Annual // Report 2021

Since 1997 NLnet foundation (after its historical contribution to the early internet inside and outside of Europe) has been financially supporting organizations and people that contribute to an open information society. It funds those with ideas to fix the safety, robustness and privacy of the internet.

The articles of association for the NLnet foundation state: *"to promote the exchange of electronic information and all that is related or beneficial to that purpose"*. Stichting NLnet is a recognised philantropic non-profit foundation according to the Netherlands Tax Authority (Belastingdienst)

The internet has no borders, and neither does NLnet. It operates internationally, and is driven by donations from individuals and from private and public organisations. NLnet is independent, and all projects are based on open standards, open source software, hardware and content.

Introduction

Dear reader,

Thank you for your interest in the work of NLnet Foundation. The annual report you are about to dive into describes how in 2021 NLnet managed to add a wide array of exciting projects to its portfolio. We look back on an incredible year with much gratitude.

Our mission is to push free and open technologies forward, towards a more healthy and responsible technology space and a stronger position for internet users. It only seems like yesterday when we started getting involved with the nascent Next Generation Internet programme in 2017, but fast-forward four turbulent years of working with the European Commission and we are now facilitating more than 350 (!) NGI projects – eacht of which contributes to an open, accessible and diverse internet in its own way. This plethora of efforts ranges from open hardware chips to video conferencing tools, and from independent mobile operating systems to new internet protocols. In this annual report you'll find more information about these projects, and many others.

Our approach is to enable talented people to work on what they believe in, but an additional challenge is to grow the available talent pool by investing in people and their skills. We tend to have rather limited means to do so, but we are delighted to be actively involved with unique programmes like the Summer of Nix, a two month paid training programme which we set up together with NixOS foundation, Tweag and the wider nix community.

Diversity of sources of income is of vital importance for a foundation like ours, enabling us to remain independent in how we think and operate. If you donated money, I'm sure you will be please with what you read in this annual report. In 2021 we received another substantial donation from Radically Open Security – the not-for-profit security company that is dedicating its profits to NLnet. Additionally, in 2021 we received some grants and donations from other foundations like Technology Commons Trust, various international research networks, and the Netherlands Ministry of Economic and Climate Affairs. We continued our fruitful cooperation with The Commons Conservancy and the European association of research networks GÉANT, together with many volunteers from around the globe involved in their free and open source efforts .

We are thankful and humbled by the support and help we get from individuals and organisations from around the world. With them we share the mission of making a better future internet, for everyone across the globe. Thanks to each and every one that contributed to that cause. There are many issues that need to be solved before the internet is the internet we want and deserve – robust, resilient, trustworthy and sustainable. But with the help of many, we will get there.

Enjoy, and let us know if you have any thoughts – we are always looking for great new ideas, and for ways to improve the way we work!

Kind regards,
your dedicated team at
NLnet foundation

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NLnet organisation

History

NLnet's history started in April 1982 with the announcement of a major initiative to develop and provide network services in Europe. The Netherlands Local Unix User Group (**NLUUG**) played a major role in raising the so-called pan-European "UNIX" Network, EUnet; to support these activities the NLUUG members founded NLnet. NLnet was formally established by the NLUUG as a "stichting" (Dutch for foundation) on February 27, 1989.

Funding origins

In November 1994, NLnet Holding BV was formed by the foundation in order to create a commercial base for its internet activities. NLnet Holding BV was the very first commercial Internet access provider in the Netherlands. The sale of NLnet's Internet Service Provider (ISP) activities to UUnet (now part of Verizon) in 1997 provided Stichting NLnet with the means to actively stimulate the development of network technology and to make this freely available to the community in its broadest sense.

These days, the majority of funding for NLnet activities comes from external sources. Private individuals, public sector organisations, foundations and other not-for-profit organisations, as well as commercial organisations donate or bequeathe to NLnet – we believe because they appreciate the way the technology commons are being fostered by NLnet. Stichting NLnet is a recognized public benefit organisation (**Algemeen Nut Beogende Instelling** or ANBI) according to Netherlands legislation.

Domicile

NLnet Foundation holds offices at Science Park Amsterdam, a technology hotspot with a long history of pioneering in network technology R&D in The Netherlands. It is opposite the road of the location where the first regular connection to the public internet outside of the United States of America was made in 1988 (**CWI**), where the NLnet activities were located at the time.

Supervisory Board

In 2021, the Supervisory Board (Raad van Toezicht) of Stichting NLnet consists of:

▶ Simon Hania, chair

▶ Harm Rietmeijer

▶ Hanneke Slager

These positions are non-remunerated positions in accordance with the NLnet Statutes, except for a financial compensation for time spent ('vacatiegeld').

Governing Board

The Governing Board of Stichting NLnet in 2021 consisted of:

▶ Bob Goudriaan, chair

This is a non-remunerate position in accordance with the NLnet Statutes.

Operations

For daily operations the NLnet Bureau was staffed in 2021 with the following people, totaling the staff to 5 fte (Full Time Equivalent), all are remunerate positions:

▶ Bob Goudriaan, general director

▶ Michiel Leenaars, strategy director

▶ Joost Agterhoek, policy & technology advisor

▶ Maja Kraljic, diversity advisor

▶ Jos van den Oever, senior policy & technology advisor

▶ Patricia Otter, administrator

Total FTE costs in 2021 were € 487.043,-.

Operations support

For external (financial and legal) advice and consultancy, Stichting NLnet is supported by:

▶ Koningsbos Accountants (accountancy)

▶ Bourquin Business Lawyer (legal advice)

The NLnet website https://nlnet.nl is supported by TNX and MARKOV Solutions.

Independent Review Committee Internet Hardening Fund

An independent review committee consisting of three experts from the technical and academic internet community review the outcomes of the selection procedure of the Internet Hardening Fund based on criteria of eligibility and efficacy. The review committee may set additional conditions for granting. Members of the committee, their employers, colleagues and family members are disallowed for submitting projects to the *Internet Hardening Fund*. The members of the committee are not linked to NLnet in a role as employee, member of the board of directors or supervisory board.

In 2021 the independent review committee for the Internet Hardening Fund consisted of:

▶ Leon P. Kuunders, CISA CISM CISSP

▶ Niels Sijm

▶ Bert Wijnen

Independent Review Committee NGI

An independent review committee consisting of nine experts from the technical and academic internet

community review the outcomes of the selection procedure of the NGI Zero programmes, based on criteria of eligibility and efficacy. The review committee may set additional conditions for granting. Members of the committee, their employers, colleagues and family members are disallowed for submitting projects to NGI Zero. The members of the committee are not linked to NLnet in a role as employee, member of the board of directors or supervisory board.

In 2021 the independent review committee for NGI Zero consisted of:

- ▶ Guido Aben
- ▶ Sudha Bhuvaneswari
- ▶ Lucien Castex
- ▶ Marcin Cieślak
- ▶ Tessel Renzenbrink
- ▶ George Sadowsky
- ▶ Niels Sijm
- ▶ Bert Wijnen[2]

Here are biographies of the members of the review committee.

Guido Aben

Guido Aben is director of eResearch at **AARnet**, the Australian educational and research network. He joined AARNet in 2005, having previously had similar roles in European R&E networking. A generalist more than a specialist, he has been involved across the range of the "buy-or-build" spectrum, in projects ranging from the rolling out of a national dark fibre footprint, running cloud services procurements through to the deployment of complex niche builds such as an Internet voting system during national elections. In his current role at AARNet, Guido is responsible for developing services useful to researchers. He holds an MSc in physics from **Utrecht University**.

Sudha Bhuvaneswari

Dr. N. Sudha Bhuvaneswari is an academician holding a PhD degree in Computer Science and holds a designation as Associate professor with a work experience of more than 20 years. She has authored 2 books on "Integrating SOA and Web Services" and "Combating Cyber Threat through Cyber Security Intelligence". She has also authored many chapters in IGI Global and with other publishers. She is an active member in ISOC and a fellow in APNIC 42, APrIGF 2017, APNIC 44, inSIG 2017 and inSIG 2018. Dr.N.Sudha Bhuvaneswari is also a reviewer for a number National and International Conferences and Peer Reviewed Journals.

Lucien Castex

Lucien Castex is the Secretary-General of Internet Society France and a researcher at **Université Sorbonne Nouvelle**. Policy strategist and Internet law expert, Lucien works at the intersection of law

2   Until December 2021

and technology with a focus on trust, cybersecurity and internet governance. He is a member of the French national consultative commission on human rights (**CNCDH**), and one of the Expert Advisors of the IoT Security Policy Platform of Internet Society. He is member of the board of Ile-de-France Region's key research sector on digital humanities and new knowledge. He is co-chair of the French Internet Governance Forum and member of the Multistakeholder Advisory Group (**IGF MAG**) at the United Nations' Internet Governance Forum.

Marcin Cieślak

Marcin Cieślak is an an information technology consultant working with customers internationally on systems integration, project management, internetworking technologies. In addition to his work in the enterprise, he is researching various applications for a decentralized Web. He was one of the founders of **ISOC Poland**, and currently still its president. He is also a technical volunteer for Wikipedia and a contributor to the MediaWiki software. He organized the world-wide Wikipedia community gathering in Gdańsk, Poland in 2010. He commutes between Warsaw, Poland and Frankfurt am Main, Germany.

Tessel Renzenbrink

Tessel Renzenbrink is board member of Internet Society Netherlands, and secretary of the board of **Gr1p**. Gr1p strives for broad civic participation in the shaping of digital society. She is a professional freelance writer and web editor focusing on the impact of technology on society, particularly on the internet and information technology and on renewable energy technologies. Her publications regularly appear in **Elektor magazine** and **Energieoverheid.nl**. She is co-founder Tessel holds an MA in Philosophy from the University of Amsterdam.

George Sadowsky

Dr. **George Sadowsky** (**Wikipedia**) is an American computer scientist who was inducted into the **Internet Hall of Fame** in 2013. On behalf of the United Nations, UNDP, UNFPA, USAID, Sida, and other organizations he has worked in more than 50 developing countries on issues interrelating economics, technology, management and policy. He is the former Executive Director of the GIPI, the **Global Internet Policy Initiative**, with projects in many transition countries to bring multiple sectors of society together to evolve Internet policy, regulation and legislation for the benefit of the country. He founded and directed the **Internet Society**'s series of network technology workshops for students from developing countries, which resulted in thousands of students being trained in Internet fundamentals, network creation, content provision, and national network management. He is the editor of and lead contributor to the World Bank's **Information Technology Security Handbook** that has been distributed worldwide, as well as the editor and lead author of the World Wide Web Foundations recent seminal publication, **Accelerating Development Using the Web: Empowering Poor and Marginalized Populations**.

Niels Sijm

drs. ing. **Niels Sijm** is the system engineer of the **System and Network Engineering** Master's program at the **University of Amsterdam**, and a freelance web technologist under the name of **IT Doesn't Matter**. He has been building web applications for over ten years, with special interest in and care for web standards and interoperability. Niels has been working with a wide variety of people, both inside and outside IT, ranging from artists and hackers to startups, small businesses, and academia, favouring projects that contribute to society. Apart from engineering, Niels has been teaching (web) technology at various educational institutions.

Bert Wijnen

Bert Wijnen is a highly experienced and active participant in the **Internet Engineering Task Force** (IETF), where he has chaired various Working Groups. He has served as an IETF Area Director (in OPS and SUBIP). He is credited as an author on **30 RFCs**. He is a former member of the **Board of Trustees** at **Internet Society**. He is a former board member of NLnet. His working experience includes Research engineer at the **RIPE-NCC**, Senior Manager Internet Standards at Alcatel-Lucent and Senior Consulting IT Specialist at IBM (where he worked for 28 years).

1   Overview

Statutory goal and Mission

NLnet financially supports open development of information society technologies. NLnet strives to facilitate shock waves of innovation, working towards a technology commons.

The articles of association for the NLnet foundation state: *"to promote the exchange of electronic information and all that is related or beneficial to that purpose"*.

This is done through stimulating strategic technology research and development in the area of computer networking and the internet. NLnet looks at impact, so while projects may revolve around new technologies they can also focus on improving existing technology, encouraging new applications of existing technology or dissemination of relevant knowledge.

The current focus is twofold: on strenghtening the position of the individual user on the internet and on improving the overal security and robustness of the internet.

NLnet actively stimulates the development of open network-related technology and making this technology freely available to the community in the broadest sense of the word. The technology should support and contribute to a better exchange of information.

Free Software, Open Source, Open Content, Open Hardware

Throughout the years, NLnet has supported a wide range of Internet and technology related projects. A precondition for all funding is suitable 'open' licensing conditions - such as GNU GPL, BSD license, Apache License, CERN Open Hardware License, Creative Commons and such. NLnet wants the projects it supports to reach as far and wide as possible, and to have a broad future that is open to continued development well beyond its originators or originating context.

Not-for-profit

NLnet Foundation does not derive any financial benefits from projects or their results. Our focus is on societal return on investment, with a long term perspective of improving the way we live.

Any donations made in gratitude to us will be used to meet the statutory goals of NLnet.

Co-operation

NLnet maintains a warm relationship with other institutes and foundations:

- Accessibility Foundation
- AMS-IX
- Association for Progressive Communications
- Bits of Freedom
- Center for the Cultivation of Technology
- Free Software Foundation
- Free Software Foundation Europe
- GEANT
- ICANN
- iFROSS
- Internet Society & chapters
- ISPConnect
- LOT Network
- OpenForum Europe
- Petites Singularités
- Rathenau Institute
- RIPE/RIPE NCC
- SIDN/SIDN Fonds
- SURFnet
- Software Heritage
- The Commons Conservancy

- CWI
- DDA
- Digital Infrastructure NL
- DHPA
- EDRi
- NixOS Foundation
- NLnet Labs
- NLUUG
- Open Invention Network (OIN)
- OpenDoc Society
- The Hague Security Delta
- Translate House
- USENIX
- Vietsch Foundation
- W3C

Their regular activities, technical conferences, programs and occasional actions are being seen by NLnet as major forums to make its plans public, to encourage cooperation between information technology professionals and to obtain feedback from them. In addition, NLnet regularly interacts with several academic and public institutions such as the European Commission (in particular DG CNECT, DG Sante and DIGIT), Forum Standaardisatie, Netherlands Cyber Security Center and various Netherlands ministries (Ministry of Economic and Climate Affairs, Ministry of Justice and Security, Ministry of the Interior and Kingdom Relations, Ministry of Education, Culture and Research and Ministry of Foreign Affairs) and similar organisations inside and outside of Europe.

If we aren't working with you just yet, and we should – contact us.

2 Strategy and working methods

Strategic Themes

NLnet maintained and expanded focus in 2021 on the following areas of attention through thematic funds:

▶	NGI Zero Search and Discovery Fund	▶	Open Document Format
▶	NGI Zero Privacy & Trust Fund	▶	Real-time communication
▶	DNSSEC	▶	Research & Education Fund
▶	Data Delivery Fund	▶	Software Quality Fund
▶	Honeypot Technology Fund	▶	Technology Awareness Fund
▶	Infrastructure & Hosting Fund	▶	User Operated Internet Fund
▶	Internet Hardening	▶	VPN Fund
▶	Internet Measurement and System Stability Fund	▶	NGI Assure

See for more information: **https://nlnet.nl/themes**

Third parties willing to donate to NLnet may choose to dedicate their donations to one of these themes, or to a new theme – or of course to stichting NLnet in general.

Donations and Loans

NLnet offers three types of support:

▶ **Project donations** – projects requiring not more than € 50.000 with a duration typically of eighteen months or less. If successful, follow-up projects can be submitted.

▶ **Standalone donations** – one-time sponsoring of conferences, workshops, hackathons, seminars, contests and financial compensation of travel costs for participants of these events.

▶ **Loans** – for efforts with a significant likelihood that funds spent can be returned to NLnet.

Project donations

NLnet sees a role for itself (and has a strong preference for) supporting strategic projects in the earlier parts of their lifecycle, and strenghtening existing efforts with targetted effort. Project budgets typically range between € 1000 and € 50.000, and often have a duration of eighteen months or less - but that is decided on a case by case basis. This class of project is well-suited for establishing new technologies, but innovation isn't our only game – one may also prove the desirability of sunsetting legacy technologies that no longer meet modern security and privacy requirements. NLnet's funding allows projects to deliver break-throughs in their fields, as well as do technology reconnaissance and critical investigation.

For more details on projects sponsored in 2021 see Annex 1.

Standalone donations

NLnet may choose to provide standalone donations to organisations and individuals, in order to support and stimulate their activities - assuming these are in line with the NLnet mission and

philosophy. Standalone donations also encompass incidental support for community building in the form of workshops, hackathons, conferences, setup of legal entities, and other efforts.

More details on standalone donations sponsored by NLnet in 2021 are provided in Annex 1.

Loans

Projects recieving a grant from NLnet result in free software, open content, free hardware designs and other intangible assets which are given away *pro bono.* Donations are one way traffic: NLnet does not get or expect projects to make money and pay back the donation.

In some cases, however, there is no need fro a grant but merely a temporary cash flow issue. Transient need for financial support typically occur when other sources of income – like a grant from another funding agency or a subsidy from a public instittition – operate too slow, putting an organisation at risk.

In other cases there might be a suitable business model but some capital is needed to snowball the effort. When an open effort has a fit with NLnet's mission and applicants are confident that the funds requested are likely to be returned, they can ask NLnet for a loan. Loans have the advantage that the same money can be re-used over and over again for other relevant projects within NLnet's mission.

Distinctive investment

NLnet derives its yearly budgets from the available capital, the interest gained from banking of (a part of) this capital, from donations and subsidies, and some revolving activities. The challenge is or course to make sure that in the long run sufficient funding strength remains to continue its beneficial work.

Therefore NLnet decided to experiment with investing a part of our assets in technologies we understand, in people we trust and in concepts we believe will change the world to the better. And to gain money with this which can be used to accomplish the mission of NLnet.

For this purpose a few investments were made since 2012:

▶ Appcache Ltd ('5apps') in 2012 (currently 37,5 % equity)

▶ Rockstart in 2014-2016 (currently convertible loans in GAYR4 BV, GAYR5 BV, and GAYR6 BV)

3   Finances

Fiscal Status

Stichting NLnet finances its projects and activities from donations by individuals and organisations, inheritances and subsidies, as well as the annual return and interest as received on its invested capital and other assets. NLnet actively solicits donations from third parties to finance project activities, and co-sponsors projects with other organisations. A non-negotiable condition is that the independence of NLnet in choosing and financing projects is assured, and that its mission is respected.

Stichting NLnet does not derive any financial benefits from the supported projects or their results.

Since 1999, Stichting NLnet has had a non-profit tax status (so-called Article 24 status, "Algemeen Nut Beogende Instelling").

In accordance with ever changing legislation NLnet in 2007 obtained and in 2009 was confirmed its non-profit tax status (ANBI-regeling) with the Netherlands Tax Authority.

Administration

Salary administration was contracted to Cent Lonen in Haarlem.

Koningsbos Accountants in Amsterdam has been charged with compiling and auditing Stichting NLnet's Annual Accounts for 2021 and have given an unqualified opinion. The accountancy report is a separate document. The main figures are incorporated in this annual report.

Finance

Total income in 2021 (including Share of profit of associates) equalled € 4.198.128. In 2021 NLnet sponsored projects, programs and other activities to the sum of € 3.253.323. The total expenditure was € 3.797.054. The total profit therefore equals € 401.074.

The 2021 profit is calculated before appropriated reserves were formed for future funding obligations (to the sum of € 371.538). After deducting this amount from the result, the total increase in equity in 2021 is € 29.563.

For a breakdown of the costs and an overview of the balance sheet we refer to the **standard public benefit organisation form** ("Standaardformulier publicatieplicht ANBI algemeen") for the year 2021 on our website.

The Commons Conservancy

NLnet actively contributes to **The Commons Conservancy** through a joint Memorandum of Understanding with NLnet and **Géant**. The Commons Conservancy provides a lightweight organisational structure for open projects. Its mission is to strive towards a stable democratic and open global information society in which individuals can collectively scrutinise, reconfigure and improve upon any technology they depend on - unleashing and empowering human innovation at the widest possible scale, with the express intention to empower any individual to participate in all facets of social, cultural, economic and private life under conditions of his or her own choosing and with secure and reliable technology they can have full control over themselves. The Commons Conservancy is an independent foundation.

NLnet supports The Commons Conservancy with logistics, insurance for its board members and recurring costs such as domain name registration for the foundation and its programmes.

Next Generation Internet Initiative

In 2017 and 2018, NLnet conducted a **study** to establish the **vision** of the **Next Generation Internet** initiative of the European Commission, together with Gartner Europe. As of December 1st 2018 NLnet was selected to coordinate two of the four first Research and Innovation Actions to kickstart the Next Generation Internet, an initiative by the European Commission to help shape a trustworthy, resilient and sustainable internet as part of the Horizon 2020 research and innovation program. Between 2018 and 2022[3] a total of 11.2 million euro is being granted by NLnet to independent researchers and open source developers. Project proposals in line with the NGI vision and the call topics can request between €5.000,- and €50.000,- with the potential to scale up after succesfully finalizing an initial project. The call topics focus on **privacy and trust enhancing technologies** and **search, discovery and discoverability**.

Projects funded through these two calls are supported by a unique coalition of not-for-profit organizations organized in the NGI Zero coalition. Together with NLnet these partners provide researchers and developers with expertise and guidance on security and code quality, accessibility (making technology available to everyone, including people with disabilities), localisation/internationalisation (to increase language diversity on the internet), packaging and reproducible builds, responsible disclosure, diversity, community building and more essential dimensions for any technology that aims to run at internet scale.

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3   Originally the programmes were to last three years, but NGI Zero PET and Discovery were prolonged for a period of one year.

In October 2020, a third NGI research and innovation action was started under the name **NGI Assure**, which will remain operational until at least 2023. NGI Assure is looking for building blocks that contribute to providing such assurances include (but are not limited to) quantum-proof cryptography, public key infrastructure, (augmented) authenticated key exchange, ratchet mechanisms (such as the Noise protocol) that securely chain key material, distributed hash tables and DAGs to make P2P interaction more secure, conflict-free replicated data types, mixnets and onion routing mechanisms, consensus protocols, distributed ledgers and (post) blockchain technologies that create redundant data sets managed independently by mutually distrustful parties, a priori usage control, symbolic and formal proofs, and tamperproof open hardware implementations of core cryptographic primitives. The work needs to become available under free and open source licenses. Projects receive support by NLnet and its partners towards standardisation efforts, improving security and business models and sustainability.

Reviewfacility.eu

In 2021 operated the Emergency Tech Review Facility on behalf of the European Commission. Reviewfacility.eu is a collaborative, community-centric effort to quickly and transparently analyze COVID-19-related technological solutions for their applicability, security and privacy characteristics – started during the early days of the SARS-CoV-2 pandemic in May 2020. Together with Radically Open Security and voluntary contributions from privacy, security and accessibility experts the review facility detailed and scrutinized contact tracing mechanisms such as the Google Apple Exposure Notification (GAEN) framework and the European Federation Gateway Service, as well as mobile contact tracing apps used across Europe – including Italy, Poland, Estonia and the Netherlands.

The security quickscans and assessments by Radically Open Security were done together with the app developers, which is standard practice for thus non-profit security consultancy, so any discovered issues or vulnerabilities could be immediately and thoroughly discussed and addressed. NLnet together with Radically Open Security and other expert organizations continued to assess COVID-related technologies, in particular the efforts to obtain and share vaccination certificates across European countries for those people that travel or commute.

Received proposals

In 2021 NLnet has received in total 733 project proposals (compared to 670 in 2020), whereof 144 requests were (partially) granted (against 110 in 2020).

Project summaries

NLnet has provided financial support to an unprecedent amount of projects in 2021. We are proud and humbled to have so many significant and innovative free and open source software and open hardware projects consider our support. Below we give a summary of each of these projects. For each proje, there might be more in-depth project descriptions on the dedicated project pages of our website.

On the **project portfolio overview** on our website you can find all the project historically funded by NLnet, a list of **current ongoing projects**, lists of projects grouped per grant program, a **thematic index** and more.

NLnet and its employees actively participate in various fora and projects regarding the open and free internet, cybersecurity, and the implementation of open standards and open source. Due to the pandemic most of these events were limited to digital gatherings. A selection of the most prominent contributions:

- ▶ **FOSDEM**, 6-7 February 2021
- ▶ **LibrePlanet**, March 21st 2021
- ▶ **Solid World**, March 31st 2021
- ▶ Workshop EC Funding Open Source, April 28th 2021
- ▶ **NGI Forum**, May 18-19th 2021
- ▶ **Open Source Hardware Salon**
  June 17th 2021, June 24th 2021, July 8th 2021, July 15th 2021
- ▶ **Summer of Nix** launch, August 2nd 2021
- ▶ **EuroBSDCon**, September 19th 2021
- ▶ **One Conference**, October 27-28 2021
- ▶ **2nd International Symposium on Open Search Technology**, October 12-14 2021
- ▶ **European exit strategy,
  from private platforms to a common digital space**, October 14th 2021
- ▶ **Summer of Nix** closing event October 27th 2021

Several public gatherings and meetings were organized by NLnet, in a number of cases together with its partners in NGI Zero or other NGI programmes like NGI Assure and NGI TETRA.

▶ **Future of European open hardware**

At the **Next Generation Internet Forum** event on May 18th 2021, NLnet hosted an **online session** on the future of European chip development. State-of-the-art projects creating open hardware and permissionless design tools demonstrate how Europe can regain control over electronic devices through transparent, collaborative design and together with industry and policy representatives we discuss what this means for the future.

▶ **Online Tech talk Prof. Christian Grothoff** on GNUnet, R5N and Anastasis

On Thursday September 23 prof. dr. Christian Grothoff (project lead of GNUnet) presented the ongoing work of the **GNUnet** project.

▶ **Webinar on Linked Data, semantic web and metadata solutions**

In this free online event on June 21st 2021, projects from across the **Next Generation Internet** universe presented their state-of-the-art work on Linked Data and other forms of metadata. These efforts funded by various funding programs of the Next Generation Internet initiative (**NGI Zero**, **NGI DAPSI** and **NGI Pointer)**.

▶ **NGI TETRA webinar on community building**

This free online event on September 7 NGI Zero organized together with NGI TETRA was focused on community engagement for open source projects. Community engagement expert Johanna-Mai Riisma will discuss relevant insights and free software activist and NGI0-mentor hellekin will share and

discuss experiences of developers how to engage with contributors and users.

▶ NGI TETRA webinar on crowdfunding

This free online event on September 21 organized by NGI Zero and NGI TETRA dives into sustainable funding for open source projects. Dr. Melanie Rieback of Radically Open Security and member of the NGI0 consortium offered insights into nonprofit business models and open hardware developer Andrew "bunnie" Huang shared his experiences with crowdfunding.

▶ NGI TETRA webinar on open source copyright and license management

This free online event on October 5 organized by NGI Zero and NGI TETRA handled copyright and license handling for open source software and hardware projects. Among others experts in the NGI0 consortium discussed defensive publications (by Armijn Hemel), basic open source software licensing (by Gabriel Ku Wei Bin of FSFE) and legal infrastructure for open source projects (Michiel Leenaars of the Commons Conservancy).

'Radically Open Security' (ROS) is a company around ethical hacking and security founded in 2014 by dr. Melanie Rieback. ROS has been donating over 90% of its proceeds to NLnet foundation, and this year reached the magical threshold of half a million euro of cumulative donations. The company takes a principled approach which puts transparency, open source, responsible disclosure and ethics first – which together with its idealistic and non-hierarchical model has attracted a talent pool of ethical hackers. In 2021 the portfolio and public profile continued to grow, for example with ROS **uncovering privacy and security issues in the Dutch contact tracing app CoronaMelder**. ROS is also part of Reviewfacility.eu (see elsewhere in this document) and the NGI Zero coalition.

In 2021 NLnet prolonged its membership of Digital Infrastructure Netherlands. DINL is a group of seven institutes, associations and foundations (SIDN, DHPA, DDA, AMS-IX, ISPConnect, Surfnet, Nederland-ICT, VVR and NLnet) that collectively works on important topics in the Netherlands Digital Infrastructure community: promotion, education, cybersecurity, and laws & policy.

NLnet supports the Open Invention Network. Organisations and non-formal organisations like FLOSS communities benefit from the defensive patent pool and from the collective legal support to shield themselves and their users against patent offenses. Open Invention Network has made several donations to NLnet in recognition of its contribution to this initiative.