



RIPE NCC
RIPE NETWORK COORDINATION CENTRE

Equity, Ethics and the Environmental Sustainability of the Internet

RIPE85 pre-event | 4th October 2022

Vesna Manojlovic
Senior Community Builder
BECHA@ripe.net

Placing Today in a Context



- **2020(2) = Third Year of Global COVID-19 Pandemic** (+2 new ones)
- **Wars in Ukraine, Armenia, Syria, Yemen, ...**
- **Climate Chaos...**
 - Summer heat-waves: draughts, forest fires, dry rivers, lack of drinking water...
 - Floods in Pakistan, Middle-East, Italy, Japan... Hurricanes in Puerto Rico, Florida...
 - Glaciers melting in Alps, Andes, Himalayas, Greenland, Alaska...
 - Upcoming "hunger winter" with inadequate heating infrastructure...
- **Still, I am grateful for being alive, safe, healthy-ish**



#HowToMakeThisAboutMe

@Ms_Multicolor

20th Century Carrier (1991-1998)



- **Education:**

- High school: Zemunska Gimnazija; Computer Science at @ ETF.ac.yu, Belgrade

- **Operating systems:**

- VAX-VMS, DecNET, Linux (galeb.etf.bg.ac.yu), ZaMir (BBS)

- **Art & (h)activism:**

- Škola Mira, NetForum, Documenta X, HIP97, NextFiveMinutes, Syndicate, nettime...

- **Employment:**

- Računski Centar ETF; Centar za Anti-Ratnu Akciju; OpenNet/B92; YUCCA

21st Century Carrier (1999-today): RIPE NCC



- Hired as a “Software Engineer” for expat-law purposes!
- 1st pure “Trainer” at RIPE NCC! IPv4, IPv6, whois Database, IRR
 - Also: hostmaster, webmaster, mailing-lists moderator, technical writer... + TRAVEL ❤️
- Advanced Courses Trainer (2001-2006)
 - RPSL, DNSSEC, RPKI, BGPsec
 - & IPv6 Evangelist (lecturer & IPv6 RIPEness co-creator) (2007-2010)
- “Measurements Community Building” Manager (2011-2016)
 - RIS, RIPEstat, RIPE Atlas, hackathons
- (Senior) Community Builder (2017-present)



B.S. CS @ ETF.ac.yu
1991-1998
VAX-VMS, DecNET, ZaMir...

**ASCII, TechInc, LAG;
HIP97, HAL2001,
WTH2005, HAR2009,
OHM2013, SHA2017,
MCH2022;
TBD@ADM;
CCC 1999-2018**

**C-PTSD, RSI, OCD
ADHD, LGBTQ***

More About Me:

I ♥ T.L.A.



Alisa, Charlie, Olivia



RIPE NCC:



1999-2022+

IPv4, IPv6 / RIPEness,
DNSSEC, RPSL, RIS,
RIPE Atlas, hackathons

RIPE:

SEE{1-10}, CoC-TF,
NOGs, IXPs, RIRs,
“Trusted Contact”

**NVC, EMDR, SNRI, yoga
EFT, CBD, MBSR, ASMR**

Ethics, Equity, Environmental Sustainability, Empathy*



- **Ethics**

- SHA2017 <https://www.youtube.com/watch?v=IDfkQo0DOYo>

- **Equity**

- SEE-10, 2022: <https://youtu.be/NRiww-FC0Uc?t=14200>

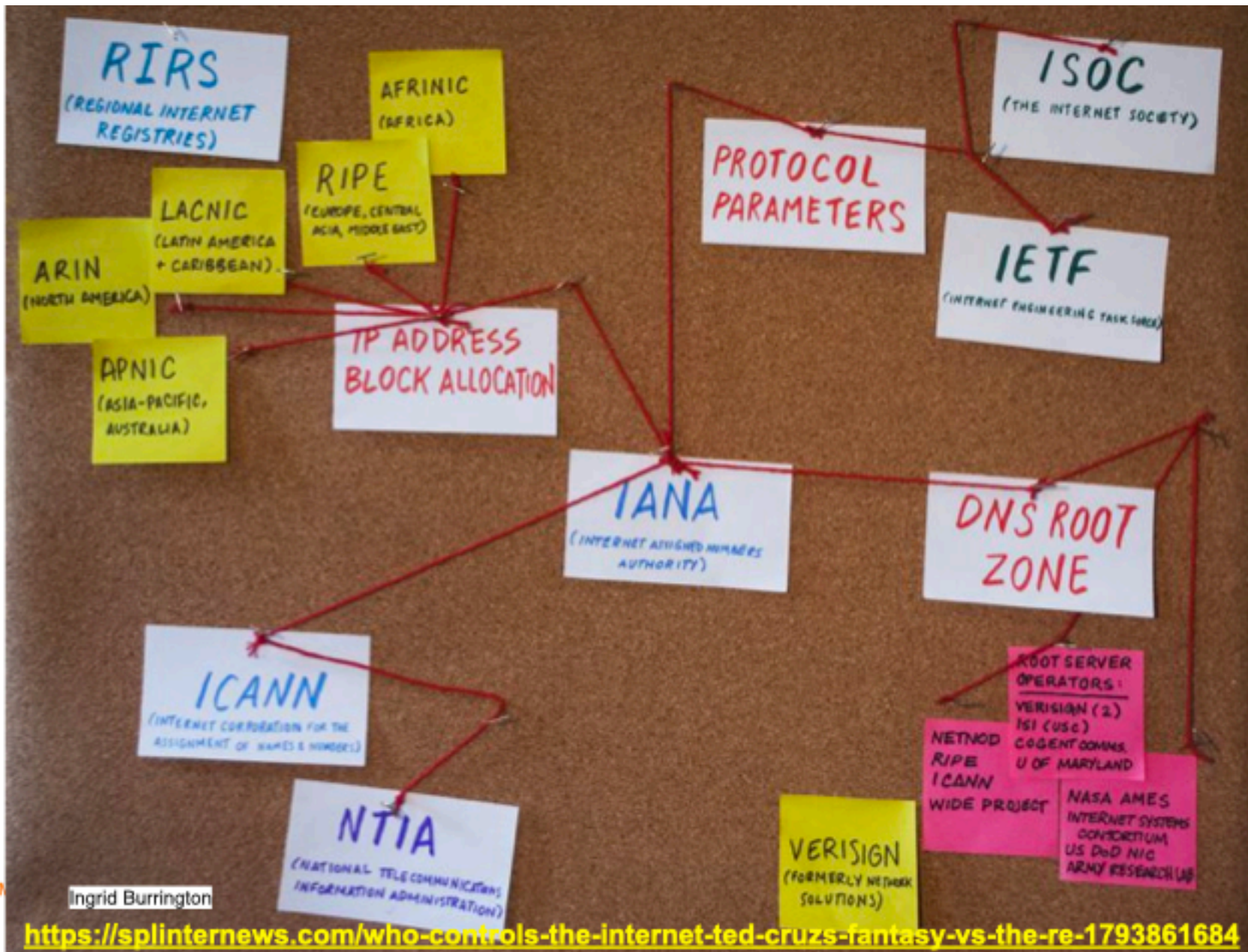
- **Environmental Sustainability**

- MCH2022, <https://media.ccc.de/v/mch2022-442-computing-within-limits>
- https://wiki.techinc.nl/File:Bits_und_Baume_Greening_RIPE_copy-compressed.pdf

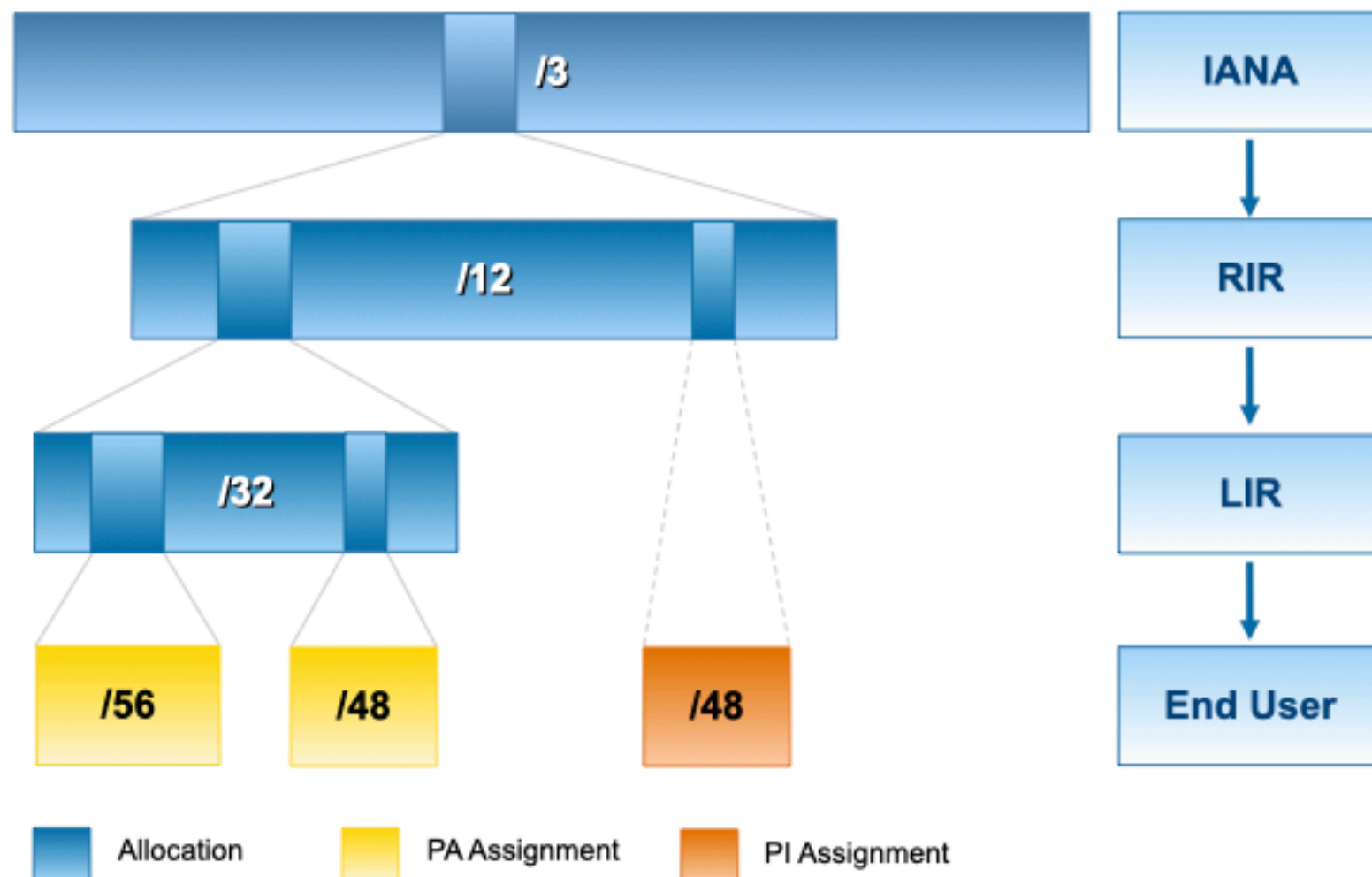
- **Empathy (Requests / Offers)**



(Mandatory)
Introduction to RIPE NCC
& RIPE



IPv6 Addresses Distribution



Regional Internet Registries



ARIN
American Registry for Internet Numbers



RIPE NCC
RIPE NETWORK COORDINATION CENTRE

 **APNIC**

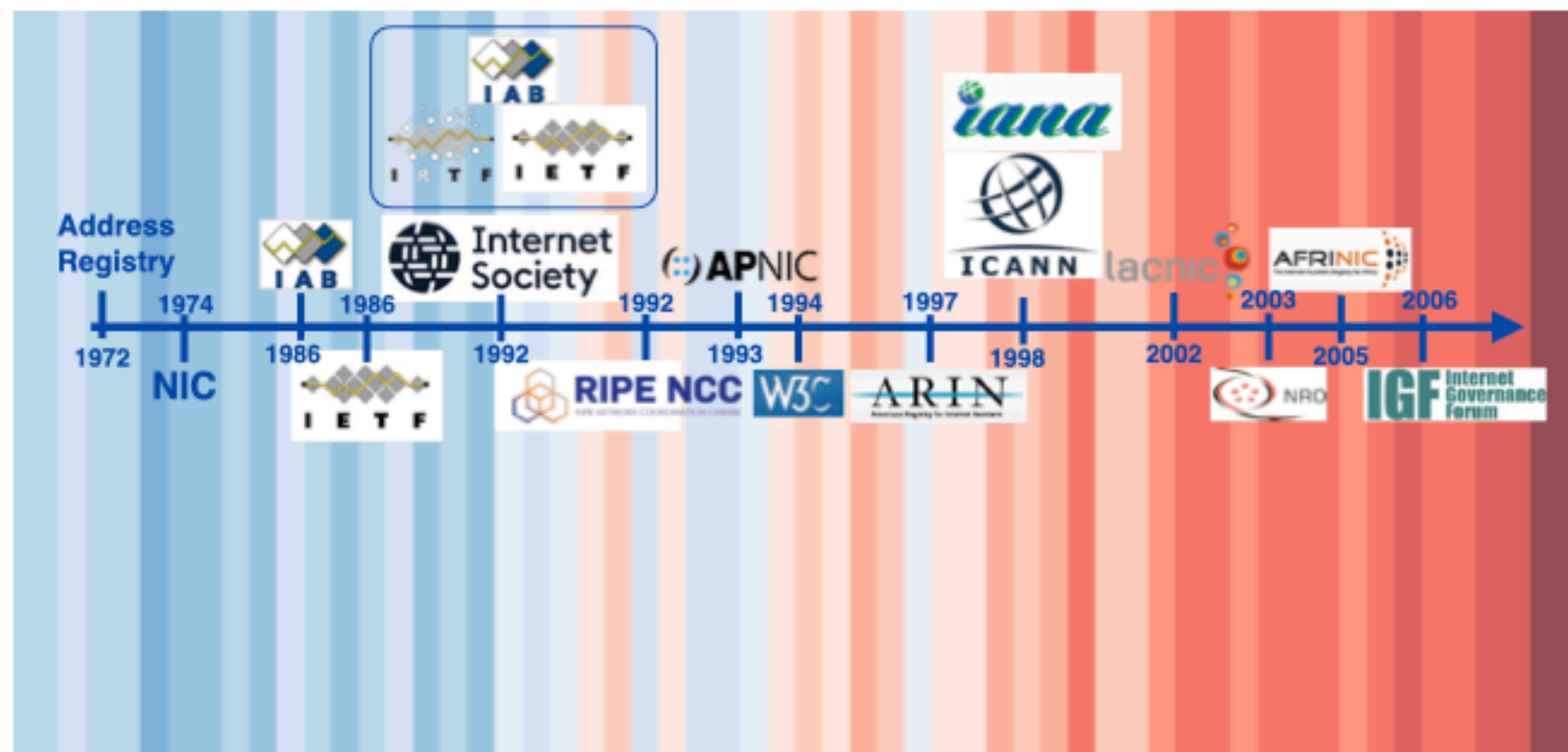
lacnic 

AFRINIC 
The Internet Foundation Registry for Africa

RIPE (community) and the RIPE NCC



Internet Governance & Global Warming Timeline





Ethics

EVERY FUTURE IMAGINED
BY A TECH COMPANY
IS WORSE THAN
THE PREVIOUS
ITERATION.



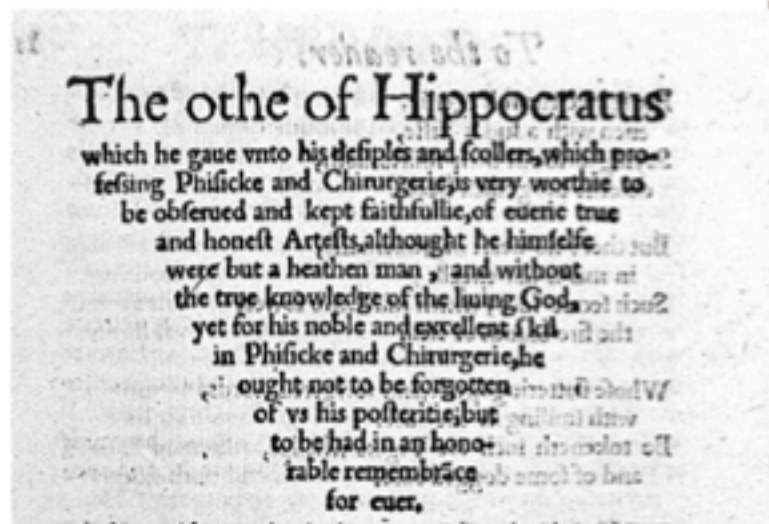
Vesna I

Use the Internet
to make the world
a better place.

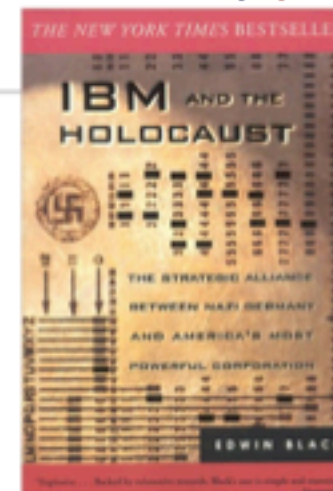
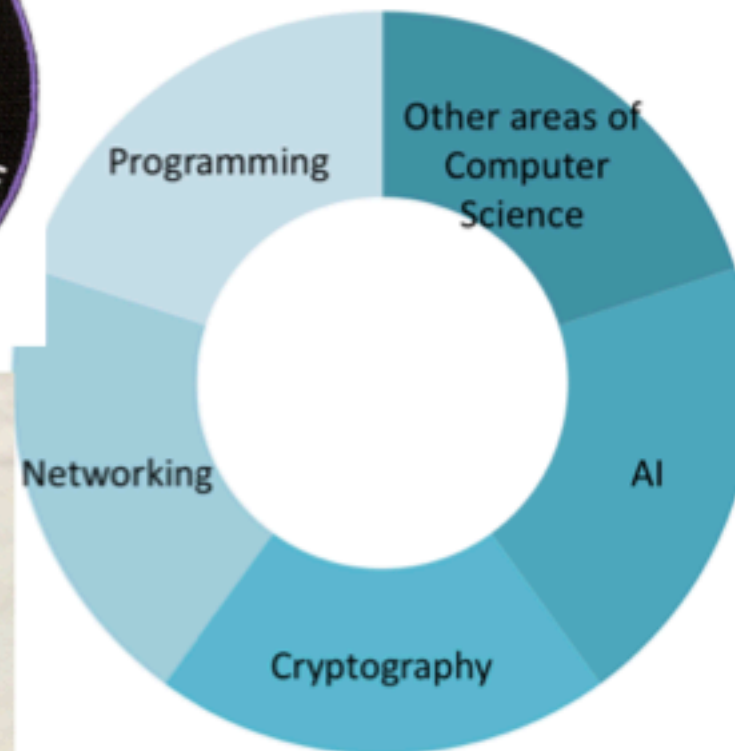


@terrafirma

Classical Sciences Ethical Dilemmas



Computer Sciences Ethical Dilemmas





© Henry Hering CC0 1.0

© Walery CC0 1.0

1860s - 1910s, England

Statistician Florence Nightingale & physician Elizabeth Garrett Anderson, women's suffrage movement



© Cyro A. Silva CC BY 2.0

1920s, Brazil

Biologists from National Museum, environmental protection



1960 - present, USA
Science for the People collective, anti-war and social justice



2020s, Worldwide
Scientist Rebellion, climate and ecological breakdown



© Anefo CC0 1.0

© Orren Jack Turner CC0 1.0

1957, USA & Europe

Nobel winners' Russell-Einstein Manifesto, abolition of atomic weapons and war



© NASA CC0 1.0

1988 - present, USA

Climatologist James Hansen, climate change



© Stefan Müller CC BY 2.0

2018 - present, Argentina
Biologist Esteban Servat, social struggles and environmental abuse

1860

1890

1920

1950

1980

2010

Science/Engineering: Power and Responsibility



At a time when science plays such a powerful role in the life of society, when the destiny of the whole of mankind may hinge on the results of scientific research, it is incumbent on all scientists to be fully conscious of that role, and conduct themselves accordingly. I appeal to my fellow scientists to remember their responsibility to humanity.²¹⁰

With Great
Power
Comes
Great
Responsibility





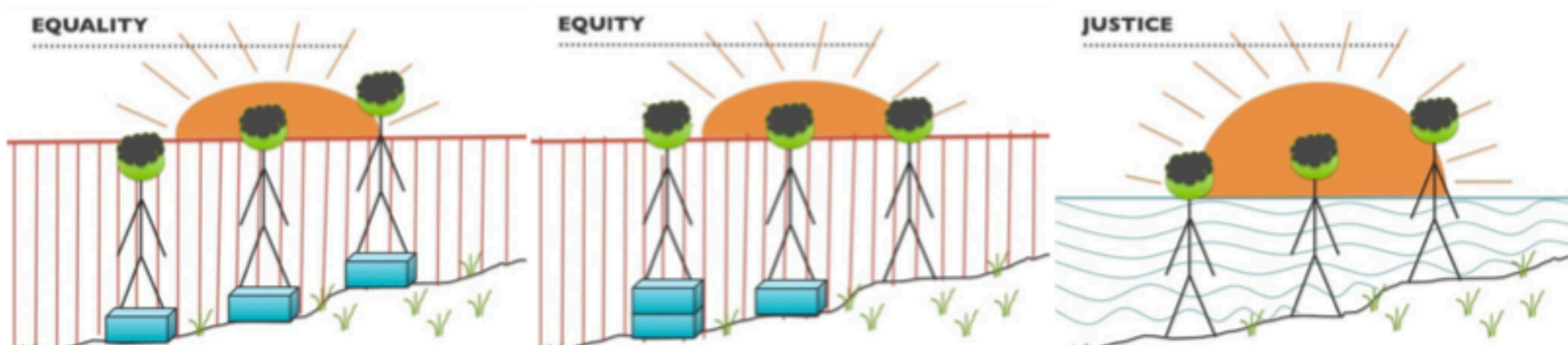
Equity

Table 2.1: From data ethics to data justice	
Concepts That Secure Power	Concepts That Challenge Power
Because they locate the source of the problem in individuals or technical systems	Because they acknowledge structural power differentials and work toward dismantling them
Ethics	Justice
Bias	Oppression
Fairness	Equity
Accountability	Co-liberation
Transparency	Reflexivity
Understanding algorithms	Understanding history, culture, and context

Justice > Equity > Diversity > Inclusion



<https://theavarnagroup.com/2019/05/25/and-heres-yet-another-equity-v-equality-v-justice-image-series/>



- <https://labs.ripe.net/author/becha/data-feminism-from-data-ethics-to-data-justice/>

Digital Colonialism ==> Climate Justice



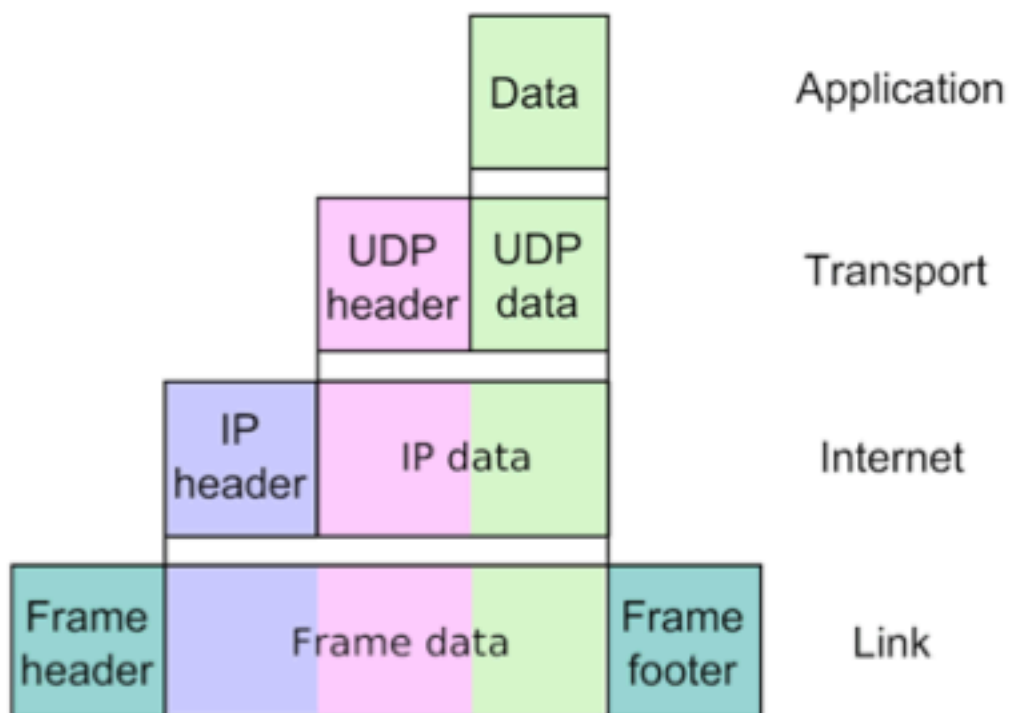
Child miner in Burkina Faso - PBS NewsHour







A child at the Agbogbloshie electronic waste dump in Ghana. Photograph: Andrew McConnell/Alamy



UDP & JEDI: Justice, Equity, Diversity, Inclusion



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AMR O22			D	I
		E	D	I
T.M. R.A	J	E	D	I

<https://labs.ripe.net/author/becha/spring-and-summer-events-season-2022/>

IF YOU HAVE COME HERE
TO HELP ME, YOU ARE
WASTING YOUR TIME.

BUT IF YOU HAVE COME HERE
BECAUSE YOUR LIBERATION IS
BOUND UP WITH MINE, THEN
LET US WORK TOGETHER.

- LILLA WATSON

Indigenous Australian visual artist,
academic, activist

#FEMINISTFRIDAY

FIGHT
INEQUALITY





Environmental Sustainability

“Data is the New Oil”

THE INTERNET USES A HUGE AMOUNT OF ENERGY. THIS IS DUE TO TWO KEY FACTORS:

MANUFACTURING AND SHIPPING



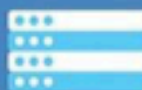
Technology companies must manufacture and ship the internet's hardware including:



COMPUTERS



SMARTPHONES



SERVERS

POWERING AND COOLING



Computers and smartphones must be powered and cooled, drawing electricity from local grids.

This power is generated in different ways with varying emissions.¹



COAL



NATURAL GAS



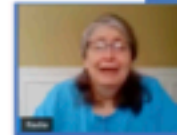
NUCLEAR



RENEWABLES



Een datacenter van Google in Middenmeer



REBOOT THE WORLD

**The Internet: Can we survive
with it?**

Nature is Fighting Back



- impact on the the operations of Internet infrastructure:
- **Sea-level rise & storms: flooding of data centers**
 - <https://labs.ripe.net/author/ggm/surviving-the-flood-how-data-centres-and-the-internet-must-face-climate-change/>
- **... & forest fires** <https://www.akcp.com/blog/data-centers-coping-with-climate-change-induced-wildfires/>
- **Water (un)availability for cooling power-plants & data centers:**
 - <https://www.datacenterdynamics.com/en/opinions/why-data-centers-need-to-talk-about-water/>
- **Energy over-consumption leads to (un)availability**
 - <https://www.consultancy.uk/news/28772/10-ways-businesses-can-reduce-their-digital-carbon-footprint>
 - ... taking water, land & energy **away** from local (human/plant/animal) population

Green Tech at RIPE



GHG	Water
63%	83%
22%	9%
15%	7%

To Green the Internet, We Need RIPE



Michael Oghia · 29 Jun 2020

If Europe is going to realise its vision for a greener ICT ecosystem and a sustainable future, support from the RIPE community is imperative. But what can you do - as a network operator and as a user - to work towards a sustainable Internet?

sustainability policy community

1 ❤️ 2 💬 🔗 📌



What Do We Do With E-Waste?



Mirjam Kühne · 9 Nov 2018

The headlines are raising awareness about the plastic soup that's clogging up our oceans but there's another problem much closer to home for much of the RIPE community: e-waste (aka 'dead electronics'). E-waste is a massive contributor to environmental pollution globally. We want to keep the conver...

sustainability community

2 ❤️ 1 💬 🔗 📌



Sustainability is Good for the Internet (and Business too)



Michael Oghia · 23 Jun 2017

In recent weeks, I've attended two events, SEE 6, hosted by the RIPE NCC in Budva, Montenegro, and the 10th European Dialogue on Internet Governance (EuroDIG) in Tallinn, Estonia. At both events, I had the opportunity to speak about the issue of sustainable access to the internet.

sustainability governance

0 ❤️ 4 💬 🔗 📌

- **RIPE81 (October 2020): Sustainable ICT Procurement**

- Michael Oghia, Independent Community Member
- <https://ripe81.ripe.net/programme/meeting-plan/bof/#mon14>

- **RIPE84 (May 2022): Towards a Fossil Free Internet**

- Chris Adams, Green Web Foundation
- <https://ripe84.ripe.net/archives/video/751/>

- **My RIPE Labs series on Resilience**

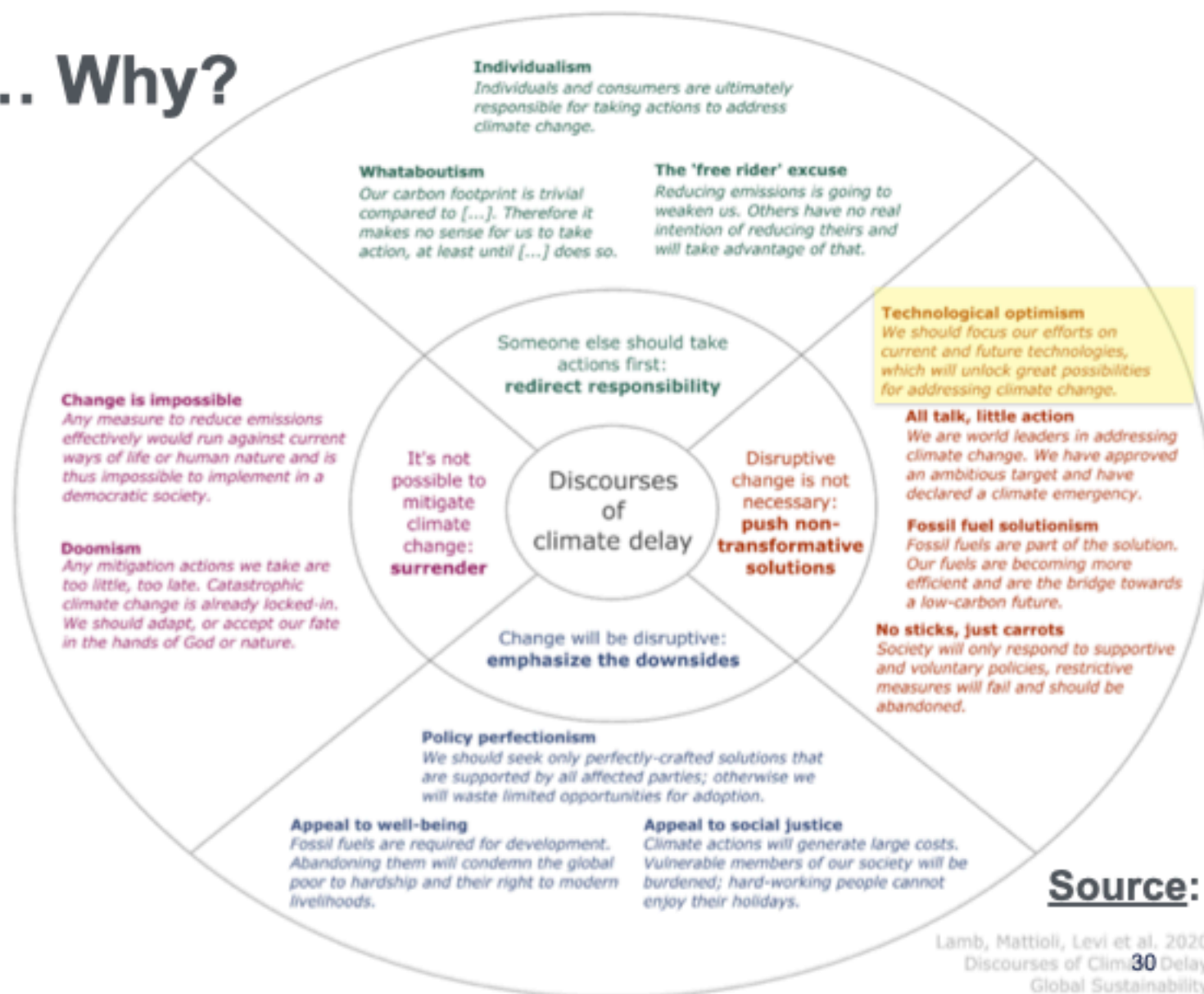
- [Layer 9](#) and [Layer 6](#) articles

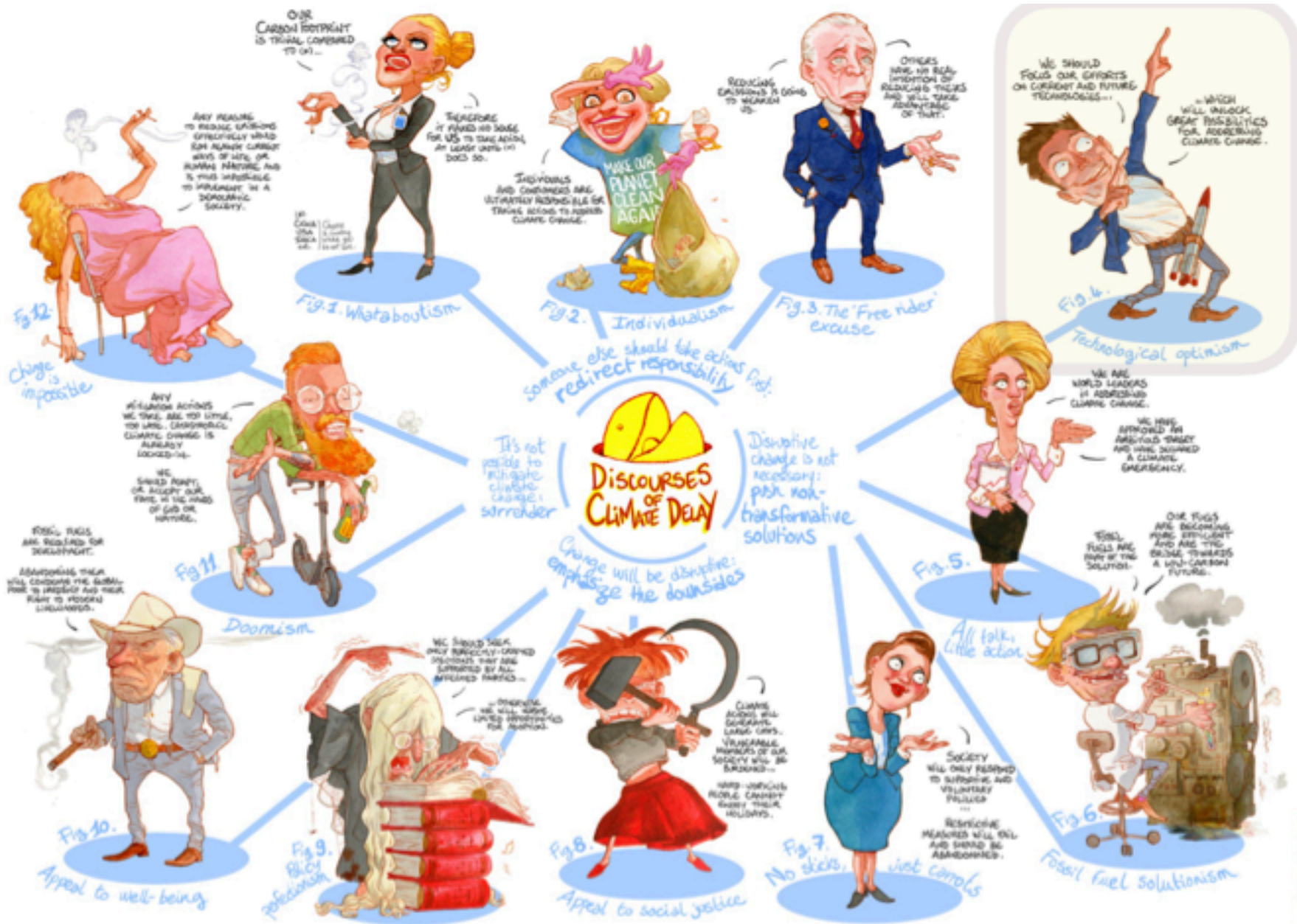
Painfully Slow... Why?

- focused on growth
- efficiency myth (Jevons paradox)
- aligned with dominant power structures

● Beliefs:

- “tech is neutral”
- “we are the good guys” bias
- tech optimism







"If solutions within this system are so difficult to find then maybe we should change the system itself" - Greta Thunberg addresses the COP24 climate conference in Poland. @GretaThunberg @ExtinctionR



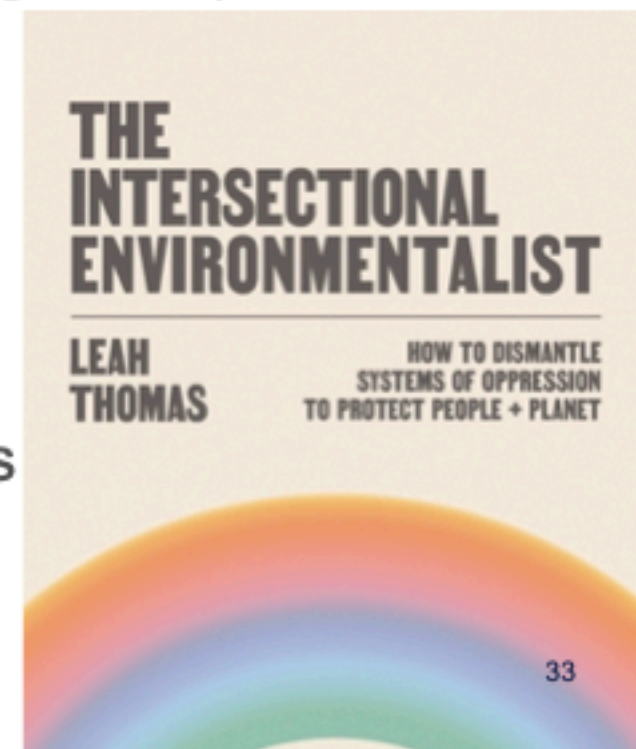
It is the sufferings of the many which pay for the luxuries of the few.

PM - Dec 17, 2018

Hopeful Directions Towards Planet-Friendly Internet



- Decolonising The Internet; Degrowth, Divestment...
- Feminist Internet / Data Feminism
- Community-owned & community-run networks (e.g. GAIA)
- “Right To Repair” Movement
- Permacomputing
- Low-Tech, Slow-Tech, Retro-Tech
- Intersectional Environmentalism
- Extinction Rebellion, Scientists Rebellion, Mothers Rebellion





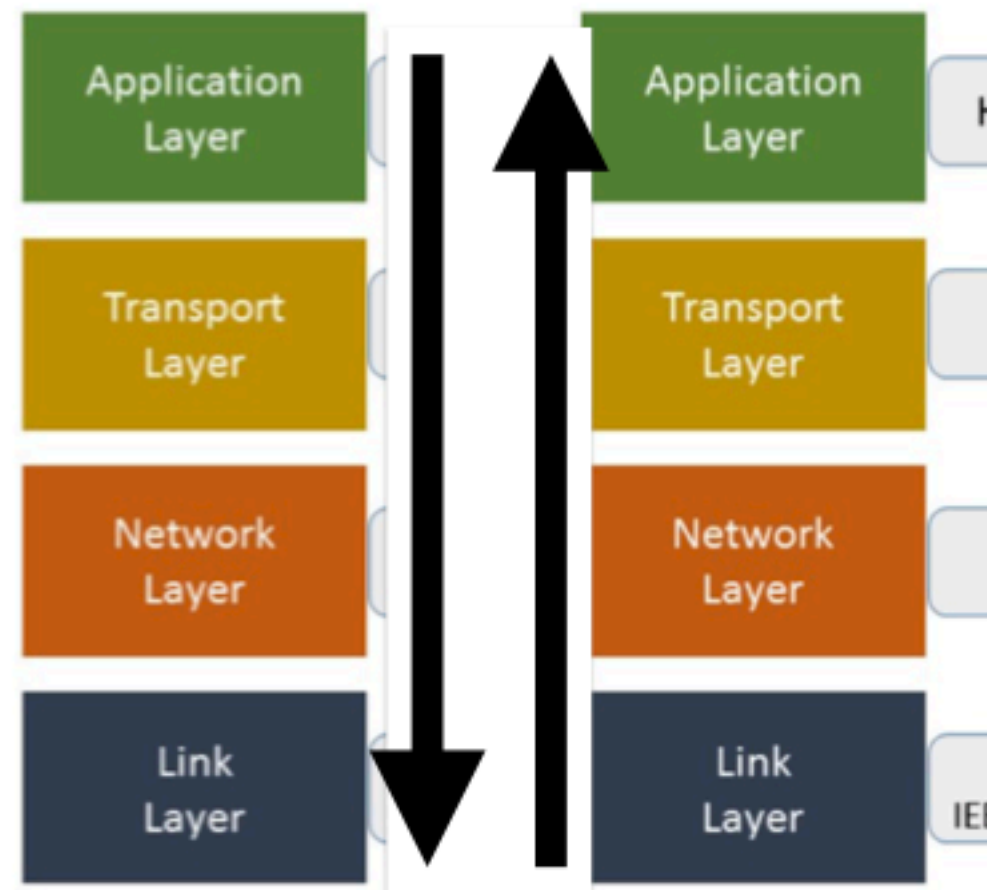
Sustainability

Sustainability

Sustainability



Requests & Offers (Empathy)



© Dance Floors © Bridget Belgrave & Gina Lawrie 2003 <http://www.GnB.org.uk>

Join RIPE Working Groups (online!)

- **“Political” Layer: Cooperation-WG**
- **Application Layer / Aesthetic Needs**
 - Opensource-WG, Anti-abuse-WG, MAT-WG, DNS-WG
- **Transport Layer / Esteem Needs**
 - IoT-WG, Routing-WG
- **Network Layer / Needs for Connection**
 - Connect-WG, IPv6-WG, (IPv4) Address Policy
- **Link Layer / Physical Needs**
 - “RIPE NCC Services” / RIPE NCC members meeting

Vesna Manojlovic | RIPE 85 | October 2022

[Address Policy Working Group](#)

[Anti-Abuse Working Group](#)

[Connect Working Group](#)

[Cooperation Working Group](#)

[Database Working Group](#)

[DNS Working Group](#)

[Internet of Things Working Group](#)

[IPv6 Working Group](#)

[MAT Working Group](#)

[Open Source Working Group](#)

[RIPE NCC Services Working Group](#)

[Routing Working Group](#)

Take part in RIPE / NCC Communities



- **Join RIPE meetings**

- Twice a year, hybrid; ~1000 participants; network operators et.al
- Become WG-chair or volunteer on the Programme Committee

- **Reach out to RIPE: write for RIPE Labs: <https://labs.ripe.net>**

- **Join smaller events organised by RIPE NCC**

- Regional meetings / Training courses & on-line education / Hackathons

Quantum Internet Hackathon 2022

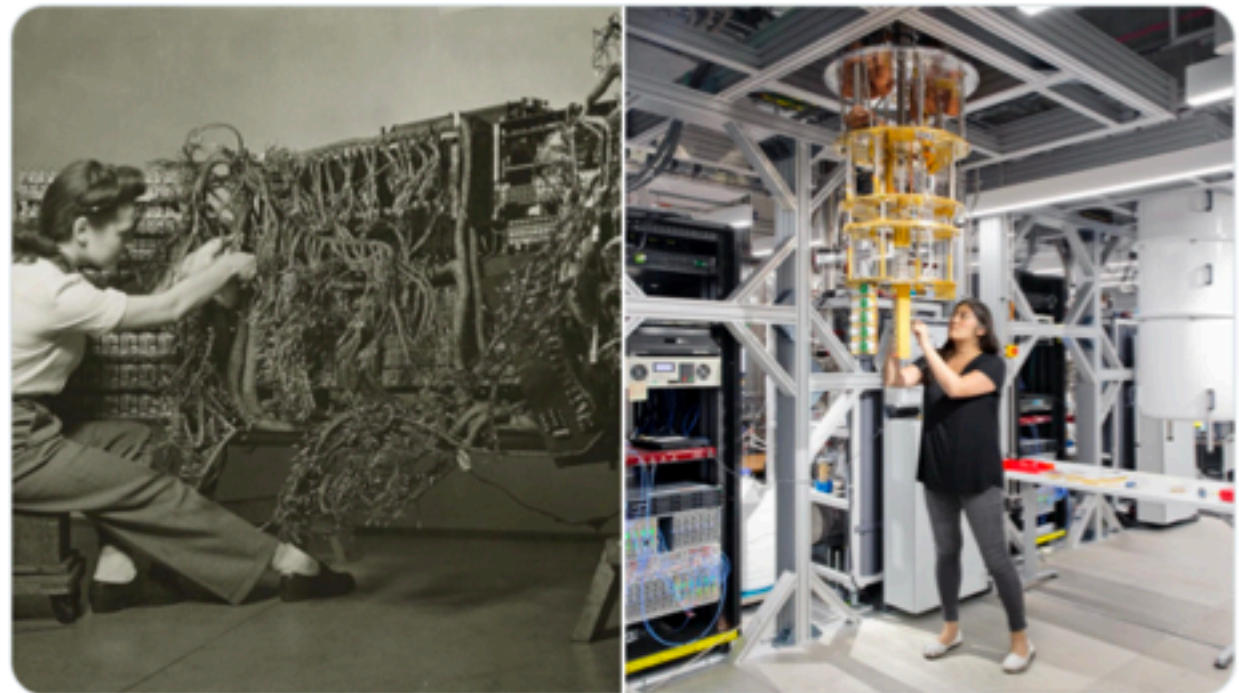


- **1-2 December, online & in 6 locations**

- Amsterdam, Dublin, Padua, Poznan, Tashkent, Sarajevo
- <https://labs.ripe.net/author/karla-white/take-part-in-the-quantum-internet-hackathon-2022/>

- **Apply here**

1958: An engineer wiring an early IBM computer
2021: An engineer wiring an early IBM quantum computer



RIPE Community Offers & Contributions



- **Community Projects Fund: ripe.net/cpf**
- **Diversity & Inclusion @ our events**
 - Paid childcare
 - RACI & Fellowship funding
 - Mentoring programme
 - Free (diversity) tickets for speakers
 - Code of Conduct & “Trusted Contacts” available
- **Bottom-up power distribution: community self-governance**

Maslow's Hierarchy of Needs <==> OSI Layers

<https://www.netnod.se/blog/technical-communities-resilience-during-covid-19-pandemic>



<https://www.ripe.net/about-us/press-centre/publications/presentations/2021/technical-communities-resilience-during-covid-19-pandemic-nluug-najaarsconferentie-2021>



0. RIPE Community Resilience: “You Are Not Alone”



1. Physical Layer / Physiological Needs

1.1. Surviving, Self-care, Wellness, Mental Health

2. Data Link Layer / Safety Needs

2.1. Safety Net (Risks, Security, Absence of Harm)

3. Network Layer / Belonging Needs: Connection!

3.1. Isolation != Empathy, Emotions vs Feelings; Love \Leftrightarrow Grief

4. Transport Layer / Esteem Needs

4.1. Boundaries, Burnout, Doing Less



5. Session Layer / Cognitive Needs

5.1. Embrace Neurodiversity

6. Presentation Layer / Aesthetic Needs

6.1. Art & Beauty; Climate Chaos; Nature is Healing; We belong to Circles

7. Application Layer / Need for (self) Actualisation


7.1. Web of Interconnections vs Privilege

8. Financial / Need for Contribution & Community Actualization

8.1. Economy of Care, Alternatives to Capitalism, Resisting Inequalities

9. Political / Need for Transcendence & Cultural Perpetuity

9.1. "Each society has the Internet they deserve"



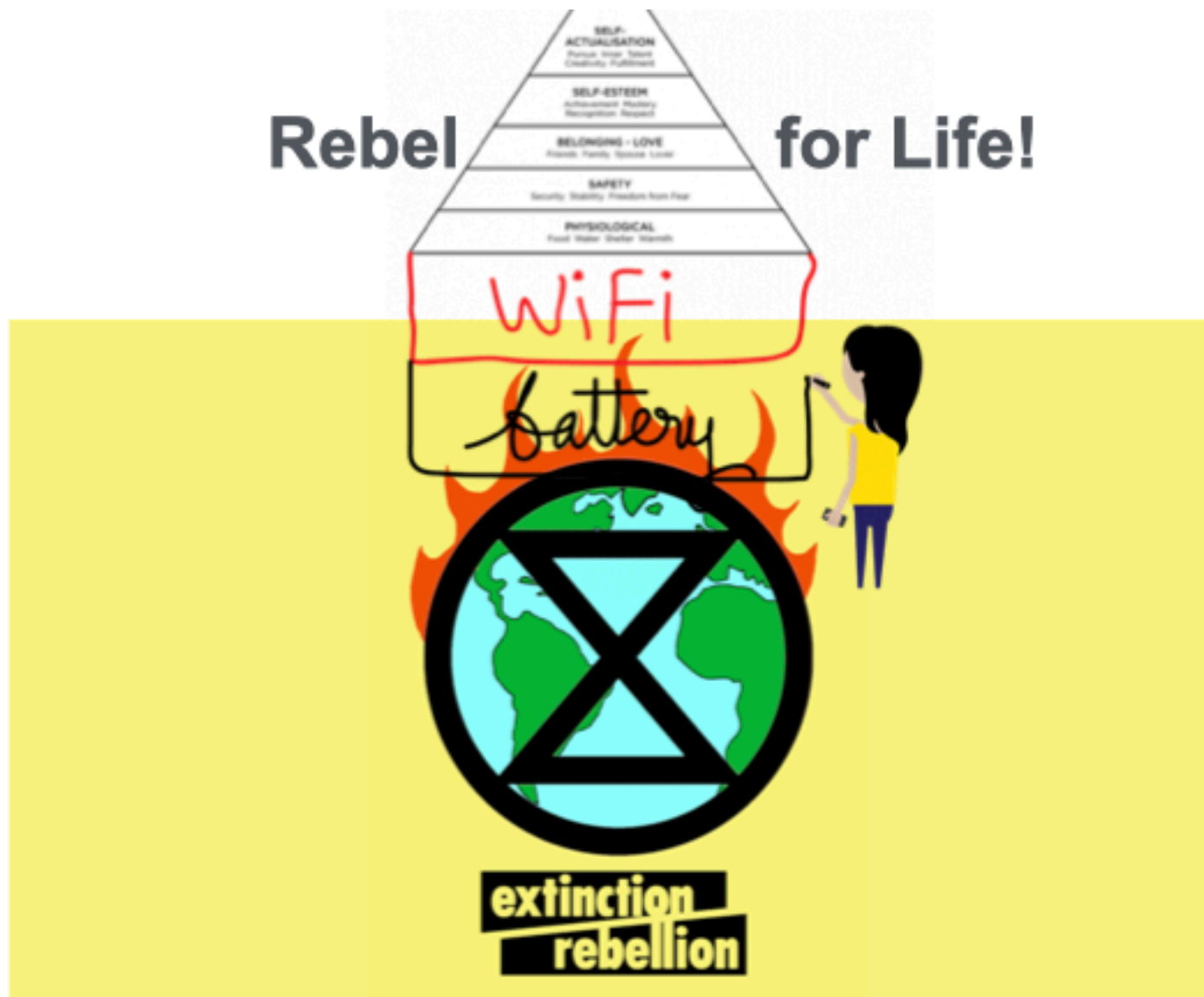
<https://ripe85.ripe.net/>

Join us at

RIPE 85
Belgrade, Serbia
24 - 28 October 2022

<https://labs.ripe.net/author/becha/building-bridges-between-diverse-communities-at-ripe-85/>

Rebel for Life!





Extra Slides



Squirrels

Animals Against Technology

- https://wiki.techinc.nl/Hackers_tribes#Other_animals_against_Technology

TOTAL SUCCESSFUL CYBER WAR OPS
AS OF 2017.01.08 - 1748

Agent	Success
Squirrel	879
Bird	434
Snake	83
Raccoon	72
Rat	36
Marten	22
China	0
Russia	0*
USA	1



Squirrels Winning the Cyber War ;)



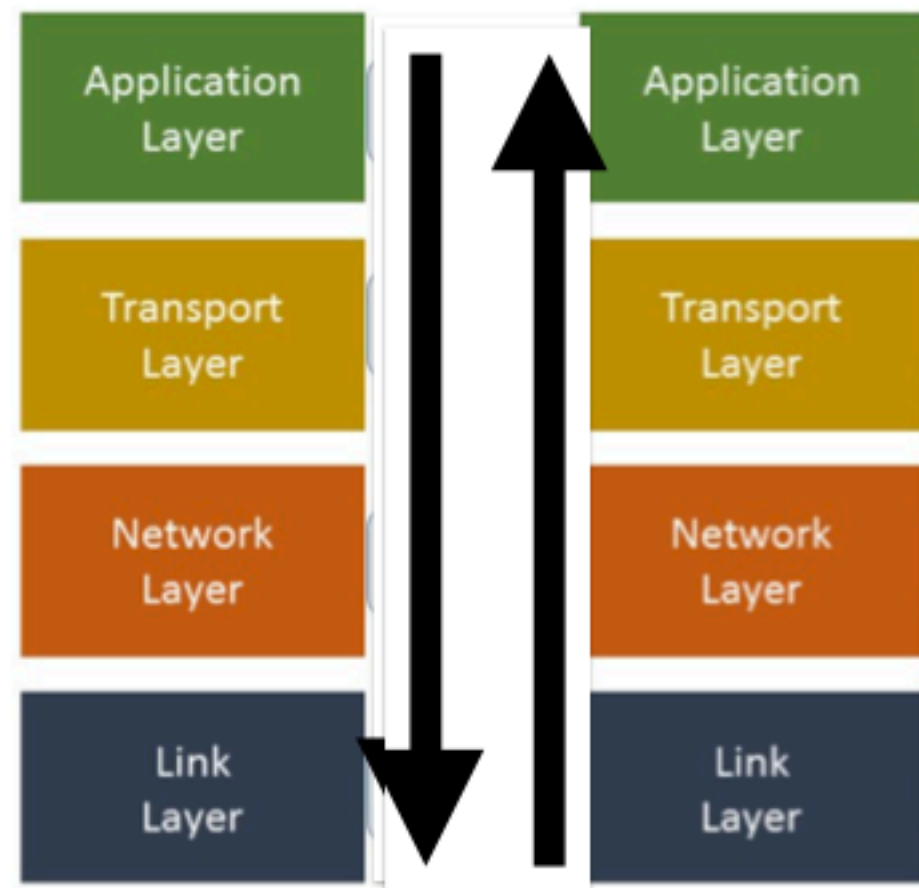


NVC: Language of Life



Practice: NVC Dance Floors

outer



Links to NVC in Tech

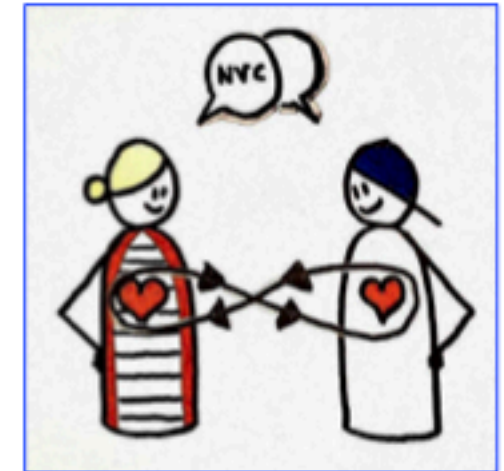
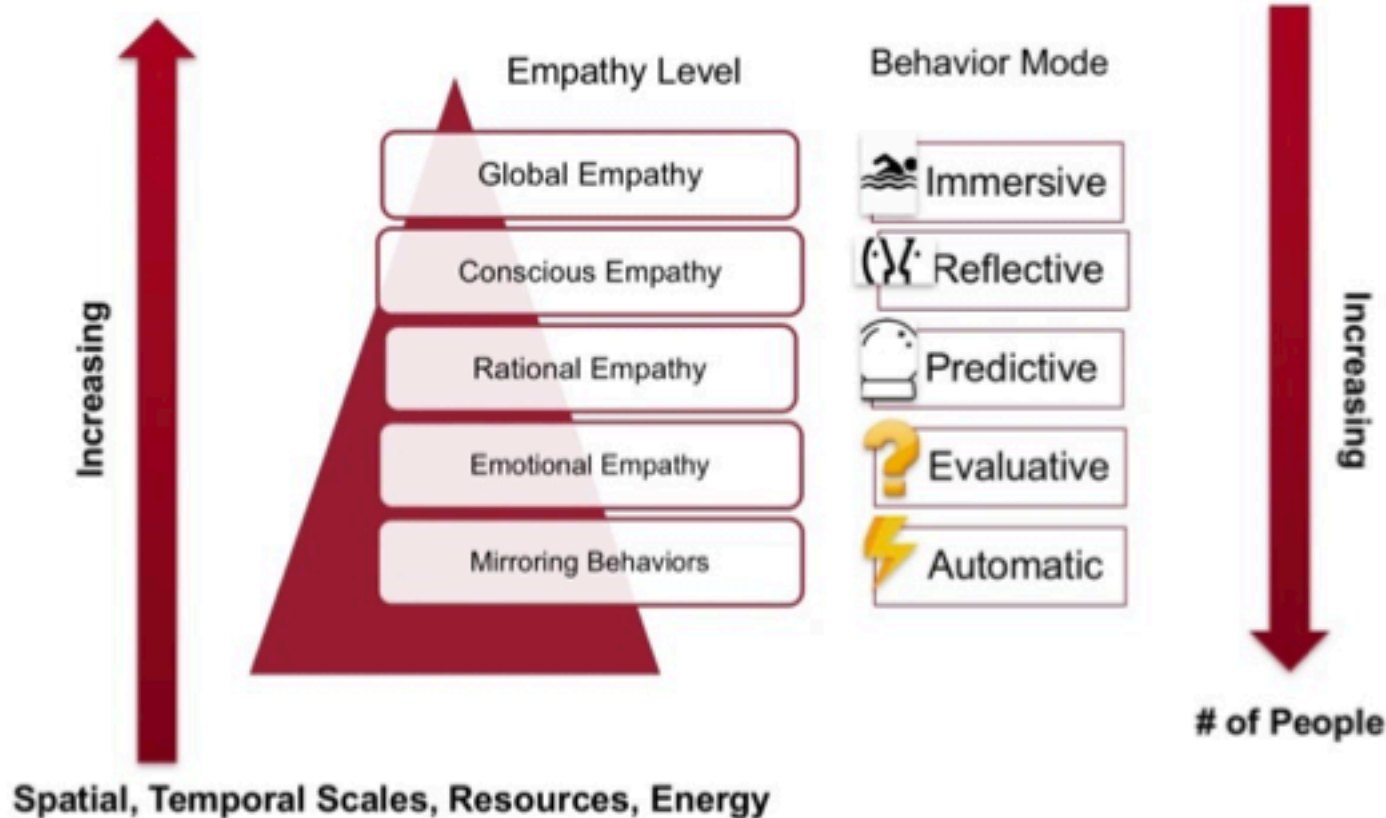
- Building Compassionate Communities in Tech
 - NodeConf EU 2013 ,Isaac Z Schlueter
- “Guide to Empathetic Technical Leadership” by Alex Harms
 - FREE to read online: <https://leanpub.com/littleguide/read>
- Conference “Open Source and Feelings” (#OSSfeel)
 - “NVC for Fun, Profit, and Self Defense “
- The empathy in tech <https://www.youtube.com/watch?v=PuLi3Uegn9g>
- Two blog posts for Agile teams: [link1](#) & [link2](#)
- NVC++ https://wiki.techinc.nl/Hackers_tribes#NVC.2B.2B

The Internet of Empathy

- From: *"To Our Friends"* by The Invisible Committee
 - <https://mitpress.mit.edu/books/our-friends>
- Positive freedom of connectivity, interaction and involvement
 - Instead of libertarian "freedom" as independence and self reliance
- This freedom comes **together with** greater responsibility
- *"the intrinsic value of a network does **not** lie in the sovereignty and independence of its nodes, but in their connectedness,"*
- *"Empathy is willingness to engage with the Other, and willingness to enrich network with our contributions"*

NVC = empathy & honesty

Levels of Empathy/Social Behavior Coupling



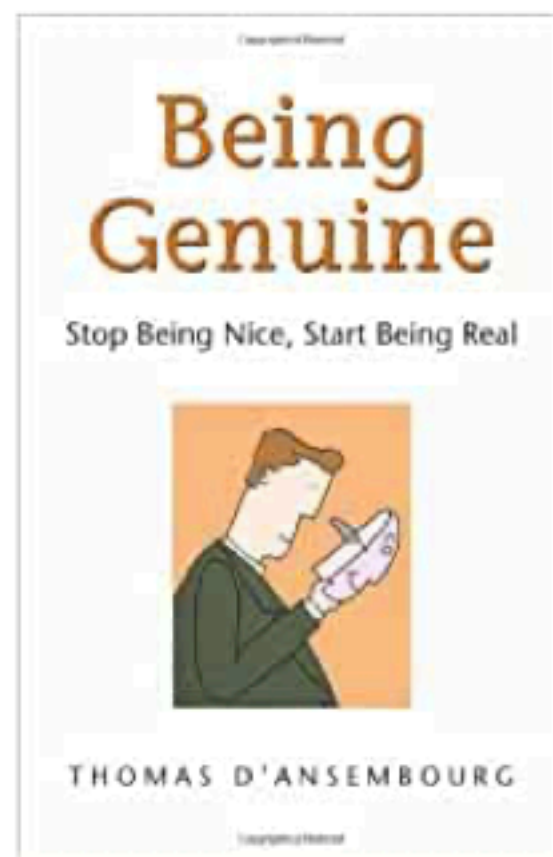
Gift Economics is based in what Marshall Rosenberg called "natural giving" – when human beings give and receive freely out of our intrinsic desire to contribute to one another.

<https://wiki.techinc.nl/Hac>

Learn NVC (NonViolent Communication)



- <https://nvctraining.com>
- “Our survival as a species depends on our ability to recognize that our well-being and the well-being of others are in fact one and the same.” – Dr. Marshall Rosenberg”
- “We recognize that the pain is deep and that much aid will be needed now, and in the future to support ongoing healing for all parties, Ukrainian, Russian, and others.”
- <https://www.connecting2life.net>, <https://cupofempathy.com> , <https://mirjamschulpen.nl/en/home/>



Quote by Marshal Rosenberg

For about 10.000 yers over most of our planet people have been operating according to, what I call, domination structures , structures in which some people claim to be superiors and have the right to control others because they know what's best.

Some of these people called themselves kings , tzars... It's very important for their structures to (be able to) sustain themselves, for people to be educated to be obedient to them.

So how do you educate people to be submissive and obedient?

You need to teach them a language in which they get disconnected from their own power and look outward to authority to guide how are they meant to live.

To do this requires a language that is static , that describes what people **are** , whether they are "good" or "bad" , right or wrong, normal or abnormal...

So, to maintain domination structures, a core component is to educate people with such static language, that uses the verb "to be" in ways that judges people: their behavior, their appearance, their intelligence; and in addition to this language that i call "a language of domination", it's also important to teach people **retributive justice**: retributive justice basically implies that if you are judged as bad by the authorities, you deserve to suffer for it, to receive punishment and if you are positively judged by authorities as good, then you deserve to be rewarded.

This is at the heart of violence on our planet.

Additional Links



- <https://labs.ripe.net/author/becha/ripe-community-resilience-economy-of-care/>
- <https://labs.ripe.net/author/becha/data-feminism-from-data-ethics-to-data-justice/>
- <https://labs.ripe.net/author/becha/computing-within-limits-2022-event-wrap/>
- <https://labs.ripe.net/author/becha/ripe-community-resilience-every-society-has-the-internet-they-deserve/>
- <https://labs.ripe.net/author/becha/ripe-community-resilience-nature-is-healing/>
- <https://irtf.org/gaia>
- <https://zenodo.org/record/7047049#.YzGNcy0RqgA> (The Role of Life Scientists in the Biospheric Emergency)
- https://wiki.techinc.nl/Hackers_tribes#Other_animals_against_Technology
- https://en.m.wikipedia.org/wiki/Jevons_paradox
- <https://archive.org/details/being-genuine-stop-being-nice-start-being-real-2/page/n11/mode/2up>
- <https://UnCiv.nl>

More Presentations

- <https://www.ripe.net/about-us/press-centre/publications/presentations/2022/the-resilience-of-the-internet-in-ukraine-ietf-113>
- <https://www.ripe.net/about-us/press-centre/publications/presentations/2021/technical-communities-resilience-during-covid-19-pandemic-nluug-najaarsconferentie-2021>
- <https://www.ripe.net/about-us/press-centre/publications/presentations/2020/ripe-ncc-tools-and-services-an-update-denog-10>