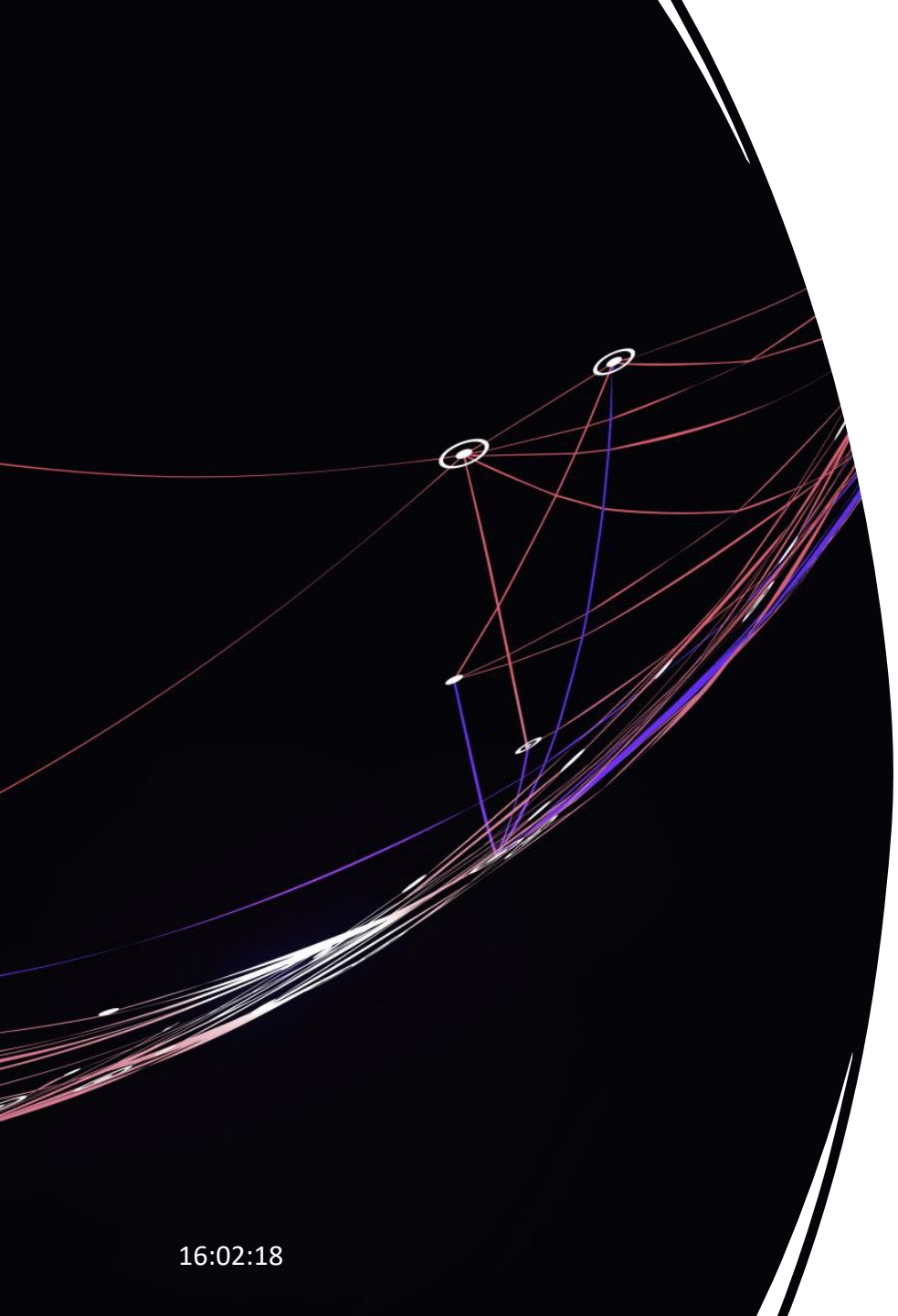
How did it all begin?

Early pioneers …

still leaders, today

From ARPAnet to todays' Internet





Core Principles of the Internet

The Internet thrives because it is open, interoperable, decentralized, end-to-end, layered, scalable, resilient, and cooperative.

These principles remain guiding beacons for its future evolution, even as new challenges (cybersecurity, digital sovereignty, AI, quantum) emerge.

Internet and Society

Shifting emphasis over time

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1969 first package sent across the ARPAnet

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1974. . . TCP-IP standard published

"We have to break the idea that an executive is a person who drives 33 miles a day to a central location where hundreds or thousands of people work in cubicles and, unless they go there, nothing gets done."

Jack Nilles

1969 – first message via ARPA net 1974 – TCP/IP 1983 – Domain Name System 1988 - IANA 1993 – WWW 1998 - ICANN

1990 . . . Telework (when deemed possible)

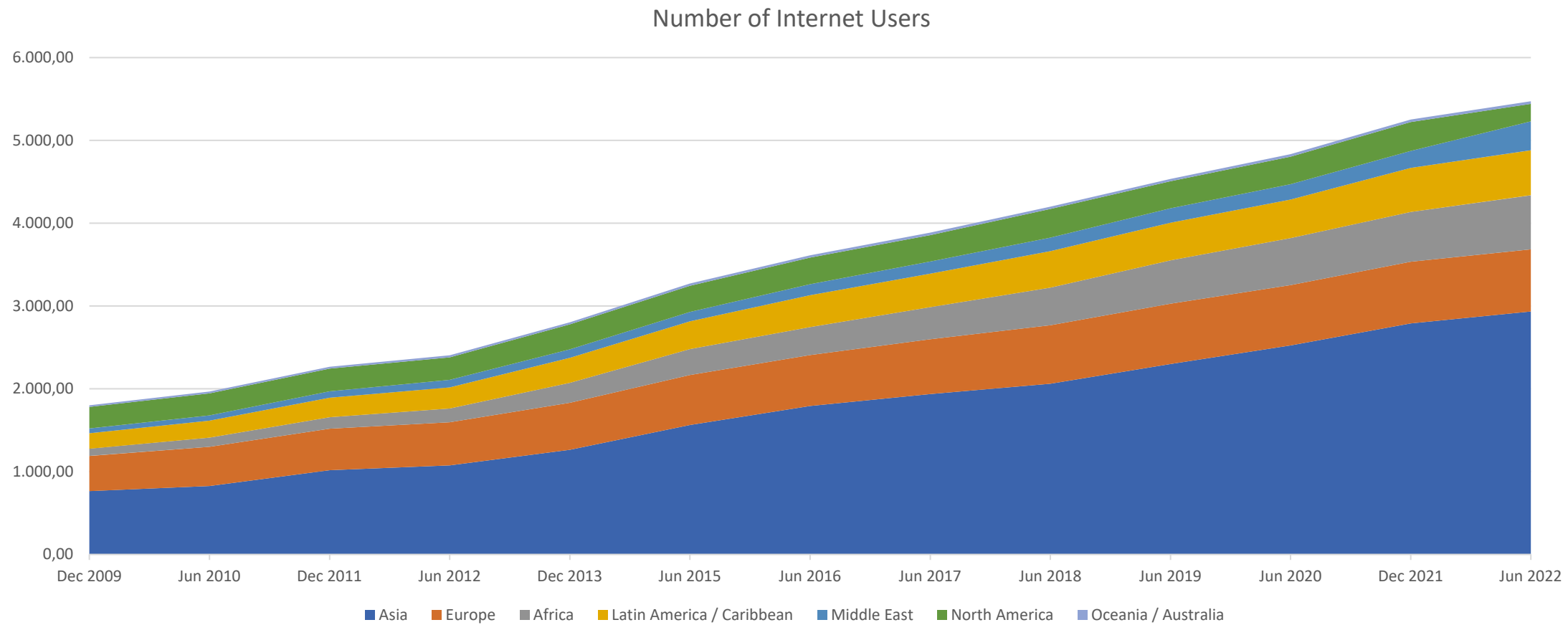
Via BBS and 2400 BPS modems

1993 – WWW became active

1998 – ICANN

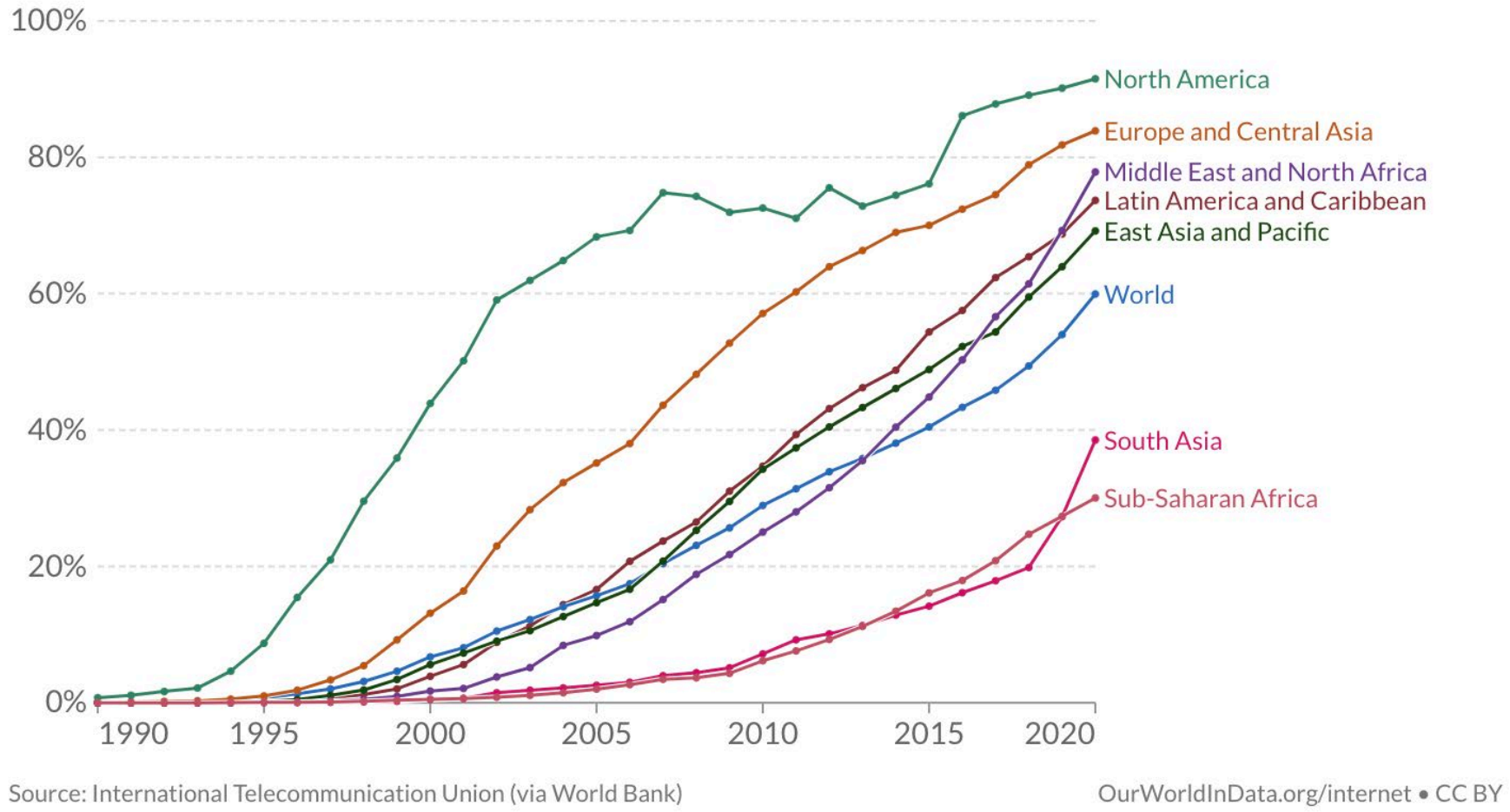
2019 … COVID - no physical presence

Internet usage around the world



Internet Access Globally

The next billion internet users will come from communities speaking a diverse set of languages.



Share of the population who used the Internet in the last three months.

30 June 2025

==========

5.65 billion Internet users

5,24 billion sociale media

371.7 million domain names

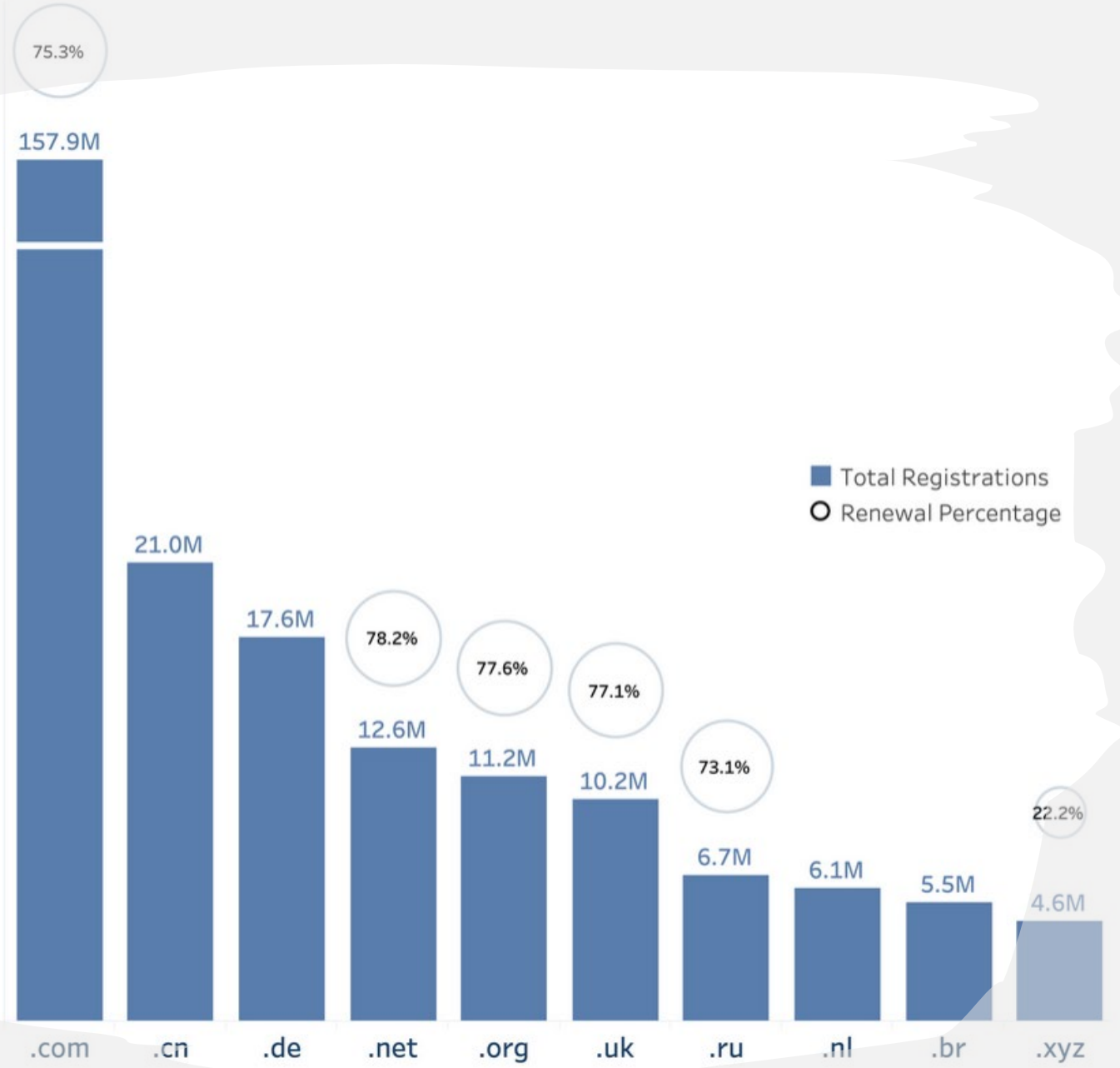
157.9 million .COM

30.9 million legacy TLD name

39.5 million new gTLD names

143.4 million ccTLD names

Growth YoY 2.6%



For each TLD, bar height indicates total registrations and circle diameter indicates quarterly renewal percentage estimate, when available.

Source: ZookNIC, Q2 2025; Verisign, Q2 2025; Centralized Zone Data Service, Q2 2025. For further information on The Domain Name Industry Brief methodology, please see https://dnib.com/methodology.

Internet governance

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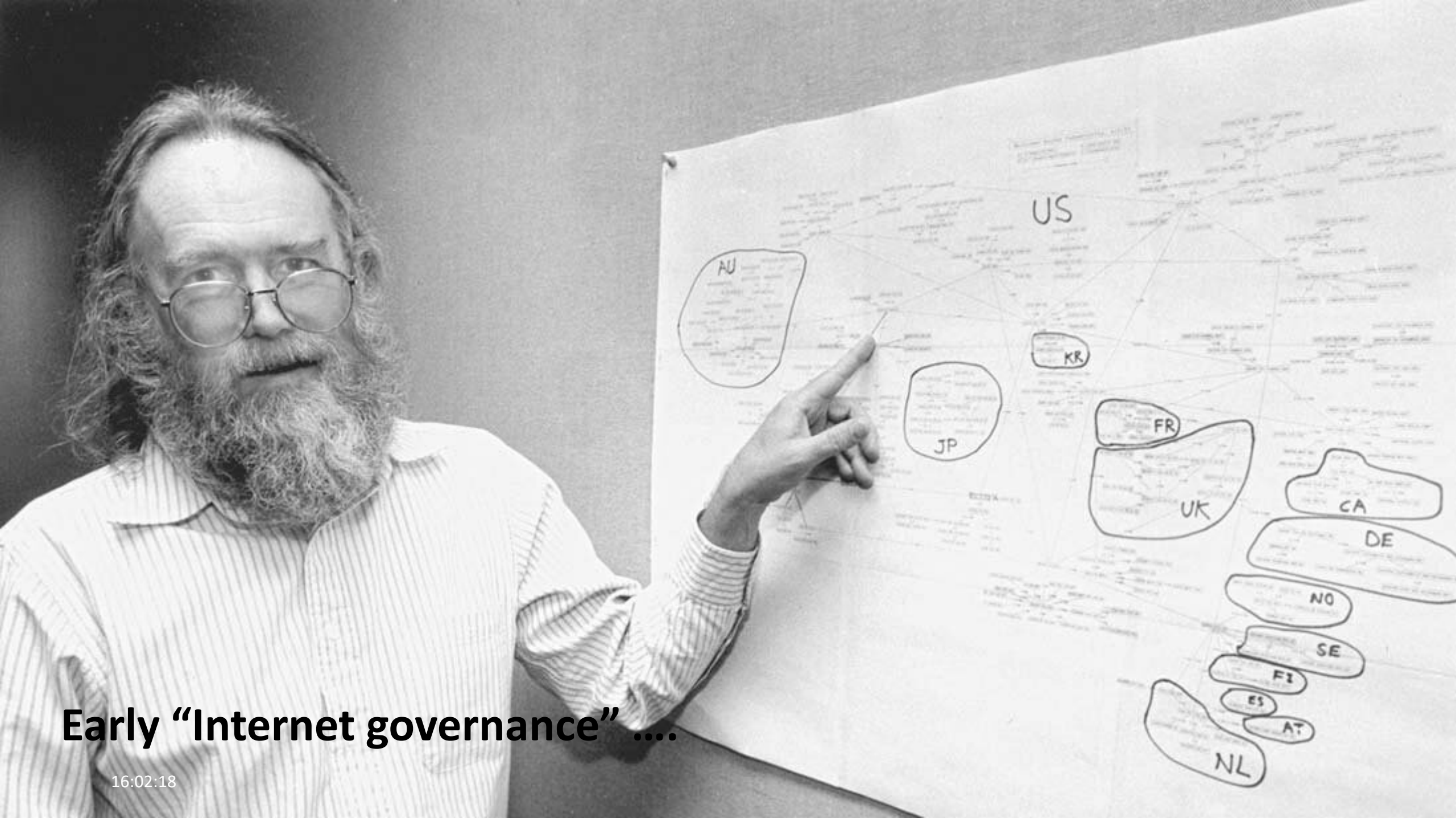

Early “Internet governance” ….

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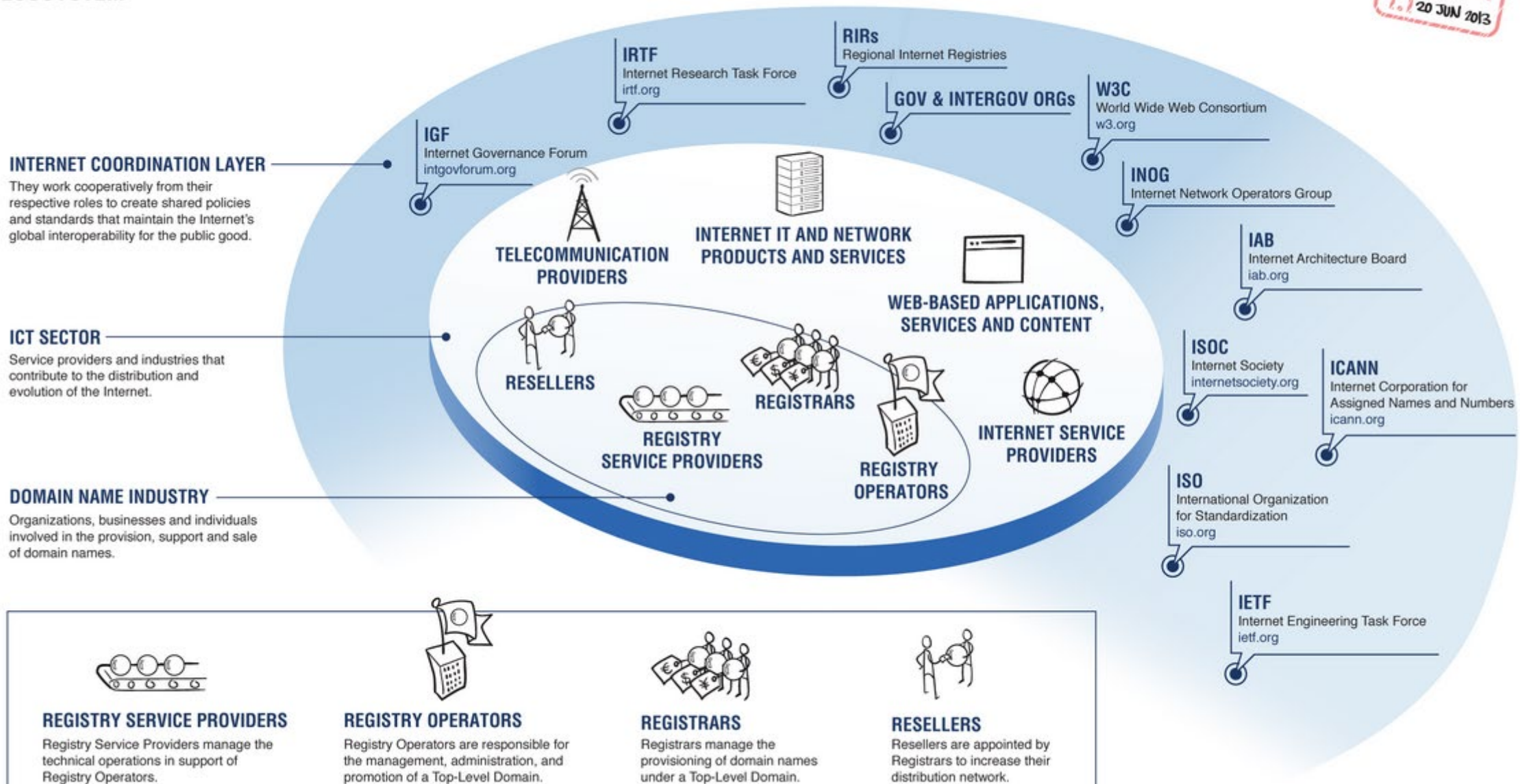
THE DOMAIN NAME INDUSTRY

ECOSYSTEM

VERSION 1.1 20 JUN 2013



REGISTRY SERVICE PROVIDERS

Registry Service Providers manage the technical operations in support of Registry Operators.

REGISTRY OPERATORS

Registry Operators are responsible for the management, administration, and promotion of a Top-Level Domain.

REGISTRARS

Registrars manage the provisioning of domain names under a Top-Level Domain.

RESELLERS

Resellers are appointed by Registrars to increase their distribution network.

Technical Internet Governance

The Internet Governance Ecosystem

Discussion

What are the strengths and weaknesses of such an ecosystem?

Future Internet

“Four Internets”

Wendy Hall and Kieren O’Hara

Silican Valley’s Open Internet

- Mainly driven by technology – based on engineering principles, yet confronted with geopolitical challenges

Brussels’ Burgeois Internet

- Protecting values –trolling and bad behaviour are minimized and privacy protected, possibly at the cost of innovation

Beijing’s Authoritarian Internet

- Technologies of surveillance and identification help ensure social cohesion and security by combatting crime, terrorism, extremism and deviance

DC’s Commercial Internet

- online resources as private property, whose owners can monetize them, exclude others from using them

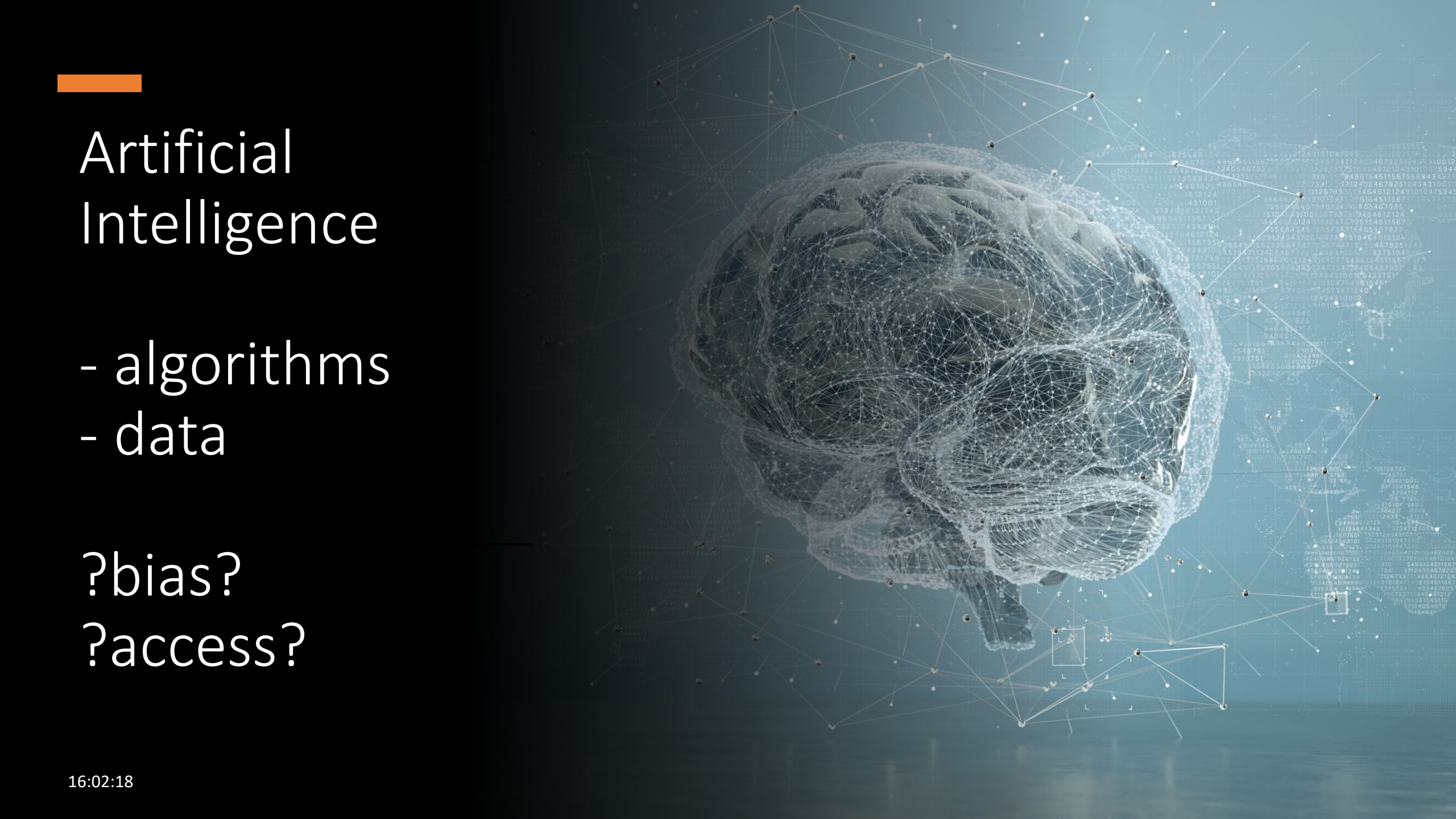
… addendum: Moscow’s Spoiler Model

- decentralized internet, with no institutionalized editing or fact-checking, has provided the opportunity to cheaply import narratives, arguments and conspiracies using the power of bots

Artificial Intelligence

- algorithms
- data

?bias?
?access?



Quantum technologies

- New concepts: hardware, networks, applications
- Powerful computing
- Lots of attention for Post Quantum Encryption

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Internet of Things … towards omnipresence?

Societal challenges

Healthcare;
Independent living;
Secure society;
Sustainable society

Economic challenges

Innovation; growth

Environmental challenges

Scarce resources;
waste reduction;
environmental monitoring

Governance

Global standards, open standards, multistakeholder involvement, ethical IoT

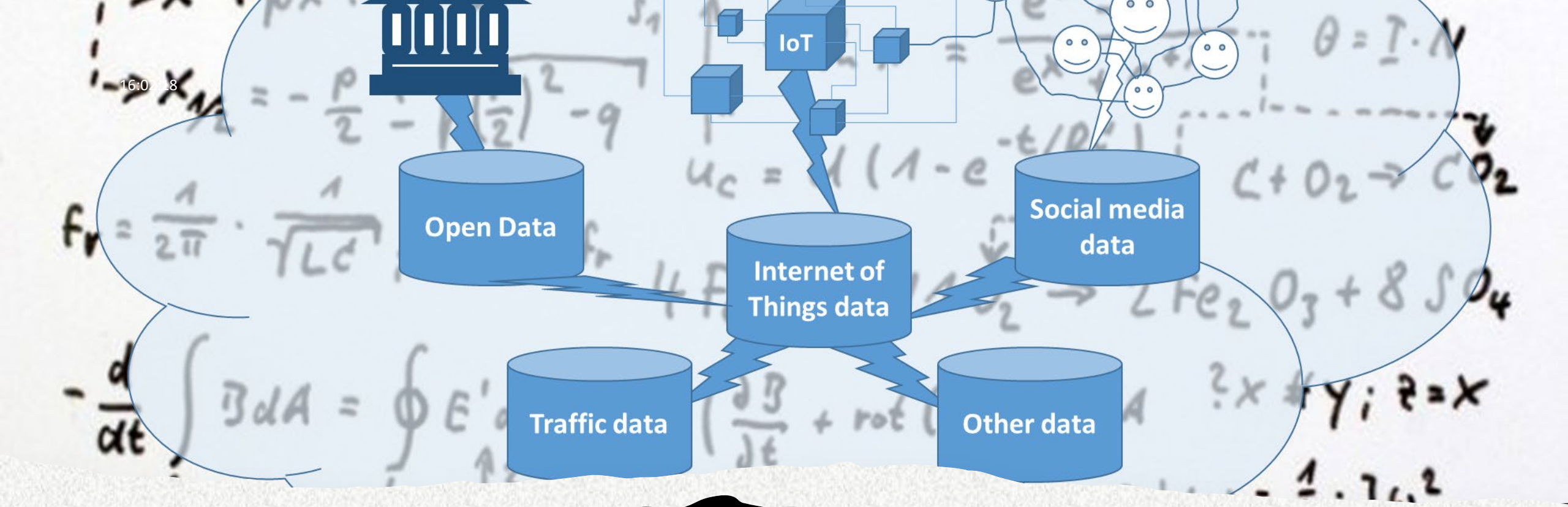
Privacy and data collection

Big data issues, cloud issues (location, jurisdiction, accountability), digital literacy

Security

Autonomous systems, cyber attacks on new end points

Source: GNKS, 2014



Data … drives society and economy

- Decentralised peer to peer. blockchain backed
- AI enabled time saving
- Users greater control over their personal data

- “Trustless and permissionless”
- Always connected, everywhere
- Legal and regulatory risks

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Discussion

What do you think is most needed to ensure continued trust in the Internet towards the future years?

For your contemplation

“Over the next 15 years, the Internet will expand in both depth and breadth, as the range of active stakeholders widens. While the potential challenges are enormous, so are the opportunities.

Both business leaders and policymakers can harness the Internet and broadband to serve broader economic and social objectives [in the public interest]. Regardless of how the future unfolds, exploring and rehearsing divergent and plausible futures for the Internet can help shape it for the better.”

What will *you* do?

We create the world of tomorrow
with the choices and actions of today
…

About Maarten Botterman

- More than 25 years experience with work “in the public interest”, with a keen eye on sustainability, and a focus on where connected technologies touch society – around the world
- Independent analyst, strategic advisor, moderator and Board Director, see: www.gnksconsult.com
- ICANN Board Member
- GFCE Triple-I coordinator
- Volunteer work: IGF DC IoT Chair; IGF PNMA and PNAI member; GFCE WG E (Emerging Tech) Chair
- Former roles: Senior Advisor Dutch Government; Scientific Officer European Commission DG CNECT; Information Society Policy Practice Director RAND Corporation in Europe; Chair Supervisory Board of NLnet Foundation; ENISA Permanent Stakeholder group member; Chairman Public Interest Registry
- Full CV: https://www.linkedin.com/in/botterman
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ICANN and it's Mission

To Ensure the stable and secure operations of the Internet's unique identifier systems.

- **2016 Bylaws: ICANN's Bylaws Article 1 Section 1.1. Mission**

ICANN and it’s Vision

As the trusted steward of the Internet’s unique identifier systems, ICANN is dedicated to strengthening the single, globally interoperable Internet for all

Global Forum on Cyber Expertise

Every citizen of the world should be able to fully reap the benefits of ICT through a free, open, peaceful and secure digital world.

Building cyber capacity provides the necessary foundation for countries to strengthen their cyber resilience through developing skills and capacity that address threats and vulnerabilities arising from cyberspace.

It is therefore our mission to strengthen cyber capacity and expertise globally through international collaboration and cooperation.

Global Forum for Cyber Expertise

Triple-I workshops

“Increase justified trust in the use of the Internet and email ….”

Timeline of Internet Development

Technology • Governance • Policy

Integrated Internet Timeline

ERA	TECHNOLOGY	GOVERNANCE	POLICY
1960s–70s	1969 – ARPANET goes live 1973 – TCP/IP begins 1978 – Email emerges	1979 – Usenet created	IETF formation (1986)
1980s	1983 – TCP/IP becomes standard 1984 – DNS invented 1986 – NSFNET launched	RIRs conceptualized	
1990s	1991 – World Wide Web 1992 – ISOC founded 1996 – IPv6 draft	1998 – ICANN established	1999 – WIPO Internet Treaties

Integrated Internet Timeline

ERA	TECHNOLOGY	GOVERNANCE	POLICY
2000s	Broadband expansion 2007 – iPhone launches 2009 – Bitcoin introduced	2006 – IGF established	2001 – Budapest Convention 2003/05 – WSIS Summits 2009 – ICANN Affirmation of Commitments
2010s	2012 – IPv6 World Launch 2015 – IoT mass adoption 2017 – Rise of AI/ML	2016 – IANA transition	2016 – GDPR 2018 – Paris Call for Trust & Security
2020s	2020 – COVID accelerates digitalization 2022 – Ukraine cyber resilience 2023–25 – Quantum-safe urgency	2020 – UN Roadmap Digital Cooperation 2024–25 – WSIS+20, Summit of the Future	2021 – EU DSA/DMA etc. 2023 – UN OEWG cybersecurity extended