

Contributing to an open information society

Stichting NLnet Annual Report 2015

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Introduction

L.S.,

The year 2015 was a turning point in the 26 years of existence of NLnet. The new fresh strategy as initiated in 2014 started to work out in the results of our foundation.

In this new approach the traditional focus on project and program donations migrated into a much broader scope of contributions as NLnet is now bringing to the Internet society. And we manage to achieve this while making less use of our own remaining fund.

New activities were expanded in the area of support of non-profit cybersecurity consultancy (like with 'Radically Open Security'), with organising cybersecurity events (as 'Holland Strikes Back'), with managing project-teams working on cybersecurity threats (as with 'The Trusted Networks Initiative' and with 'Internet.nl'), whereby NLnet not only contributed with NLnet money but also with NLnet hours to society.

Remaining donations however were still considerable, which were partly consisting of our traditional funding of 'NLnetLabs' and 'Open Netlabs', but also significant contributions being done to about 15 other projects. Part of this amount was structured as temporary loans, so not only as donations.

Other new activities accelerated, like our effort with 'the Open Invention Network' to obtain new funds to help our funding strenght grow again while simultaneously helping to defend open source software to stay open.

Significant steps were made with donating from theme-funds as awarded by 3th parties. This resulted in theme-donations used from amongst others the Dutch Ministry of Security and Justice, Google, the Internet Society, and the Open Doc Society, enabling NLnet to contribute with extra funding to more projects than would have been possible with just our own fund.

Nevertheless, to maintain and grow our own fund as well for the future benefit of the community, NLnet has done a three-year-in-a-row investment in a startup accelerator fund ('Rockstart'), from which interesting returns may come back into our fund.

Another expansion in new focus-area's was the broader cooperation with other institutes and foundations, to collaborate with them in more projects while sharing costs. Undersigned became board member of Digital Infrastructuur NL (DINL), and colleague Michiel Leenaars joint as member of the 'Raad van Advies' in the new SIDN Fund, and as member in the dutch 'Onderwijsraad'.

In summary, while NLnet is facing an increasing challenge to support the Internet and Open Source community with our remaining fund, the many new

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initiatives hopefully result in a situation where NLnet will support the internet society even more as before without totally exhausting our means.

NLnet will adapt its support programs in such fashion that less financial cash-out from its own fund is needed, more 3th party theme-funds are sourced, and likewise a maximum support to the electronic information society is provided.

Once more I want to thank the individuals, organizations and public institutions that made donations directly to NLnet, or made theme-fund contributions or follow-up donations to any of our projects.

We have joint challenges with you to keep the Internet in good shape, and to maintain the open, federated and safe internet as we all originally envisioned. Safety and privacy of users turn out to be protected far less well than often is assumed, for which we need foundations as NLnet to help fixing.

At the NLnet Foundation we will keep on focusing to support initiatives on this, for which we look forward to work together with you !

On behalf of the board,

Marc Gauw,
Chair Governing Board Stichting NLnet

1. 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 source 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.

More and more funding for NLnet activities comes from external sources. Other commercial and non-for-profit organisations donate to NLnet when they see that the technology being fostered by NLnet is in line with their mission and market development expectations. Stichting NLnet is a recognized charity ('ANBI' Algemeen Nut Beogende Instelling) according to Netherlands legislation¹.

Domicile NLnet Foundation, together with NLnet Labs, holds offices at Science Park Amsterdam, a technology hotspot with a long history of pioneering in network technology R&D in The Netherlands.

Supervisory Board In 2015, the Supervisory Board (Raad van Toezicht) of Stichting NLnet consists of:

- Maarten Botterman
- Frank van Rijn
- Hanneke Slager

These positions are non-remunerated positions in accordance with the NLnet Statutes, except for a financial compensation for time spent ('vacatiegeld'). In 2015 the Supervisory Board in its entirety has received a total compensation of € 7650 .

Governing Board The Governing Board of Stichting NLnet in 2015 consists of:

- Marc Gauw, chair
- Harm Rietmeijer, treasurer
- Bert Wijnen, secretary

These positions are non-remunerated positions in accordance with the NLnet Statutes, except for financial compensation for time spent

¹ More information at <http://www.anbi.nl>

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('vacatiegeld'). In 2015, the Governing Board, with the exception of Marc Gauw, received a total compensation of € 10.000 .

Operations For daily operations the NLnet Bureau was staffed in 2015 with the following people (remunerate positions), totaling the staff to 2,6 fte (Full Time Employee), all are remunerate positions:

- Patricia Otter, administrator for both NLnet and NLnet Labs, (0,6 FTE);
- Michiel Leenaars, strategy director (1,0 FTE);
- Marc Gauw, general director (1,0 FTE)

Total actual fte-costs in 2015 for 2,6 fte: € 278.016 .

Total budgeted fte-costs in 2015 for 2,6 fte: € 262.417 .

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

- Koningsbos Accountants (accountancy).
- Milestone-Advocaten (legal advice),

The NLnet website <http://nlnet.nl> is maintained by Mark Overmeer (MARKOV Solutions).

2. Overview

NLnet financially supports open development of information society technologies. NLnet strives to facilitate shock waves of innovation.

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Statutory goal and Mission

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 new internet and broader network technology research and development, improving existing technology, encourage new applications of existing technology and dissemination of the relevant knowledge.

The last years an increasing focus is included on improving cybersecurity on the Internet.

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

Free Software, Open Source, Open Content, Open Hardware

With respect to this, a wide range of Internet and technology related projects are permanently being funded for which Open Source licensing conditions (like GNU GPL, BSD license, Open Hardware License, Creative Commons and such) hold. The conditions under which projects happen, matter – NLnet wants projects to reach as far and wide as possible, and to have a broad future that is open to continued development beyond its originators.

Not-for-profit

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

Any future possible benefits will be used to meet the statutory goals of NLnet.

Co-operation

NLnet maintains a warm relationship with other institutes and foundations:

- Internet Society (ISOC/ISOC.nl)
- SIDN Fund
- Digital Infrastructure NL
(Surfnet, SIDN, DHPA, ISPCconnect, NL-ICT, DDA, VVR, AMS-IX, NLnet)
- Digital Gateway To Europe
- The Hague Security Delta
- W3C
- Platform Internetstandaarden
- Forum Standaardisatie
- OpenDoc Society
- Open Invention Network (OIN)

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.

Finance

In 2015 NLnet sponsored projects, programs and other activities to the sum of € 566.867 , compared to € 852.830 in budget

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2015, excluding loans.

The total expenditure was € 906.402 , compared to €1.250.260 in budget 2015, excluding loans.

The total loss equals - € 675.168 , compared to - € 827.688 in budget 2015, excluding loans.

For 2016 NLnet has allocated € 550.000,- excluding loans for financing of projects, programs and other sponsoring.

The total budgeted expenditure will be € 945.160 excluding loans.

The total budgeted decrease in capital will be - € 577.260 excluding loans.

3. Strategy and working methods

Strategic Themes NLnet maintained focus in 2015 on the following areas of attention:

- Standards in real-time communication;
- Open Source and Open Document Format;
- Internet Hardening, DNSsec and Cybersecurity
- Internet Measurement and System Stability Fund

See for more information: <http://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 to NLnet in general.

Donations and Loans Three types of sponsoring and financing support model underpins the NLnet policy:

1. Project donations - projects in general requiring not more than € 30.000 per project with duration, in general, not exceeding one year. If successful, and require more funding, NLnet may consider consequent finding(s), thus making it NLnet's focus project.
2. One-off donations - sponsoring of conferences, workshops, hackathons, seminars, contests and financial compensation of travel costs for participants of these events.
3. Loans (temporary) – for projects with a reasonable likelihood that spent funds can be returned to NLnet.

Projects specific The project proposals, i.e. those with requested budget not exceeding € 30.000 per project and duration not exceeding one year, seemed to be a very powerful instrument intended for new technology reconnaissance, which can potentially lead to breakthroughs in some fields.

For more details on projects sponsored in 2015 see Annex 1.

Standalone donations NLnet may choose to provide standalone donations to organisations and individuals in order to stimulate their activities which are in line with the NLnet mission and philosophy.

With standalone donations NLnet also supports community building in the form of workshops, hackathons, conferences, new foundations, and other events.

More details on these and other activities sponsored by NLnet in 2015 are provided in Annex 1.

Loans Occasionally applicants maybe in a good position to pay the awarded funds back to NLnet over time. This has the advantage that the funding can be re-used again later for other relevant projects within our mission. NLnet strives to have more projects in this category to avoid our main fund to run out of steam.

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 some revolving activities. The practice has shown, however, that such policy in the long run does not guarantee stable income or the amounts of money needed to keep spendings at the level necessary for any significant impact.

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 which can be used to accomplish the mission of NLnet.

For this purpose since 2012 a few investments were done:

- Appcache Ltd ('5apps') in 2012 (currently 37,5 % equity)
- Rockstart in 2014-2016 (currently convertible loans in GAYR4 BV and GAYR5 BV, and a commitment for GAYR6 BV in 2017)

4. Finances

Stichting NLnet finances its projects and activities from the annual return and interest as received on its invested capital and bank-capital. NLnet also solicits donations from third parties to finance project activities, and co-sponsors projects with other organisations, this under the condition that independence of NLnet in choosing and financing projects is assured, and mission is respected.

Fiscal Status 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")².

In accordance with ever changing legislation NLnet in 2007 obtained and in 2009 confirmed its non-profit tax status (ANBI-regeling) with the Dutch 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 2015 and have given an unqualified opinion. The accountancy report is a separate document. The figures are incorporated in this annual report.

Cost of activities in 2015 The Actual costs and Revenues of activities in 2015 is summarized below, and compared with Budget 2015, and compared with Actual 2014 and Budget 2016 (excluding loans):

	Budget 2016	Actual 2015	Budget 2015	Actual 2014
Cost of programs and projects	550.000	566.867	852.830	641.554
Cost of staff	277.333	278.016	262.417	266.472
Cost Rental Office	12.485	12.383	12.240	12.271
Office costs	3.641	3.909	3.570	5.727
Advisory costs	25.500	10.969	25.000	37.085
Remuneration Mgt & Supervisory Board	17.650	17.650	17.650	20.983
Miscellaneous costs	58.395	16.487	76.400	34.101
Depreciation of inventory, equipment	156	121	153	120
Total (excl loans)	945.160	906.402	1.250.260	1.018.313

Revenue of activities

	Budget 2016	Actual 2015	Budget 2015	Actual 2014
Income and returns (excl loans)	325.000	247.775	320.000	315.308

² More information on <http://www.anbi.nl/>

Balance Sheet 2015 (2014)

	2015		2014	
	debit	credit	debit	credit
Assets				
Total inventory	342		463	
Participations	120.905		123.310	
Investment funds	389.424		426.467	
<i>Total Investments</i>	510.671		550.240	
Current assets	33.390		30.794	
Liquid assets	3.619.403		4.273.471	
Total Assets	4.163.464		4.854.505	
Liabilities				
Capital and Reserves		4.792.019		5.362.355
Result bookyear		-675.168		-570.336
Delta participation		-2.405		0
<i>Total Reserves</i>		4.114.446		4.792.019
Current liabilities		49.018		62.486
Total Liabilities		4.163.464		4.854.505
Total Balance	4.163.464	4.163.464	4.854.505	4.854.505

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**Spread of
liquidity**

	2015	2014
Bank 1	1.106.276	1.408.576
Bank 2	2.000.000	2.738.164
Bank 3	445.657	88.346
Bank 4	67.393	38.365
Bank 5	77	20
Total	3.619.403	4.273.471

Budget for 2016 The budget for 2016 (excluding loans) as approved by the board, is as follows:

	Budget 2016
Cost of programs and projects	550.000
Cost of organisation including staff	395.004
Depreciation of inventory & equipment	156
Total	945.160

Marc Gauw,

Chair Governing Board Stichting NLnet

5. Annex 1: Programs, projects and activities in 2015

Programs in 2015

- NLnet Labs** NLnet Labs is the Research, Development, and Expertise center for those technologies that turn a network of networks into one Internet. Established by the NLnet Foundation in 1999, NLnet Labs contributes innovative ideas to open source software and open standards. NLnet Labs is an independent not-for-profit (ANBI, Algemeen Nut Beogende Instelling).
- NLnet Labs' activities can best be described as contributions that bridge the gap between theoretical insights and practical deployments, that bridge between technology and policy, that are rooted in engineering and standardization, and for which public interest is often more pressing than commercial interest.
- NLnet Labs activities have lead to these accomplishments: it is recognized for the seminal role in the deployment of DNSSEC through creation of high-quality DNS software and tools, training, 'engineering'. It collaborates with other organisations such as Verisign Labs, ICANN, SIDN and USC/ISI. NLnet Labs is led by Dr. Benno Overeinder .
- For more information see www.nlnetlabs.nl

Incoming project proposals in 2015

- Received proposals** In 2015 NLnet has received in total 54 project proposals (compared to 77 in 2014), whereof 16 requests were (partially) granted (29%), against 16 (21%) in 2014.

Projects supported in 2015

- ARPA2** ARPA2 is the ambitious effort by InternetWide.org to develop tools to repopulate a decentralised global internet that offers **security** and **privacy** by design. It aims to make the internet live up to its full potential. With **TLS Pool** (part of the SecureHub project) it aims to increase control over TLS security, shielding nomadic users and unpredictable services against even the most common external attacks. With **TLS-KDH** the project is trying to standardise the use of Kerberos combined with Diffie-Hellman, for use over TLS. **SteamWorks** is aimed at providing live configuration across unreliable networks.
- The project is cofunded together with the programme "veilig door innovatie" from **NCTV**.
- Implement Cake in CeroWRT** Cake is a mechanism to better queue networking traffic inside networked devices, and offers a built in shaper. The project implements Cake into CeroWrt, the experimental firmware aiming to push forward the state of the art of edge networks and routers. Without advanced queue management, traffic handling can get unpredictable. Cake is the intended successor of the Fq_codel module currently in the Linux mainline kernel. The project is led by Dave Taht and Johathan Morton from Bufferbloat.net, and should help make Cake reach feature-complete status and stabilise its API & ABI.

- Deep Firmware Inspection Tool** The Binary Analysis Tool (BAT) makes it easier and cheaper to look inside binary code using a database with information extracted from source code as well as other sources. The Deep Firmware Inspection Tool project extends the capabilities of the Binary Analysis Tool, adding security analysis for firmware to the existing compliance oriented features. There is much overlap between compliance and security issues, and after DFIT the modular Binary Analysis framework will allow to reduce uncertainty about included components for both. BAT is available for free under the Apache license so that everyone can use, study, share and improve it. The project is cofunded with the programme "veilig door innovatie" from **NCTV**.
- Dowse** Dowse is a smart digital network appliance for home based local area networks (LAN), but also small and medium business offices, that makes it possible to connect objects and people in a friendly, conscious and responsible manner. Dowse provides a central point of soft control for all local traffic: from ARP traffic (layer 2) to TCP/IP (layers 3 and 4) as well as application space, by chaining a firewall setup to a transparent proxy setup. A core feature for Dowse is that of hiding all the complexity of such a setup. Its motto is: "to perceive and affect all devices in the local sphere".
- FLOSS Manuals** FLOSS Manuals (FM) is a collection of different language communities that produce original documentation about Free Software through online tools and book sprints. A Book Sprint is a collaborative process where a group of six to twelve people get together to produce a book in five days or less. Participants work intensively under the guidance of a facilitator to create high quality materials. In 2013 and 2014 FM conducted a research project called Book Sprints for ICT Research – Testing the practice of Book Sprints as a new paradigm of collaborative writing for ICT researchers and innovators. The FLOSS Manuals Foundation required a loan from NLnet to bridge the politically rather embarrassing period between the finalisation of their research project and the subsequent availability of payment at the European Commission.
- FTEproxy** Network communications are increasingly becoming the target of surveillance and censorship. One natural defense is to use traditional cryptographic protocols: traditional encryption incurs low-overhead and does a good job of providing privacy. However, because encryption is so effective, many governments (e.g., Iran, Pakistan, and China) are willing to block state-of-the-art cryptographic protocols such as TLS and SSH. **FTEproxy** provides transport-layer protection to resist keyword filtering, censorship and discriminatory routing policies. Its job is to relay datastreams, such as web browsing traffic, by encoding streams as messages that match a user-specified regular expression.
- Global Directories** A global directory is a way of retrieving contact information from others, using standard technology rather than a monolithic content owner. That means you can employ automatic tools that download and update contact information without manual intervention - and without any third parties snooping into your private or business social environment. Moreover, you can use the same technology to share any relevant information (such as keys for protection of your email) to anyone yourself. The project is part of the **ARPA2.net** initiative set up by internetwide.org.

Indiehosters Indiehosters is a collective of small, independent hosters that offers personal managed servers for freedom, not to become rich. It aims to offer a cooperatively maintained hosting packaging for all free and open source software, in order to support **re-decentralize** Internet – so including many unproven niche applications for which currently nobody is offering hosting. It offers automatic, free TLS certificates to users. NLnet contributed to adding OCSP Stapling to Indiehosters services out of the box.

KORUZA **KORUZA** is an innovative open-source open-hardware wireless communication system, employing a new low-cost approach to designing free-space optical network systems, enabling building-to-building connectivity with a highly collimated light beam at a capacity of 1 Gbps (1000 Mbps) at distances up to 100 m. It is designed to be suitable for home as well as professional users, enabling organic bottom-up growth of networks by eliminating the need for wired fiber connections and associated high installation costs. The simplicity of use, low-cost and compact size allow the system to be deployed in any network.

NAWAS The National anti-DDoS Scrubbing Center (**NAWAS**, short for 'Nationale Wasstraat') is a cooperative solution for addressing DDoS attacks, set up by Nationale Beheersorganisatie Internet Providers. This not-for-profit organization was founded by a large number of internet service providers as Shared Service Center for anti-DDoS services and lawful interception, internet taps and data retention. The NBIP represents more than 100 ISP's and hosting providers and deploys equipment for government ordered taps from a central location. NLnet provided a loan that allow to bootstrap this successful non-commercial effort that is meanwhile countering DDoS attacks for its constituents on a daily basis. By pooling resources NaWas has vastly more bandwidth and more advanced anti-DDoS equipment from different vendors than could be afforded by each participating internet provider or user. NBIP — as a not-for-profit — is offering the NaWas service at cost price for both internet providers as regular users. This makes it a very welcome alternative for buying ones own anti-DDoS equipment, or using a commercial anti-DDoS service.

Nodewatcher Nodewatcher is an open source (GNU AGPL licensed) network planning, deployment, monitoring and maintenance platform for community wireless networks. Its main idea is to automate as much as possible in building and operating a community wireless network. It encompasses functionalities sometimes named "node database", "network dashboard", "network map", but also a web-based firmware image generator, which allows easy generation of customized firmware images for each node individually. This technique lowers workload of volunteers significantly, and allows easy deployment of complex configurations even by people with no technical knowledge to do it otherwise. In this way, such an ecosystem can encode the common knowledge of how to operate wireless community networks, but not just through guidelines, but with concrete software support. The project grew out of the **wlan slovenia** community wireless network, the project goal is to make the working platform into a full-fledged solution that can support the growth of community wireless networks worldwide.

- NOMA** The Network Operator Measurement Activity — NOMA — is exploring the possibility of developing operator-driven network health measurements. NOMA aims to establish a platform for collaboration on the initial definition, collection and dissemination of operator network measurements (self-instrumentation), with a goal of ensuring a better, shared understanding of what “good” Internet looks like. This will allow new networks brought online to determine that they are well aligned with that target, and will give operators a better sense of when their networks are healthy or underperforming.
- ODF Autotests** ODFAutoTests is a framework to help users and developers write test documents for ODF software. Tests are a great tool to help software and standards mature, but writing tests by hand is very time consuming. ODFAutoTests makes it easy to create them, and run them across multiple products. The framework is officially adopted by the ODF Plugfest, which was hosted by the Netherland government and OpenDoc Society in the Hague in september 2015.
- PPSPP/Swirl** The explosion in peer-to-peer traffic today (in many areas in the world a majority of traffic) without a backing standard has led to multiple incompatible designs, with varying quality and features. Content creators, distributors, consumers and ISPs are equally disadvantaged with the status quo, including disparate and incompatible implementations. **Swirl** has the ambitious goal to enable everyone to create, distribute, and consume static and streaming secure content from anywhere, of any size, via browser, smartphone/tablet, via home networks or commercial CDNs and routers, using open protocols, software, and an open development approach. SWIRL's Project lead Dave Cottlehuber (Austria) is an active member of the Peer-to-Peer Streaming Protocol (PPSP) working group and aims at a fully compliant implementation of the upcoming **PPSPP** standard.
- Open Source Anti-DDoS Solution** The NaWas initiative (short for "Nationale Wasstraat"), is a collective effort to handle large scale internet attacks on targets in the Netherlands. NaWas is a initiative of ISP organisation NBIP aimed at hosting providers, midsize ISPs and users, providing a collective solution against so called DDoS attacks. NaWas is used to filter out large amounts of fake internet traffic as used by attackers to bring down internet services. The project is aimed at developing additional anti-DDoS tools for NaWas. Besides NBIP, the project will help more organisations to adequately shield themselves against DDoS attacks as the software will be made available under a GNU General Public License.
- PSYC2** Protocol for SYnchronous Conferencing is an efficient text-based protocol for delivery of data to a flexible amount of recipients or people, by unicast or multicast. **PSYC2** represents a next iteration of the PSYC framework in conjunction with **SecureShare**, another NLnet supported project that aims to build a novel social messaging system as part of the **GNUnet** peer-to-peer system.

SCTP over UDP tunneling This project aims to provide native SCTP over UDP in the Linux kernel networking stack, as defined in RFC6951. SCTP is not as widely deployed as it deserves to be, this project supports those not willing to wait until all gateways on the Internet are updated to fully support it. The feature can be enabled per process by the user, and is accommodated by the existing UDP generic encapsulation infrastructure. The project is led by Pablo Neira Ayuso.

SecureShare The **SecureShare** project implements a social messaging service based on the GUNet peer-to-peer framework offering scalability, extensibility, and end-to-end encrypted communication. The scalability property is achieved through multicast message delivery, while extensibility is made possible by using PSYC (Protocol for SYNchronous Communication), which provides an extensible RPC (Remote Procedure Call) syntax that can evolve over time without having to upgrade the software on all nodes in the network. Another key feature provided by the PSYC layer are stateful multicast channels, which are used to store e.g. user profiles. End-to-end encrypted communication is provided by the mesh service of GUNet, upon which the multicast channels are built. Pseudonymous users and social places in the system have cryptographical identities identified by their public key, these are mapped to human memorable names using GNS (GNU Name System), where each pseudonym has a zone pointing to its places.

SERVAL iOS Serval Project's goal is making mobile phones useful, even when there is no cellular network or internet available. The Serval Project is intended to be useful in disaster and emergency situations anywhere in the world, as well as for people in rural, remote and developing world settings where traditional cellular service may not be available or may be too expensive. The Serval Project's technologies also have obvious application to enabling freedom of speech and communications for people under oppressive regimes.

Serval used to use ad-hoc WiFi on mobile phones to form the mesh network. Traditional focus was on the Android platform, due to the closed nature of other large ecosystems. One such ecosystem (iOS) recently gained an API to allow applications for adhoc communications between devices running iOS. The project tailors the Serval Mesh software to these devices, allowing peer-to-peer mobile telecommunications and internet and bringing mobile mesh communications to the main-stream.

Shadow Internet Shadow Internet is an alternative communication infrastructure developed by researchers at Technical University Delft that enables people to distribute videos by copying them from phone to phone wirelessly. So even without an Internet connection you can share content. Specifically crafted to be resilient. The project is specifically targeted for recording and spreading of protest videos. The Shadow Internet ensures people no longer are reliant on commercial websites to view and share content with friends.

Sip Collab Collaborative editing on documents is required (or at least very helpful) in a broad range of use-cases. Collaborative editing capabilities between peers gets rid of the need of server and enables usage in places and circumstances where it was not possible before.

The Session Initiation Protocol (SIP) offers encrypted multimedia (or "whatever-media") communication channels between individuals and groups. Common usages include voice and video conferencing, instant messaging (MSRP) and desktop sharing. While the latter technically allows people to present and share documents, it is brittle, bandwidth heavy and broadcast only - meaning that only a single user can edit a document. In order to provide more agile and interactive capabilities, the **SIP Collab** project has built experimental collaboration facilities based on the collaborative webODF editor and the SIP/SIMPLE client SDK. Users can collaborate to view and edit a document (such as a presentation or text document) over an (encrypted) SIP channel.

SnabbWall SnabbWall is designed as a modular, application-level (Layer-7) firewall suite built on the foundations of the popular open source SDN **Snabb Switch**, allowing it to be used with cheap commodity hardware. It will include a complete firewall program out of the box, and components that can be reused in other software defined networking components. As an application-level firewall, it will be able to inspect network traffic and detect flows of related data, and pinpoint which application has produced a certain data flow. It can subsequently be used to filter (drop, reject, or accept) packets using criteria specified in a set of rules,

Stratosphere IPS The Stratosphere Project is sophisticated free software Intrusion Prevention System that was researched and partially developed in the CTU University in Czech Republic. It detects and protects users or organizations from the most advanced government-sponsored and botnet-related attacks. The Stratosphere IPS analyzes the behavior of network connections and detects the known malicious patterns. Instead of using anomaly detection techniques or static rules, our technique consists in generating Markov Chain-based models of verified malicious activities that can be later detected in the network. Stratosphere offers a high-level semantic interface to block the traffic. The publication of the Stratosphere software will lower the cost of protection of Internet users against cybercrime and cyberespionage attacks.

SylkRTC SylkRTC is a project to extend the open source conference server SylkServer with WebRTC capabilities. This will allow end-users that have access to a web-based application to communicate using audio and video with the rest of the Internet without having to download and configure locally a SIP or XMPP client. Optionally, a temporary or permanent address can be created on the fly and assigned to the user for receiving incoming calls. The solution is customizable by third-party web developers so users will be able to enter an address and start an audio or chat session from any site.

Uberflow **Uberflow** is a project to implement a reference quality open-source OpenFlow controller speaking NBI, that can easily be deployed on open-source operating systems such as Linux and BSD. OpenFlow is a cornerstone and the de-facto standard protocol for software-defined networking (SDN). The API for manipulating the network state is currently being standardised by the Open Networking Foundation (ONF) as NBI (which stands for 'North-Bound Interface'). As an emerging standard NBI has significant potential to create the ecosystem for network architectures. The project is led by Marc Blanchet (Viagenie, Canada).

Presentations, contributions and initiatives in 2015

Government and public sector NLnet and its employees actively participate in various fora regarding the open internet and the implementation of open standards and open source in the public sector. A selection of the most prominent contributions:

- Participated in the Technology Task Force of the UNESCO Persist project
- Authored and edited the ODF Guidance for the UK Cabinet Office and Government Digital Service.
- Organised the 11th ODF Plugfest together with OpenDoc Society, hosted by the Netherlands Government
- Participate in the Platform Internet Standards together with Internet Society Netherlands, Forum Standaardisatie, Ministry of Economic Affairs, RIPE NCC, AMSIX, SIDN, ECP, NCSC, Internet Society and SURFnet.
- Expert meetings for Forum Standaardisatie, the organisation that sets the standards for the Dutch Government;
- Various meetings at Netherlands ministries e.g. the Ministry of Foreign Affairs, Ministry of the Interior, Ministry of Foreign Affairs, Ministry of Economic Affairs, Ministry of Justice and Safety;
- Participated in the European Commission-funded FI-WARE project.
- Coorganised a workshop on Internet Standards during Global Conference on Cyber Space
- Trade mission to Canada
- Trade mission to Silicon Valley
- Fairs and Launchpads for www.digitalgateway.eu

As of Jan 1st 2015, NLnet's Director of Strategy Michiel Leenaars was appointed by the Cabinet as a member of the national education council ("Onderwijsraad"), the highest advisory body of the Netherlands government on education, for a four year period.

As of february 2015, NLnet's General Director Marc Gauw was appointed as member of the Board of the new DINL Foundation (Stichting Digitale Infrastructuur Nederland)

Contributing to an open information society

Talks and booths

- Presented the Internet.nl platform during the Global Conference on Cyber Space (GCCS)
- Presented at the first ARPA2 All Hands at SURFnet in Utrecht (NL).
- Presented at GEANT
- Various presentations on 'Trusted Networks Initiative' (e.g.. RIPE70 en DHPA Techday), and author of TNI Tech Ref Docs
- Forum and financial contribution WEIS Conference 2015
- Contribution to a report with the name 'Assessing Cyber Security' as presented together with Tyhe Hague Centre of Strategic Studies in parallel with the One-Conference and GCCS in Den Haag:
<https://nlnet.nl/project/assessingCybersecurity/>

Other

- Board membership of OpenDoc Society;
- Advisory Board of SIDN Fonds
- Contributed to report “Digital Infrastructure in the Netherlands, Driver for the online ecosystem” published by Deloitte
- Participated in the DDoS workshop at SURFnet
- Promoted software patent non-aggression community Open Invention Network
- Attended **W3C@Europe** 20th anniversary and various other W3C related events
- Inauguration of prof. dr. Dennis Broeders (WRR)
- Attended NCSC One conference
- Participated in GCCS Civil Society programme
- Co-organised the annual Internet New Years event
- Interview on BNR about HTTP2
- Various press-articles and interviews on Holland Strikes Back

Radically Open Security

'Radically Open Security' is a company around ethical hacking and security founded in 2014 by dr. Melanie Rieback. It will donate at least 90% of its proceeds to NLnet foundation for at least the first five years. In 2015 the company continued to build its portfolio of projects and clients, hauling in big names from telecoms, banking, academia and critical infrastructures. 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. Sofar NLnet provided two loans to help them grow more rapidly.

**Trusted
Networks
Initiative &
DCB**

In 2015 NLnet continued its project together with The Hague Security Delta to create an emergency solution for situations whereby DDoS attacks may become so big that generic solutions won't work anymore, called 'The Trusted Networks Initiative' (TNI). Unfortunately in the course of 2015 the project got on hold due to reluctance at dutch operators to support and implement this concept. However TNI may after all resurrect by integrating its original principles with the current operator-alternative of this project called 'The Dutch Continuity Board' (DCB)

DINL

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

**Open
Invention
Network**

Since 2014 NLnet has been supporting the Open Invention Network with the recruitment of members. Companies, by being an OIN-member, benefit from the collective legal support to defend themselves against patent offenses. Open Invention Network has made several donations to NLnet in recognition of its contribution to this initiative.

**Stichting
Accessibility**

By the end of 2015 and 2016 NLnet started to support Stichting Accessibility. The mission of the Accessibility Foundation is to improve the accessibility of internet and other digital media for all people, including the elderly and people with disabilities. The Foundation was established in 2001 and has about 20 people working in their office in Utrecht. Accessibility has always been funded by its founding father: the Bartiméus Institute for the blind in the Netherlands. By the start of 2016 Accessibility operates more independent, whereby NLnet provides them a loan to help them in this.

Event sponsoring

**Holland
Strikes Back**

On Tuesday October 27th 2015 NLnet foundation organised the second edition of the conference "Holland Strikes Back", together with its partners of DINL. The event presented the key Netherlands initiatives against cyber attacks with prominent speakers such as Hans de Vries (NCSC), Dr. Michel van Eeten (TU Delft), Thijs Bosschert (Radically Open Security), and prof Aiko Pras (UT Twente).