

Stichting NLnet

Annual Report 2011

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Introduction by new Chair Governing Board

Thank you for your interest in the work of NLnet foundation, or rather: the work funded by NLnet foundation. In this annual report you will be able to get a peek behind the scenes of how our funding works, how the foundation is set up and of course what kind of exciting internet technologies and R&D projects have been enabled by the seed funding from NLnet.

In 2011 we have strategically realigned our funding approach for pragmatic reasons. Due to the continued pressure on our financial portfolio, we have had to make choices in the type of projects we fund. Historically NLnet spent one third on academic research, one third on its open call and one third on large and thematic projects. After an in-depth analysis we have chosen to focus on what we consider the most distinguishing aspect of the work of NLnet: an open global call for projects in combination with targeted funds aimed at specific areas. Much of the work of NLnet foundation concerns what is sometimes called the 'plumbing of the internet' - the vast constellation of technologies underneath what the average user experiences when he or she uses the internet.

NLnet provides seed funding for independent researchers and developers, allowing them to make important infrastructural contributions in the best interest of the internet. We don't operate much on the foreground. Looking back on the founding years of the internet, Leonard Kleinrock, responsible for setting up the first nodes of the ARPANET in 1969, recently described the "magic that's not often talked about" with regards to the success of the ARPA research program. According to Kleinrock it was all about taking a very relaxed attitude when it came to managing research. By allowing the researchers to do what they needed to do, it created a distributed technology and an open and creative environment. Both were a key issue in bringing about the successful internet we have today.

Although our budgets are much more limited, the preferred way of operation of NLnet is rather like the ARPA programme. Instead of telling individual researchers and developers what to work on, we like to evoke and encourage their own creativity. Once these ideas are on the table, we get to do what we are good at: selecting the best proposals to advance the internet based on urgency, impact and technical excellence. In this annual report you will learn more about a number of very exiting projects. We hope it will inspire you to contribute to and engage with these projects.

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;
 - Erik Huizer, chair;
 - Kees Stuurman (term ended 31-12-2011).
- These positions are non-remunerate positions in accordance with the NLnet Statutes.
- Governing Board** The Governing Board of Stichting NLnet consists of:
- Jos Alsters, secretary;
 - Mike Otten, treasurer;
 - Hans Onvlee;
 - 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

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

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), and
- sCOREvalue (investment management).

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	<p>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".</p> <p>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.</p>
Mission	<p>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.</p>
Free Software Open Source	<p>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.</p>
Non-profit	<p>NLnet does not derive any financial benefits from the undertaken projects or their results.</p> <p>Any future eventual benefits will be used to reach statutory goals of NLnet.</p>
Co-operation	<p>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.</p>
Finance	<p>In 2011 NLnet sponsored projects, programs and other activities to the sum of € 1.194.026 (compared to € 1.335.216 in 2010). The total expenditure was € 1.490.033.</p> <p>In 2012 NLnet has allocated € 669.699 for financing of projects, programmes and other sponsoring. Plus all incoming donations will be spent to this purpose. The total budget equals € 999.756.</p> <p><i>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.</i></p>

3. Strategy and working methods

New Strategy

In 2011 the Board has considered changing the strategy of NLnet (not its mission).

The previous strategy foresaw in compiling yearly budgets out of stock exchange profits and interest on invested capital. In the last couple of years, due to the economic crisis, NLnet has experienced considerable diminishing of assets which were primarily invested at stock exchange. However, keeping fulfilling our mission implies self-sustainability, which in turn purposes on average budget-neutral operations of the foundation over coming years. This implies that expenditures must be, as well as viable, balanced with incomes.

The new strategy defines that the incomes to be derived primarily from the following sources:

- 1) interest on invested capital (part of the old strategy);
- 2) direct investments in technological start ups in which we see real perspective to grow and have good understanding of the technology behind;
- 3) external donations as a result of a continuous fund raising effort.

Strategic Themes

NLnet identified main areas to nowadays focus its funding upon:

- 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 are two programs being sponsored by NLnet on long term commitment basis: NLnet Labs - a laboratory for Internet infrastructure development, and IIDS - Interactive Intelligent Distributed Systems at the Technical University of Delft.
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.

programs There are two programs being supported by NLnet on long term commitment basis: NLnet Labs and IIDS.

NLnet Labs:

NLnet strives for self-sustainability of every programme and project we support. This implies that even after discontinuing of NLnet's support the project or the programme shall be able to live forth and keep producing valuable results. It is specially important for such large and successful efforts like NLnet Labs. Also, due to the uncertainty in the future incomes stream, NLnet had to rearrange the long-term commitment with NLnet Labs. This rearrangement includes freezing the commitment to coming 5 years, although this will not per se mean that NLnet will actually stop supporting NLnet Labs after 5 years, merely that NLnet cannot guarantee full support after this term.

In 2010-2011 NLnet has negotiated possible support of NLnet Labs by SIDN (Stichting Internet Domeinregistratie Nederland), the organisation managing the .nl domain, which makes extensive use of NLnet Labs products and services. These negotiations resulted in the SIDN commitment to co-finance the activities of NLnet Labs for 50% for the next 5 years, starting from 2012.

IIDS:

The IIDS programme was supported for more than 11 years. First at the Vrije Universiteit, and recently at the TU Delft where IIDS was continued as separate programme of that university. The NLnet's finite involvement in this programme stops in 2012.

For more details describing these programs see the Annex 1.

abandoning of larger projects Over years it appeared that NLnet's sponsoring of larger projects (life span of 2 to 3 years and budgets of hundreds of thousands Euro) is not as effective as sponsoring of smaller projects. Additionally, the guiding role of NLnet in larger projects is limited compared to smaller projects. Therefore, NLnet has decided to freeze acquisition of large projects proposals.

smaller 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 break-throughs in some fields.

At any moment, dozens of larger and smaller projects are being financially supported by NLnet.

For more details on projects sponsored in 2011 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.

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 2011 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 2011

The cost of Stichting NLnet's activities in 2011 is summarized below and compared to 2009 and 2010:

	2011	2010	2009
Cost of projects	552.939	744.972	
Cost of programs	641.087	590.244	868.906
Cost of staff	228.013	242.979	308.764
Depreciation of inventory & equipment	2.116	2.222	3.676
Other costs	65.878	82.572	123.406
Total	1.490.033	1.662.989	2.008.851

Revenue of activities

	2011	2010	2009
Donations	0	23.601	0

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

Cost and revenue of investment management

The cost and revenue of managing the invested capital of Stichting NLnet in 2011, compared with numbers for 2010:

	2011	2010
Realised results from investment funds	494.591	271.179
Realised results from forward exchange contracts	0	-375.462
Realised currency differences in cash accounts	-55.943	-12.584
Total realised result	438.648	-116.867
Transaction costs and custody charges	-5.228	-7.937
Investment management fees	-18.549	-31.052
Total cost of investments	-23.777	-38.989
Realised revenue on investments	414.871	-155.856
Delta in unrealised results	-5.477.584	-1.215.127
Revenue realised and unrealised	-5.062.713	-1.370.983
Interest revenue	140.223	69.831
Special revenue	30	23.601
Total special revenue	140.253	117.036
Net capital gain / loss (-)	-4.922.460	-1.277.551

The unrealised result of the investment portfolio can be summarised as follows:

	2011	2010
Unrealised result on investment funds	-5.461.395	-1.221.841
Unrealised result on forward exchange contracts	-6.189	6.714
Total revaluation reserve ultimo 2011 (2010)	0	0

Balance Sheet 2011 (2010)

	2011		2010	
	debit	credit	debit	credit
Assets				
<i>Total inventory</i>	930		3.046	
<i>Total investment funds</i>	1.003.619		9.096.843	
Current assets	46.660		15.350	
Liquid assets	6.753.495		5.263.877	
Total Assets	7.804.704		14.379.116	
Liabilities				
Capital and reserves capital <i>reserves</i>		13.992.663		16.933.201
<i>Total net liabilities</i>		224.534		386.453
Total Liabilities		14.217.197		17.319.654
Total profits and losses	6.412.493		2.940.538	
Total Balance	14.217.197	14.217.197	17.319.654	17.319.654

Budget for 2011

The budget for 2011, as approved by the board, is as follows:

	2012	2011	2010
Cost of programs and projects	669.699	1.471.092	1.611.400
Cost of organisation including staff	328.814	313.283	312.957
Depreciation of inventory & equipment	1.243	3.000	3.000
Total	999.756	1.787.375	1.927.357

Marc van Driel,

Chair Governing Board Stichting NLnet

Annex 1

Programs, projects and activities in 2011

Programs in 2011

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 led 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, ldns, 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 Design and self-management of large scale autonomous systems is (and has been for over 10 years now) the main theme of the **Intelligent Interactive Distributed Systems Research** 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.

In 2011, one PhD student has successfully defended his thesis on use-case driven self-management of distributed systems.

Furthermore, distributed algorithms for self-management and distributed monitoring have been developed, evaluated and validated. The most important domains of application continue to be: a shared dynamic data grid, SLA negotiation and monitoring, a distributed agent application simulation / emulation framework, self-management of tree overlay networks, self-configuration of crisis management communication structures, self-configuration of energy resources, and the cloud.

The AgentScape framework designed to support large-scale, heterogeneous, secure, mobile agent systems is under continuing development. New milestone versions have been released of AgentScape in 2011. Many new features have been identified and documented in Feature Development Plans as part of the development roadmap of AgentScape. In 2011, AgentScape has been actively used in research projects, tutorials, demonstrations, and teaching.

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

Incoming project proposals in 2011

Received proposals In 2011 NLnet has received in total 161 project proposals (compared to 177 in 2010), whereof 29 requests were granted (18%), against 36 (20%) in 2010.

Projects finalized in 2011

Abiword ODT Change Tracking The ODF file format is an open format for storing computing documents. The format is gaining support for tracking changes made in revisions of documents. In order to advance the cause of including change tracking in the ODF/ODT file format specification some office suites must be able to save and load the change tracking information.

The project added initial support for change tracking to the ODF code in the Abiword word processor.

Abiword RDF_SPARQL With this project NLnet strives to broaden the footnote of the ODF standard. RDF (Resource Description Framework) is one of the distinguishing features of ODF.

The project has enhanced the existing RDF support in Abiword. Many use cases which are highly user oriented were handled: drag and drop, sidepanels, notifications, stylesheets, and hookups to Web services. Allowing SPARQL queries allowed to significantly enhance the possibility of ODF for real time collaboration.

Anomos Anomos is a pseudonymous, encrypted multi-peer-to-peer file

distribution protocol. It is based on the peer/tracker concept of BitTorrent in combination with the onion routing anonymization layer of Tor, with the added benefit of end-to-end encryption. By combining these technologies, a platform was created where no party outside of the trusted tracker will have any information about who a peer is or what peers are downloading.

A better Linux SCTP The Internet transport layer has been extremely rigid since its inception. The very diverse requirements of today's applications are mapped to only two services, provided by the two protocols that are broadly available, TCP and UDP. The Stream Control Transmission Protocol (SCTP) offers promising benefits to applications, but faces significant deployment problems. One of these problems is related to shortcomings of its Linux implementation ("LKSCPT"), which causes it to perform much worse than TCP under most circumstances. The goal of the project was to make the SCTP an attractive option for application designers, thus making it perform at least as good as TCP.

Blender2realxtend realXtend is an extension to Opensim, an open source implementation of a virtual environment platform like Second Life. It provides some additional features Second Life didn't plan. One of the key feature of realXtend is support for arbitrary mesh information, not just simple primitives like spheres and cubes. This feature allows to create much richer 3D worlds, experiences and 3D-content. However, there was no good support for realXtend in Blender, the best open source mesh editor. This project aimed at implementing a GPL plugin for Blender, capable of connecting and managing a realXtend world. It allows creating shared worlds directly from Blender, including editing of simple logic to populate a virtual world. It also allows direct back-and-forth exchange of 3D-content between virtual worlds and Blender. Unfortunately this project was not fully completed.

Creating Tracked Changes in Open Document Format The ODF file format is an open format for storing computing documents. The format is gaining support for tracking changes made in revisions of documents. In order to advance the cause of including feature complete change tracking in the ODF file format specification, and to validate the elegant and innovative technical new designs before they are added to the standard, this project aimed to add initial support for this change tracking mechanism to the ODF code in the Abiword word processor. This allows AbiWOrd to save and load the change tracking information in the new syntax.

CUGAR This project developed and implemented a (Wireless) Access Point and a back-end for it using only open source software components. The Access Point (AP) together with the back-end makes secure environment for Closed User Group Services. This allows a secure connection between AP and the back-end when

using a non-secure transport medium (like the Internet). The whole system was developed as an "appliance" and a back-end software package. AP itself is implemented on small embedded systems, while the back-end (authentication, management, routing) can run on a generic UNIX system.

Design and empirical evaluation of secure and efficient multipath communication The goal of the project was to implement an open source extension of TCP/IP stack to support multipath communication in the Internet. With this implementation, users are able to improve their connection speed and reliability by utilizing several network interfaces simultaneously and receiving aggregate bandwidth. This project designed an efficient and secure multipath solution on a wedge-layer. Based on Host Identity Protocol (HIP) the design supports multihoming, mobility, NAT traversal, advanced security features, network coding for efficiency in loosely coupled networks and matches the requirements of the most modern applications.

Desktop Streaming and Sharing with SIP Communicator Jitsi (former SIP Communicator), is a Java based open source VoIP and Instant Messaging client supporting various protocols such as SIP and XMPP. The possibility to allow remote access to one's ongoing desktop session has been appealing to users ever since the early days of Internet communication. This project is about Desktop Sharing and Streaming, being stressed on certain characteristics, like ease of session establishment, interactivity, and privacy protection. Jitsi users get the possibility to stream their desktop to any SIP or XMPP/Jingle user agent. It also allows for seamless integration in more advanced use cases such as video conference calls, slide presentations, and remote learning.

DNSsec for Jitsi Trying to not being just another SIP Client Jitsi incorporated security mechanisms like ZRTP for encrypted media streams (audio, video, desktop sharing, etc.) and OTR for instant messages. While these technologies provide a high level of security for the user data, the signaling metadata is blindly sent to the servers returned from DNS a query. Securing the connection to the server through TLS helps, but the connection can still be compromised when a rogue certificate is obtained. Just by knowing of who is contacting whom is sufficient to repress people. The project added client side DNSSEC validation and certificate checking to Jitsi allowing establishing of truly secure SIP communication.

Extending AbiWord and Improving AbiWord OpenDocument Compliance with open standards and more specifically OASIS OpenDocument Format (also standardised in ISO/IEC as IS26300) is essential for interoperability in a heterogeneous document environment. Some issues resolved with the implementation of ODF in the lean and innovative AbiWord word processor and made it more compliant with the OpenDocument specification. Scope: resolving all current software bugs related to AbiWord's OpenDocument compatibility.

GSM Security Project The popular GSM cell phone standard uses outdated security and provides much less protection than its increasing use in security applications suggests. This project corrected the disconnection between technical facts and security perception by creating a GSM tool that allows users to record and analyze GSM data. This project complements several other current open research projects into GSM technology. These projects, including OpenBTS, (also supported by NLnet), OpenBSC, and OsmoconBB, create open re-implementations of network equipment and hand sets to make the technology more accessible and open. It builds on these insights and shows the security limits of the technology.

HWIOS The HWIOS project (Hybrid Web In OpenSim) was meant to create an accessible interface to the popular and most developed virtual world platform called OpenSimulator, as one of the main problems of OpenSimulator is that it's too technical for people who want to perform basic operations within this virtual world platform. The hybrid web interface communicates directly with OpenSimulator server, and is thus able to hide the most of the complexity of admin tasks, and therefore, makes most admin tasks easier for less technically oriented user. Besides administrative tasks like user-, service- and land-management, HWIOS is meant to become a general-use next-gen webportal. The whole web application is strongly focussed on supporting html5 features, like collaborative text editing through web sockets. This project has being co-financed by SURFnet.

Jingle Relay Nodes One of the main goals of the first version of the Jingle Protocol was to create a P2P enabled protocol, depending on XMPP for routing but at the same time able to negotiate sessions and exchange content without main proxy servers. After number of years there still wasn't an implementation which could support current specifications in full. SIP on the other hand, is not very efficient and simple to use for P2P connections, but is widely deployed. It is much simpler to install and, although with higher costs, does provide media connectivity. "Jingle Nodes" simplified the erection of (public) relays, it also maked every buddy in your contact list a potential Node. An additional positive aspect is that a client does not need to run its own Relay Node, but only configure its "usage specification" (no more than two or three pages), as the application runs on the server side.

Jitsi - next level of SIP Communicator Jitsi (former SIP Communicator) is a realtime communication solution in open source, and a s offers a compelling and secure alternative for solutions like Skype. Jitsi supports Audio/Video calls with SIP (and very soon XMPP), and Instant messaging for almost all popular protocols such as XMPP/Jabber/GoogleTalk, MSN, AIM, ICQ, IRC, Yahoo! Messenger and Bonjour. Jingle conference calls and Jingle encrypted calls features were also

implemented. This project added new features to Jitsi that take it beyond what's currently possible with Skype, as well as other closed platforms, which would address an even wider span of communications use-cases. The list of accomplished tasks in this project: Video conference calls, audio/video calls support with MSN, Cross-protocol conference calls, Using Outlook, Address Book, and Thunderbird as sources of contact information, and many others.

Ksplice for Fedora With previous support from NLnet, Ksplice has made the free software Linux distribution Ubuntu be the first operating system in the world that does not require regular reboots for security updates. Ksplice Ltd has started providing rebootless OS updates to tens of thousands users of Ubuntu, but larger-scale deployment was needed in order for the technology to become truly mainstream. The goals of this project were: 1) to provide rebootless OS updates to 100,000+ users running the major community Linux distributions (namely Fedora), and 2) to get the Ksplice kernel software merged into the mainstream Linux kernel.

After this support of Ksplice by NLnet it got support in form of donations for more than 1 mln dollars from various sources, and finally was acquired by Oracle Corporation.

NoScript Mobile NoScript is a popular GPL add-on for Firefox and other Mozilla Gecko-based browsers, which considerably increases the web client security in several innovative and ground-breaking ways. The way people use the web is steadily moving towards mobility: we've got smart phones rivaling in power and usability with desktop PCs, and open source mobile OSes, which open exciting scenarios but also pose significant challenges.

NoScript Mobile project has brought the safest web browsing experience on the mobile platforms. NoScript was re-designed and re-implemented to be compatible with the latest Firefox Mobile versions, which run both on Android and Maemo devices, by retaining as much as possible of its core components and functionality.

The second part implemented specific components: XSS Filter, ClearClick, Mobile-friendly Setup Interface, Remote Synchronization, ABE component (Application Boundaries Enforcer).

ODF generic track changes in KOffice and Calligra The projects were about writing and testing the code to produce valid ODF track changes according to both the ODF 1.2 specification and the newly proposed ODF track changes format. Another NLnet project dealt for a new and vastly improved change tracking format, that made it possible to capture an unprecedented nuance in change tracking. By creating a full blown implementation of the proposed specification in these two ODF compliant suites, including the most difficult use cases, the project was validated in a real world environment. The project also implemented basic Change Tracking migration to the new proposed format.

ODF Global Recipes The ODF recipes project was aimed to demonstrate what ODF libraries can do (and how) and attract users to them. Advancing the cause of ODF by showing its effectiveness and simplicity compared to legacy formats. The main idea was to develop a platform where any ODF library developer can upload his own library and benefit from this suite of recipes. Practically, the project entailed the opening of a wiki grouping cookbooks and recipes to perform defined tasks in those libraries, but instead of separating each library with its own pages, it compared them to perform the same task.

ODFkit OdfKit is designed as an open source library for creating, loading, storing, manipulating, saving and rendering documents in the OpenDocument Format (ODF), just like WebKit. It provides a framework of classes, functions and macros that can be used with a toolkit library like Qt or Gtk+ to create the actual library that can then be used in an application.

Project deliverables:

- * Odf Loader and saver;
- * Lossless roundtripping of documents from the beginning;
- * API for manipulating the document contents. This API follows the specification of the OpenDocument toolkit.

ODF Track Changes The ODF file format is an open format for storing computing documents. The format is gaining support for tracking changes made in revisions of documents. In order to advance the cause of including change tracking in the ODF/ODT file format specification some office suites must be able to save and load the change tracking information. This project added initial support for change tracking to the ODF code in the Abiword word processor.

The project also improved the way how paragraph merge is handled in the ODT+ChangeTracking code. Explicitly tracking of paragraph merges. This renders many of the current existing heuristics for tracking paragraph merge situations unnecessary.

Scanning tool for external connections Large networks are often connected to the internet. In most cases the main internet gateway is secured using specialized products and personnel. Laptops, printers, mobile devices and desktops nowadays often have more than one network interface and it's likely that on some systems within an organization these additional interfaces are (accidentally) used to create unauthorized or unknown internet connections. Due to this an organization's system might have several backdoors which can be abused to bypass organization's system access policies. Scanning tool for unknown and unauthorized external connections is intended to uncover such connections.

Seahorse Smart Card Support Smart Cards provide solid, tamper-proof security. When used with modern web authentication technology, they can be used to provide a protection against phishing and are also used to

solve other problems facing one's identity on the web. But, desktops ignore their existence. In order to get things rolling with better smart card support on the Desktop, users and developers need simple access to smart card technology. This project implemented basic management of certificates and keys stored on smart cards in the Seahorse key manager. Users are able to examine and use their smart card with the same management operations as available to certificates and keys stored in software key tokens.

SERVAL project Communicate anywhere, any time, without infrastructure, without mobile towers, without satellites, without wifi hotspots, and without carriers. This by using existing off-the-shelf mobile cell phone handsets.

Serval enables mobile communications no matter what the circumstance: mobile communications in the face of disaster, in the face of poverty, in the face of isolation, in the face of civil unrest, or in the face of network black-spots. In short, Serval provides resilient mobile communications for all people.

This system is the only mesh mobile telephony system that works on ordinary handsets, and is open source. It lets you use existing telephone numbers and can work without needing an internet connection.

After obtaining a small grant from NLnet and completing the project the team has got a large grant of 400 thousand dollars from The Shuttleworth Foundation.

SPEAR Secure Peer-to-peer Services Overlay Architecture of the Helsinki Institute for Information Technologies (HIIT) was a pilot experiment with the community, studying privacy and mobility aspects of P2PSIP. The project developed a generic mechanism to support such distributed services as P2P Session Initiation Protocol (P2PSIP). In contrast to other approaches, security was taken as the corner stone of design, integrating support for Host Identity Protocol (HIP) Based Overlay Networking Environment (HIP-BONE) into the architecture. The architecture can support various P2P services, not limited to P2PSIP, such as P2P HTTP. P2P HTTP can also be used to create a community version of many useful scenarios as plenty of current applications are based on HTTP.

Standardisation for Tracked Changes in ODF This project assisted the Standardization Committee preparing the standard for a syntax named XML Change ML (XML Change Markup Language) that allows for accurately describe any incremental change and edit to the content and structure of (compound) XML documents, typically in multiple editing sessions by different authors.

The goal was to create a generic syntax that allows for 100% reliable capturing of differences between versions and states of office document of any class (text documents, spreadsheets, presentations), including those that have been enhanced by custom XML markup.

Supporting Telepathy and SIP in AbiCollab This project was centered around AbiWord, a Free and Open Source word processor, which supports most of the features people have come to expect from a modern word processor and comes with features that are not present in competing products, most notably support for real time document collaboration through the AbiCollab plugin.

The AbiCollab plugin allows multiple people to work on-line on the same document at the same time. This eliminates the costly (timewise) and error prone practice of sending document updates over email to co-authors to keep everyone in sync. AbiCollab was designed to be transport protocol independent. It currently supports collaborating over plain TCP, XMPP/Jabber, the OLPC mesh network and over the AbiCollab.net service. This project created two additional AbiCollab transport backends. The first using the Telepathy framework. The second based on the SIP SIMPLE client SDK.

WebODF project and dissemination Aim of the project: make an ODF editor that runs in the browser. WebODF is an innovative initiative 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. On top of that the ODF XML is used nearly unaltered in the program. This project aimed to help WebODF to grow: have architectural documentation, save support, simple editing support and better rendering. Also a plugin for another NLnet initiated platform OfficeShots is produced that writes PNG and PDF format files.

In the follow up of the project a number of important scenarios were made possible:

- * Read ODF docs on iPhone, iPad, Android and MeeGo devices;
- * View ODF documents directly in Chrome, Firefox and Safari;
- * View ODF docs 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.

Projects started in and running through 2011

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.

Ocpm: 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".

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 fallback 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.

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.

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.

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.

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.

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.

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.

Initiatives and activities

Government and public sector NLnet remained being actively participating in various fora regarding implementation of open standards and open source in the public sector. Most notable participations are:

- Hearings in Danish Parliament on open standards applicability, Copenhagen, 22 January 2010;
- Consultation round “Forum Standaardisatie” w.r.t. placing ODF 1.2 on the List of Standards of the Dutch Government;
- Pre-ICANN consultations;
- Workshop ODF Adoption at “Forum Standaardisatie”;
- Consultations with Agentschap NL;
- Open Government 2010, 15-16 December 2010.

Talks and booths

- Presentation + panel discussion SURFnet Security congress, The Hague, 11 February 2011.
- Participation in State CIO discussion Netherlands/Germany, Berlin, 23 February 2011.
- UK ODF plugfest, Windsor & Maidenhead, 24-25 February 2011.
- Participation in NoiV yearly congress, 24 March 2011.
- Participation in the discussion Cloud Strategy with the Dutch Ministry of Economic Affairs, The Hague, 30 March 2011.
- Participation in the Document Freedom Day, The Hague, 30 March 2011.
- Participation in the European Legal and Licensing Workshop 2011, Amsterdam, 7 April 2011.
- Organisation of the World IPv6 Day, Amsterdam, 8 June 2011.
- Participation in the DE ODF plugfest, Berlin, 14-15 July 2011.
- Participation in the discussion Data Center consolidation / cooperation with the Dutch Ministry of Economic Affairs, The Hague, 1 September 2011.
- ODF masterclass, Gouda, 2 November 2011.
- 7th ODF plugfest, Gouda, 17-18 November 2011.

Event sponsoring

Received requests In 2011 NLnet has received in total 13 (compare to 26 in 2010) requests for events sponsoring and donations, 6 of them (compare to 8 in 2010) were granted.

Granted requests Below is an overview of all donations made by Stichting NLnet in 2011 (some requests were granted in 2010 but paid in 2011):

- Big Brother Awards of Bits of Freedom, The Netherlands;
- Crypto Stick booth at the CeBIT in March 2011, Germany;

- Sponsoring of the trip and the technical presentation of Svante Schubert at ODF Plugfest 2011 Berlin, Germany;
- IPv6 Awards 2011, November 2011, The Hague, The Netherlands;
- Sponsoring of the trip and the technical presentation of the AbiWord for Mac developer Fabiano Fidêncio from Brazil to the ODF Plugfest 2011 in Gouda, The Netherlands;
- Sponsoring of the trip and the technical presentation of Fairwaves key developer Alexander Chemeris to SDR'11-Europe conference in Brussels in June 2011.