

Stichting NLnet

Annual Report 2012

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Introduction by new Chair Governing Board

L.S.,

In 2012 it was exactly thirty years ago that NLnet's first chairman Teus Hagen announced the start of EUnet at a UNIX conference in Paris, laying the foundations for the introduction of the internet in Europe a couple of years later. This game changing event took place outside of the public eye, and very few were (and probably are) aware of the remarkable pioneering work done by Hagen and his team - at what soon became NLnet - in collaboration with their colleagues at sister organisations across Europe and the rest of the world. These groups operated against the grain as governments everywhere mandated the use of the far more closed and far more limited OSI stack.

Their hard work was however rewarded by the rapid uptake of the internet, which meant considerable economic success which in turn led to the subsequent establishment of the trust fund that gave NLnet foundation a flying start. Thirty years later NLnet is a lean and unique organisation. NLnet is a high tech foundation that we think really makes a difference when it comes to safeguarding the future growth and development of our information society. In this annual report you will read about the extent of our funding, how the foundation is organised and of course the amazing and often disruptive internet technologies and R&D efforts that are seeded through NLnet.

NLnet supports independent researchers and developers, and initiatives, allowing them to make important infrastructural contributions in the best interest of the internet. From practical solutions like bridging the two major real-time communication technologies, open hardware and software that can be used to construct low cost and safe mobile infrastructure for developing areas and in emergency situations, software to deploy more secure DNS, internet censorship circumvention to a new paradigm like remote storage for browser applications. The ideas and the talent behind the people originate from across the world, and NLnet supports new and bright ideas, which contribute open standards and open solutions to the various layers of the core infrastructure of our information society.

I want to thank the individuals, organisations and public institutions that made donations directly to NLnet, or made contributions or follow up donations or investments directly to any of our projects. The future of NLnet relies on your generosity, for as much as the success of our rich past speaks for itself; our tomorrow depends on where you enable us to go.

On behalf of the board,

Marc van Driel.

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 and was situated in Amerongen, the Netherlands until April 2007.

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. NLnet is a recognized charity (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 The Supervisory Board (Raad van Toezicht) of Stichting NLnet consists of:

- Erik Esseling (resided at the end of 2012);
- Erik Huizer, chair (resided at the end of 2012);
- Hanneke Slager (started from the beginning of 2012).

These positions are non-remunerate positions in accordance with the NLnet Statutes.

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

- Governing Board** The Governing Board of Stichting NLnet consists of:
- Jos Alsters, secretary (resided at the end of 2012);
 - Monic Schijvenaars, secretary (started in November 2012);
 - Mike Otten, treasurer;
 - Hans Onvlee (resided in June 2012);
 - Marc van Driel, chair.

These positions are non-remunerate positions in accordance with the NLnet Statutes.

- Operations** For daily operations the NLnet Operations Management was staffed with three people, totaling the staff to 2,25 FTE (Full Time Employee), all are remunerate positions:
- Patricia Otter, administrator for both NLnet and NLnet Labs (0,45 FTE);
 - Michiel Leenaars, strategy director (0,8 FTE);
 - Valer Mischenko, general director (full time).

- Operations support** For external (financial and legal) advice and consultancy, Stichting NLnet is supported by:
- Van Diepen van der Kroef (legal advice),
 - Koningsbos Accountants (accountancy and payroll).

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** 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 being done by 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.
- Mission** 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** To this purpose, a wide range of Internet and technology related projects are permanently being funded for which Open Source licensing conditions (like GNU GPL, BSD license, Creative Commons and such) hold.
- Non-profit** NLnet does not derive any financial benefits from the undertaken projects or their results. Any future eventual benefits will be used to reach statutory goals of NLnet.
- Co-operation** NLnet maintains close relationships with the Internet Society (ISOC) on the international level, with ISOC NL, NLUUG (the Association of professional Open Source and Open Standards users in the Netherlands), the Freedom Software Foundation (USA) and the Freedom Software Foundation Europe and other organisations in the field. 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 2012 NLnet sponsored projects, programs and other activities to the sum of € 472.516 (compared to € 1.194.026 in 2011). The total expenditure was € 833.815.

For 2013 NLnet has allocated € 474.900 for financing of projects, programs and other sponsoring. The total budget equals € 766.440.

Next to financing of third parties activities, in line with its policy, NLnet played an advisory role 'pro bono' for projects and a select number of organisations and government agencies.

3. Strategy and working methods

Strategic Themes NLnet maintained focus on the following main areas of funding:

- Standards in real-time communication;
- Open Document Format;
- DNS Security.

See for more information:

<http://www.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.

Sponsoring model Three level 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, workshops, hackathons, seminars, contests and financial compensation of travel costs for participants of these events.

Projects 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 breakthroughs in some fields.

For more details on projects sponsored in 2012 see the Annex 1.

One-off donations NLnet provides one-off donations to organisations and individuals in order to stimulate their activities which are in line with the NLnet mission and philosophy. These including but not being limited to sponsoring of conferences, workshops, hackathons, seminars, contests etc.

With one-off donations NLnet also supports community building in the form of workshops, hackathons, conferences, and others.

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

Distinctive investment NLnet derives her yearly budgets from the available capita and the interest gained from investment of (a part of) this capital. The practice has shown, however, that such policy in the long run does not guarantee stable income and 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, people we trust and 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 a number of potential investment projects were assessed and the first choice has fallen on 5apps.

The idea of 5apps was born from the Unhosted community and shares the same ideologies and goals as the Unhosted project.

The aim of 5apps is to become a leading service provider in the exploding market of cross-platform, unhosted, offline-capable applications based on open web standards (HTML5) by offering a platform that makes it both easy for developers to deploy, distribute and sell their web apps, as well as for users to purchase, access, use, and backup them.

NLnet has invested cash and two developers, Sebastian Kippe and Garret Alfert, invested their ideas, know-how and labour into the company behind the 5apps platform called AppCache Ltd., residing in Amsterdam, The Netherlands.

As this first experiment seemed to deliver good results

and eventually may turn in a profitable exit or other sorts of income for NLnet, it was decided to continue with the search on other potential investments coinciding with the NLnet mission an principles and having good commercial potential.

4. Finances

Stichting NLnet finances its projects and activities from the annual revenues being received on the invested capital as well as the capital itself. NLnet also uses 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 the non-profit tax status (ANBI-regeling) with the Dutch Tax Authority.

Administration Salary administration was contracted to Cent Lonen in Haarlem. Koningsbos Accountants has been charged with compiling and auditing Stichting NLnet's Annual Accounts 2012 and have given an unqualified opinion. The accountancy report is a separate document. The main figures are incorporated in this annual report.

Cost of activities in 2012 The cost of Stichting NLnet's activities in 2012 is summarized below and compared to 2010 and 2011:

	2012	2011	2010
Cost of projects	275.810	552.939	744.972
Cost of programs	196.706	641.087	590.244
Cost of staff	255.805	228.013	242.979
Depreciation of inventory & equipment	930	2.116	2.222
Other costs	104.564	65.878	82.572
Total	833.815	1.490.033	1.662.989

Revenue of activities	2012	2011	2010
Donations	27.659	0	23.601

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

Balance Sheet 2012 (2011)

	2012		2011	
	debit	credit	debit	credit
Assets				
Total inventory	0		930	
Participation	180.000			
Result participation		114.095		
Investment funds	864.539			
Total investments	1.044.539	114.095	1.003.619	
Current assets	164.061		46.660	
Liquid assets	5.846.294		6.753.495	
Total Assets	6.940.799		7.804.704	
Liabilities				
Capital and reserves capital reserves		7.580.170		13.992.663
Total net liabilities		105.478		224.534
Total Liabilities		7.685.648		14.217.197
Profits and losses	630.754		6.412.493	
Result participation	114.095			
Total Balance	7.685.648	7.685.648	14.217.197	14.217.197

Spread of liquidity

	2012	2011
Bank 1	2,623,281	3,649,393
Bank 2	2,642,713	2,582,621
Bank 3	180,157	233,790
Bank 4	399,252	287,691
Bank 5	891	

	2012	2011
Total	5.846.294	6,753,495

Budget for 2013

The budget for 2013, as approved by the board, is as follows:

	2013	2012	2011
Cost of programs and projects	474.900	669.699	1.471.092
Cost of organisation including staff	291.340	328.814	313.283
Depreciation of inventory & equipment	200	1.243	3.000
Total	766.440	999.756	1.787.375

Marc van Driel,

Chair Governing Board Stichting NLnet

Annex 1

Programs, projects and activities in 2012

Programs in 2012

NLnet Labs NLnet Labs is the Research, Development, and Expertise center for those technologies that turn a network of networks into one Internet. Founded by the NLnet Foundation in 2000, NLnet Labs contributes innovative ideas to open source software and open standards.

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'. In 2011, NLnet Labs continued to develop and support their various DNS software products: Unbound, NSD, Idns, and Net::DNS. They also made a start with the development of NSD4. Besides, Labs added new gems to the DNSSEC toolbox: they released 'dnssec-trigger', and started to develop 'dnssexy', a DNSSEC consistency checker. NLnet Labs keeps heavily participating in the OpenDNSSEC collaboration that was set out to develop a turn-key solution for the deployment of DNSSEC by zone-owners. The project is a collaboration with IIS, Kirei, Sinodun, Nominet, Surfnet, and SIDN, and maintains its own website at <http://opendnssec.net/>.

Routing is another field where NLnet Labs makes a difference; we have mentored talented students through their graduation and have been providing a neutral, expert view in the various debates on routing security and its stability. More generally, we have brought and shared our insights and expertise in many discussions about Internet Governance and technical

management of the Internet, thereby contributing to a better understanding of the Internet Model.

For more information see www.nlnetlabs.nl

**IIDS
Intelligent Interactive
Distributed Systems
Research**

Design and self-management of large scale autonomous systems is the main theme of the IIDS research program. Research focuses on the (1) design of multi-level reflective architectures for systems of autonomous (human and automated) systems, and (2) distributed (self-) management of such systems.

The year 2012 was the last year of NLnet's support to the IIDS program. IIDS, however, continues with the full funding of the Technical University of Delft, The Netherlands.

For more information see www.iids.org and www.agentscape.org

Incoming project proposals in 2012

Received proposals In 2012 NLnet has received in total 94 project proposals (compared to 161 in 2011), whereof 12 requests were granted (13%), against 29 (18%) in 2011.

Projects finalized in 2012

Ocpm The potential of SIP telephony as an open standard to free users from the legacy of POTS (Plain Old Telephony Service) is not yet being fulfilled. There are more and more lock-in arrangements of vendors instead. This project intends to overcome these barriers and to design and build open source firmware for digital phones. The project makes use of DNSSEC, ZRTP and IPv6:

- DNSSEC secures the information looked up on remote parties;
- ZRTP secures conversations and if it is missing, this will be explicitly communicated to end users.
- Direct media streams between IPv4 endpoints can only be built up using sophisticated handling, while IPv6 simplifies and improves SIP technology immensely.

ActiveSync your Kolab Kolab is a modular groupware solution being used in a wide variety of settings, including heterogeneous environments with KDE Kontact and Microsoft Outlook clients. Differentiating features for Kolab include a

security centric design and support for end-to-end encryption on GNU/Linux and Windows. Kolab is also unique in that it has no proprietary components and offers a strong migration path on the desktop from Windows to GNU/Linux and has been designed with strong privacy in mind. The next generation of Kolab clients brings secure semantic search in encrypted email for Kontact, the primary Kolab client, on GNU/Linux, Windows, Mac OS X, Maemo and Windows Mobile.

Bringing Calligra Suite to Windows The project will produce a standalone Windows installer that users can download and execute. The result will be that all Calligra Suite applications (formerly known as Koffice) will be available from the Windows start menu. The Windows Calligra applications will check on startup whether a new version is available and warn the user. The applications will be built using Microsoft Visual C++ to conform best to platform standards.

DNSCCM There is a clear need for a common DNS(SEC) name server management and control system. DNS is such a vital part of any organization's network infrastructure that it is common to run multiple different DNS implementations. However, each implementation has its own distinctive configuration and control utilities. A common interface should greatly simplify management of diverse infrastructures. In 2007, the IETF working group determined there was a need for standardized management of nameservers for DNS and in 2011 the requirements draft addressing this got accepted as RFC6168. An IETF draft is under development, which proposes a Nameserver Control Protocol (NSCP) to meet these requirements. The primary focus of this project is to develop an implementation of NSCP for current releases of BIND and NSD, the most widely used open source authoritative nameservers.

DNSSEC in Lantern The goal of Lantern - a censorship circumvention and monitoring-prevention tool - is to build an easy-to-use, secure, and indestructible tool to keep the internet open and unfettered for anyone in the world. Lantern uses a P2P infrastructure, particularly the LittleShoot P2P stack, along with the LittleProxy HTTP proxy and the Smack XMPP client library. All of these

utilize DNS in a number of areas. In environments where e.g. the government has access and control over all network traffic in and out of the country authenticity of DNS records is of paramount importance.

This project aims integrating of DNSSEC into every DNS lookup in Lantern, including all DNS lookups in the LittleProxy, Smack, and LittleShoot sub-modules.

Fairwaves Fairwaves project is aiming at removing one more obstacles on the way to cheap and ubiquitous wireless networks - absence of free (open source), yet production quality building blocks for wireless equipment. There are plenty of expensive proprietary solutions you can use for coding. Fairwaves is set to develop an Open Source framework for PHY and MAC levels of wireless protocols which will allow "free as in beer" development. It should foster innovation in the wireless communications and allow more projects like OpenBTS and Opendigitalradio to emerge.

Improve fallback mechanisms in KOffice ODF loading and saving The ODF standard specifies that a draw:frame can contain text boxes, ODF objects, binary objects, images, applets, plug-ins or floating frames. No current ODF-handling application can handle all of these. The standard anticipates this and specifies a fall-back mechanism by recommending to include an image representation of the object into the frame in addition to the object itself. The image specification does not limit the formats for the images but recommends that vector graphics are stored in the SVG format and bitmap graphics in the PNG format. The project will improve the fallback mechanism for unsupported objects in the Calligra suite.

Improve support in Abiword NLnet strives to broaden the footnote of the ODF standard. RDF (Resource Description Framework) is one of the distinguishing features of ODF. The project is to enhance the existing RDF support in Abiword. Many use cases which are highly user oriented are being handled: drag and drop, sidepanels, notifications, stylesheets, and hookups to Web services. Allowing SPARQL queries will significantly enhance the possibility of ODF for real time collaboration.

Libre Docs This project aims to develop a free software, web-based office suite, and let users remain in control of information they author with it. Libre Docs is an Unhosted app, meaning the data and the services are completely separated. The Unhosted project has already shown a proof-of-concept of how applications and user data can be separated from each other, using only web standards. Libre Docs is the perfect application to apply the research results that have come out of the Unhosted project so far. This will help the Unhosted project evolve from a proposed technology to a proven technology, after which many more applications can follow this successful lead.

Meshtool Currently there are no comprehensive tools for management of meshed networks. This project aims at spreading the use of open, community oriented mesh network technology by providing the people behind the mesh with tools to manage and develop it. Meshtool will assist in mesh network monitoring, administration and research. Current mesh networks are mostly comprised of wireless routers but Meshtool is designed to handling various types of devices, including mobile devices such as mobile phones and Wi-Fi equipped vehicles. Key Features planned:

1. Mesh Network Monitoring & Administration: mainly wireless routers, but mobile devices as well.
2. Implementation of the Common Node Database Schema.
3. Geographic Information Systems (GIS) support.
4. Facilitate mesh research with Live Mesh Test Framework.
5. 2D and 3D map viewers via Nasa World Wind Integration.
6. Network data Visualization.
7. Virtualized mesh node Support.

ODF Online Validator The current ODF Online Validator is hosted by Oracle Hamburg and due to the site shut-down, will be turned off any moment. The project will answer to this urgency and build an open, free, easy and out-of-the box web application - the command-line validator. The source code will be contributed to Apache, as the ODF Toolkit has become an Apache Incubator project.

Privacy-Preserving Communication Protocol for OSNs Today online social networks (OSNs) have become an indispensable platform for internet users to find friendship and share information. However, users are pretty much electronically naked in any OSN: (1) User's data is in clear to the OSN service provider, and can be accessed by many other parties without any consent; (2) User's activities are under surveillance by the OSN service provider. This project will design and implement a privacy-preserving communication protocol to mitigate the problems (1) and (2). In more detail, it will achieve the following features:

1. A user always keeps his private data in encrypted form.
2. Two users can match each other based on their respective private data sets, without revealing anything.
3. Two friends who share some common private data, communicate in private. The communication will remain private against the OSN service provider and other users.

The implementation will be based on the OpenSocial API, and programmed in javascript. The final form of the implementation will be a browser plug-in, for example for Firefox.

Samizdat Samizdat is intended, in part, as a tool for activists, or generally, for anyone who desires secure communication with others who lack the computer literacy (or merely patience) to configure public key cryptography or VPNs. Samizdat would also be useful to give an outsider access to a network without being easily detected; for example, it could facilitate document leaking. Samizdat is a LiveCD intended primarily to make public key cryptography accessible: to distribute public keys securely, and to pre-configure various applications of cryptography, especially VPN-based applications. Samizdat LiveCDs are self-replicating, with the replicated system not being identical, instead having one other's public keys and various other information. The replicated systems automatically become nodes on a VPN. The LiveCD serves as a secure boot medium for a fully-functional, fully-encrypted persistent system.

This project integrates many existing projects: Tor, Onioncat, GPG, LUKS, Git and others.

Unhosted The web is not as open as it used to be: big monopoly platforms have formed new proprietary layers on top of it. This project breaks the "you get our app, we get your data" package deal. This by providing a cross-origin data storage protocol, thus separating data servers from application servers.

More and more applications are hosted online and force users to put their data onto servers where applications run. Apart from our data being locked inside a place we don't have control over, many websites sell the data to third parties. This is a huge emergency in terms of consumer rights. Unhosted improves the web infrastructure by separating web applications from your data:

1. You can store your data remotely anywhere, preferably encrypted;
2. Unhosted apps, which are web applications, will run locally in your browser.

This also makes it easier for app developers, as they neither have to worry about hosting all the data and user accounts nor about server load - all the computing takes place in your own browser on your own machine. With the app being just JavaScript it becomes very easy to develop and deploy new apps which everyone can use.

The project will define a standard and submit it to W3C.

WebPG The idea of this project is to provide an extension for the users' web browser and an end library for web developers to manage key distribution, and to make the use of signing and encryption easy within web applications.

The main target are the users of social networks using community servers and its administrators, adding this way a layer of security in the case a server has been compromised.

The idea is to provide a tool, which easily integrates signing and encryption operations within the user's interactions.

Projects started in and running through 2012

0cpm: SIPproxy64, 6bed4, applet, freeswitch RTT This project builds a secure communication over the future proof IPv6. It builds upon SIPproxy64 which should make it possible (for e.g. router and 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”. We also call this project internally as “Preparation of peering”, as it helps to build a network wherein modern telco's can arrange peering completely outside old POTS networks.

Android Native NoScript NoScript is a popular GPL add-on for Firefox and other Mozilla Gecko-based browsers which increases the web client security in several innovative and groundbreaking ways. NoScript was extensively supported by NLnet and active users are currently almost 3 millions, and it has pretty much no competitors. That's because it goes very far beyond simple script blocking, having established itself as the "ultimate" security enhancement for the web browser, even though it's available on Mozilla Gecko-based browsers only. Unfortunately, no NoScript equivalent was available on mobile platforms yet. This project created one for the Android platform.

Jitsi: Replacing JMF with FMJ Jitsi became a focus project of NLnet as it offers free, open and secure alternative for Skype and similar communication tools. Today it offers chat, Audio/Video calls with SIP and XMPP, and Jitsi is the only tool which does it in a secure way (using ZRTP), on all three major operating systems.

At the heart of Jitsi's media service lies the Java Media Framework (JMF) of SUN, which was not released under a FLOSS license.

The goal is to take FMJ to a stage where it can be used within Jitsi as a viable alternative of JMF. This would hugely benefit the community:

- * It would essentially provide Java developers with an active, free media library.

- * More importantly however, it will be an essential step toward porting Jitsi to other environments such as Android or porting it as a web application.

Meemoo: Meemoo lowers the threshold for app makers -
hackable web apps everybody should be able to create web apps with Meemoo. When people think of an app, they do not think of something that one can open, hack, and change how it works. Meemoo gives everybody this freedom. Meemoo is a framework that connects Open Source modules, powered by any web technology - it is a browser-based modular dataflow/patching framework. It all happens on the web, so it is easy to share a hacked app by copying the source code. The way that the data flows from module to module is defined and visualized by colorful wires. It becomes simple like that: If you can connect a video player to a TV, you can program a Meemoo app. The project has also built a community site for sharing, forking, and creating with Meemoo apps. The site is also be open source, so everybody can set up his own open or closed version. The site is built on Unhosted/ownCloud for maximum data portability.

OpenBTS hardware This project is a part of a bigger effort to create a completely open GSM network, from a low level hardware to high level software. The network is intended to be built with open-source software, such as OpenBTS, OpenBSC, FreeSwitch, Linux, etc. The hardware part of the project is more complex, because to date there is no open hardware for GSM base-stations. As a practical implementation this will set up completely open network providing affordable mobile service to people from Mayotte island.

OpenDKIM en OpenDMARC Until recent developments of domain name authentication, Internet mail has not had access to scalable mechanisms for validating an identity associated with a message. Any identifier could be used fraudulently. The Sender Policy Framework (SPF) and DomainKeys Identified Mail (DKIM) are relatively new technologies that create a foundational change by validating domain identifiers. DMARC takes steps in allowing domain owners to publish statements about their email use of their identifiers and DMARC facilitates much easier operational reporting from mail recipients to domain owners. Thus this project will improve use of DNSSEC in the email security space. Two major upcoming applications will drive this:

- MARC which relies on the DNS for advertising policy information.
- Domain-based reputation system that relies on DKIM, which in turn relies on secure DNS use to advertise keys and policies.

OpenDKIM includes DNSSEC support via libunbound of NLnet Labs.

**Open source LTE
Deployment**

Wireless communication technology is mostly proprietary, despite that we are using it every day. The mission of the OSLD project is promoting open-source radios, to get more people involved in developing software to create modern wireless communications systems. The project develops a Long Term Evolution (LTE) 4G radio standard library and tools for building sophisticated radios at low cost. LTE provides bandwidth on demand for different amounts of speeds and so improving the quality of service to people on the move.

Available LTE processing chains are either proprietary or unsuitable for commercial products. The primary objective of this project is promoting open-source SDRs and shared development of software for wireless communications systems. Specifically, the project will develop a modular LTE library for mobile terminals and base stations as well as improve the accessibility of ALOE for building sophisticated radio systems at low cost. Both, ALOE and the open-source LTE library, will leverage open-source R&D, complement university labs, facilitate and encourage shared development, and be a solid basis for innovation and commercialization.

**SERVAL
Long Range Add-on**

Serval Project's goal is making mobile phones useful, even when there is no cellular network or internet available. This particular project prototypes a "helper device" for long-range WiFi. Serval has developed various technologies that allow voice calls, SMS, file sharing and other services in a completely distributed manner. Robust security is being progressively introduced into these technologies, with voice calls already having end to end encryption, and the UDP-like Mesh Datagram Protocol (MDP) also enjoying automatic encryption.

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. This requires root access on Android, and is unlikely to ever be possible on iPhone. Also, ad-hoc WiFi, while useful, has many limitations, including limited range and relatively high power consumption. This particular project aims to prototype a "helper device", that would consist of a WiFi-enabled Arduino-compatible device attached to a low-cost radio module, and then to integrate that hardware with the Serval platform.

The result will be a box that allows any WiFi enabled phone (Android, iPhone, Blackberry, Nokia S60 etc) to connect to the mesh. Some platforms will have a first-class native client, e.g., Android, while others will be able to use an HTML client to access mesh functions. Moreover, the box will be capable of long-range communications to other such boxes. Current estimates suggest that ranges of 6x-18x WiFi range are possible, allowing line-of-sight range of perhaps 1km or more.

Finally, the box will be able to be integrated with satellite data terminals and short-burst data modules (basically satellite SMS) to allow the connection of mesh networks to the outside world.

TimeSheets This project created a platform to develop Adaptive Time-based web applications. This is applied to developing Single-Page Interfaces (SPIs). A SPI can reduce network bandwidth needs, specially important in the fast-growing use of mobile networks. Despite its importance, use of SPIs has not proliferated because it is highly complicated to develop and maintain. A novel approach based on a W3C specification is proposed: SMIL Timesheets (project earlier supported by NLnet). This approach simplifies the design of time-based web applications and web sites. These interactive applications use time as a major structuring paradigm, i.e. time and events dictate which parts of the application are presented. Because wasting network bandwidth is common in multi-device applications, TimeSheets also allow to dynamically adapt to the capabilities of devices, to save bandwidth and processing power.

The WormHole Project There are two leading internet technologies emerging as the future of real-time communication: SIP and XMPP. This project and its outcome will provide the possibility for users of both universes to use either protocol to seamlessly interoperate with each other for audio, instant messaging and presence. If the software is installed on the desktop next to an existing application it can encapsulate or tunnel conversations from one protocol to the other - serving as a wormhole between the two universes. It should work transparently with little or no configuration. It will allow users to share contacts and establish chat and audio sessions without having to bother of the protocol used to address buddies in user@domain format. If the software is used on a server, one should simply point the appropriate DNS record of a domain to the server, and any session request made with either SIP or XMPP protocol will be bridged to the other side.

UmTRX Mission of the UmTRX project is to radically drop price of mobile communications in developing, rural and remote areas. UmTRX aims at providing an open-source, inexpensive yet carrier grade transceiver for GSM Base Station. This project is a part of a bigger effort to create a completely open GSM network, from a low level hardware to high level software. UmTRX will be the first open hardware to work within the core telecom networks. This open hardware is being designed specifically to work with OpenBTS and OsmoBTS/OpenBSC open-source projects. While those software projects enjoy quick growth, the hardware side is remaining proprietary. The main reason for this is that such hardware is extremely hard to develop, it requires specific skills and specialists like high-profile RF designers and lots of effort to be put in it. The intention is to utilize the results of this project for provision of affordable mobile service to people at Mayotte island.

Unhosted (continuation) Unhosted is an approach to the "cloud" opposite to the current web2.0 trend: it separates the user data from the application, rather than putting user data "into" the application. This leads to much better privacy management. End-users of "cloud" capable applications use Unhosted directly, they don't have to do anything special for that - just need to log in to

remoteStorage enabled applications using their remoteStorage-enabled email address. As example, all Dutch students and academic staff already have remoteStorage connected to their university email addresses. Now the target community is web developers. They need to enable their applications so that they accept login with remoteStorage.

Contrary to other projects (that usually create 1 product with 1 function, and offer that as a free software of which everyone can run their own server, like Diaspora, MediaGoblin, ownCloud, etc.), Unhosted aims for a generic storage server. Everyone just needs a bit of very simple and dumb cloud storage, with no application-specific features. Cloud storage becomes an interchangeable commodity, and the market of useful cloud applications becomes entirely separate from the market of reliable cloud storage.

**WebODF
Dissemination**

WebODF is a JavaScript library that makes it easy to add Open Document Format (ODF) support to your website and to mobile or desktop application. WebODF is extremely innovative because it is the first attempt at FOSS implementation of an office suite based on HTML5. Using HTML5 means that the code runs on nearly all modern computing systems. This project made WebODF stable, versatile and easy. To achieve this, a number of specific scenarios were being implemented:

- Read ODF documents on iPhone, iPad, Android and MeeGo devices.
- View ODF documents directly in Chrome, Firefox and Safari.
- Add and view ODF documents that are stored in a CMS or web mail system.
- Report bugs in WebODF.
- View a text document as it would be printed.
- View a document with proper placement of graphics.

**WHATWG support
HTML5**

The Web Hypertext Application Technology Working Group (WHATWG) is a working group which creates high quality web standards. This project aimed to standardizing web infrastructure at the WHATWG, to set forth the standardization process of HTML(5) as "Living Standard", as purported by WHATWG. Primary focus is on getting the URL Standard ready with the end result being to keep the web free from lock-in by

making sure everyone can implement its functionality.

Initiatives and activities

- Government and public sector** NLnet actively participates 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:
- Participation in Digital Agenda Assembly in Brussels;
 - Participated in various sessions at ministry of Foreign Affairs around the Internet Freedom Program;
 - Consultation round “Forum Standardisation” w.r.t. placing ODF 1.2 on the List of Standards of the Dutch Government;
 - Participation in pre-ICANN consultations by NL government, ICANN meetings in Prague and Toronto;
 - Participation in INET Geneva;
 - Participate in ISO/IEC SC34 wg6 activities;
 - Board membership of OpenDoc Society;
 - Workshop ODF Adoption at “Forum Standaardisatie”;
 - Helped SOS Internet committee to help in fighting internet blocking;
 - Started coordination effort around Startup Europe together with our partners NESTA, Startup Weekend and Incyde;
 - Helped organise two international ODF plugfests in Brussels and Berlin;
 - Advisor on "Handreiking open documentformaten voor de Overheid" for “Forum Standaardisatie”;
 - Internal workshop Cloud within Dutch government;
 - Interview for consultation Dutch government on new TLD's;
 - Coordinated visit of W3C's Michael Smith to Ministry of BZK;
 - Participated in the OpenForum Europe Summit;
 - Articles for Dutch online magazine for civil servants iBestuur;
 - Co-organisation of the World IPv6 Launch, Amsterdam, June 6 2012.
- Talks and booths**
- Talk at COMMIT Conference in Noordwijkerhout, March 21st

- Presentation at CENTR in Brussels, October 4th
- Pecha kucha talk at 29C3 in Hamburg, December 30th

Event sponsoring

Received requests In 2012 NLnet has received 1 (compared to 13 in 2011) request for events sponsoring and donations, 1 (compared to 6 in 2011) was granted.

Granted requests Sponsoring of the trip and the technical presentation of Svante Schubert at ODF Plugfest 2012 Brussels.