Next Generation Internet 2025

Where next?

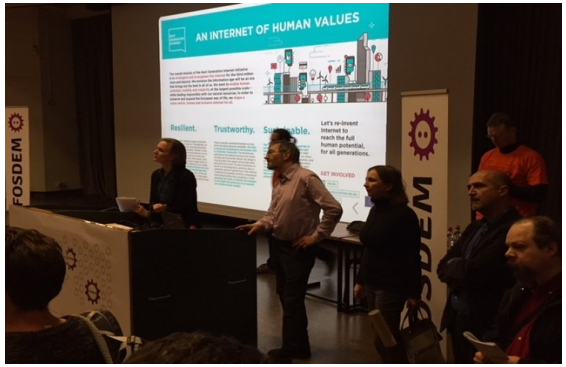
European Commission

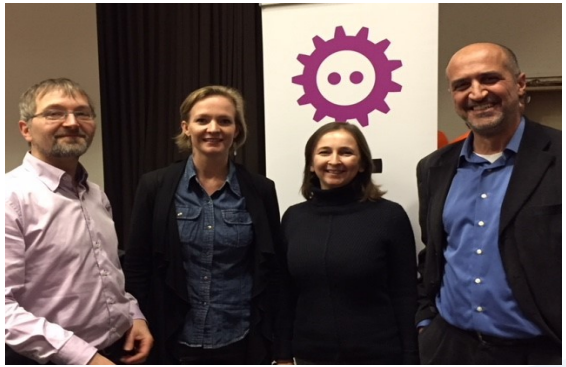
nlnet

FOSDEM 2025

02-02-2025

FOSDEM keynote 2018





nlnet FOUNDATION

Non-profit set up in the eighties by pioneers of the European internet to support the creation of “an open information society”.

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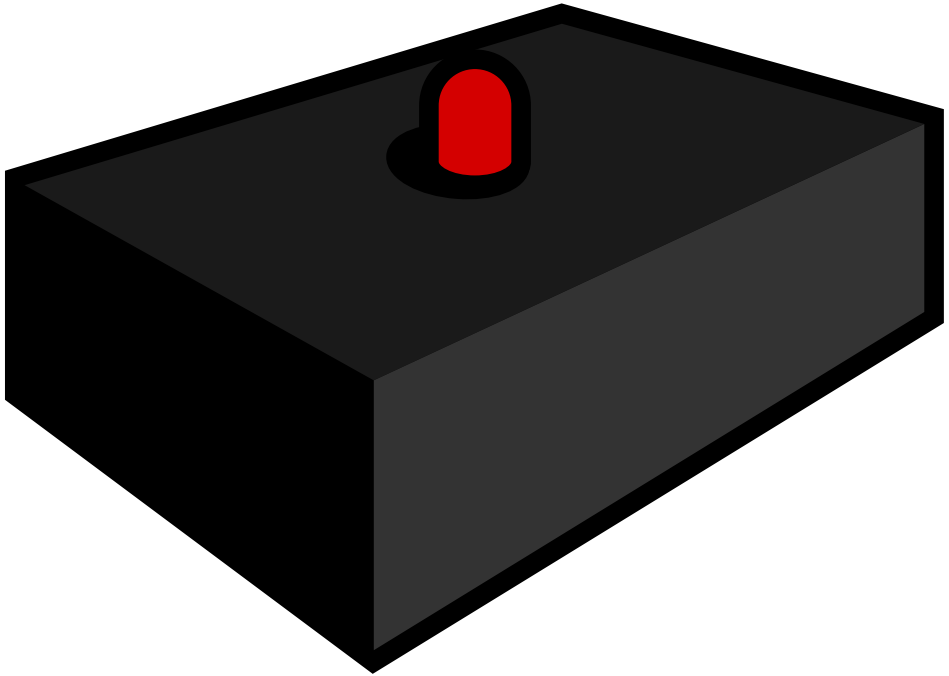
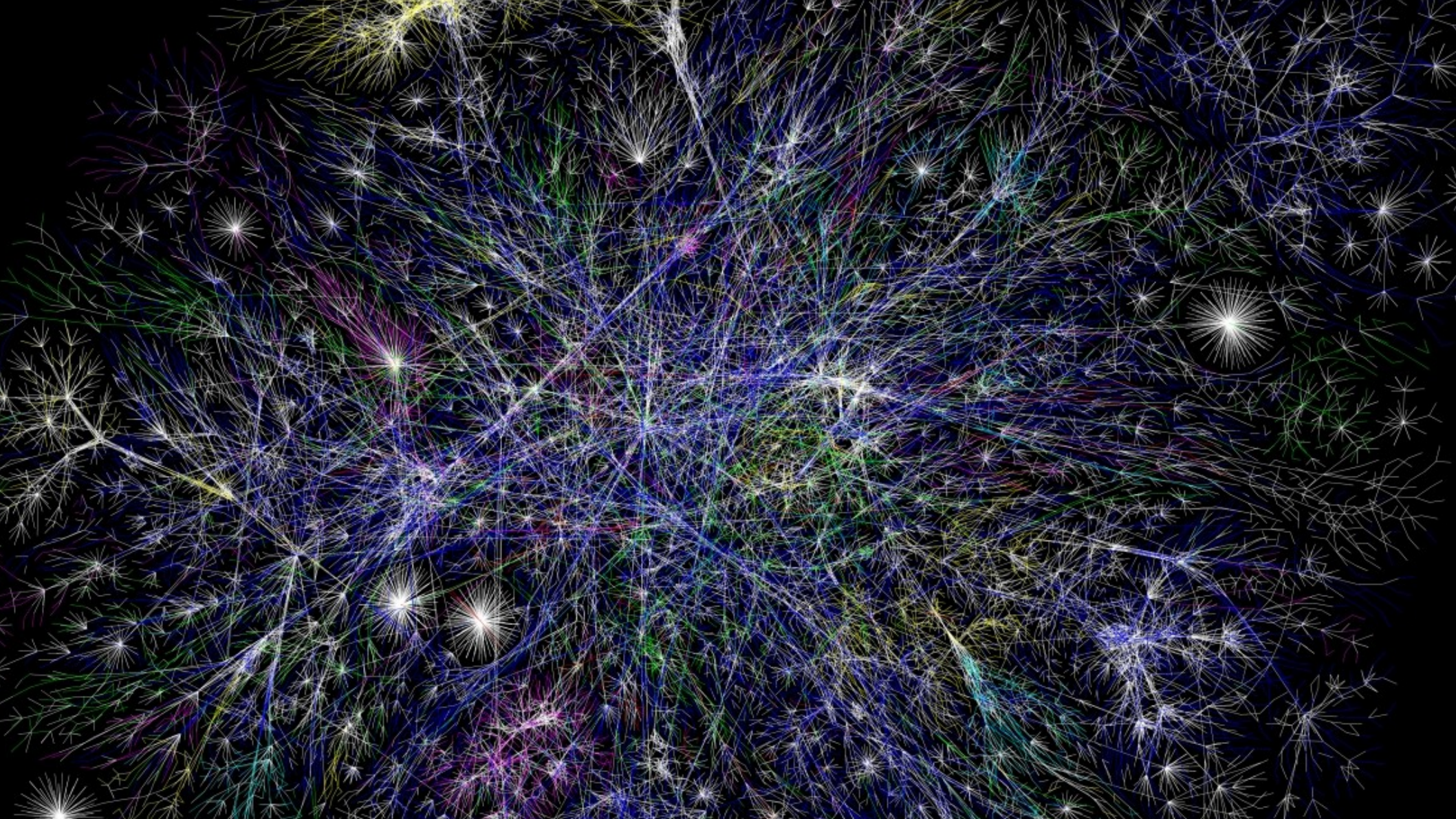
Gartner®

Research and advisory firm that is focused on trend analysis in information technology.

First Generation Internet

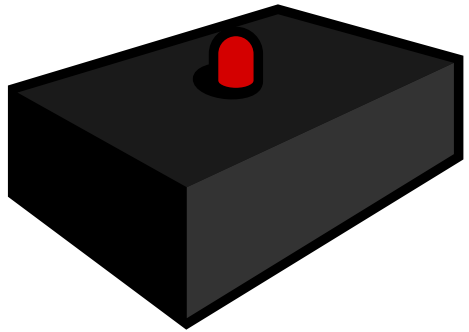




The internet is a network of independent networks.

Not a coherent professional infrastructure but the sum of many independent networks, owned and operated by small and large organisations (and even individuals).

Plus some glue components:



.. like internet exchanges, owned by private organisations.

... like nameservers, also owned by private organisations.

... like spying equipment, also owned by private (and some public) organisations

So the internet is really layered...

Connections

- Physical links.
- Electrons. Light. Radio.
- Senders. Receivers.

Conventions

- Standards
- Protocols
- Operational practises.

Code + commodity

- Ubiquitous code (Open source)
- A lot of legacy hardware
- Including your devices

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- Including your devices

Changing the core conventions of the internet means billions of (quasi-coordinated) changes across existing networks that have never changed that way before.

Moonshot **++** effort

- The internet is the **largest** and **most pervasive** technical construct ever made by humans
- And we need to change it with 3.5+ billion people ‘on board’.
- High political stakes. High economic stakes. Highly critical users users. Overloaded with expectations. From everybody.
- Focus on what is **mission-critical**.

Our design goals

Establish the long term vision
Prioritarisation and intervention logic
Help plan ahead

Create the main vision document for the Next Generation Internet initiative.

Evaluate the key funding priorities identified through our stakeholder consultation, as well as notions on how to (not) design and organise the overall processes.

Create a roadmap guidance document that will help to understand the relationships between the various activities

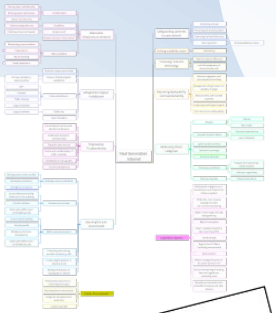
“Criteria for success”

Result-oriented	A first criterion is to ensure that the NGI research will bring the technologies to make the internet **free, interoperable and open**.
Lessons learned	The second criterion is that the study provides **double loop learning** by identifying blocking issues with historical ‘next generation internet’ efforts in these areas, and (per topic or across topics) propose **relevant new instruments and approaches** through which these may best be addressed.
Actionable	Thirdly the study should also establish if there are **significant interdependencies** that can be identified among the topics as well as **known dependencies** that need to be practically addressed – and how these are best dealt with, including the need for R&D efforts aimed at transitional technology. This may impact the **definition of priorities** and **timing** for specific parts of the NGI initiative (e.g.: some R&D results are a precondition to other R&D).
Inclusiveness	A fourth criterion for success is broad **recognition for the holistic approach** for our study methodology, among the very wide range of key actors and stakeholders.

Consultation

- Technical community
- Operational community
- Civil society
- Industry
- Citizens
- ...

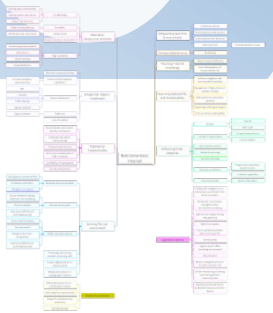
Draft Topic analysis



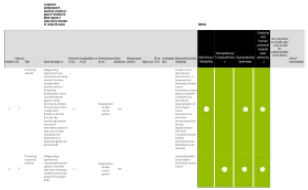
Expert workshop

Interim report

Topic analysis



Clustering



Initial draft vision

Proposed vision

Pre-NGI (H2020)

- Call I: **Service portability & data decoupling**
- Call II: **Technology trustworthiness**
- Call III: **Architecture renovation**

NGI Flagship (after 2020)

Engaging the key communities

RIPE NCC
RIPE NETWORK COORDINATION CENTRE

DIGITALEUROPE

GÉANT
Networks • Services • People

EDRi

centr

euro-IX

Internet Society

EuroISPA

W3C®

fsfe

IETF

eco

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Input from the member states

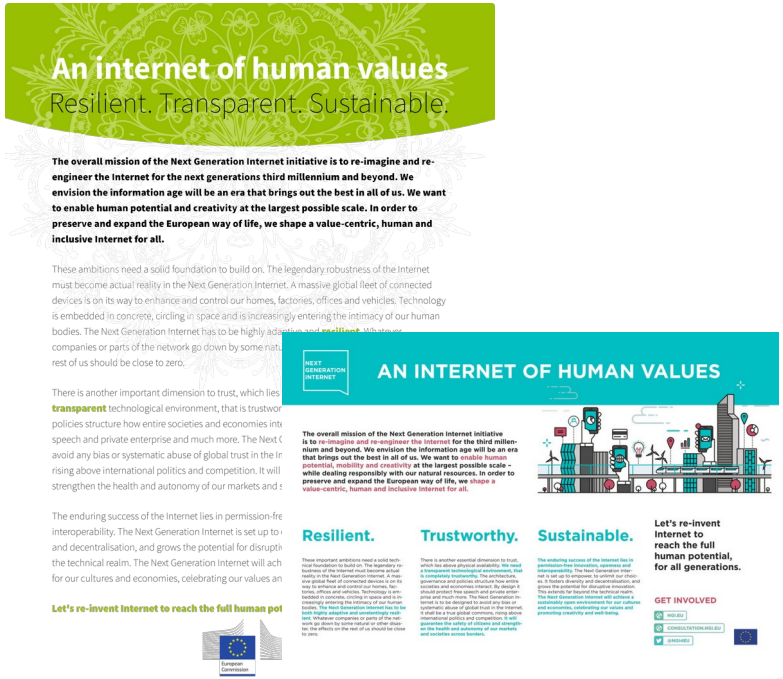
- Austria
- Iceland
- Latvia
- Norway
- Ireland
- Luxembourg
- Poland

Expertise in many different layers of internet

Privacy - Usability - Security - Social Science - Measurement - Freedom of expression - Security - Distributed computing - Startup - User perspective - Innovation - SME - Law making - Internet Governance - Law making - MEP (former) - Civil liberties - International relations - Diversity - LGTHI - Crime - Human rights - Network Stack evolution - Performance measurement - Academia - Security - IETF - delay/disruption-tolerant networking - Federation - Academia - Research - Identity - Mobility - Security - Innovation - Roaming - VPN - Feminist - Migrant - Refugees - Development - Art - DIY - Education - Whistleblowers - Anthropology - Philosophy - Anti-corruption - Legal - Messaging - Privacy - TLS - Research - Industry - Measurements - Public transparency - Hardware - Cryptography - Civil liberties - Privacy - User perpective - Security - Ipv6 - Future Internet Programme - Hosting - ISP - Privacy - Peering - Packet filtering - High availability - Open source - Network robustness - Mesh networks - IDS - Academic - Youth - TLS - Hosting - DNSSEC - Identity management - RTC - Ipv6 - Cryptography - AAA - Identity management - W3C - User experience - Aesthetics - Startup - Youth - Human rights - Privacy - Open source - Alternative infrastructures - Academic - Security - Privacy - Youth

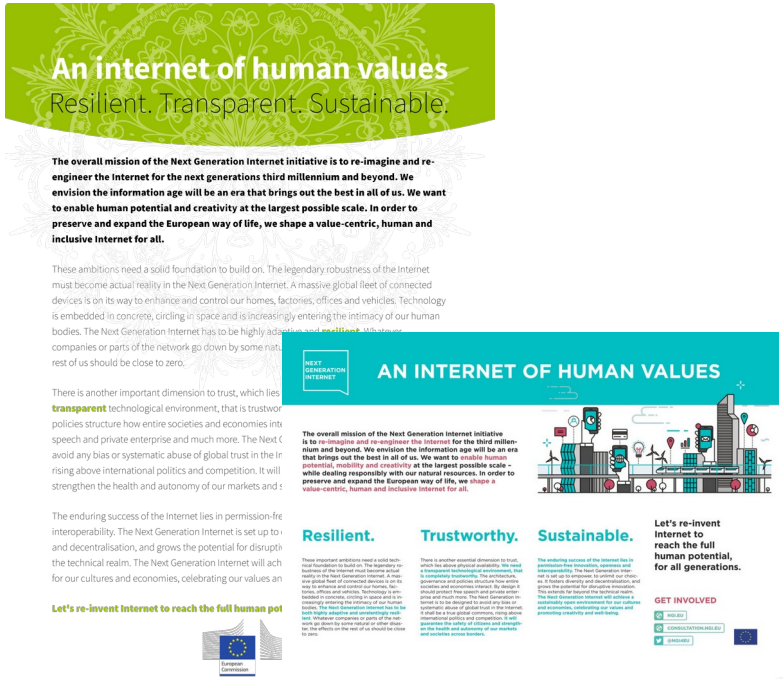
NGI Vision: An internet of human values

"The overall mission of the Next Generation Internet initiative is to re-imagine and re-engineer the Internet for the third millennium and beyond. **We envision the information age will be an era that brings out the best in all of us.** We want to enable human potential and creativity at the largest possible scale. In order to preserve and expand the European way of life, we shape a value-centric, human and inclusive Internet for all."

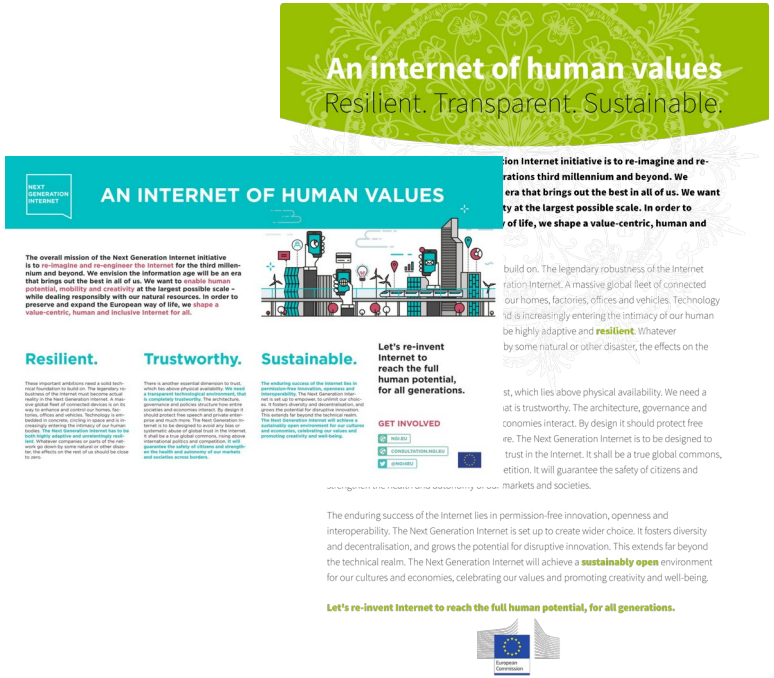


Key goal I: high resilience.

“These ambitions need a solid foundation to build on. The legendary robustness of the Internet must become actual reality in the Next Generation Internet. A massive global fleet of connected devices is on its way to enhance and control our homes, factories, offices and vehicles. Technology is embedded in concrete, circling in space and is increasingly entering the intimacy of our human bodies. **The Next Generation Internet has to be highly adaptive and resilient. Whatever companies or parts of the network go down by some natural or other disaster, the effects on the rest of us should be close to zero.** “



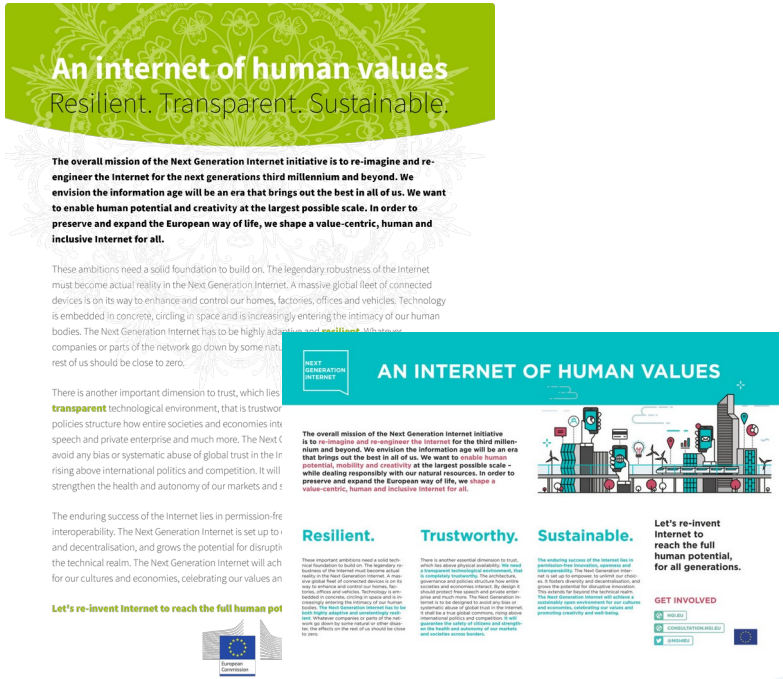
Key goal II: Transparency and trustworthiness



There is another important dimension to trust, which lies above physical availability. **We need a transparent technological environment, that is trustworthy**. The architecture, governance and policies structure how entire societies and economies interact. By design it should protect free speech and private enterprise and much more. **The Next Generation Internet is to be designed to avoid any bias or systematic abuse of global trust in the Internet**. It shall be a true global commons, rising above international politics and competition. **It will guarantee the safety of citizens and strengthen the health and autonomy of our markets and societies**.

Key goal III: Sustainably open.

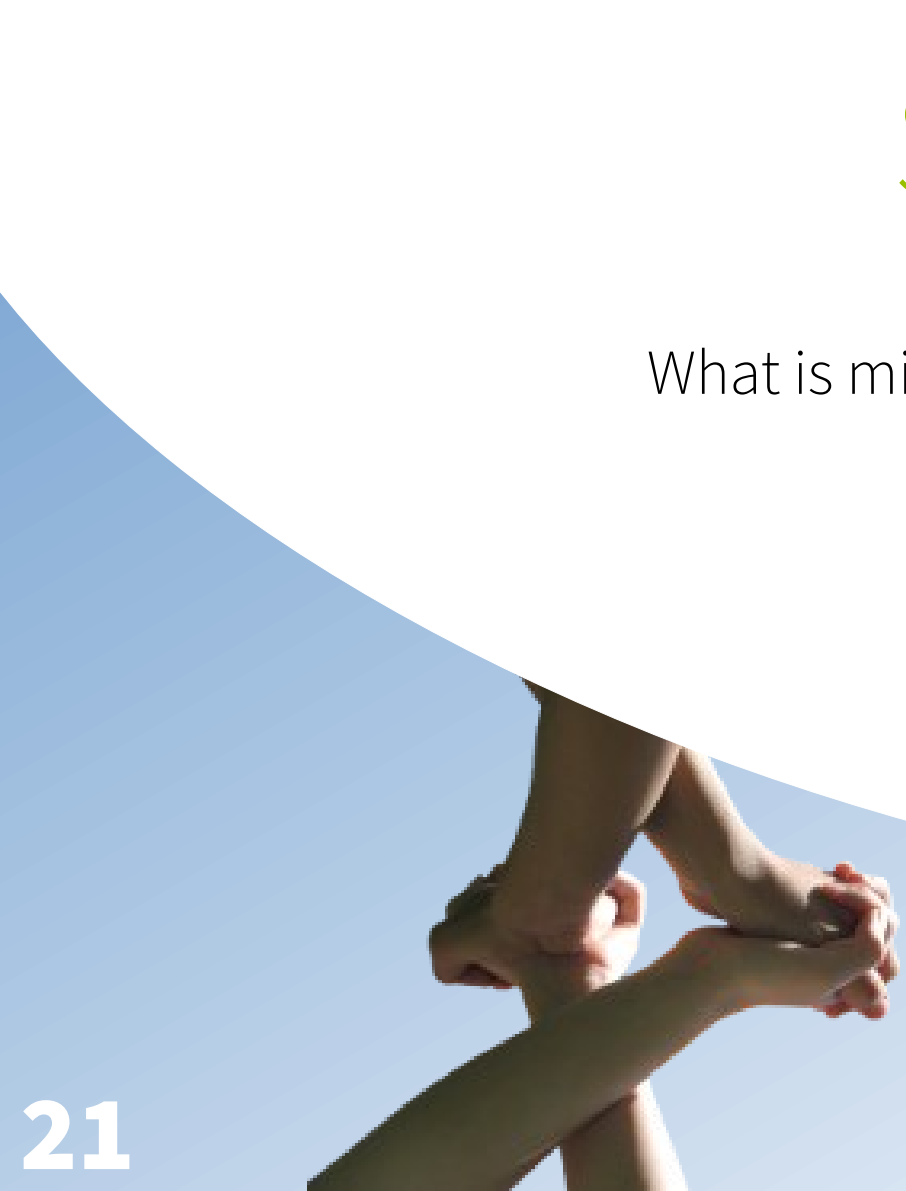
"The enduring success of the Internet lies in permission-free innovation, openness and interoperability. The Next Generation Internet is set up to create wider choice. It fosters diversity and decentralisation, and grows the potential for disruptive innovation. This extends far beyond the technical realm. **The Next Generation Internet will achieve a sustainably open environment for our cultures and economies, celebrating our values and promoting creativity and well-being.**"



Situation analysis

What is missing/broken/a steadily ticking timebomb?

What needs to happen?



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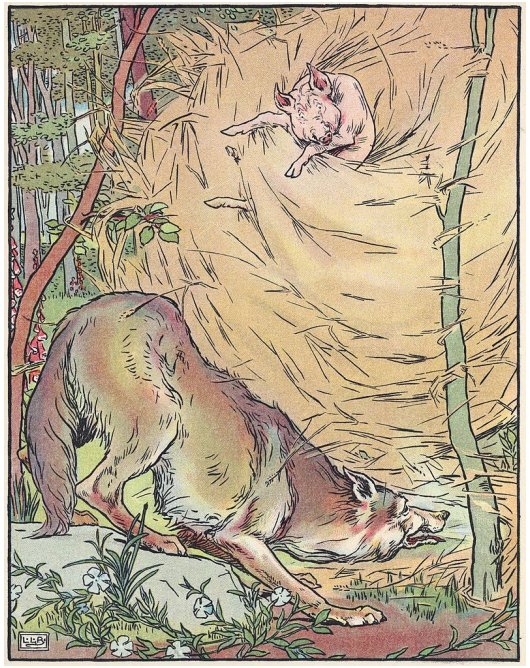
Environment model

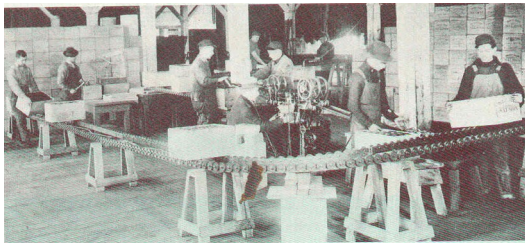
- Environment model
  - Disaster
    - Natural
    - Man-made
    - Adversarial/rogue AI
  - Cascade of system failure
    - 3rd party dependencies
    - Lack of isolation
  - Cyber warfare/conflicts
  - Industrial espionage
  - Industrial sabotage
  - Pervasive surveillance
    - Programmes exposed by whistle blowers
    - Unknown capabilities
  - Malicious big data
    - Passive observation



Establish sustainable operational conditions

Improving deployability and maintainability

- Solution integration and precompetitive bundling
- Management of high volume of updates/ changes
- Best practises and bundled expertise
- Improving multilingual support
- End-user service deployability



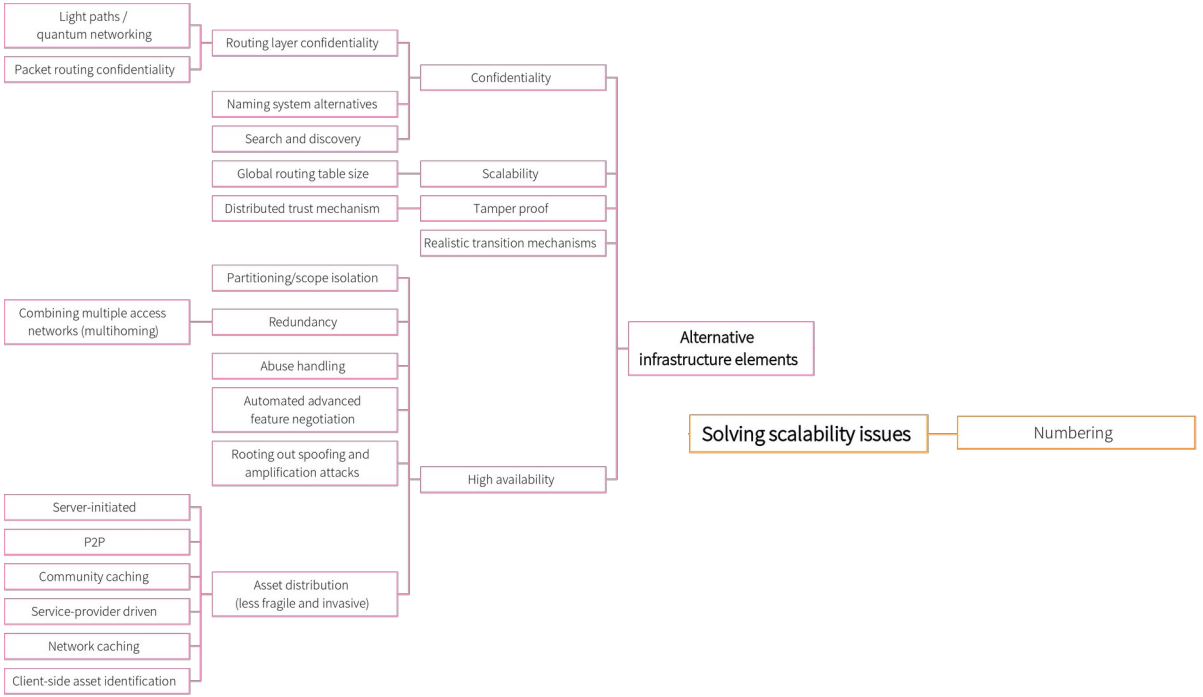
By Peter Craven - Prograde screen and 4 stockpile conveyors.
CC BY 2.0, https://commons.wikimedia.org/w/index.php?curid=25687509

Building trust from the ground up

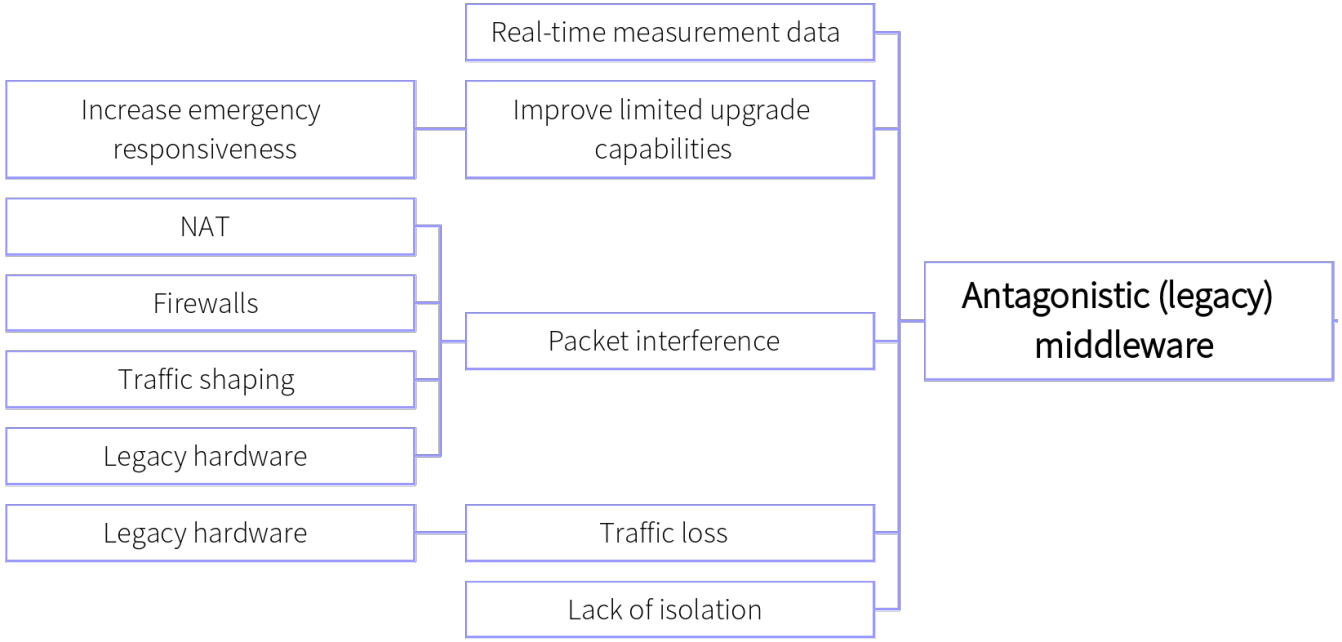
- Decentralised internet-wide identity mechanisms
- Distributed reputation mechanism(s)
- Transport layer security
- End to end confidentiality of traffic metadata
- Verifiability of routing paths
- Security transparency

→ **Engineering Trustworthiness**

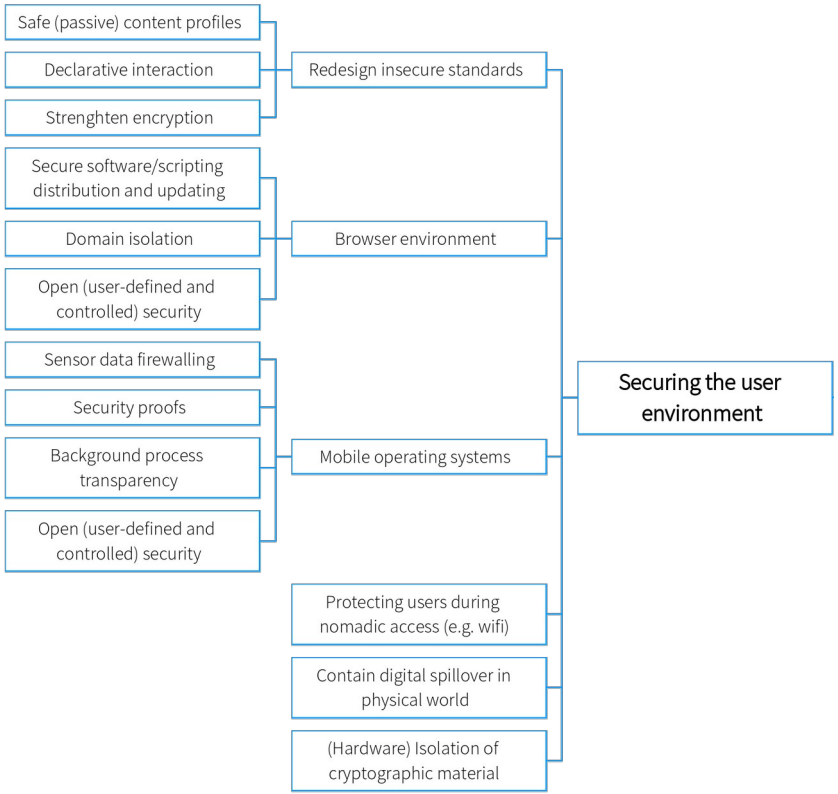
Alternative infrastructure



Dealing with legacy middleware



Empower and protect user environment



By Damien.cook.frog (Own work) [CC BY-SA 4.0 (https://creativecommons.org/licenses/by-sa/4.0)], via Wikimedia Commons

Use commons to counter proprietary dominance

- Safeguarding openness to new entrants
  - Unlocking verticals
  - Preventing horizontal spillover
  - Improving low-level discovery
  - Open spectrum
    - 5G standardisation issues

Green is the new gold

"Greening" internet technology

- Need to improve efficiency
- Lack of transparency of environmental cost
- Blockchain waste

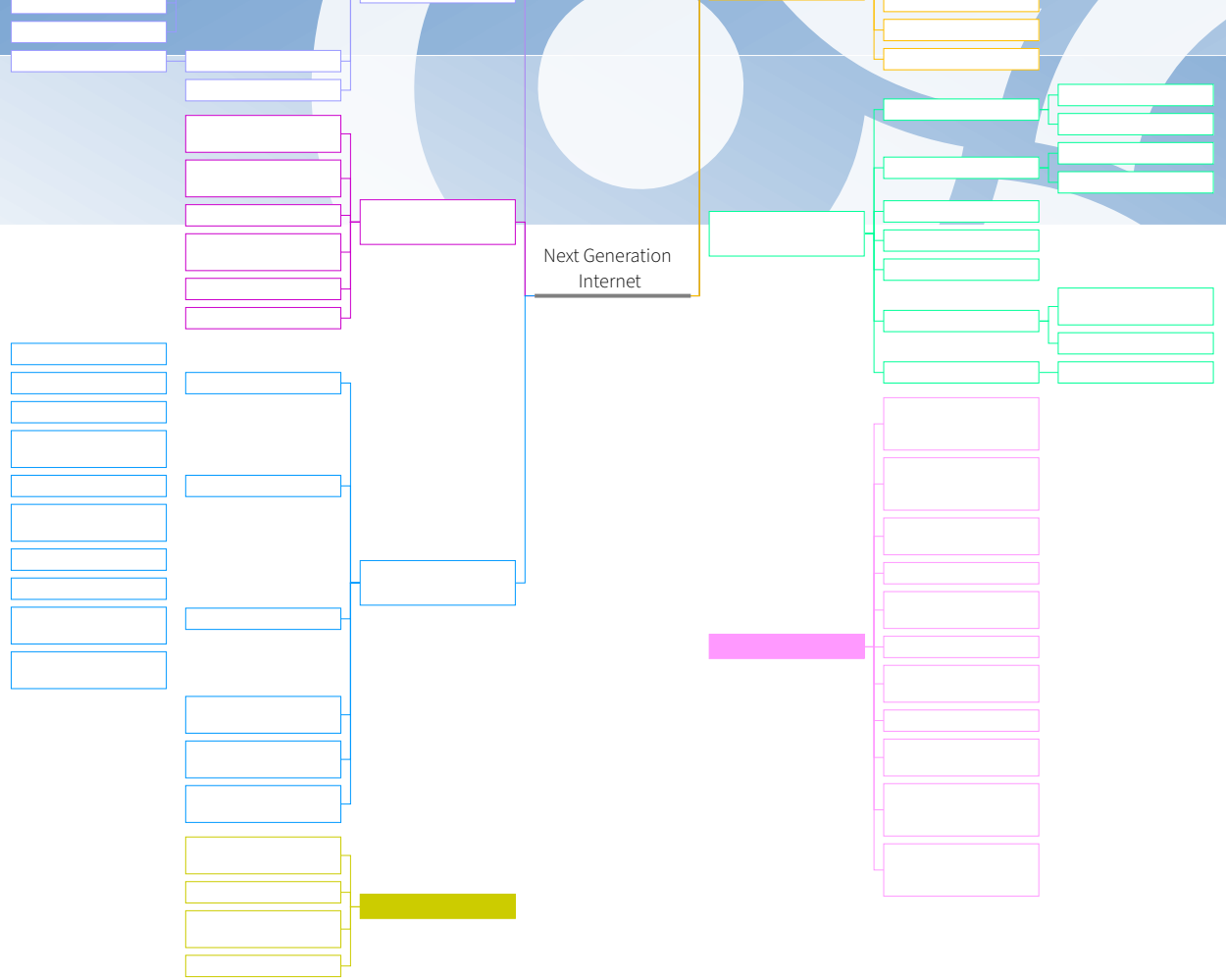
And some procurement and legislation suggestions

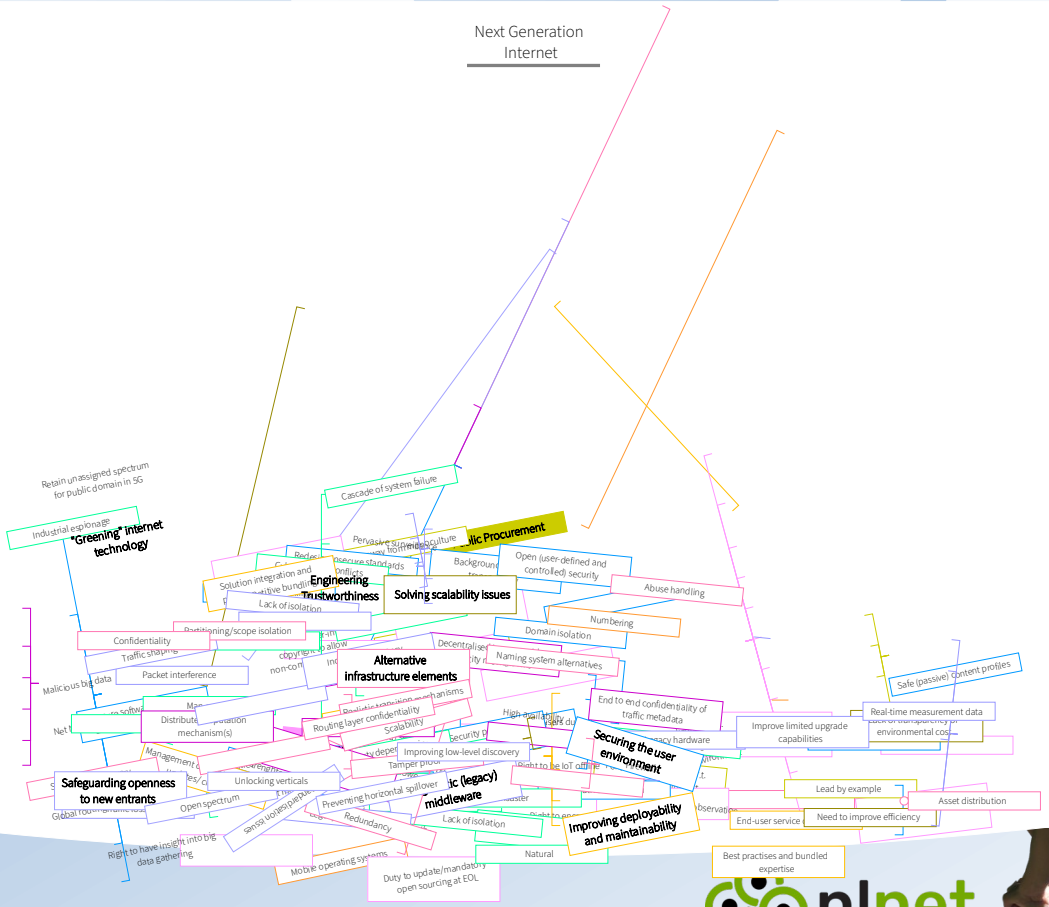
- Follow best practices w.r.t. overall system impact
- Steer away from monoculture
- Design for robustness and autonomy
- Lead by example

Public Procurement

Legislative aspects

- Dealing with negligence w.r.t. maintenance as a threat to the whole ecosystem
- Modernise over-invasive copyright to allow non-commercial sharing
- Right to have insight into big data gathering
- Right to encryption
- Duty to update/mandatory open sourcing at EOL
- Net Neutrality
- Right to be IoT offline (including environment)
- Data retention
- Retain unassigned spectrum for public domain in 5G
- Stricter maintaining of existing laws and regulations protecting users
- Mandatory hard switches for embedded cameras and other devices


Next Generation
Internet


Next Generation Internet
Retain unassigned spectrum for public domain in 5G
Industrial espionage
"Greening" internet technology
Cascade of system failure
Engineering Trustworthiness
Solving scalability issues
Alternative infrastructure elements
Safeguarding openness to new entrants
Securing the user environment
Improving deployability and maintainability
Middleware
Lack of isolation
Confidentiality
Packet interference
Unlocking verticals
Open spectrum
Redundancy
Mobile operating systems
Duty to update/mandatory open sourcing at EOL
Natural
Best practises and bundled expertise
Lead by example
Asset distribution
Need to improve efficiency
End-user service
Improve limited upgrade capabilities
Real-time measurement data
Safe (passive) content profiles
Abuse handling
Numbering
Domain isolation
Naming system alternatives
Open (user-defined and controlled) security
Scalability
Improving low-level discovery
Tamper proof
Preventing horizontal spillover
Routing layer confidentiality
Right to have insight into big data gathering

Consultation

- Technical community
- Operational community
- Civil society
- Industry
- Citizens
- ...

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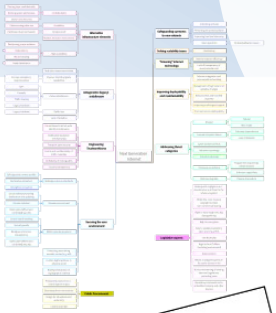

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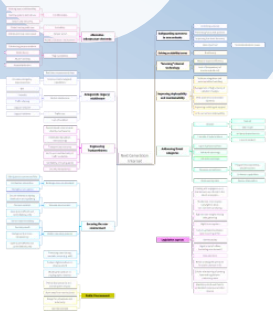

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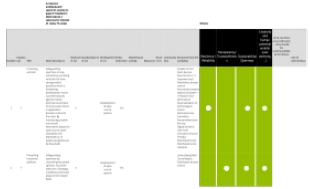

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Proposed vision

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- Call II: **Technology trustworthiness**
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NGI Flagship (after 2020)

NGI Flagship

Access techno-logies

Internet Defense & OpSec

IoT

Quality of life

Inclusive-ness

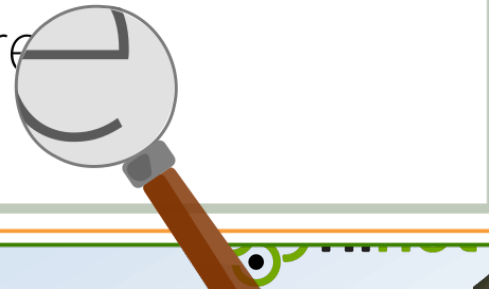
Fintech & block-chain

...

Internet Applications & verticals

Internet Core

AI



Prioritization criteria

The prioritization process of the technology topics to be included in the NGI work programme is important for the success of the whole effort – not just novelty or popular topics.

There are many cross-links and interdependencies that make the traditional funding problematic.

- If the rocket doesn't fly, the whole effort is moot.
- If the rocket explodes, the whole effort is moot.
- If the rocket is hacked, the whole effort is moot.

Policy categories

General, financial and institutional matters

Customs Union and free movement of goods

Agriculture

Fisheries

Freedom of movement for workers and social policy

Right of establishment and freedom to provide services

Transport policy

Competition policy

Taxation

Economic and monetary policy and free movement of capital

Digital Agenda

External relations

Energy

Industrial policy and internal market

Regional policy and coordination of structural instruments

Environment, consumers and health protection

Science, information, education and culture

Law relating to undertakings

Common Foreign and Security Policy

Area of freedom, security and justice

People's Europe

Benefits

- Establish a secure technological base that can be assumed reliable for all purposes.
- Convergence mechanism for all NGI subprojects to establish quality and deliver proven solutions to others.
- Transparency about guarantees on business continuity and social connectiveness.
- Contributes to professional culture required for internet as a mature strategic infrastructure.
- Systematic and comprehensive approach re-enables trust in the system.

Communities/problem owners

- Computer science (Software engineering, Security,
- Software quality, Formal proof, Code generation, Testing, AI) Hardware
- Kernel communities (Linux, OpenBSD, FreeBSD, etc)
- IRTF/ISOC/W3C
- Static/Binary Analysis
- (National and sectoral) CERT
- ENISA
- MITRE
- FOSSi, OpenCores
- FSF/FSFE/APRIL/..

Resource planning

Phasing ■□□□□ Required effort ■■■□□

NGI Drivers for change

Resilience / Reliability	■■■■■	(5/5)
Transparency/ Trustworthiness	■■■■■	(5/5)
Sustainability/ Openness	■■□□□	(2/5)
Creativity and human potential enabler (user centricity,...)	■□□□□	(1/5)
Number of drivers impacted: 4	Overall impact on change:	13

Research topic I

Establish trustworthiness

The original core architecture has been exposed as rather fundamentally untrustworthy. A key rationale for creating a Next Generation Internet.

As one interviewed expert succinctly put: “we need trust built from the ground up”. Every technical primitive from the current internet needs to be re-evaluated in terms of the complete threat catalog.

Benefits

Establish a secure technological base that can be assumed reliable for all purposes.

Convergence mechanism for all NGI subprojects to establish quality and deliver proven solutions to others.

Transparency about guarantees on business continuity and social connectiveness.

Contributes to professional culture required for internet as a mature strategic infrastructure.

Systematic and comprehensive approach re-enables trust in the system.

Communities

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IRTF/ISOC/W3C

Static/Binary Analysis

(National and sectoral) CERT

ENISA

MITRE

FOSSi, OpenCores

FSF/FSFE/APRIL/..

- (and more)

Establish Trustworthiness

Resource planning

Phasing

Required effort

Research effort	✓
Development effort	✓
Maintenance and QA	✓
Standardisation effort	✓
Requires new policy measures	No
Significant educational effort required	-
Existing policy subject impacted	8 Competition policy 13 Internal Market 15 Consumer Protection 19 Freedom Security 20 People's Europe Digital Agenda

Research topic II

Service portability and data decoupling

The availability of quality generic alternatives for all important classes of internet services will provide an enormous boost towards development and user mobility. Users need to be able to separate their content and data from internet-based software and services.

Service portability and data decoupling

Resource planning

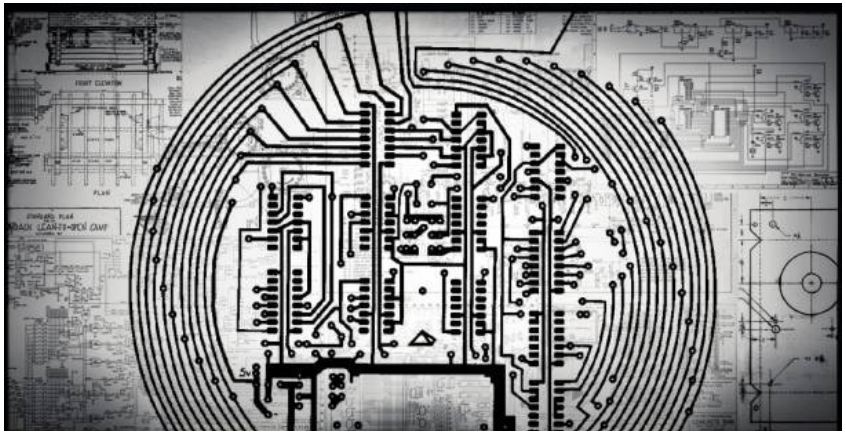
Phasing

Required effort

Research effort	✓
Development effort	✓
Maintenance and QA	✓
Standardisation effort	✓
Requires new policy measures	Yes
Significant educational effort required	-
Existing policy subject impacted	8 Competition policy 13 Internal Market 15 Consumer Protection 19 Freedom Security 20 People's Europe Digital Agenda

Research topic III

Architecture renovation



The ability to re-engineer and/or replace core protocols known to be unreliable or untrustworthy, to structurally increase the resilience and robustness at a systemic level. This would provide a **lasting answer** to the threats from the threat catalog, for instance changing the whole dynamics of currently ‘undefeatable’ threats such as distributed denial of service by botnets and mass surveillance. **Open the path to introducing exciting new capabilities to further evolve the internet.**

Architecture renovation

Resource planning

Phasing

Required effort

Research effort	✓
Development effort	✓
Maintenance and QA	✓
Standardisation effort	✓
Requires new policy measures	No
Significant educational effort required	-
Existing policy subject impacted	15 Consumer Protection 19 Freedom Security 20 People's Europe Digital Agenda

The internet is a system

It is essential to increase the flexibility and responsiveness of the internet as a *system*; no secure system is able without “convenient mechanisms and procedures for maintaining it”

Additional dimensions/topics

Resilient Internet Services

Creating a modern Internet infrastructure with connections and services intelligent and flexible enough to be able to avoid, repair and mitigate broken dependencies. Through practices such as connectivity redundancy (e.g. multi-homing), partitioning and smart asset distribution, the real-time dependency on a limited number of actors is reduced. The goal is to ensure high availability, resilience, openness and disruption tolerance.

Resilience / Reliability	■■■■■	(5/5)
Transparency/ Trustworthiness	■■■■■	(0/5)
Sustainability/ Openness	■■■■■	(3/5)
Creativity and human potential enabler (user centricity,…)	■■■■■	(2/5)
Number of drivers impacted: **3**	Overall impact on change:	10

Additional dimensions/topics

Resilience / Reliability	■■■□□	(3/5)
Transparency/ Trustworthiness	■■■■■	(5/5)
Sustainability/ Openness	■■■■□	(4/5)
Creativity and human potential enabler (user centricity,…)	■■■■□	(4/5)
Number of drivers impacted: **4**	Overall impact on change:	16

Unbiased and privacy-respectful discovery of content and services

Enabling unbiased and privacy-respectful discovery of content, services and metadata on the Web, also in a real-time local context. This will lead to higher trustworthiness of the Internet for the users, more openness of content and enhancement of creativity and human potential through alternative access to various types of content and services. Allowing for bottom-up means of fine-grained discovery as well as shared metadata and other forms of enrichment and aggregation of content and services is essential to create alternatives. By making low-level discoverability an essential characteristic of the edges of the system, rather than something controlled by intermediaries,

Additional dimensions/topics

Internet Hardening

Achieve a trustworthy internet infrastructure that solves the fragility, lack of trust and confidentiality, and generally weak defence characteristics of the first generation internet. The goal is to ensure high availability, resilience, openness and disruption tolerance by providing a resilient, robust and secure routing and transport layer. Ubiquitous availability of tunnelling mechanisms can be provided to protect end users as an alternative to providing direct safe connections at the edges.

Resilience / Reliability	■■■■■	(5/5)
Transparency/ Trustworthiness	■■■■■	(4/5)
Sustainability/ Openness	■■■■■	(3/5)
Creativity and human potential enabler (user centricity,…)	■■■■■	(2/5)
Number of drivers impacted: **4**	Overall impact on change:	14

Additional dimensions/topics

Resilience / Reliability	■■■■■	(4/5)
Transparency/ Trustworthiness	■■■■■	(5/5)
Sustainability/ Openness	■■■■■	(4/5)
Creativity and human potential enabler (user centricity,…)	■■■■■	(4/5)
Number of drivers impacted: **4**	Overall impact on change:	17

Securing end-user rights, protection and reputation

Trust is the key driver for human interaction. Identity and reputation are characteristics which should be an intrinsic part of the internet infrastructure, yet any such unbiased shared infrastructure is lacking. In order to secure end-user rights, the NGI needs to create decentralised internet-wide identity mechanisms, distributed reputation options and ensuring viable means of extending end-of-life of software and software-enabled devices.

Additional dimensions/topics

Verification, accountability and automation mechanisms for NGI

The NGI initiative presents an unprecedented challenge of providing efficient accountability and security mechanisms for the operational NGI initiative with tamper-proof technical solutions such as security proofs, risk protection tools, as well as whistle-blowing options and accountability mechanisms. These solutions should ensure high availability of the NGI, counter issues such as sabotage or surveillance, and provide distributed trust mechanisms to remove single points of failure. Security solutions could also include mechanisms to encourage automating incident- and abuse-handling to further secure safe Internet use during operations. The goal is to improve the trustworthiness, reliability and sustainability of the Internet, enabling innovation.

Resilience / Reliability	■■■■□	(4/5)
Transparency/ Trustworthiness	■■■■■	(5/5)
Sustainability/ Openness	■■□□□	(2/5)
Creativity and human potential enabler (user centricity,…)	■■□□□	(2/5)
Number of drivers impacted: **4**	Overall impact on change:	13

Additional dimensions/topics

Resilience / Reliability	■■■□□	(3/5)
Transparency/ Trustworthiness	■■■■■	(5/5)
Sustainability/ Openness	■■□□□	(2/5)
Creativity and human potential enabler (user centricity,…)	■■■■□	(4/5)
Number of drivers impacted: **4**	Overall impact on change:	14

Provide end user friendly transparency mechanisms

Providing user-friendly accesses to transparency mechanisms, such as transparency on the security situation of a connection, background processes, data collected and observed or data retention. These mechanisms can also provide tweaking options empowering the user to define the security levels. This will lead to higher trustworthiness of the Internet with the effect of enabling innovation and creativity.

The short version

- Resilient Internet Services
- Unbiased and privacy-respectful discovery of content and services
- Internet Hardening
- Securing end-user rights, protection and reputation
- Verifcation, accountability & automation mechanisms
- Provide end user friendly transparency mechanisms
- Promote freedom of use
- User empowerment through freedom of choice
- Greening the Internet
- A maintainable Internet
- Optimisable, reusable and reliable open hardware

Intermediaries will play a (very) critical role

Provide a light-weight and confidential application procedure that providing adequate insight into technical capabilities as well as the urgency, relevance and relative cost effectiveness of the projects proposed.

.. using a staged approach which identifies and amends missing or inadequate aspects of the proposals prior (and conditional) to the start of a project.
+ pursue (or enforce) QA and promote best practices

EC started putting out funds via subgranting to different consortia acting as intermediaries – so called Research and Innovation actions.
Our programmes are all called NGI Zero (or short version: NGI0)

All outcomes of the current projects have to be published under a free and open source licence so everyone equally benefits – **public money, public code**.

Currently hundreds of ongoing efforts , working on a great diversity of technologies – from libre silicon toolchains, alternative boowsers, software supply chain analysis to open hardware mobile networks.

10 layers of technology in NGI

Trustworthy hardware and manufacturing

Decentralised solutions, including blockchain/distributed ledger

Network infrastructure incl. routing, P2P and VPN

Data and Artificial Intelligence

Software engineering, protocols, inter-operability, cryptography, algorithms, proofs

Services and Applications

Operating Systems, firmware and virtualisation

Vertical use cases, search and community

Measurement, monitoring, analysis and abuse handling

Middleware + identity
, incl. DNS, authorisation, authentication, distribution/deployment, operations, reputation systems


NGI
ZERO
Est. 2018
TALER
TAURI
Krill
XMPP
AEROGRAMME
Commons Fund
mobile
DREAM2NIX
ENGLAND
FRANCE
SPAIN
GERMANY
POLAND
UKRAINE
ROMANIA
HUNGARY
ITALY
GREECE
Paris
London
Berlin
Rome
Madrid
Barcelona
Naples
Athens
Hamburg
Warsaw
Kyiv
Budapest
Bucharest
Belgrade
Prague
Vienna
Amsterdam
Brussels
Frankfurt
Munich
Marseille
Lyon
Zagreb
Sarajevo
Tirana
Skopje
Podgorica
Valletta
Tripoli
Tunis
Algiers
MEDITERRANEAN
Sardinia
Corsica
Sicily
Crete
Peloponnesus
Ionian Sea
Tyrrhenian Sea
Aegean Sea
Black Sea
Rotterdam
Cologne
Nürnberg
Stuttgart
Dresden
Kraków
Łódź
Wrocław
Poznań
Kharkiv
Minsk
Vilnius
Riga
Tallinn
Helsinki
Stockholm
Oslo
Copenhagen
Malmö
Gdańsk
Kaliningrad
Bratislava
Chişinău
Iaşi
Odesa
Sofia
Skopje
Thessaloniki
Athens
Pátra
Izmir
Bursa
Ankara
Istanbul
Lisbon
Porto
Seville
Málaga
Valencia
Zaragoza
Bilbao
Toulouse
Bordeaux
Nantes
Rennes
Brest
Caen
Calais
Dover
Liverpool
Leeds
Manchester
Dublin
Belfast
Edinburgh
Glasgow
Cardiff
Birmingham
Geneva
Zürich
Milan
Turin
Genoa
Nice
Monaco
Andorra
Pamplona
Santander
Gibraltar
Ceuta
Melilla
Oran
Algiers
Annaba
Bizerte
Sfax
Tripoli
Misrata
Benghazi
Alexandria
Cairo
Nile
Suez
Red Sea
Jeddah
Mecca
Riyadh
Medina
Tabuk
Amman
Jerusalem
Beirut
Damascus
Baghdad
Tehran
Isfahan
Shiraz
Mashhad
Tabriz
Yerevan
Tbilisi
Baku
Caspian Sea
Astrakhan
Volgograd
Saratov
Samara
Kazan
Nizhny Novgorod
Moscow
Yaroslavl
Tver
Smolensk
Kursk
Voronezh
Rostov
Krasnodar
Sochi
Grozny
Makhachkala
Aktau
Atyrau
Aktobe
Orenburg
Ufa
Perm
Yekaterinburg
Chelyabinsk
Kurgan
Tyumen
Omsk
Novosibirsk
Barnaul
Kemerovo
Krasnoyarsk
Irkutsk
Yakutsk
Vladivostok
Khabarovsk
Sakhalin
Kamchatka
Magadan
Chukotka
Anadyr
Norilsk
Dudinka
Tiksi
Lena
Yenisei
Ob
Irtysh
Ural Mts
Carpathian Mts
Alps
Pyrenees
Mont Blanc
Etna
Vesuvius
Olympus
Corfu
Crete
Cyprus
Nicosia
Limassol
Paphos
Famagusta
Kyrenia
Malta
Gozo
Comino
Sicily
Palermo
Catania
Messina
Naples
Rome
Florence
Venice
Milan
Turin
Genoa
Nice
Corsica
Ajaccio
Bastia
Sardinia
Cagliari
Sassari
Olbia
Balearic Is.
Palma
Majorca
Ibiza
Menorca
Formentera
Gibraltar
Strait of Gibraltar
Bay of Biscay
English Channel
North Sea
Irish Sea
Celtic Sea
Atlantic Ocean
Mediterranean Sea
Black Sea
Caspian Sea
Aral Sea
Lake Baikal
Lake Ladoga
Lake Onega
Lake Peipus
Lake Vänern
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Lake Mälaren
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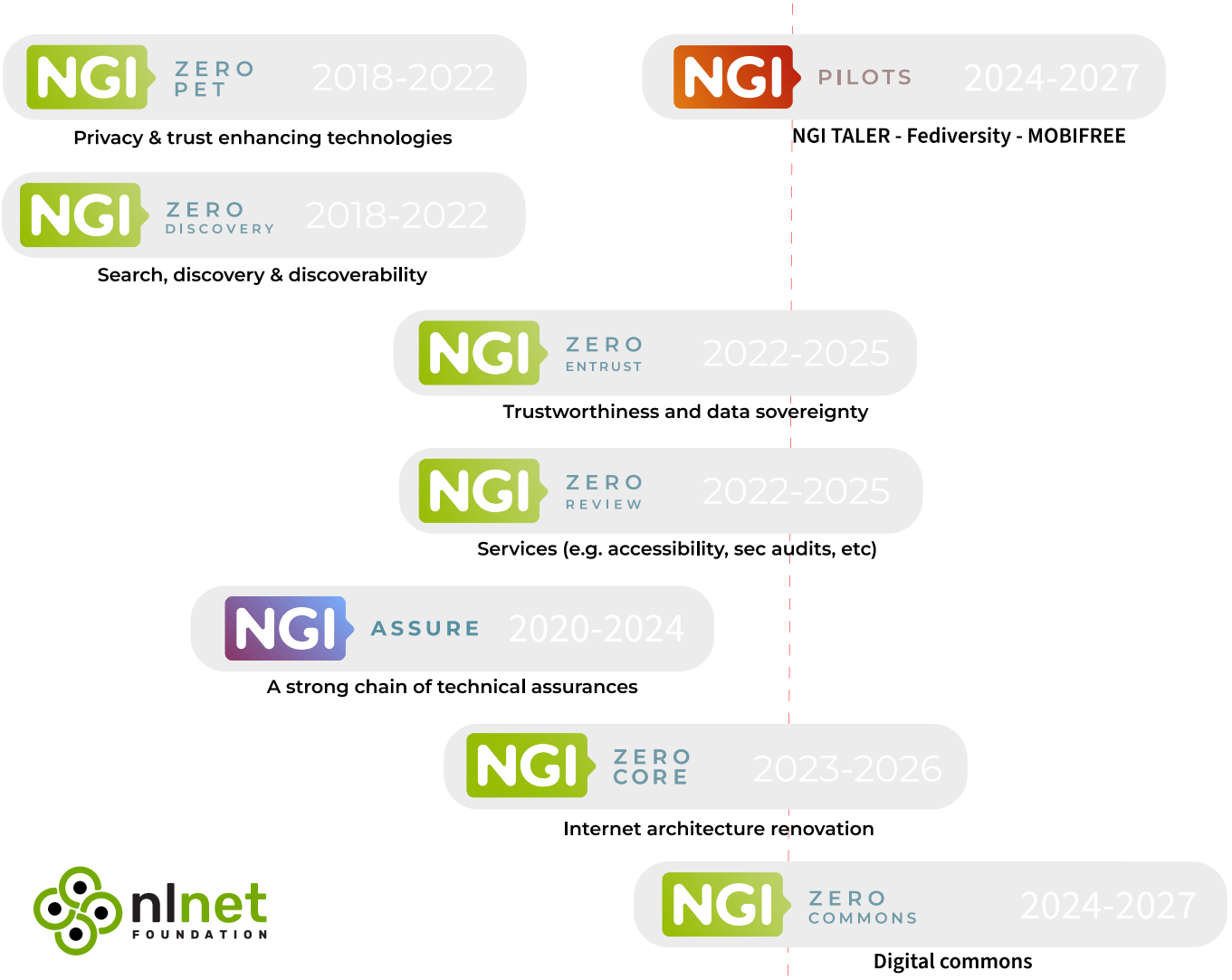
NGI ZERO PET 2018-2022
Privacy & trust enhancing technologies
NGI PILOTS 2024-2027
NGI TALER - Fediversity - MOBIFREE
NGI ZERO DISCOVERY 2018-2022
Search, discovery & discoverability
NGI ZERO ENTRUST 2022-2025
Trustworthiness and data sovereignty
NGI ZERO REVIEW 2022-2025
Services (e.g. accessibility, sec audits, etc)
NGI ASSURE 2020-2024
A strong chain of technical assurances
NGI ZERO CORE 2023-2026
Internet architecture renovation
NGI ZERO COMMONS 2024-2027
Digital commons
nlnet FOUNDATION


meanwhile
XMPP
About Code
Atomic Data
gosling. technology
funkwhale
castopod
ZERO
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CokoDocs
libre SOC
Kaidan
BRIAR
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HYPERHYPER SPACE
Mellium
INTERPEER
KXOR
TALER
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nlnet FOUNDATION
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secsync
NextGraph
Software Heritage
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meld
TOX
Earthstar
Nitrokey
BERT13
ROSENPASS
European Commission
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Public Money Public Code
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librecast
simplyedit
pycm
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random number


many projects
XMPP
About Code
Atomic Data
gosling. technology
funkwhale
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CokoDocs
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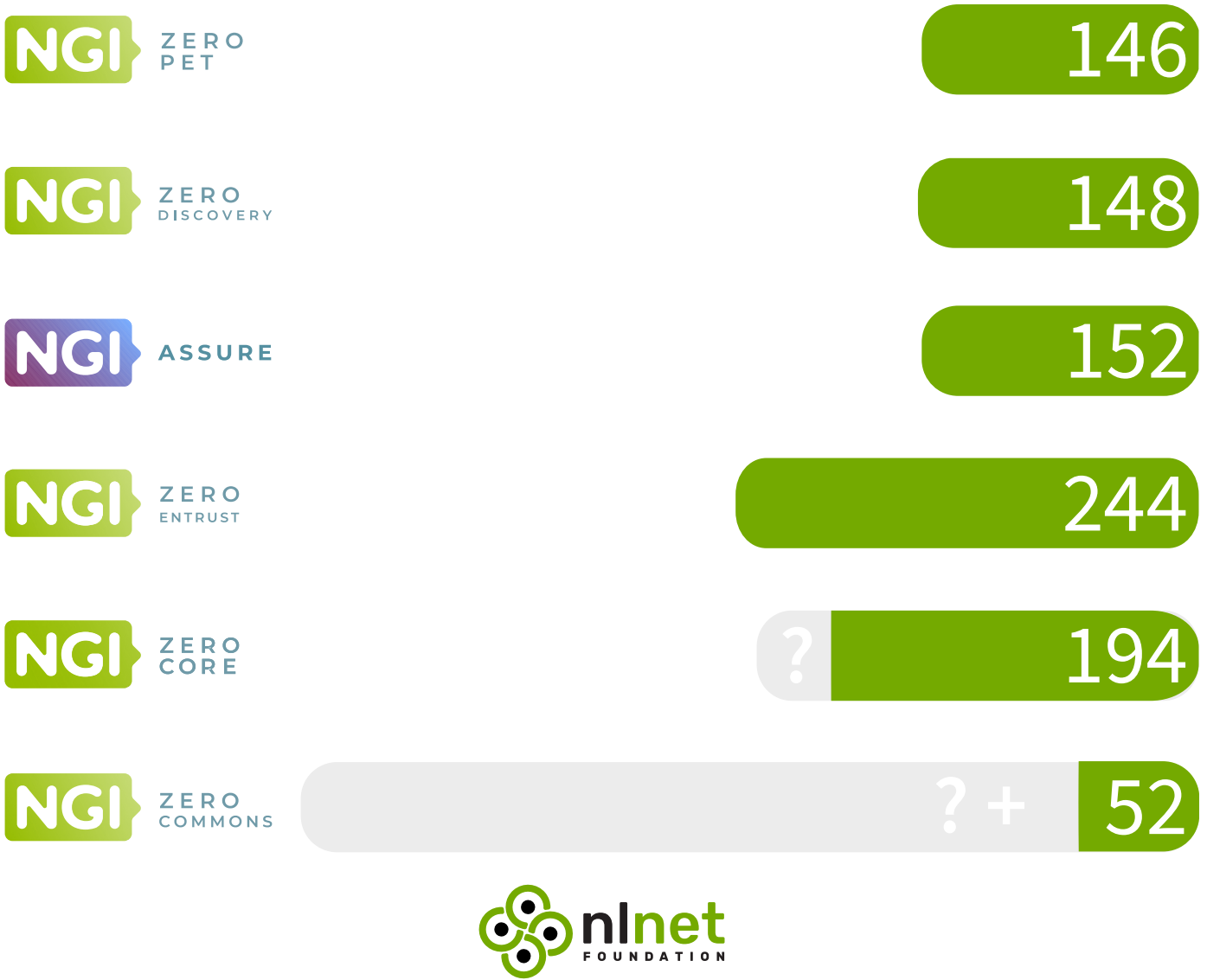
NGI ZERO PET
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NGI ASSURE
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NGI ZERO ENTRUST
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NGI ZERO CORE
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NGI ZERO COMMONS
? +
52
nlnet FOUNDATION

Not just financial support but also help with:

- Accessibility
- Security audit
- Community building and mentoring
- Diversity and inclusion management
- Packaging
- Copyright and license due diligence
- Internationalisation, translation and localisation
- Non-profit business models
- Standardisation
- Testing
- User Experience/usability
- Technical writing
- ...

NGI ZERO

Best practices

There is some accumulated knowledge which you might benefit from

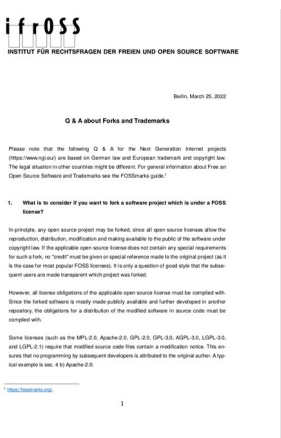
https://nlnet.nl/NGI0#bestpractices

REUSE SOFTWARE

NGI ZERO fsfe

NGI Zero PET and Discovery Legal To-Dos

REUSE Recommended Best Practices


ifrOSS
INSTITUT FÜR RECHTSFRAGEN DER FREIEN UND OPEN SOURCE SOFTWARE

Berlin, March 25, 2022

Q & A about Forks and Trademarks

Please note that the following Q & A for the Next Generation Internet projects (https://www.ngi.eu/) are based on German law and European trademark and copyright law. The legal situation in other countries might be different. For general information about Free an Open Source Software and Trademarks see the FOSSmarks guide.[1]

1. What is to consider if you want to fork a software project which is under a FOSS license?

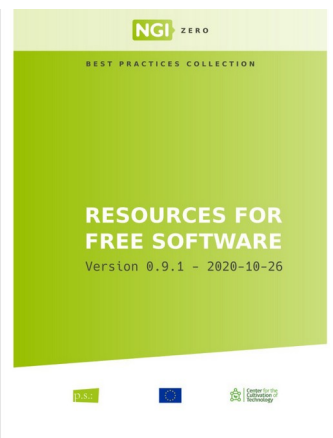
In principle, any open source project may be forked, since all open source licenses allow the reproduction, distribution, modification and making available to the public of the software under copyright law. If the applicable open source license does not contain any special requirements for such a fork, no "credit" must be given or special reference made to the original project (as it is the case for most popular FOSS licenses). It is only a question of good style that the subsequent users are made transparent which project was forked.

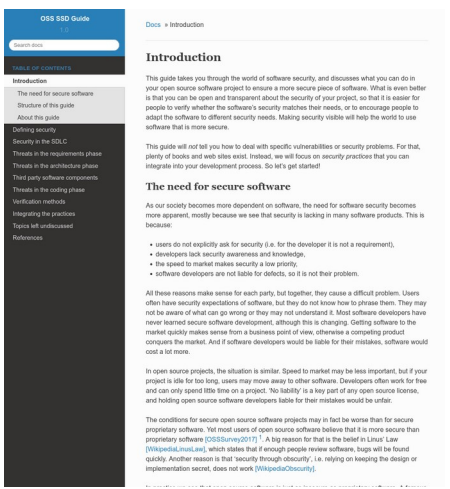
However, all license obligations of the applicable open source license must be complied with. Since the forked software is mostly made publicly available and further developed in another repository, the obligations for a distribution of the modified software in source code must be complied with.

Some licenses (such as the MPL-2.0, Apache-2.0, GPL-2.0, GPL-3.0, AGPL-3.0, LGPL-3.0, and LGPL-2.1) require that modified source code files contain a modification notice. This ensures that no programming by subsequent developers is attributed to the original author. A typical example is sec. 4 b) Apache-2.0:

[1] https://fossmarks.org/.

1





NGI ZERO

Lesson in humility

We learned/reconfirmed an important lesson

What worked best are not detailed top down programmes but simply **open calls** that work bottom-up.

Don’t fool yourself that you can think of more useful or more timely efforts than developers that actually understand the problems and care…

NGI ZERO

THE VISION OF NGI ACTUALLY WORKED WELL...

Having an opinionated overall mission for the Next Generation Internet initiative was very useful to provide scope to our programmes, and gave a clear anchoring point.

An internet of human values

Resilient. Transparent. Sustainable.

The overall mission of the Next Generation Internet initiative is to re-imagine and re-engineer the Internet for the next generations third millennium and beyond. We envision the information age will be an era that brings out the best in all of us. We want to enable human potential and creativity at the largest possible scale. In order to preserve and expand the European way of life, we shape a value-centric, human and inclusive Internet for all.

These ambitions need a solid foundation to build on. The legendary robustness of the Internet must become actual reality in the Next Generation Internet. A massive global fleet of connected devices is on its way to enhance and control our homes, factories, offices and vehicles. Technology is embedded in concrete, circling in space and is increasingly entering the intimacy of our human bodies. The Next Generation Internet has to be highly adaptive and **resilient**. Whatever companies or parts of the network go down by some natural or other disaster, the effects on the rest of us should be close to zero.

There is another important dimension to trust, which lies above physical availability. We need a **transparent** technological environment, that is trustworthy. The architecture, governance and policies structure how entire societies and economies interact. By design it should protect free speech and private enterprise and much more. The Next Generation Internet is to be designed to avoid any bias or systematic abuse of global trust in the Internet. It shall be a true global commons, rising above international politics and competition. It will guarantee the safety of citizens and strengthen the health and autonomy of our markets and societies.

The enduring success of the Internet lies in permission-free innovation, openness and interoperability. The Next Generation Internet is set up to create wider choice. It fosters diversity and decentralisation, and grows the potential for disruptive innovation. This extends far beyond the technical realm. The Next Generation Internet will achieve a **sustainably open** environment for our cultures and economies, celebrating our values and promoting creativity and well-being.

Let's re-invent Internet to reach the full human potential, for all generations.

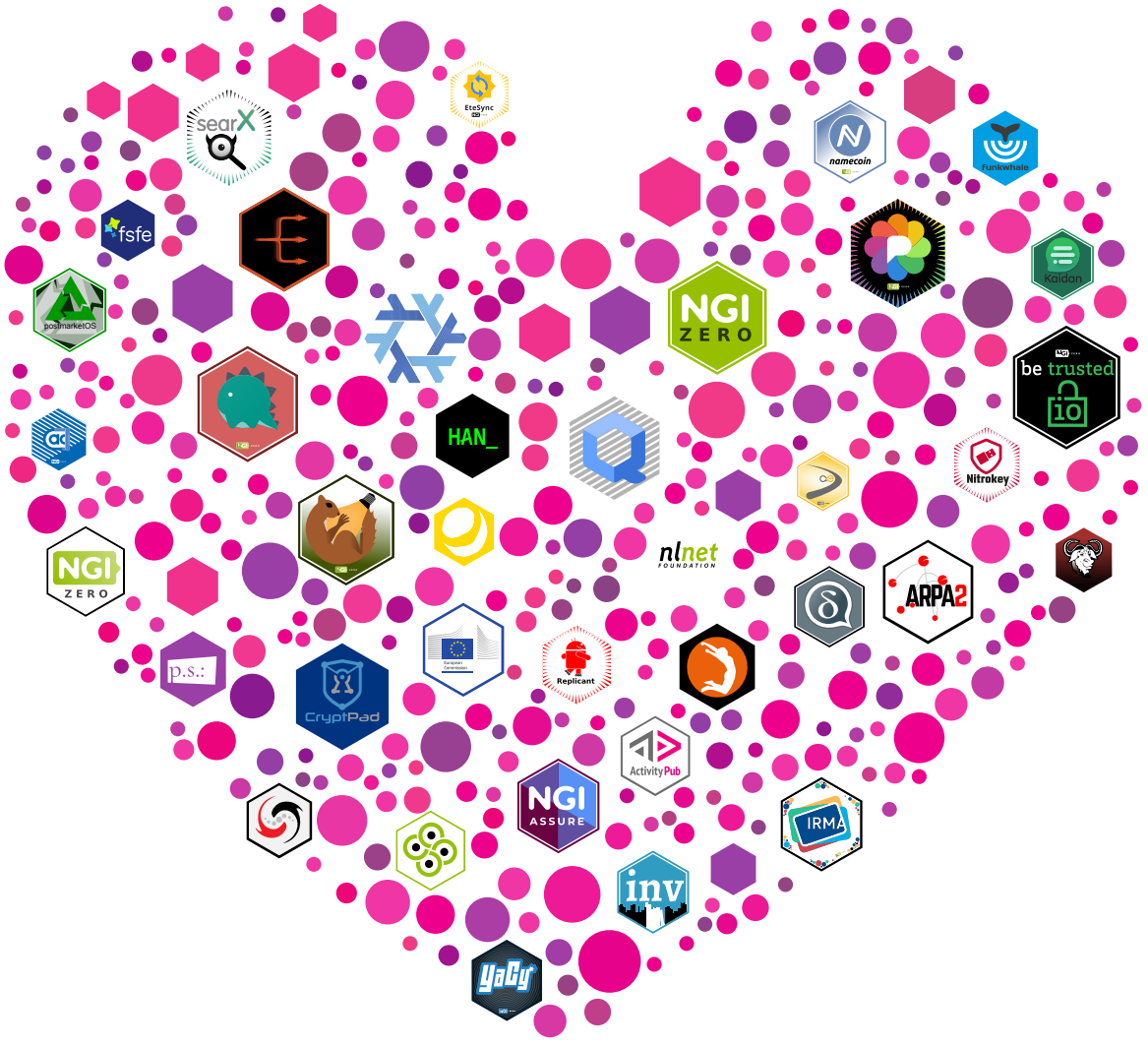
European Commission

NGI ZERO

One more

important thing

you probably missed...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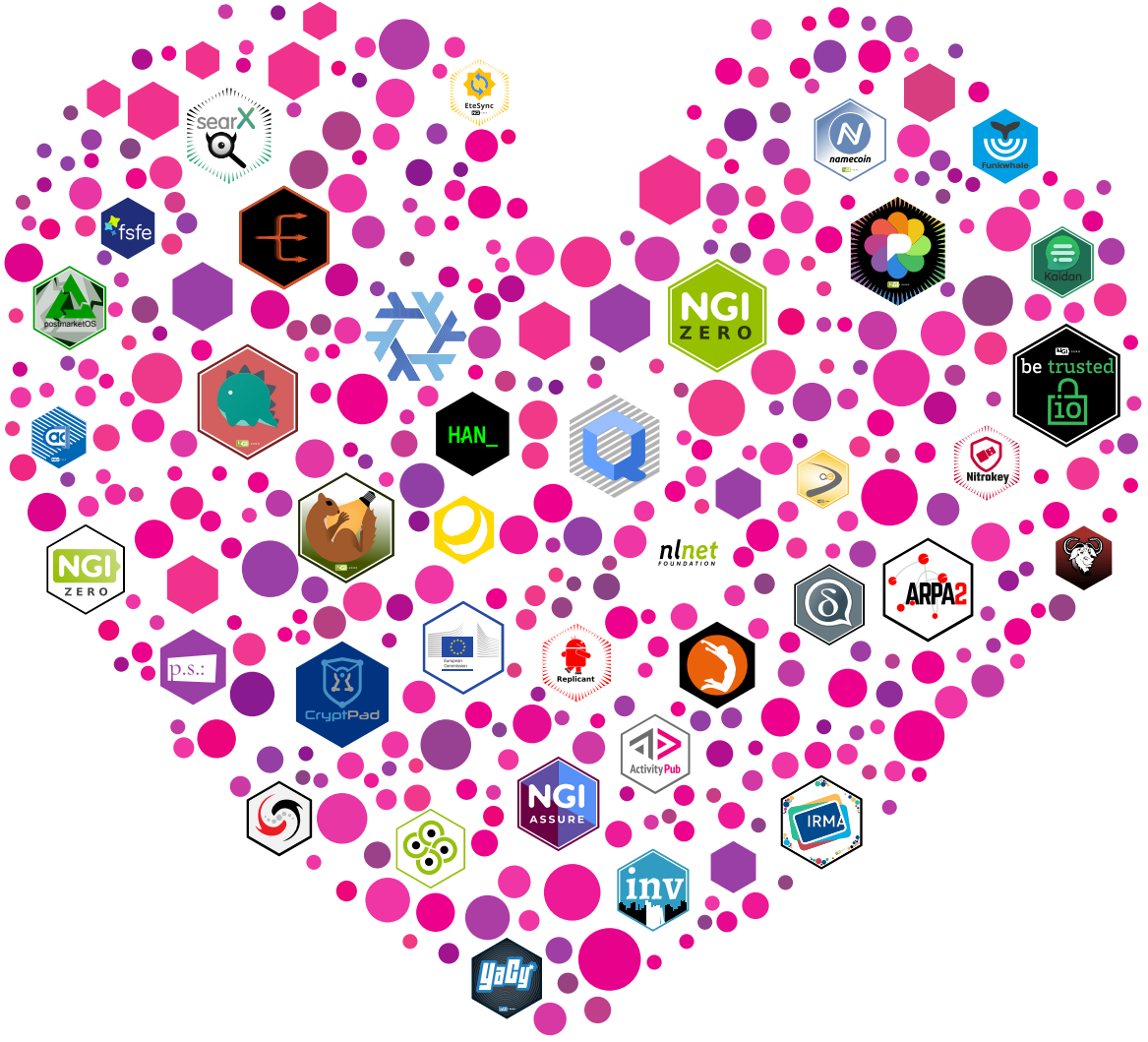
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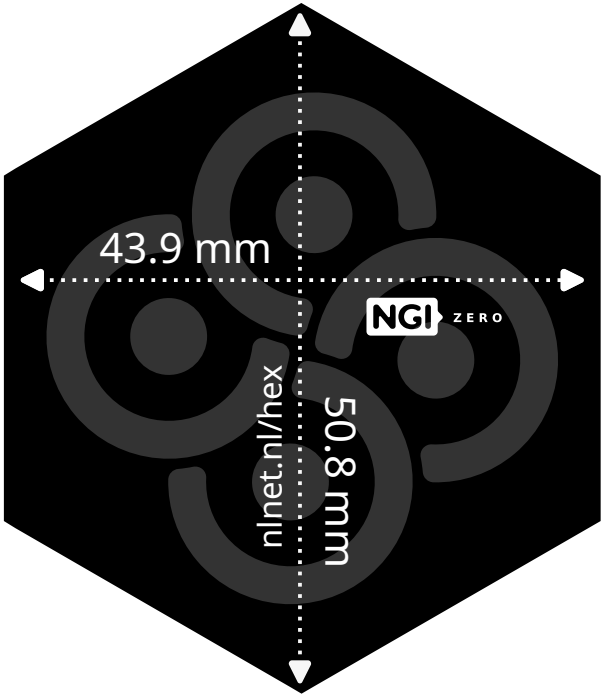
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NERD POWER NEEDED
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Tolerant Networks
TALER
Taxable Anonymous Libre Electronic Resources
netfilter
Redox OS
SCION
KiCad
Pleroma
searx
ofe
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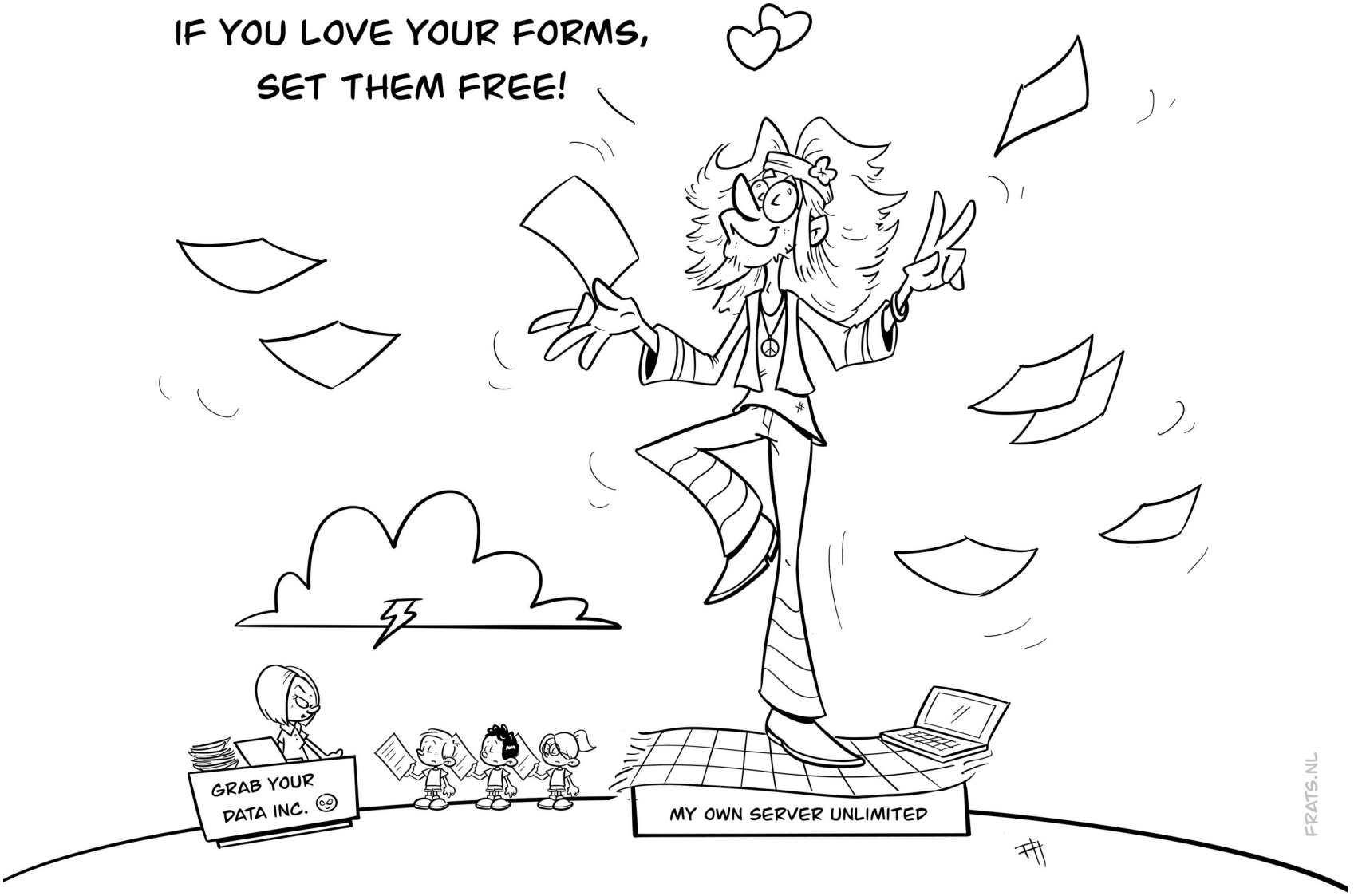
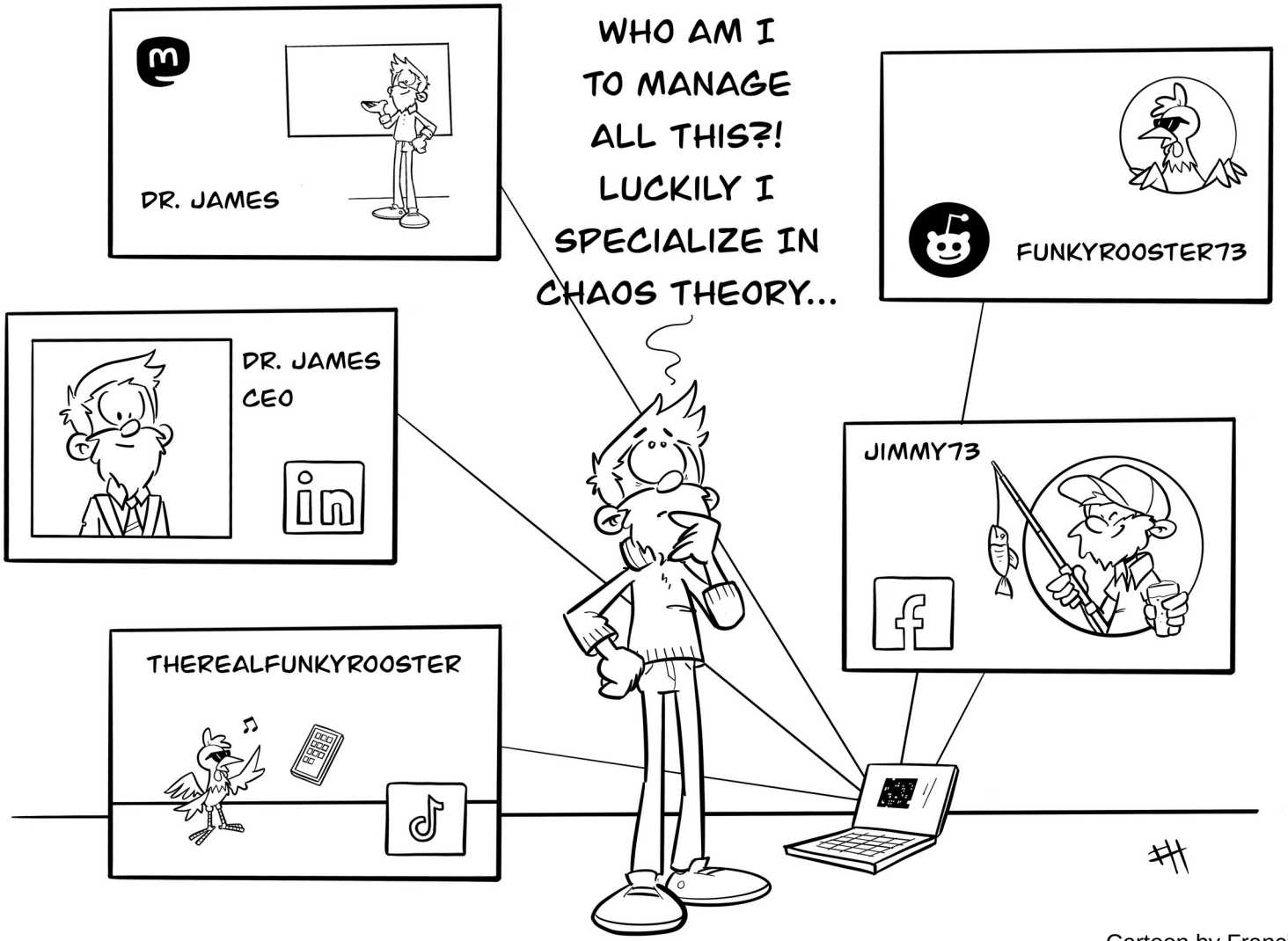
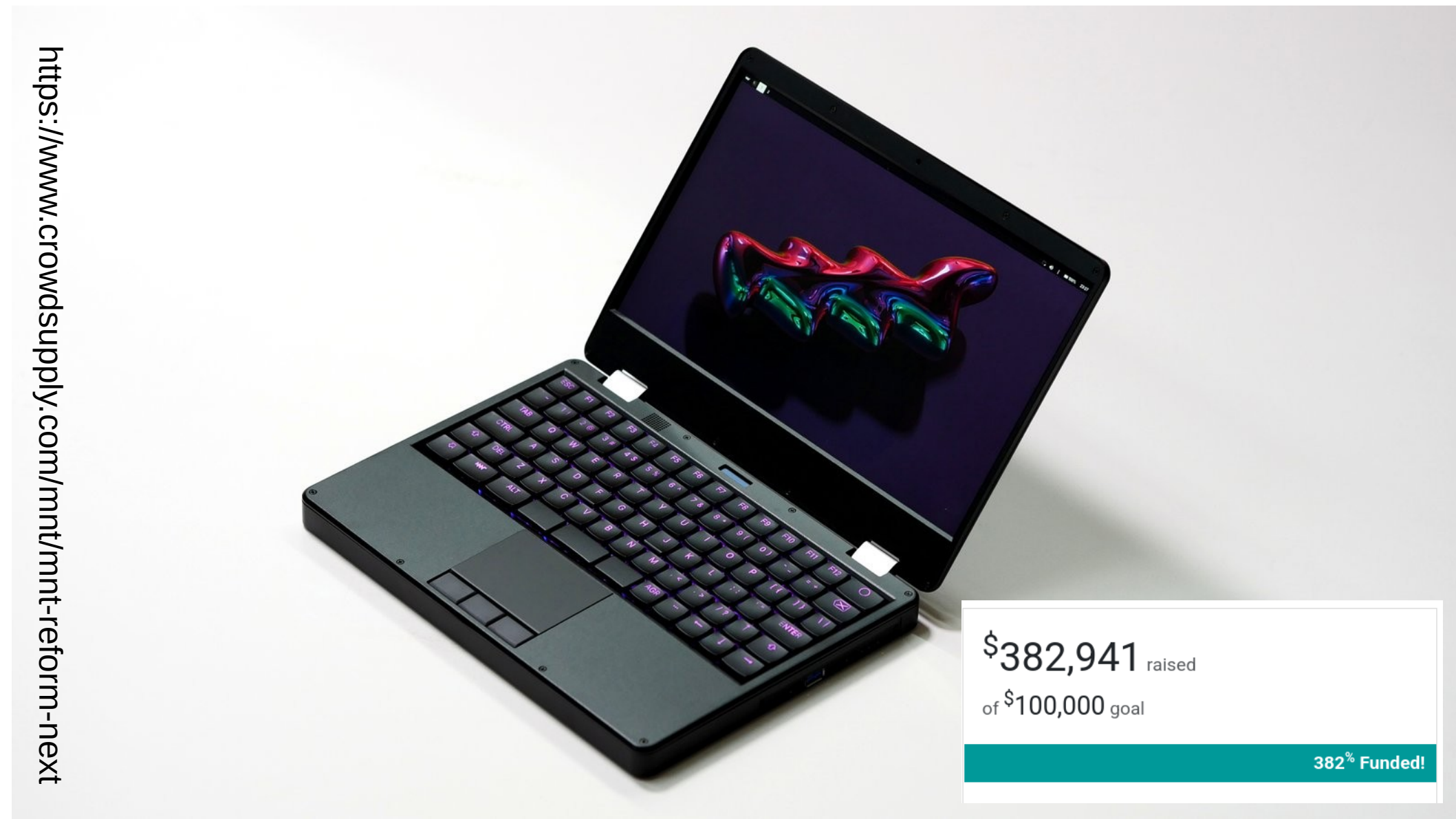


Cartoon by Francine Hermans, www.frats.nl



Cartoon by Francine Hermans, www.frats.nl

https://www.crowdsupply.com/mnt/mnt-reform-next



The elephant in the room

NETZPOLITIK.ORG

Next Generation Internet

EU apparently set to end open source programme

The EU's Next Generation Internet programme has supported free, open source software for years. But now a silent death seems to be looming: An internal document suggests that financing may soon end. Developers are surprised and call for the programme's survival.

18.07.2024 um 11:38 Uhr - Maximilian Henning - in Demokratie - keine Ergänzungen

Next Generation Internet – no more. – Public Domain Pexels / Andrea Piacquadio

The European Union does many good things that nobody notices. One of those is the "Next Generation Internet" programme (NGI). With this programme, the European Commission supports the development of free, open source software, as an alternative to commercial, surveillance-based applications. A noble endeavour – with a catch: The Commission seems to be set on quietly ending the financial support.

The European Union does many good things that nobody notices. One of those is the "Next Generation Internet" programme (NGI). With this programme, the European Commission supports the development of free, open source software, as an alternative to commercial, surveillance-based applications. A noble endeavour – with a catch: The Commission seems to be set on quietly ending the financial support.

That was last year. Meanwhile...

No official news really, negotiations still pending.

Many people and organisations spoke out in favour of NGI.

Thank you so much!

- The EC sued its own data protection supervisors for saying that their use of Office 365 is not compliant with regulations
- The USA elected new leadership
- Owners of some big foreign tech companies start interfering with democratic processes in Europe

First: to reassure

This affects the future

There is currently still significant budget available at our end to grant new projects.

Obviously, we do need to replenish regularly to have budget to provide new grants.

The signal we derive from this...

The name NGI is/was on a trajectory to become deprecated

There is likely still going to be budget at the EC level, but perhaps with another name and potentially with different rules.

So what to do next?

Europe needs to steer its way out of the funnel levering its wallet, its brains and its ethical compass. This needs coordination and effort. Is there any other realistic opportunity to tackle the many problems we have in another way than through challengers from the FOSS domain?

In other news...

October 14, 2025 is the End-of-Life Date For Both Windows 10 and Windows 11.

Is there a playbook anywhere to escape from this endless loop of lock-in renewals, which is bleeding away public money that could be used to bolster Europe's competitiveness - and is at the same time creating obscene wealth elsewhere in such volumes that it is threatening to our democracies?

NGI ZERO

Nobody every got fired for buying Microsoft…

Isn't it about time we start doing just that when people choose for big tech?

If your suppliers grow to be the richest individuals on earth – despite commodisation. Could it be you are overpaying?

- BTW: it is really not true
  - There have been many corruption scandals inside and outside of Europe, and obviously in some cases these corrupt people have been fired


FOSTER
DEMOCRACY
...there is
no Freedom
as-a-Service


BRING OUR
BITS
BACK HOME
NGI ZERO

TODAY WE CREATE THE

INTERNET

OF TOMORROW

nlnet FOUNDATION