Contributing to an open information society

Stichting NLnet   Annual Report 2014

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Content

Introduction

L.S.,

The year 2014 marked the 25th year of existence of our foundation, although the name NLnet goes back as early as 1982 *). That came with changes as well: the foundation took on board a new director and chair, old backpacks were laid away, and a new strategy with fresh initiatives was initiated.

Given that the age of our fund is starting to really show in our books (the accumulated volume of the many contributions we've made to projects across many areas of the internet over the years is quite impressive), the challenge is to make the most out of the limited remaining available funds – and see how we can replenish them.

NLnet is probably already one of the most efficient grant making organisations of its kind, yet it always also had a lot to offer beyond project and program donations. This clearly shows in the contributions that our small team at NLnet makes at both a national and international level – whether it is part of a technology task force at UNESCO, organising interoperability events together with the UK Cabinet Office through OpenDoc Society, playing an active role in the establishment of the new Platform Internet Standards (and the internet.nl project), managing the project team of 'The Trusted Networks Initiative' or organising major events like *Holland Strikes Back* or *One Year after Snowden.*

We are proud of those efforts, and hope to continue this kind of work at such a high level over the coming years. The fact that my colleague Michiel Leenaars was appointed by the Dutch Cabinet to be a member of the Netherlands national Education Council for the next four years, and my own recent appointment to the board of the Digital Infrastructure NL (DINL) foundation seem good indicators of that commitment.

The long term financial stability of the foundation is something to consider, though, and we're spending a lot of effort in finding solutions. Over the last couple of years we have decreased our project spending a lot and while current spending is still significant, we've also started to experiment with structuring some of our support as loans. Obviously, this is not suitable for many projects – but our experiences so far have been positive for the subset of projects for which it is.

Of course there are other ways to reach financial stability as well, some of which are not even our own work. A personal highlight in my first year was the exciting news that a very promising startup led by top security researcher dr. Melanie Rieback (whom NLnet had worked with before my arrival) signed an Memorandum of Understanding with us, promising to donate pretty much their entire profits of the company to our foundation – for at least a period of five years. That kind of commitment to our work from the community is nothing

short of spectacular – and I'll take it as a deep felt compliment to the hard work of NLnet. Needless to say, if you happen to need cybersecurity consultancy be sure to check out *Radically Open Security*.

Similarly positive were the donations we received from 'The Open Invention Network'. Over the last year, NLnet has stepped up its work in helping defend open source software by growing this software patent non-aggression community, and we very much appreciate the gesture from OIN to make a donation for everyone signing up through our foundation. If you like our work, and your organisation or open source project has not yet joined this very worth while effort: check out htts://nlnet.nl/help. It *really* makes a difference.

We are facing an increasing challenge to support the Internet and Open Source community while our funds are seriously decreasing. All mentioned initiatives hopefully may result in a situation where NLnet may support the internet even more as before without burning up our remaining funds to soon. We will look for strategic partnerships based on our expertise, project management experience and our strong international network. A good example for us in this respect is our collaboration with NCSC which has already resulted in two larger projects ("SecureHub' and 'Deep Firmware Inspection') that would have not been possible without this partnership.

NLnet will continue respecting its mission '"to promote the exchange of electronic information and all that is related or beneficial to that purpose", including our efforts to help defending against the rapid expansion of cybercrime activities. 2015 should learn us how this further can be materialized based on the initiatives kicked-off already. This coming year will show us how these new initiatives are working out, how they can be expanded or multiplied, and how maybe more initiatives could follow. In this annual report you will read how this translates into 2015 budget and efforts, how the foundation is currently organised for that, and more details on the initiatives as were seeded already through NLnet.

A year after joining NLnet, I am confident that NLnet is on the right track to become a sustainable support institute, to maintain the open, free and save internet as we all originally envisioned.

On behalf of the board,

Marc Gauw,

Chair Governing Board Stichting NLnet

) With a wink to the 25th anniversary of NLnet, we co-sponsored a Meta-analyse by HCSS "Assessing Cyber Security" , as presented on April 17,2015 during The Cybersecurity-week in The Hague:

https://nlnet.nl/project/assessingCybersecurity/

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 (Algemeen Nut Beogende Instelling) according to Netherlands legislation[1].

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 2014, 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 2014 the Supervisory Board in its entirety has received a total compensation of Euro 7650,-

Governing Board The Governing Board of Stichting NLnet in 2014 consists of:

- Marc Gauw, secretary as of March 1, chair as of September 2, 2014
- Harm Rietmeijer, treasurer
- Bert Wijnen, secretary as of September 2, 2014
- Marc Van Driel, board member and chair until September 2, 2014

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

These positions are non-remunerated positions in accordance with the NLnet Statutes, except for financial compensation for time spent ('vacatiegeld'). In 2014, the Governing Board, with the exception of Marc Gauw, received a total compensation of Euro 13.334,- .

Operations

For daily operations the NLnet Operations Management was staffed in 2014 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, start February 1,2014)

Total actual fte-costs in 2014 for 2,6 fte: Euro 258.677,-

Total budgeted fte-costs in 2014 for 2,6 fte: Euro 275.730,-

In 2014 the bureau was further supported by the following externals:

- Jos Alsters (Itsal) (January 2014)

Operations support

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

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

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.

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.

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 reach 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
- The Hague Security Delta
- W3C
- Platform Internetstandaarden
- Forum Standaardisatie
- OpenDoc Society

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 2014 NLnet sponsored projects, programs and other activities to the sum of € 641.554, compared to €1.002.074 in budget 2014, excluding loans.

The total expenditure was € 1.018.313 , compared to €1.429.474 in budget 2014, excluding loans.

The total loss equals - € 570.336 , compared to - €1.091.483 in budget 2014, excluding loans.

For 2015 NLnet has allocated € 852.830,- excluding loans for financing of projects, programs and other sponsoring.

The total budgeted expenditure will be €1.250.260 excluding loans.

The total budgeted decrease in capital will be - € 848.526 excluding loans.

3. Strategy and working methods

Strategic Themes

NLnet maintained focus in 2014 on the following areas of attention:

- Standards in real-time communication;
- Open Document Format;
- Cybersecurity.

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 NLnet in general.

Donations and Loans

Four types of sponsoring and financing support model underpins the NLnet policy:

1. On the highest level there is one program being sponsored by NLnet on long term commitment basis: NLnet Labs – a laboratory for Internet infrastructure development.
2. The next level is formed by projects 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.
3. One-off donations - sponsoring of conferences, work-shops, hackathons, seminars, contests and financial compensation of travel costs for participants of these events.
4. Loans – for projects with a reasonable likelyhood to obtain returns on investments.

Projects specific

The smaller 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 break-throughs in some fields.

For more details on projects sponsored in 2014 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 2014 are provided in Annex 1.

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 of a part of the asset in technologies we understand, in people we trust and in concepts we believe will change the world to the better. And to earn money which can be used to accomplish the mission of NLnet.

To this purpose since 2012 a few investments were done:

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

- Rockstart in 2014-2016 (GAYR4 BV, GAYR5 BV and GAYR6 BV, convertable loans)

4. Finances

Stichting NLnet finances its projects and activities from the annual revenues received on its invested capital as well as from the capital itself. 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.

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 2014 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 2014

The Actual costs and Revenues of activities in 2014 is summarized below, and compared with Budget 2014, and compared with Actual 2013 and Budget 2015 (excluding loans):

	Budget 2015	Actual 2014	Budget 2014	Actual 2013
Cost of programs and projects	852.830	641.554	1.002.074	617.551
Cost of staff	262.417	266.472	275.730	295.984
Cost Rental Office	12.240	12.271	12.000	11.830
Office costs	3.570	5.727	3.500	2.630
Advisory costs	25.000	37.085	28.000	97.928
Remuneration Board	17.650	20.983	22.650	25.984
Miscellaneous costs	76.400	34.101	85.370	74.104
Depreciation of inventory, equipment	153	120	150	20
Total	1.250.260	1.018.313	1.429.474	1.126.031

Revenue of activities

	Budget 2015	Actual 2014	Budget 2014	Actual 2013
Income and returns (excl loans)	320.000	315.308	337.991	38.462

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2   More information on **http://www.anbi.nl/**

Balance Sheet 2014 (2013)

	2014		2013	
	debit	credit	debit	credit
Assets				
Total inventory	463		583	
Participations	123.310		123.310	
Investment funds	426.467		325.257	
Total Investments	**550.240**		**449.150**	
Current assets	30.794		43.963	
Liquid assets	4.273.471		4.940.297	
Total Assets	**4.854.505**		**5.433.410**	
Liabilities				
Capital and Reserves		5.362.355		6.835.321
Result bookyear		-570.336		-1.493.371
Delta participation		0		20.405
Total Reserves		**4.792.019**		**5.362.355**
Current liabilities		62.486		71.055
Total Liabilities		**4.854.505**		**5.433.410**
Total Balance	**4.854.505**	**4.854.505**	**5.433.410**	**5.433.410**

Spread of liquidity		2014	2013
	Bank 1	1.408.576	2.130.118
	Bank 2	2.738.164	2.694.399
	Bank 3	88.346	82.907
	Bank 4	38.365	32.853
	Bank 5	20	20
	Total	**4.273.471**	**4.940.297**

Budget for 2015 The budget for 2015 (excluding loans) as approved by the board, is as follows:

	Budget 2015
Cost of programs and projects	852.830
Cost of organisation including staff	397.280
Depreciation of inventory & equipment	153
Total	1.250.260

Marc Gauw,

Chair Governing Board Stichting NLnet

5.Annex 1: Programs, projects and activities in 2014

Programs in 2014

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

In 2014 NLnet Labs saw the departure of its director Olaf Kolkman, who followed up Leslie Daigle as Chief Internet Technology Officer at Internet Society. Deputy director Dr. Benno Overeinder was asked to take over the helm of NLnet Labs.

For more information see **www.nlnetlabs.nl**

Incoming project proposals in 2014

Received proposals

In 2014 NLnet has received in total 77 project proposals (compared to 105 in 2013), whereof 16 requests were (partially) granted (21%), against 15 (14%) in 2013.

Projects supported in 2014

0cpm: SIPproxy64, 6bed4, applet, freeswitch RTT

This project enables secure communication over the future proof IPv6. It builds upon SIPproxy64 which should make it possible (for e.g. router an other hardware manufacturers) to translate SIP and RTP protocols in IPv4 to IPv6 and the other way around. This will allow outdated but broadly used IPv4-only SIP telephones to work and PBX-boxes to work over IPv6 network.

"If IPv4 and IPv6 are different universes, then by that metaphor SIPproxy64 is a wormhole between them".

ARKOS

arkOS is a system for securely self-hosting your online life. It consists of an operating system that runs on embedded devices (such as the Raspberry Pi), with a graphical interface to make it easy for people to install and run open source server software. See the project website for more details. The software is being actively developed and the project is are currently improving it's quality, adding applications, growing our userbase and developing network services to enable offsite backups, DNS services and open social networking.

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**.

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**.

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 offeres 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.

nftables

The Netfilter project's **nftables** is the intended successor of the popular iptables, providing a new modular packet filtering framework e.g. for operating systems based on the popular Linux kernel. Besides a modular code base that is better suited for modern multiprotocol networking environments, the nftables project aims to introduce powerful new userspace tools which will allow users to dynamically perform packet filtering on custom protocols (including but not limited to new proposed internet standards as defined by the Internet Engineering Task Force). Existing packet filtering solutions would require a recompiled kernel module in the same situation. The end result is that users will have more autonomy on what gets filtered and how, which make them less dependent on the technical choices of vendors and communities. The nftables project has been accepted in Linux mainstream kernel.

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 platfrom into a full-fledged solution that can support the growth of community wireless networks worldwide.

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 lead 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.

More about **Swirl Project** (**source code**)

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.

More about **PSYC2**

SecureShare

The **SecureShare** project implements a social messaging service based on the GNUnet 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 GNUnet, 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.

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 adds collaboration facilities based on the collaborative webODF editor and the SIP/SIMPLE client SDK. Multiple users will be able to view and edit a document (such as a presentation or text document) with a group of people in parallel.

Startup Europe Partnership

An effort to help the European Commission in getting more results with its efforts towards Europe's startup community, its research and development subsidies and its policies. There have been very few successes in either in the last two decades. The goal of our efforts was to build understanding inside the EC that in order to influence the internets future participation from within the actual internet sector is essential for the success of its efforts. The partnership was subsequently transferred to another consortium.

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.

Swartzshield

SW4RTZSH13LD is not a pure technology project but is aimed to create an interactive experience to help scale awareness about the issue of information freedom and the importance of the open intenet. It combines fiction, non-fiction and user participation in a transmedia adventure for Internet freedom. It tells the stories of hactivists like Aaron Swartz and Edward Snowden through the eyes of a fictional character called Roan Warsatz; better known as SW4RTZSH13LD on the web. Triggered by the self chosen death of Aaron Swartz and inspired by his ideology, Roan Warsatz not only sets out to discover what happened to Swartz but also digs deeper into the importance of copyright reform, information access, and Internet freedom. SW4RTZSH14LD will become a personalized interactive storytelling experience that is unique for each user. NLnet contributee funding to the launing hackathon for the project.

Twisted Names EDNS(0) and DNSSEC Client Support

Domain names are vital to the way we use the internet, as businesses, public institutions and private individuals. While the original system of resolving domain names was very robust and has made tremendous innovation possible, it was also found to be open to serious abuse. DNSSEC provides a cryptographic seal of authenticity that gives real proof of the validity of the domain name you use when you visit a website, chat or send an email. Through its dedicated DNSSEC fund NLnet aims to enable regular end users to profit from end-to-end DNSSEC verification and important security measures such as **DANE**.

Twisted is an event-driven networking engine written in Python and licensed under the open source MIT license. The **Twisted Names EDNS(0) and DNSSEC Client Support** project led by Twisted core committer Richard Wall (UK) aimed to enable hardening of security in all of the core Twisted networking components, including full DNSSEC verification and DANE.

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).

Unhosted

Unhosted is an ambitious project led by researcher Michiel B. de Jong that aims to allow a separation of data storage and services within the cloud. The project works on both working tools, libraries and on standardisation of the remoteStorage protocol. Unhosted has received prior funding from NLnet. In this project they will add extensible support for "legacy" and hosted accounts to remotestorage.js, improve documentation, rewrite some core modules, work on portable apps, and design and implement a shared notification mechanism in remoteStorage.js.

Presentations, contributions and initiatives in 2014

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:

- Coordination effort around *Startup Europe* together with our partners NESTA, Startup Weekend and Incyde;

- Produced a paper on *Digital preservation Strategies* for the UNESCO Persist project

- Co-organised event *One year after Snowden* in the Royal Library in the Hague, bringing together politicians, internet sociologists, technologists, developers, entrepreneurs and others to discuss the impact of the revelations of Edward Snowden on society and economy

- Organised the *10th ODF Plugfest* together with OpenDoc Society, hosted by the UK Cabinet Office

- Help set up 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.

- Participated in masterclass *Assessing societal Impacts of Security Research and Technology*

- Expert meetings for *Forum Standaardisatie*, the organisation that sets the standards for the Dutch Government;

- Particpated in expert sessions on *Separated Networks* ("Gescheiden Netwerken") of the NCSC

- Participated in a number of 'Cyber Dialogue' sessions at the Netherlands' Wetenschappelijke Raad voor Regeringsbeleid.

- Brainstormed with members of National Think Tank (Nationale Denktank)

- 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;

- Participate in the European Commission-funded *FI-WARE* project.

- Participated in "Innovatie aan zee, Samenwerken aan een veilig en rechtvaardig Nederland van morgen"

Talks and booths	• Presentation at European Commision event on the EU Rolling Plan for ICT Standardisation on Internet of Things
	• Presentation with dr. Rick van Rein (ARPA2.net/SecureHub) at the Nationaal informatica Congres (Anonymit)
	• Organised masterclasses of Rick van Rein (ARPA2.net) and Armijn Hemel (Deep Firmware Inspection) at the System & Network Engineering of the University of Amsterdam.
	• Presentation on Internet of Things during IDNext meetup
	• Presentation about software patents at dotScale in Paris.

Other	• Participated in the KPN Stakeholder Dialogue workshop
	• Board membership of OpenDoc Society;
	• Participated in the Webizen working group at W3C
	• Contributed to report "Digital Infrastructure in the Netherlands, Driver for the online ecosystem" published by Deloitte
	• Guided student projects from Esan Wit, Mick Pouw, Jos van Dijk, Ioannis Giannoulatos, Lutz Engels and Sudesh Jethoe (University of Amsterdam, System and Network Engineering).
	• Interview around "Fix the Internet" with Erwin Blom and Mieke van Heesewijk.
	• Promoted software patent non-aggression community Open Invention Network
	• Attended the launch of USINE in Paris.
	• Attended Indiewebcamp in Bristol.

Radically Open Security

In 2014, NLnet supported the founding of a new startup 'Radically Open Security', who's business is to offer cybersecurity consultancy (e.g. pen-testing) at non-profit basis, to allow much more companies to benefit from the indepth knowledge of the ROS team of ethical hackers.

Trusted Networks Initiative

Also in 2014, NLnet started a 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.

DINL

A group of seven institutes, associations and foundations (SIDN, DHPA, DDA, AMS-IX, ISPConnect, Surfnet and NLnet) joined forces in 2014 to collectively work on important topics in the dutch Digital Infrastructure: promotion, education, cybersecurity, and laws & policy. The new umbrella-foundation is called Digital Infrastructure Netherlands (DINL)

Open Invention Network

The last year, NLnet started to support 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. Apart from helping this alliance, NLnet also receives a modest kickback for this recruitment, which is flowing back in our funds.

Anonymit.nl

AnonymIT was a large symposium for students throughout the Netherlands, organised by SNIC. The theme of the 2014 edition was anonymity in the current digital era. National informatics Congress (SNiC) was founded in December 2004. The foundation aims to stimulate the interest in the knowledge of the information and communications technology and the business aspect and its applications. It hopes to achieve this with the organization of an annual national congress with a computer science related subject.
The foundation is governed by a eight national IT study-associations.

Coding for Language Communities

The Interdisciplinary Centre for Social and Language Documentation (CIDLeS) in Portugal organized the first summer school dedicated to the topic of language technologies for under-resourced languages. During one week, mentors and participants worked together intensively to develop new open source software and tools for under-resourced languages. There are an estimated 7.000 languages spoken all over the world, but each month a language dies out. In general, we observe a strong tendency to learn and use only major languages such as English, German, French, etc., especially in the digital world and in electronic communication. This is partly caused by the lack of hardware (e.g. keyboards) and software (for transliteration, text completion, etc.) for under-resourced languages, which constrain the natural usage of people's own language in many tasks. NLnet supported this event about ongoing research and development to turn that process in exactly the other direction: every successful technology can be used also to teach, revitalize and therefore boost the use of regional languages.

Hillhacks

Hillhacks 2014 was the successful first edition of Hillhacks, a two week long string of hands-on workshops, talks and discussions around technology and an open information society in Dharamsala, located in the foothills of the Indian Himalayas. The three main themes for the event were: Technology and art, technology and ethics, and network security. The event featured a special children's workshop series on technology and arts that will be run at Tibetan Children's Village. The team worked in conjunction with MIT Media Lab, Chaos Computer Club, Tibetan Children's Village and various other well-known organisations in the field. The goal was to build bridges between the regional community and the worldwide technology and information security community and hopefully create a sustainable annual event to bring together and establish and develop the regional community.

Holland Strikes Back

On October 28th 2014 NLnet foundation, organised the conference "Holland Strikes Back", together with ISPConnect and DHPA: Dutch Initiatives against Cyber Attacks and Abuse". The event presented the key Netherlands initiatives against cyber attacks with prominent speakers such as Dick Schoof (NCTV), Gert Wabeke (KPN), Dr. Michel van Eeten (TU Delft), Barend Sluijter (NCSC), and Jan Piet Barthel (Netherlands Science Foundation/NWO), presenting subjects such as DDoS attacks, NaWas, AbuseHub, Trusted Networks Initiative, ethical hacking, Secure DNS and collaborations in the European context.