

Project acronym: OSEPA
Project name: Open Source software usage by European Public Administrations
Project code: INTERREG IVC, 0918R2

Document Information:

Document title: Catalogue of case studies on open source software:3rd update
Date of Delivery: 04.07.2012
Component: CP3
Component Title: Exchange of experiences
Component Leader: University of Sheffield
Distribution (Restricted/Public): Restricted to the partners of the Consortium
Nature: Report

History Chart

Date	Changes	Cause of change	Implemented by
13.12.2010	Initial Document	N/A	City of Schoten
29.11.2011	2nd, updated version	Update	City of Schoten
04.07.2012	Updated Document	Update	City of Schoten

Authorisation

No.	Action	Partner	Date
1	Prepared	City of Schoten	04.07.2012
2	Approved		
3	Released		

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Table of contents

ABBREVIATIONS	4
1. INTRODUCTORY MEMO	4
2. BASIC DEFINITIONS – OBJECTIVES	6
3. OSEPA CASE STUDIES ON OPEN SOURCE SOFTWARE USAGE	7
3.1. OPERATING SYSTEMS	7
3.1.1. Migration to OSS in desktop PCs and servers, DE	7
3.1.2. Ubuntu-based multi-seat PC solution, BE	11
3.2. DOCUMENT MANAGEMENT AND OFFICE APPLICATIONS	12
3.2.1. Open – source document management system for the public administration based on the national legal requirements – CZ	12
3.2.2. Migration to Open Office, Province of Bologna / Emilia Romagna, IT	14
3.2.3. Migration to Open Office in the Municipality of Modena	16
3.2.4. Government corporate identity document generator, NL	18
3.2.5. Migration of 2.000 office users from MS Office 2003 to OpenOffice 3.21 – DE	20
3.2.6. Adoption of OpenOffice, Ubuntu LTSP and Samba server by Swedish schools in Vindeln municipality – SE	23
3.2.7. Migration to OpenOffice and adoption of ODF and PDF as standard document formats – SE	25
3.2.8. Migration to Open Office, Municipality of Bologna, IT	27
3.2.9. SCRIPTUM: a platform for Government Document Management	29
3.2.10. Migration to Open Office, The State Social Insurance Agency, Riga, LV	31
3.3. PROJECT MANAGEMENT / ADMINISTRATIVE APPLICATIONS	33
3.3.1. Helpdesk and inventory software based on open source software – BE	33
3.3.2. Asset management infrastructure, Municipality of Bologna, IT	35
3.3.3. OTRS ticketing system, Municipality of Bologna, IT	37
3.4. E-MAIL & COMMUNICATION APPLICATIONS	39
3.4.1. Asterisk telephony system – BE	39
3.4.2. Zimbra: Next-generation email, calendar and collaboration server – ES	41
3.4.3. Real-time communications system, FR	43
3.4.4. Antispam solution, CZ	46
3.4.5. Asterisk solution, Vysocina Region, CZ	46
3.4.6. Pfsense firewall solution, Extremadura Region, ES	49
3.5. SERVERS, DATABASES AND INTERNET APPLICATIONS	52
3.5.1. Untangle: a powerful suite for Internet management applications – CY	52
3.5.2. Touristic web portal – CZ	54
3.5.3. Xen, hypervisor for server virtualisation – SE	56
3.5.4. FreeBSD Firewall solution, Vysocina Region, CZ	58
3.5.5. Promox Virtualisation Platform (hypervisor), Valmiera City Council, LV	59
3.5.6. Bacula Open Source Network Backup Solution, Extremadura, ES	61
3.5.7. Open source online survey tool, University of Sheffield, UK	64
3.6. E-GOVERNMENT / PUBLIC SERVICE PLATFORMS	65
3.6.1. Digital visit, SE	66
3.6.2. INovomestsko project: Free accessible network of internet kiosks for eGovernment services – CZ	70
3.6.3. Local Government Access Framework (LGAF) platform – GR	72
3.6.4. JBOSS portal Municipality of Archalochori, Crete, GR	75
3.6.5. PloneGov	77
3.6.6. Electronic Systems for Vending Machines - Codes service Provision (E-CODES), GR	81
3.7. EDUCATION / E-LEARNING PLATFORMS	85
3.7.1. MOODLE: e – learning software platform – CY	85
3.7.2. Web portal for the schools' IT operations and IT-based teaching – GE	87

3.7.3. Survey System – GR	89
3.7.4. Web based tool for the collection and analysis of students' and teachers' absences on a daily basis from the educational units in Greece – GR	92
3.7.5. Edubuntu SE	94
3.7.6. Open source Course Management System that supports Asynchronous eLearning Services	96
3.8. GEOGRAPHIC INFORMATION SYSTEMS (GIS)	98
3.8.1. Geographic Information System (GIS) for viewing, querying and editing of geographic data in a GIS-Viewer on a client computer – BE	98
3.9. GUIDES, METHODOLOGIES	101
3.9.1. Methodology for the implementation of FOSS using psychological principles of motivation, University of Sheffield, UK	101
4. REFERENCES	103
5. ANNEX: QUESTIONNAIRE USED BY OSEPA PARTNERS TO REPORT CASES AND PRACTICES ON OPEN SOURCE SOFTWARE USAGE	105

Abbreviations

BSD	Berkeley Software Distribution	MMS	Multimedia Messaging Service
CMS	Content Management System	MOODLE	Modular Object – Oriented Dynamic Learning Environment
CTI	Computer Technology Institute / Diophantus	MS	Microsoft Office
DNS	Domain Name System	NFS	Network File System
EDP	Electronic Data Processing	OCS	Open Source software inventory next generation
EPAs	European Public Administrations	ODF	Open Document Format
EUPL	European Union Public License	OGC	Open Geospatial Consortium
G2E	Government To Enterprise	OpenLDAP	Open source implementation of the Lightweight Directory Access Protocol
G2G	Government To Government	OS	Operating System
GIMP	GNU Image Manipulation Programs	OSEPA	Open Source software usage by European Public Administrations
GIS	Geographic Information System	OSS	Open Source Software
GLPI	Gestionnaire Libre de Parc Informatique/ Information resource manager	OTRS	Open Source helpdesk and IT service management
GNU	Gnu's Not Unix	PC	Personal Computer
GPL	General Public License	PDF	Portable Document Format
GUI	Graphical User Interface	SLES	SUSE Linux Enterprise Server
ICT	Information and Communication Technologies	SMS	Short Message Service
IT	Information Technology	TCO	Total Cost of Ownership
KDE	Key Desktop Environment	WFS	Web Feature Service
KEDKE	Central Union of municipalities and communities of Greece	WMS	Web Map Service
KVM	Kernel based Virtual Machine		
LGPL	Lesser General Public License		
LSTP	Linux Terminal Server Project		

1. Introductory memo

The catalogue with case studies on OSS (Open Source Software) usage presents the practices gathered by OSEPA (Open Source software by European Public Administrations) partners in the field of Free and Open Source Software (FOSS). This is the updated version of the catalogue including the cases collected in all three rounds of FOSS practice collection as undertaken by the OSEPA partners throughout the project's duration. The cases and practices have been gathered according to the methodology developed by the OSEPA partner, City of Schoten, and through the online questionnaire presented in the Annex of this catalogue.

42 cases were gathered overall from October 2010 to May 2012 through the online questionnaire. The total number of 42 collected cases covers the project target as defined in the OSEPA Application Form, of 39 collected practices out of which 16 good practice cases should be identified.

The OSEPA cases and practices included in this catalogue are grouped in 9 categories pertaining to software use or implementation area: 1) operating systems 2) document management and office applications 3) project management / administrative applications 4) E-mail and communication applications 5) servers, databases and internet applications 6) E-government / public-service platforms 7) Education / E-learning platforms 8) Geographic information Systems 9) Guides / Methodologies.

The template form used for the presentation of the practices is in compliance with the respective form suggested in Annex 2 of Interreg IVC programme manual 2008 ("Proposed framework for reporting identified practices", page 53).

Finally, it is worth to mention that the overall task (Task 3.6) of collecting FOSS usage cases and developing a Good Practice Guide has been planned and implemented following the steps defined in the Task Allocation List of the Partnership Agreement between the Lead Partner of OSEPA, KEDKE (Central Union of municipalities and communities of Greece) and the OSEPA partners:

- 1) The consortium collects FOSS usage cases and practices according to the methodology developed by the OSEPA partner, City of Schoten.
- 2) The City of Schoten prepares, updates (if needed) and delivers the catalogue of FOSS usage case studies to the consortium.
- 3) The OSEPA partner, CTI (Computer Technology Institute-Diophantus) develops the methodology for the implementation of the Good Practice Guide and sets the criteria for identifying which of the practices can be considered as good practices and can be included in the Good Practice Guide.
- 4) Finally, CTI (Computer Technology Institute-Diophantus) prepares and publishes the Good Practice Guide, following updated versions of the FOSS case catalogue as delivered by the City of Schoten based on practices being reported and gathered by the OSEPA consortium throughout the project's duration in three rounds of practice collection.

2. Basic definitions – Objectives

This chapter provides some useful definitions of terms used extensively in the catalogue with cases studies, as well as the specific objectives of the catalogue.

Basic definitions

The term “public administrations” refers to territorial organisations, such as ministries, municipalities, communes, provinces and prefectures, of non-territorial public institutions, for example universities, academic centers, schools and social security services and hospitals. For the purposes of this catalogue, the terms “public administrations” and “public organisations” have the same meaning and scope of use.

The term “open source software solution” is defined as a procedure, method or technique that has been adopted for the solution of a problem with the use of open source software tools, and that has shown at least some evidence of effectiveness. For the purposes of this catalogue, the terms “open source software solution” and “open source software practice” have the same meaning and scope of use.

Objectives

In the short term the catalogue with case studies on OSS aims to:

- Promote the exchange of experiences, which is the overall goal of the OSEPA project in general and especially of the third component of the project
- Provide knowledge and disseminate the practices on OSS of the consortium partners to other public administrations, which may be less experienced in the field of OSS
- Contribute to the self improvement and enhancement of practices used by EPAs (European public administrations) through the exchange of knowledge
- Serve as a preparatory stage for the development of the Good Practice Guide

In a macro level horizon the catalogue with case studies on OSS intends to:

- Stimulate the communication and the coordination among the stakeholders and animate the debate between the interested parties
- Boost the replication of practices from one organisation to another
- Contribute to the shaping of strategies within EPAs
- Contribute to the forming of policy concerning the use of OSS by European and national policy-makers

3. OSEPA case studies on open source software usage

The author can not ensure the consistency or the accuracy of data reported by the practitioners and therefore, the OSEPA partners are requested to thoroughly study the reported practices and, in case any inconsistencies are found, they are advised to contact the OSEPA partner, City of Schoten.

3.1. Operating systems

3.1.1. Migration to OSS in desktop PCs and servers, DE	
Title	Migration to OSS in desktop PCs and servers
Precise issue tackled	“In 2001, the support for the proprietary standard programs (operating system and „Office “- package), which have been used up to then, was discontinued by the manufacturer... the hardware used at that time would have had to be exchanged and the City of Schwäbisch Hall would have had to pay substantial license fees for the upgrade ... Therefore, it was obvious for the responsible persons to weigh up alternatives. The positive experiences in the past encouraged the administrators to use OpenSource software as well for the equipment of the future workplaces.”
Objectives	<ul style="list-style-type: none"> • Strategic independence from vendors lock-in • Reduction of procurement (licensing) cost • Promotion of open source software • Simplification of client and / or server architecture • Minimize the need for technical support
Location	City of Schwaebisch Hall, Baden-Wuerttemberg, Germany
Contact information	Mr. Horst Braeuner: horst.braeuner@schwaebischhall.de

Detailed description of the OSS solution

The City of Schwäbisch Hall is one of the first municipalities of Germany, where the use of OSS is quite widespread. Since 1997 the staff of City of Schwäbisch Hall is familiarised with e-mail and internet applications based on OSS, which permitted the administration of the organisation to early realize and exploit the benefits of OSS. In 2001, as the support for the operating system and the office application, which have been used up to then, was discontinued by the software suppliers and the City of Schwäbisch Hall would have to pay substantial license fees for the hardware and software upgrade, the IT department of the City of Schwäbisch Hall decided to assess new alternatives. The positive experiences with OSS in the past encouraged the administrators to use OSS also for the equipment of the future workplaces. After the starting signal by the mayor, the EDP (Electronic Data Processing) department with SUSE (now Novell) and IBM provided the first computers with the operating system Linux and OpenOffice for text processing, spreadsheet, presentation etc. The staff was trained on the work so as to be able to operate with the OSS applications. At the end of the training courses they found their desktops ready for use. In the meantime, the administration was almost comprehensively equipped with workplaces consisting of OSS applications. The emphasis of the work of the IT-responsible persons today lies on evaluation and conversion of special applications referred to open technologies. An example for this is the revised council information system, which was developed consistently with OSS techniques.

The study phase for the migration to OSS started in July 2002 and lasted six months. Right after the study phase, the responsible persons of the City of Schwäbisch Hall started to implement the migration to OSS. More than 36 person months were invested from the internal resources of the organisation for the implementation, until the migration to OSS was completed.

The major open source components used by the City of Schwäbisch Hall for the migration to OSS were:

- In Linux server computers: SUSE Linux enterprise server, OpenLDAP, NFS (Network File System), Samba¹, OpenXchange server, Ingres database
- In Media-Wiki Linux desktop PCs: SUSE Linux, KDE (K Desktop Environment), OpenOffice.org, Mozilla Firefox, GIMP (GNU Image Manipulation Programs), Media – wiki.

There was no need for the modification of the source code of the OSS programs, which were released under the licenses GPL, LGPL, X11², Apache, Java and BSD ([Berkeley Software Distribution](#)). The following proprietary components were used: Citrix-Clients, VMware³ and MS-Terminal Server.

¹ Samba is software that can be run on a platform other than Microsoft Windows, for example, UNIX, Linux, IBM System 390, OpenVMS, and other operating systems. Samba uses the TCP/IP protocol that is installed on the host server. When correctly configured, it allows that host to interact with a Microsoft Windows client or server as if it is a Windows file and print server.

² License originating from the Massachusetts Institute of Technology (MIT) and used for the X Window System

³ Virtualisation software for desktop and server computers

The most important organisational problems encountered by the City of Schwaebisch Hall during the migration to OSS in desktops and servers were that the migration had to be done without investing additional human resources other than the internal resources of the organisation and therefore, apart from the technical involvement of the IT staff, it had also *“to solve the “psychological” problems”* and the reluctance of the employees towards open source software. Furthermore, the City of Schwaebisch Hall confronted bureaucratic problems, such as the inadequate endorsement by the responsible departments for the migration to OSS. On the other hand, the main technical problem was that, in several desktop PCs, Linux could not be installed properly, due to lack or to incompatibility of drivers with the new operating system.

Evaluation

In the City of Schwaebisch Hall the level of satisfaction from the migration to OSS is high in terms of software and hardware interoperability and system security. They are considerably satisfied regarding the operation of the organisation/ flexibility of processes and effectiveness of services addressed to the public and they claim to be moderately satisfied in terms of cost– effectiveness, productivity of the organisation and data privacy.

The main achievements from the migration to OSS are:

- The strategic independence from vendors lock-in
- The promotion of open source software

From the overall experience with OSS in the City of Schwäbisch Hall the staff is convinced that open systems have perspicuous advantages:

- *“They are flexibly applicable and can be adapted to particular needs”*
- *“The multiplicity of developers and supporting medium-size suppliers ensure safe enterprise”*
- *“Open formats and open standards are the only way in which information can be conserved for the future”*

The staff in the City of Schwaebisch Hall continues to use the installed open source applications in desktop and server PCs and the city administration is determined to continue and to expand its open source strategy.

Lessons learnt

The main lesson learnt from the migration to OSS in desktop and server PCs in City of Schwaebisch Hall is that the open source software can effectively replace proprietary software.

Documentation and resources

Related website: <http://www.schwaebischhall.de/en/welcome/linux.html>

Languages of the available documentation: English, German

3.1.2. Ubuntu-based multi-seat PC solution, BE

Title	Ubuntu-based Multiseat PC solution-BE
Precise issue tackled	Multiseat PC solution - 1 PC with 4 workstations and 1 laserprinter -installed in the library for use by the public, internet access included.
Objectives	<ul style="list-style-type: none"> Minimize the need for technical support Reduction of procurement / licensing costs
Location	Gemeentelijke bibliotheek Sint-Genesius-Rode, BE
Contact information	Dirk Delval: dirk.delval@sint-genesius-rode.be

Detailed description of the OSS solution

PC runs Ubuntu/Linux with KDE elements in desktop.

PC operating on Linux/Ubuntu with 4 workstations and 1 laser printer.

Evaluation

No major problems encountered. The Multiseat solution has a wireless connection to the internet, that had to be configured properly to allow nightly updates of the operating system on the multiseat, but this was quickly implemented and not a major problem.

Satisfaction with the applied solution within the organisation is described as “high” concerning the effectiveness of services addressed to the public and data privacy. Satisfaction level is “considerable” when it comes to system security and interoperability, productivity and cost-effectiveness.

Lessons learnt

The introduction of this multiseat solution based on Linux was a clear success and a popular one with library visitors.

Documentation and resources

<http://multiseatcomputer.be/>

Documentation language(s):

All languages available in Ubuntu/Linux

3.2. Document management and office applications.

3.2.1. Open – source document management system for the public administration based on the national legal requirements – CZ

Title	Open – source document management system for the public administration based on the national legal requirements
Precise issue tackled	<i>“We’ve developed our own document management system for the public administration ... The project was developed with the support of Czech Ministry of Interior.”</i>
Objectives	<ul style="list-style-type: none"> • Strategic independence from vendors lock-in • Reduction of procurement (licensing) cost • Optimization/ Simplification of organisation processes • Promotion of open source software
Location	Czech Republic
Contact information	Mr. Jaroslav Krotky, vysocina01@bestpractices.osepa.eu

Detailed description of the OSS solution

OSS Alliance, a national public organisation of Czech Republic, created in 2009 an administrative application based on open source software for the administering and the management system of documents in public administrations. The developed document management system is based on PHP and MySQL and is licensed under EUPL license. The source code of the OSS components was modified so as to meet the needs of the organization.

The developed open source document management system is developed with compliance to the national legal requirements. It can be applied to every public administration that has the legal rights to use this type of application. Some key features of this management system are:

- management of physical documents and e-documents,
- implementation of storage and archiving,
- administering of document workflow,
- connection to other document management systems,
- enabling searching features in documents,
- development of reports & printing enabling,
- receiving and sending documents,
- provision of support for eGovernment projects

The document management system was implemented both in – house and by external consultants and was financed by national and private funds. The total implementation costs amounted to 100.000 – 499.000 Euros.

The staff of the organisation was somewhat supportive and was prepared for the adoption of the document management system solution through presentations and demonstrations, emails, intranet, newsletters, forums and/ or wikis.

Evaluation

In the OSS Alliance they are highly satisfied from the adoption of the document management system in terms of cost– effectiveness. Regarding operation of the organisation/ flexibility of processes and effectiveness of services addressed to the public, they claim to be considerably satisfied, whereas the level of satisfaction in terms of system security is moderate.

The main achievements from the experience with the document management system are:

- The strategic independence from vendors lock-in
- The reduction of procurement (licensing) costs

Nowadays the document management system is in operation and more than 2.000 stakeholders have been interested in the system today. In OSS Alliance they are about to finish and release the next enhanced version of the document management system.

Lessons learnt

As Mr. Jaroslav Krotky, Head of the Database and Application Administration Section in Vysocina region declares *“The support from the Ministry of Interior is very important for a large open-source project in Czech Republic, it is one of the reasons why the project is successful.”*

Documentation and resources

Related website: <http://www.spisovka3.cz>

Languages of the available documentation: Czech

3.2.2. Migration to Open Office, Province of Bologna / Emilia Romagna, IT

Title	Migration to Open Office in the Province of Bologna / Emilia Romagna
Precise issue tackled	"The decision to adopt OOo was taken from the director of IT in agreement with General Director and the political leadership of the organization. critical factors influencing the decision were: saving of resources, independence from a single supplier, increased freedom to modify the software, the recommendation of "Codice dell'amministrazione digitale". Stages of migration are: installation of OOo, training in classroom and distance learning, removal of MSOffice facing difficulties involved, activating a Help Desk service."
Objectives	<ul style="list-style-type: none"> • Strategic independence from vendors • Reduction of procurement cost • Simplification of organisation processes • Interoperability • Promotion of FOSS
Location	Province of Bologna, Emilia/Romagna Region, Italy
Contact information	http://www.provincia.bologna.it/probo/Engine/RAServePG.php/P/1318510010600 Paola Natali: Paola.Natali@provincia.bologna.it

Detailed description of the OSS solution

"The decision to adopt OOo was taken from the director of IT in agreement with the General Director and the political leadership of the organisation. Critical factors influencing the decision were: saving of resources, independence from a single supplier, increased freedom to modify the software, the recommendation of "Codice dell'amministrazione digitale". Stages of migration are: installation of OOo, training in classroom and distance learning, removal of MSOffice facing difficulties involved, activating a Help Desk service. At the moment we are still involved in the process of migration."

Evaluation

The implemented practice is still under development and has lasted for 16 months. The solution was implemented both in-house and externally. The staff was prepared through training and seminars. Staff was initially reluctant, but then supportive. The main organisational / managerial

problems were related to a: 1) communication to other Province Directors 2) training organisation. The main technical difficulties encountered were: 1) conversion of some Word and Excel files including particular features 2) sharing of documents with critical features between internal users who cannot use OOo 3) conversion of Access database. The source code was modified and adopted to the solution implemented under a LGPL licence. Some OOo extensions were developed in order to save documents on the Hummingbird document management system.

The overall satisfaction in the organisation from the adopted solution is low concerning productivity of the organisation and considerable regarding cost effectiveness. The adopted solution is to be sustained in the coming years. Availability of highly skilled IT staff is highlighted as an important factor in the transferability of the adopted solution.

Lessons learnt

Not enough data were provided.

Documentation and resources

<http://www.provincia.bologna.it/probo/Engine/RAServePG.php/P/1318510010600>

Documentation language(s): Italian

3.2.3. Migration to Open Office in the Municipality of Modena

Title	Migration to Open Office in the Municipality of Modena
Precise issue tackled	<i>Cost reduction by migrating to Open Office</i>
Objectives	<ul style="list-style-type: none"> • Organisation performance • Cost effectiveness • Avoid vendor lock-ins
Location	Modena, IT
Contact information	Laura Seidenari: laura.seidenari@comune.modena.it

Detailed description of the OSS solution

The use of FOSS has been debated in the city council for the first time in 2004 and presented again the following years. The main reasons were: saving costs on software licence fees and diffusion of open software culture. First project: migration from Microsoft Office to OpenOffice. Initial resistance to the change by MsOffice's users. After 1 year of training and help desk, users have changed attitude towards it. Second project: replacement of mainframe with a linux server. Most our servers have linux OS installed.

Standard software installed on workstations: OpenOffice, Firefox, Thunderbird.

Standard software installed on servers: Linux (OS), Alfresco (DMS), Apache (web server), Tomcat (servlet container), Jboss (application server), Mysql (DB), Plone (CMS), Opennms (monitoring), Openldap (authentication manager), PHP.

Licences used: CDDL, GNU, BSD, APACHE.

Evaluation

The adopted solution has been mostly implemented in-house and is currently operational. The staff was prepared through training and communication. The staff was initially reluctant then supportive.

Main technical problems: Microsoft Office maintained in some workstations in addition to OpenOffice, spreadsheets with macros.

Organisational problems: we have 1900 workstations and the migration to OpenOffice has been done in different moments. Users have experienced some difficulties in working with different format files. Satisfaction within the organisation was medium to considerable. The adopted solution is to be retained. Compatibility with technical standards, interoperability and large community support are highlighted as significant factors for the transferability of the adopted solution.

Lessons learnt

The use of open software let Comune di Modena save a lot of money (about 800.000 euro per year). The city has taken advantage of this.

Documentation and resources

Documentation language(s): Italian

3.2.4. Government corporate identity document generator, NL

Title	Government corporate identity document generator
Precise issue tackled	Integrated document management system
Objectives	<ul style="list-style-type: none"> • Cost reduction • Improve organisational performance • Avoid vendor lock-ins
Location	Netherlands (national public organisation)
Contact information	Rednose: http://www.rednose.nl Robert Wijnants: robert@rednose.nl

Detailed description of the OSS solution

The Dutch government has a new look in the form of a new logo and corporate identity to guarantee the continued quality and uniformity of documents. The government corporate identity document generator provides numerous possibilities for creating and managing documents. Using this generator allows people to generate a document, for example a letter, a memo or a report. The document generator fills in the corporate identity, the logo, the font and the address. This ensures that corporate identity guidelines are followed, while allowing users to create documents easily, without needing to perform unnecessary repetitive actions. The document generator supports various document templates based on open standards, such as XML, ODF and DOCX. The templates are centrally managed in the document generator environment. IT administrators can easily upload and manage templates in this environment. To create a letter, for example, the end user opens the document generator and selects the letter template. The template is loaded. On the basis of this template, the generator collects details from specific database systems, such as ID management, CRM, Active Directory or block correspondences. This can run via authentication systems such as Kerberos, for example. During this process, the end user can search for specific details and adjust search results, by using a search form. The document generator then converts the information to XML, enters it in the highlighted locations in the template and converts it to the selected document format. Finally, the document is opened on the end user's computer. The generated document can be saved in a DMS, sent by e-mail, published on the internet or shared on the intranet.

Components used:

PHP, Apache Webserver, libXSL, libXML, MySQL, several libraries for database yet to be determined database connections (PHP Externsions), Linux or BSD as operating system (Windows is a possibility).

Evaluation

The adopted solution is in pilot phase, it is expected to be sustained and has been mostly implemented in-house. However it is implemented on a national level.

Main technical problems: Linking to proprietary software and file specifications Firewalls and internal infrastructure Software inconsistencies

Main organisational problems: previous internal infrastructure.

Staff was not prepared, since “the document generator is easy to use; no preparation is necessary”.

Licences used: EUPL

Lessons learnt

The organisation (departments of the Dutch government) experienced first-hand the benefits of a reduced dependency upon vendor-specific solutions, as well as reduced licensing costs. The organisation also experienced other benefits: they saved time and costs on both the end-users and the IT administrators based on the application’s ease-of-use.

Documentation and resources

Documentation language(s): Dutch, English.

3.2.5. Migration of 2.000 office users from MS Office 2003 to OpenOffice 3.21 – DE

Title	Migration of 2.000 office users from MS Office 2003 to OpenOffice 3.21.
Precise issue tackled	<i>"Introduction of a centralized template management through OSS software Wollmux⁴ on linux servers."</i>
Objectives	<ul style="list-style-type: none"> • Improvement of performance and effectiveness of the organisation • Strategic independence from vendors lock – in • Reduction of procurement (licensing) costs • Promotion of open source software
Location	City of Freiburg, Baden-Württemberg, Germany
Contact information	Ruediger Czieschla, ruediger.czieschla@stadt.freiburg.de

Detailed description of the OSS solution

In early 2007 the City of Freiburg was looking to replace the proprietary software used for word processing with an open source software application. In February 2007 the City of Freiburg started to study the alternatives and six months later the responsible officers decided to migrate from MS word 2003 to OpenOffice 3.21 in 2.000 client computers. Two years later the migration was completed with only a few person months to be invested from the internal resources of the City of Freiburg for the implementation process. *"Open source and open standards are part of the „Freiburg eGovernment Strategy“. The migration project to OpenOffice was ... intended to lead the way to open and interoperable document formats. Beyond that it helped to save almost half a million Euros of licence fees. Additional benefit was generated with the introduction of Wollmux⁵... Internal document based communication is now 100% open, while external document exchange still suffers compatibility issues because of the indolence in adapting open formats by the several levels of public administration in Germany."*

The major OSS components which have been used, are OpenOffice 3.21, Wollmux 6.50, Mozilla Firefox 3.54, SUSE Linux enterprise server, MySQL database, PHP and Apache web server. No proprietary software component has been used. LGPL (Lesser General Public License) and EUPL (European Union Public License) licenses were granted to the City of Freiburg for the migration to OSS.

⁴ *"Template management system of the city of Munich under EU-public licence"*

⁵ See above

The staff of the organisation was initially supportive, then reluctant, but finally supportive again towards the migration to OpenOffice 3.21. The staff was adequately prepared for this migration through presentations and demonstrations, emails, intranet, newsletters, forums and/ or wikis, seminars and training processes, as well as through gifts for private use like books and DVDs.

The most important organisational/ managerial problem was that, whereas the abstract concepts of open standards were widely accepted, closed standards were usually preferred in practical business document exchange. Especially higher management needed to be further supported in order to avoid blaming the open source software products for the need to change habits.

The main technical issue arisen during the migration to OpenOffice 3.21 was that software packaging and deployment of the solution had to be assigned to an external company due to the complexity of this task.

However, the migration to OpenOffice 3.21 was implemented mostly in house and was funded by local resources. The total implementation costs are estimated between 50.000 and 99.000 €.

Evaluation

In the City of Freiburg they are highly satisfied from the migration of 2.000 office users from MS Office 2003 to OpenOffice 3.21 in terms of cost–effectiveness only. They are also considerably satisfied regarding the operation and the productivity of the organisation and software and hardware interoperability/ data longevity.

In the City of Freiburg they are moderately satisfied from the migration to OpenOffice 3.21 in terms effectiveness of services addressed to the public, data privacy and system security.

The main achievements from the migration to OpenOffice 3.21 are:

- The improvement of performance and effectiveness of the organisation
- The strategic independence from vendors lock - in
- The reduction of procurement (licensing) costs
- Optimization/ Simplification of organisation processes

The 2.000 users within the City of Freiburg still use OpenOffice 3.21 for word processing and the perspective for OpenOffice 3.21 for the next years is to be retained and sustained within the organisation.

Lessons learnt

The main lessons learnt from the experience City of Freiburg with OpenOffice 3.21 are:

- The communication and the exchange of knowledge and of experience among the developers of OSS can play a critical role in the adoption of OSS from a public administration
- The contribution of higher governmental officials through directives, guidelines and policies are a major success factor

Documentation and resources

Related website: www.freiburg.de/openstandards

Languages of the available documentation: Most major languages

3.2.6. Adoption of OpenOffice, Ubuntu LTSP and Samba server by Swedish schools in Vindeln municipality – SE

Title	Adoption of OpenOffice, Ubuntu LTSP (Linux Terminal Server Project) and Samba server by Swedish schools in Vindeln municipality
Precise issue tackled	The software used so far did not work properly within the teaching environment
Objectives	<ul style="list-style-type: none"> • Strategic independence from vendors lock-in • Reduction of procurement (licensing) cost • Experimentation with new IT technologies
Location	Vindeln Municipality, Västerbotten, Sweden
Contact information	Mr. Lars Eriksson, lars.eriksson@vindeln.se

Detailed description of the OSS solution

In 2008 the civil service organization of Vindeln municipality took the decision that the schools of the municipality would migrate to OSS. After eight months of study (August 2006), the migration was implemented. The implementation lasted for eight months and only a few person months (1 to 6) were invested from the internal resources of the municipality during the implementation phase. Before the decision was taken, tests were made and requirements were identified from the schools.

The open source components used by the schools in Vindeln municipality are Open Office, Ubuntu LTSP server installation - by secondary schools - and Samba server as a file server. Also the DNS (Domain Name System) server of schools is based on open source software.

The staff of the organisation was initially reluctant, but then supportive towards the adoption of OSS within the schools. The migration was made gradually and the staff was trained through presentations and demonstrations.

No organisational problem or technical problem is reported to be encountered by Vindeln municipality during the migration to OSS within the schools.

The adoption of OSS in schools of Vindeln municipality was funded by the State and implemented both in – house and with the contribution of external consultants. The total implementation costs are estimated between 1 and 15.000 €.

Evaluation

In Vindeln municipality they are not quite satisfied from the adoption of OSS, as they claim to be moderately satisfied in terms of system security and almost dissatisfied in terms of cost-effectiveness, operation of the organisation/ flexibility of processes and software and hardware interoperability.

The main achievements from the adoption of OSS within the schools in Vindeln municipality are:

- The strategic independence from vendors lock-in
- The reduction of procurement (licensing) costs

The OSS applications are still in use by the schools of Vindeln municipality.

Lessons learnt

There are no lessons learnt from the Vindeln municipality of Sweden regarding the migration to OSS within the schools.

Documentation and resources

Related website: www.vindelns.se

Languages of the available documentation: Swedish

3.2.7. Migration to OpenOffice and adoption of ODF and PDF as standard document formats – SE

Title	Migration to OpenOffice and adoption of ODF (Open Document Format) and PDF (Portable Document Format) as standard document formats
Precise issue tackled	<i>"We have implemented Open Office as standard office-software in the municipality administration and in the education at the local schools. ODF and PDF where also implemented as standard document formats."</i>
Objectives	<ul style="list-style-type: none"> • Strategic independence from vendors lock-in • Reduction of procurement costs
Location	Alingsås, Västar Götaland, Sweden
Contact information	Mr. Göran Westerlund, goran.westerlund@alingsas.se

Detailed description of the OSS solution

In August 2009 the district council of the municipality of Alingsås decided to replace Microsoft Office with OpenOffice as standard office application and also to adopt ODF and PDF file formats as document formats for documents in a workflow and for fixed documents respectively. The main motive to migrate to open source was the reduction of software procurement costs by the replacement of MS Office with OpenOffice and the autonomy from software proprietary vendors. *"The municipality of Alingsås joined with other municipalities a public call to the vendors of software for Swedish municipalities."* The municipality asked from *"suppliers of municipal management system to open up their applications for the open standard and drop the hard links to Microsoft Office. A joint letter, dated in February 2009, from a number of municipalities to the system vendors requires transparency - <http://www.kivos.se/openoffice/skrivelse-om-oppenhet-till-leverantorer>."*

The open source components used by the municipality of Alingsås and the local schools were OpenOffice and OpenClipart. No modification of the source code was made and the license granted was GNU Lesser General Public License. The proprietary software used was ZENworks and MSI packets for the installation of OpenOffice.

The most important organisational problem encountered during the migration to open source was that the lack of compatibility of OpenOffice with the hardware of some old computers, which finally needed to be fixed or replaced before the installation of OpenOffice. Another problem confronted was the difficulty to open documents of ODF format in Lotus iNotes (IBM web based email software).

The staff of the organisation was somewhat supportive towards the adoption of open source software and was prepared through:

- presentations and demonstrations,
- emails, intranet, newsletters, forums and/ or wikis,
- seminars and various training activities,
- courses of about 200 to 2000 employees
- and a lot of self-study materials

in order to effectively migrate to open source.

The migration to OpenOffice was locally funded and implemented mostly in – house. The total implementation costs are estimated between 15.000 and 49.000 €.

Evaluation

In the municipality of Alingsås they are quite satisfied from the migration to OSS in terms of software and hardware interoperability/ data longevity and cost– effectiveness. Regarding operation of the organisation/ flexibility of processes, productivity of the organisation, effectiveness of services addressed to the public and system security, the level of satisfaction is moderate.

The main achievements from the adoption of OSS by the municipality and the local schools are:

- The strategic independence from vendors lock-in
- The reduction of procurement (licensing) costs

In the municipality of Alingsås and in the local schools, they keep on using OpenOffice and adopting ODF and PDF standards, as standard document formats, and the perspective for the next years is to endure the usage of the aforementioned OSS components.

Lessons learnt

As Mr. Göran Westerlund from the municipality of Alingsås says, the main lesson learnt with the experience with OSS is that a public administration should *“work with active support to the end users and with the principle to gradually install and fixed problems and improve”*.

Documentation and resources

Related website: www.kivos.se

Languages of the available documentation: Swedish

3.2.8. Migration to Open Office, Municipality of Bologna, IT

Title	Migration to OpenOffice, Municipality of Bologna
Precise issue tackled	Large-scale migration of office application environments.
Objectives	<ul style="list-style-type: none"> • Independence from vendor-lock-ins • Reduction of licensing / procurement costs • IT system performance improvement
Location	Bologna, Italy
Contact information	Dimitri Tartari: d.tartari@gmail.com http://www.comune.bologna.it

Detailed description of the OSS solution

Migration from an old consolidated situation with Office 97 installed on 3600 PCs to an OpenOffice.org configuration. Only half of the PCs were fully migrated due to applications constraints (there were some IBM Lotus Domino applications using Office dll to print documents). OpenOffice.org was installed on all PCs but Office was removed only from half of them. Users with both suites are encouraged to use OpenOffice.org as main productivity suite. We hope to improve migration with an ongoing substitution of Domino applications with their web counterparts.

Evaluation

The applied solution is in operation and was mostly implemented by external consultants. Staff was prepared through communication and training activities. Staff was initially reluctant then supportive. The source code was not modified. Every openoffice.org extension we developed was released as GPL.

Organisational problems:

- great diffusion of Domino applications requiring MS Office.
- formatting problem with old/existing/coming from outside documents.
- some smart users with complex macros or with spreadsheets coming from outside (central government, EEC etc.)

Technical problems:

- heavy customisation of the base package
- migration from OpenOffice.org 2 to OpenOffice.org 3 was harder then it should have been (full re-deploy and re-installation, no upgrade)
- "we had to create some "ad hoc" extensions"

There was considerable to medium overall satisfaction within the organisation. The implemented solution is to be expanded/replicated. Large community and skilled IT support along with compatibility are mentioned as the most important transferability factors for the adopted solution.

Lessons learnt

Lessons learned:

- widely share your project model
- sink the ships (don't give the users a way to back)
- push hard the first 100 days
- remember that the “end point” is the “human being” not the computer (They want to do the same stuff, more or less, the same way)
- communicate!

Documentation and resources

<http://www.comune.bologna.it>

Documentation language(s): Italian

3.2.9. SCRIPTUM: a platform for Government Document Management

Title	Vice President of the Hellenic Republic
Precise issue tackled	SCRIPTUM is a complex platform for Document Management, Government Document Registration, Case Management and Project Tracking
Objectives	The main objective of SCRIPTUM is to eliminate bureaucracy and document loss using an open source, extensible environment ready to interconnect with other systems within the Greek public sector.
Location	Athens, Greece
Contact information	Michael Mountrakis E-mail: mountrakis@uit.gr

Detailed description of the OSS solution

SCRIPTUM is a Web based Open-Source application that will be used in order to eliminate bureaucracy and document loss, providing the administration office of the Hellenic Republic Vice President an extensible and integrated environment for document publishing, categorisation and administration. The overall project involves two basic sub projects: 1. e-Protocol: for handling incoming/outgoing mail messages and their attachments. Using this system, the e-Protocol users can benefit from the advanced OpenKm properties in order to manipulate the messages. This subsystem provides an easy way to complete forms relevant to the incoming/outgoing mail, form letters from templates and maintains a document repository equipped with document based security. 2. e-Case: this sub system provides a well established work flow for treating documentation relevant to specific organisation's operations. Assignment Operations provides a standard way for managing and directing specific actions to be taken from the employees in the administration office of the Vice President of the Hellenic Republic in order to complete organisation's operations.

Evaluation

The organisation's staff reaction was highly supportive. The staff was prepared for the implemented solution through training and consultation with experts as well as through demonstrations, extensive documentation, a dedicated project site and a mailing list. Satisfaction within the organisation on the implemented solution was high concerning the cost and considerable with regard to productivity, effectiveness of services to the public and longevity.

The main problems encountered in implementation were the lack of project 's functional specifications, the discontinuity of development process and the communication of the platform with proprietary systems existing in Greece due to limited documentation.

The implemented solution is in operation and it is expected to be expanded or replicated in the future.

Lessons learnt

“Compromise with / adapt to budget constraints. Drive the situation, always be a step ahead of the problem. Scrum delivery in application development.”

Documentation and resources

Official Page:

<http://www.scriptum.gr>

Wiki and Developer page:

<http://projects.ellak.gr/projects/scriptum/wiki>

External Consultants / Company:

<http://www.uit.gr>

3.2.10. Migration to Open Office, The State Social Insurance Agency, Riga, LV

Title	Migration to Open Office, The State Social Insurance Agency, Riga, LV
Precise issue tackled	We adopted open source desktop office suite OpenOffice.org instead of upgrading Microsoft Office to newest version. We also adopted open source Zabbix monitoring system.
Objectives	The main objectives where to reduce licensing costs and achieve independence from vendor lock-ins.
Location	Riga, Latvia
Contact information	Peteris Krisjanis pecisk@gmail.com

Detailed description of the OSS solution

First of all, as no one didn't have tried to replace Microsoft Office with OpenOffice.org on such large scale before. This required to develop internal knowledge about all possible issues, and also required very detailed analysis before making decisions. Also with migrating OpenOffice.org, new way how to deal with support were introduced - every release were tested on created image specially packaged for working stations. This helped also centralize and plan expenses for support.

OpenOffice.org office suite, Zabbix monitoring system, GNU/Linux operational system for servers

Evaluation

The solution was implemented in 2005-2006 and is in operation. The staff was prepared through seminars, presentations and demonstrations. The satisfaction of the organisation's staff is described as "considerable" in terms of cost effectiveness and "medium" in terms of productivity.

The main organisational problem encountered was the preparation of analysis to convince higher administration about the implementation of solution. Initial inertia again something less expensive, but new solution, as "no one gets fired for buying Microsoft". Also fear of need of retraining, as lot of users are middle age or quite old and don't feel safe about their computer skills.

Most of the technical difficulties were connected with migration of old Microsoft documents with macros and very specific formatting. Also most of templates of inner documentation had to be redone for OpenDocument (ODF) format which OpenOffice.org uses. There was also lack of good spell checker for national language. That was solved with outsourcing task for improving spell checker dictionary to its original author. This corporation was fruitful and both sides benefited from it.

Lessons learnt

OSS is just another set of tools with its strengths and weaknesses. Every big move like migration to any solution (including OSS based) should be tested thoroughly to avoid any problems in production. If implemented right, OSS can relieve from big financial investments in short term, and give back control of IT to organization in long term through relative vendor neutrality.

Documentation and resources

<http://www.vsaa.lv/>

Documentation language(s): English

3.3. Project management / administrative applications

3.3.1. Helpdesk and inventory software based on open source software – BE

Title	Helpdesk and inventory software based on open source software
Precise issue tackled	The main objective was to <i>“implement a helpdesk and inventory software on a low budget”</i> .
Objectives	<ul style="list-style-type: none"> • Strategic independence from vendors lock-in • Reduction of procurement costs
Location	Local Police of Brasschaat, Brasschaat, Belgium
Contact information	Mr. Roel De Pooter, ict@politiebrasschaat.be

Detailed description of the OSS solution

In 2009 the Local Police of Brasschaat decided to implement a helpdesk and an inventory software based on OSS in order to reduce the software procurement costs. After 3 months of studying, the Local Police of Brasschaat started to implement the open source solution. Only a few person months were invested from the internal resources of the organisation and the open source solution was finally developed. The OTRS (Open Source Helpdesk and IT Service Management Solution) and the OCS (Open Source and Software Inventory Next Generation) accompanied with GLPI (Information Resource Manager) were used so as to meet the needs of the Local Police of Brasschaat.

The helpdesk and the inventory software were implemented on SUSE Linux enterprise server and a KVM (Kernel based Virtual Machine) was used for their virtualisation. The source code of the open source component was not modified and the license granted for the OSS solution was the license for SUSE Linux 11. No proprietary software component was used.

The most important problems were encountered during the installation and the configuration of OpenLDAP ([Open source](#) implementation of the Lightweight Directory Access Protocol), as it has to be connected to *“two different Active Directory's”*.

The staff of the organisation was initially reluctant, but then supportive towards the open source solution and was prepared through presentations, demonstrations, emails, intranet, newsletters, forums and/ or wikis.

The migration to open source was locally funded and implemented both in – house and with the contribution of external consultants. The total implementation costs are estimated between 1 and 15.000 €.

Evaluation

In the Local Police of Brasschaat they are highly satisfied from the implementation of the helpdesk and the inventory software based on OSS in terms of effectiveness of services addressed to the public, data privacy and system security.

Regarding cost – effectiveness, productivity of the organisation and software and hardware interoperability, they declare to be moderately satisfied. The adoption of the aforementioned open source solution did not meet their expectations with regard to the enhancement of the operation of the organisation and the flexibility of processes.

The main achievements from the implementation of the helpdesk and the inventory software based on OSS are:

- The improvement of performance and effectiveness of the organisation
- The simplification of the IT architecture

In the Local Police of Brasschaat the open source solution adopted is still in use and the perspective for the next years is to be enhanced, expanded or replicated.

Lessons learnt

As Mr. Roel De Pooter from the Local Police of Brasschaat declares *“It was our first oss project and it went well, so we are looking into other projects for the future”*.

Documentation and resources

Related website: www.politiebrasschaat.be

Languages of the available documentation: English, Dutch

3.3.2. Asset management infrastructure, Municipality of Bologna, IT	
Title	Asset management infrastructure, Municipality of Bologna
Precise issue tackled	Creation of an Asset Management infrastructure for the organisation's PCs.
Objectives	<ul style="list-style-type: none"> • Reducing licensing / procurement costs • IT system performance improvement • Facilitation of the exchange of data and shared development strategies
Location	
Contact information	http://www.cmdbuild.org/diffusione/cmdbuild-day Valentina Zerbini: valentina.zerbini@comune.bologna.it

Detailed description of the OSS solution

Creation of an asset management infrastructure for the organisation's PCs. Following ITIL indication this infrastructure is used also to handle MACD and provisioning processes.
Components used: CMDBuild, OCS-NG

Evaluation

The practice was implemented both in-house and externally. Staff was prepared through training. Staff was first initially reluctant, but then supportive. Source code was modified under a GPL licence.

Organisational problems:

- Following processes more strictly to stay compliant
- new user interface and new logic behind the archive not so easy to understand at the beginning

Technical problems:

- importing existing archive which was in Domino format
- integration of OCS and CMDBuild data non always easy to manage (e.g. PCs with VMWare installed).

There was considerable to medium satisfaction with the solution within the organisation.

Lessons learnt

Plan well before starting, "work in progress" changes are painful - communicate and listen to end users, THEY are going to use the final product.

Documentation and resources

<http://www.cmdbuild.org/diffusione/cmdbuild-day>

3.3.3.OTRS ticketing system, Municipality of Bologna, IT

Title	OTRS ticketing system. Municipality of Bologna
Precise issue tackled	Development of an open source ticketing system to handle end user requests.
Objectives	<ul style="list-style-type: none"> • reducing licensing / procurement costs • improvement of performance – effectiveness of IT system • optimisation / simplification of organisation processes
Location	Bologna, IT
Contact information	Laura Bodini: laura.badini@comune.bologna.it

Detailed description of the OSS solution

Using OTRS has been created a ticketing system to handle end user requests. OTRS has been heavily customized to integrate with LDAP, mail and webservices to transfer ticket to external support. Now we handle about 20 queues ranging from HW problems to application problems. Queues are assigned to different groups to solve problems.

Evaluation

The solution was mostly implemented by external consultants.

Organisational problems:

- convincing people to stop using phone/mail when they are in trouble and start using ticketing instead
- organising the job solution groups in a structured way

Technical problems:

- OTRS it's not so easy to customise
- it's quite hard to keep customizations across changes in releases

Staff was prepared, initially reluctant, then supportive.

All code modifications were given back to the community

Satisfaction with the implemented solution within the organisation is described as “considerable” (regarding cost-effectiveness, productivity and improvement of organisation processes) to “medium” (concerning system security, data privacy, interoperability).

The applied solution is expected to be retained/sustained.

Lessons learnt

"Sink the ships" with this kind of projects. Don't give users any alternative options, leave the web ticketing as the only solution, it will be harder for them at the beginning but it will pay in the long term.

Documentation and resources

Documentation language(s): Italian.

3.4. E-mail & communication applications

3.4.1. Asterisk telephony system – BE	
Title	Asterisk telephony system
Precise issue tackled	<i>"Asterisk telephony system. A new telephony system for a reasonable price, capable of integrating with existing applications and configurable by ourselves."</i>
Objectives	<ul style="list-style-type: none"> • Reduction of procurement costs • Improvement of performance of the organisation • Enhancement of effectiveness of the IT system
Location	City of Schoten, Antwerp region, Belgium
Contact information	Mr. Jan Verlinden, jan.verlinden@schoten.be

Detailed description of the OSS solution

The city of Schoten was looking for a new telephony system at a reasonable price. The new system should be capable of integrating new applications, such as SMS (Short Message Service), MMS (Multimedia Messaging Service), chat and Skype and also integrating with existing and future installations. The IT (Information Technology) department should also be able to configure the telephony system according to the needs and requirements of the organisation. The telephony system should also be redundant.

In 2006 the IT department of the City of Schoten started to study the possible solutions. Six months were invested for this study phase before the adoption of Asterisk telephony system. In 2007 the IT department started to implement the Asterisk solution and spent four months for this implementation. Synsip, a provider in VoIP solutions undertook the installation of Asterisk: *"Synsip had a good migration plan and there was a very good transfer of their knowledge in the City of Schoten"*.

The open source component used for the development of the Asterisk solution was MySQL / PostgreSQL database. The configuration files of this system can be accessible and modifiable. A redundant solution can easily be developed and especially, through the investment of few internal resources. A scope server and a GUI (Graphical user interface) were used to manage Asterisk proprietary components. The license granted for the implementation of the Asterisk telephony system was GPL for Asterisk license.

The most important organisational problem encountered by the City of Schoten during the implementation of Asterisk was the scepticism of the administrative and IT staff, as they consider open source to be immature and not professional (*“white/ cheap products”*). No technical problem was encountered, though *“they did telephone calls even over wireless network!!”*

The staff of the organisation was somewhat supportive towards the adoption of Asterisk telephony system and was prepared through seminars and various training activities in order to migrate effectively to Asterisk.

The Asterisk telephony system was locally funded and implemented both in – house and with the contribution of external consultants. The total implementation costs are estimated between 50.000 and 99.000 €.

Evaluation

In the City of Schoten they are highly satisfied from the adoption of the Asterisk telephony system in terms of cost– effectiveness, operation of the organisation/ flexibility of processes, effectiveness of services addressed to the public, software and hardware interoperability. Regarding the productivity of the organisation, data privacy and system security, they declare to be considerably satisfied.

The main achievements from the adoption of the Asterisk telephony system are:

- The reduction of procurement/ licensing costs
- The improvement of performance and effectiveness of the organisation
- The enhancement of performance and effectiveness of the IT system

Asterisk telephony system is nowadays in operation and the perspective for the next years is to be enhanced, expanded or replicated.

Lessons learnt

The main lessons learnt from the experience with Asterisk telephony system are:

- Open source adoption can save a lot of money for public organisations
- The open source solutions can be configured according to the needs of the public organisation
- The tackling of the problems is easier with open source than with proprietary software solutions.
- Open source solutions allow for interoperability with other systems

Documentation and resources

Related website: www.digium.com, www.voip-info.org

Languages of the available documentation: English, Dutch, French, German

3.4.2. Zimbra: Next-generation email, calendar and collaboration server – ES

Title	Zimbra: Next-generation email, calendar and collaboration server
Precise issue tackled	<i>"Zimbra is a next-generation collaboration server that provides organizations greater overall flexibility and simplicity with integrated email, contacts, calendaring, sharing and document management plus mobility and desktop synchronization to users on any computer."</i>
Objectives	<ul style="list-style-type: none"> • Improvement of performance and effectiveness of the organization • Reduction of procurement costs • Promotion of open source software • Minimize the need for technical support
Location	Foundation for the Development of the Science and Technology in Extremadura, Extremadura, Spain
Contact information	Mr. Nicolas Lopez de Lerma, nicolas@fundecyt.es

Detailed description of the OSS solution

In January 2009 the Foundation for the Development of the Science and Technology in Extremadura started to study the potential adoption of Zimbra server. Six months later, the decision was taken: Zimbra would be installed in the public administration. Zimbra collaboration suite's advanced web application and server is built on open standards and technologies and has various features, which could be very useful for the Foundation for the Development of the Science and Technology in Extremadura.

Six person months were only invested from the internal resources of the public foundation for the implementation of Zimbra which was completed by the end of 2009.

The Zimbra collaboration suite is the only application suite installed on the server, which bundles and installs, as part of the installation process, various other third party and open source software, including Apache Jetty, Postfix, OpenLDAP, and MySQL. The source code of Zimbra was modified according to the needs of the organisation and no proprietary software component was used.

Neither organisational nor technical problem was encountered by the Foundation for the Development of the Science and Technology in Extremadura during the adoption of Zimbra.

The migration to Zimbra server was locally funded and implemented mostly within the organisation. The total implementation costs are estimated between 1 and 15.000 €.

Evaluation

In the Foundation for the Development of the Science and Technology in Extremadura they are highly satisfied from the adoption of Zimbra server only in terms of cost – effectiveness. Regarding the productivity of the organisation, data privacy, system security and software and hardware interoperability, they declare to be considerably satisfied, while the level of satisfaction from Zimbra is moderate in terms of operation of the organisation/ flexibility of processes and effectiveness of services addressed to the public.

The main achievements from the experience with Zimbra server are:

- The improvement of performance and effectiveness of the organisation
- The reduction of procurement/ licensing costs
- The promotion of open source software
- The minimization of the need for technical support

In Foundation for the Development of the Science and Technology in Extremadura they keep on using Zimbra server and the perspective for the next years is to be enhanced, expanded or replicated.

Lessons learnt

The main lessons learnt from the experience with Zimbra server are:

- “Zimbra is open source server software for email and collaboration”
- “Using Zimbra, we increase the flexibility to integrate new applications”.

Documentation and resources

Related website: <http://www.zimbra.com/>

Languages of the available documentation: English, Spanish

3.4.3. Real-time communications system, FR	
Title	A real-time communications system, FR
Precise issue tackled	A real-time communications system with audio, video, instant messaging and file transfer capabilities. A FOSS alternative of Skype.
Objectives	Facilitation of data exchange and shared development strategies Enhancement of system security Interoperability/ compatibility
Location	University of Strasbourg, Strasbourg / Bas Rhin
Contact information	Email Ivov: emcho@jitsi.org

Detailed description of the OSS solution

Skype is, without a doubt, one of the most popular communications solutions in the world. It is seeing wide adoption in various entities, be it public or private. A few years ago, however, the French Ministry of Defence issued a memorandum advising against the use of Skype in French universities and research centres. Their concerns were based on Skype's obscurity and the security implications that it had. Another problem raised by the ministry was Skype's use of Internet resources. The university networks are one of the last places where a high number of computers use public IP addresses on a relatively high bandwidth. Most of the computers using Skype in such network, would hence automatically transform into Skype supernodes: computers that other Skype instances would use freely to relay media when necessary. The recommendation was acknowledged by most universities but it was rarely enforced. The reason for this was quite simple: Skype was an essential communications tool in a number of collaborative projects and any ban on using it needed to be accompanied with an alternative. That alternative needed to be:

- free of charge
- easy to use
- offer good quality for audio and video communication
- be able to organise conference calls
- [particularly important] make it possible to communicate with a large number of users without having to make these users use the same solution or infrastructure

This is when Jitsi came into consideration. Jitsi is an Audio/Video Internet communicator, with instant messaging capabilities. It supports a large number of protocols, starting with standardized ones like SIP and XMPP, as well as other proprietary, but yet popular ones, such as Windows Live (MSN), Yahoo! Messenger, AIM and ICQ. Jitsi (formerly SIP Communicator) was born at the very same university which was probably why the name came up so quickly when the discussions started. It quickly became clear however that, when combined with the proper server-side components, it had the potential to become a true alternative of Skype. First of all, Jitsi had an impressive number of features. Things like good quality video, file transfer, conference calling, desktop streaming and sharing, to name but a few, are hard to come by in an open source application that is available on Windows, Mac OS X and Linux. More importantly, Jitsi's support for the XMPP protocol meant it would be possible for users in the University of Strasbourg, to conduct audio/video calls with anyone who had a Gmail account. This does make the solution comparable to Skype in terms of connection possibilities and it also addressed one of the university's main concerns for deploying a Skype alternative: it would only make sense if people would actually be able to talk to someone. It was hence decided that the following set of products would be deployed for use by students, researchers and other university personnel: XMPP was to be used as the backbone for this service and the server side would be covered by the Openfire XMPP server. It would use an existing LDAP directory for authentication. This way users won't need new accounts for this service. In order to make the application usable from anywhere on the Internet, TurnServer and JingleNodes were to be used for their NAT traversal capabilities. Finally, in order to provide free calling capabilities toward any PSTN number in the university conventional telephony network, FreeSwitch was to be deployed and connected to the existing telephony switches. Finally, in order to make the service as easily usable as possible, a few modifications were to be made on Jitsi so that connecting and using it in this particular environment was to be as easy as possible. The changes included the possibility to create accounts with minimum configuration, as well as automatically adding connections to the university's directories and telephony gateway. All these changes have been accessory only. It is still possible for users to connect with any standard XMPP agent if they so desire to. All of the above are currently in the process of being deployed.

Components used:

The main investment in the university was based on Jitsi: Jitsi <http://jitsi.org> Other components employed in the architecture also include:

Openfire <http://www.igniterealtime.org/projects/openfire/>

JingleNodes <http://jinglenodes.org>

TurnServer <http://turnserver.org>

FreeSWITCH <http://www.freeswitch.org>

Evaluation

Practice was implemented both in-house and externally. Staff was not prepared but was already quite comfortable with similar applications (skype).

Organisational problems: other than getting organised and starting the project, which took a while, there have been no significant issues with the adoption of this solution

Technical problems:

The deployment is going quite smoothly. There have been a few issues with the selection of the proper NAT traversal utilities that have been resolved now. One feature that was initially previewed and was later removed, was to have the user contact lists pre-populated. It turned out however that the grouping information available in the University directories was a bit too rough so as to be useful.

The source code was modified. Changes made on Jitsi for the University of Strasbourg were delivered under an unrestricted perpetual license. The rest of the code in Jitsi and the other projects is being deployed under the original licenses of the corresponding projects.

The satisfaction with the applies solution within the organisation was high particularly in terms of system security, data privacy and the services offered.

The applied solution is expected to be expanded, replicated, or the next in the next years.

Lessons learnt

The solution is still under deployment so it may be a bit too early to talk about learned lessons. I guess the one that we can already see coming however is that even extremely sophisticated systems such as Skype, can be painlessly replaced with a FOSS alternative.

Documentation and resources

<http://jitsi.org> <http://download.jitsi.org/unistra>

More to appear once the project is officially launched later this year.

Documentation language(s): French, English

3.4.4. Antispam solution, CZ	
Title	AntiSpam solution - a solution based on SpamAssassin pearl scripts in Postfix.
Precise issue tackled	#-mail spam filtering based on content-matching rules
Objectives	<p>Independence from vendor lock-ins</p> <p>Enhancement of IT system performance / effectiveness</p> <ul style="list-style-type: none"> Enhancement of performance and effectiveness of the IT system
Location	
Contact information	Jaroslav Krotky: vysocinaC1@bestpractices.osepa.eu

Detailed description of the OSS solution

AntiSpam solution - a solution based on SpamAssassin pearl scripts. SpamAssassin is a computer program released under the Apache License 2.0 Used for e-mail spam filtering based on content-matching rules. The solution runs on FreeBSD and Postfix product in which they are deployed pearl SpamAssassin scripts. The solution has 2 instances - for incoming and outgoing mail. Incoming mail with a score between 5-15 points are tagged with "SPAM%%%" in the subject and they are allowed go to the internal anti-spam. Mails over 15 points are deleted and is written only a record in the logs.

Evaluation

No staff preparation (already experienced). No organisational or technical problems. Solution to be sustained. No source code modification.

Lessons learnt

Launching of the solution was very simple and intuitive. Antispam works very well, very small percentage of email communication is wrongly recognized as spam.

Documentation and resources

Not enough data was provided.

3.4.5. Asterisk solution, Vysocina Region, CZ

Title	Asterisk solution, Vysocina Region, CZ
Precise issue tackled	Asterisk solution for Vysocina Region is a software implementation of a telephone private branch exchange (PBX). Like any PBX, it allows attached telephones to make calls to one.
Objectives	<ul style="list-style-type: none"> • Independence from vendors lock-in • Optimisation/ Simplification of organisation processes • enhancement of performance and effectiveness of the IT system
Location	Vysocina Region, Czech Republic
Contact information	Jaroslav Krotky: vysocinaA1@bestpractices.osepa.eu

Detailed description of the OSS solution

The main advantage of the Asterisk solution was its price solution, complexity of the solution and a very positive response from companies that already operate solution. We solved the problem replacing the old analogue telephone exchange and the market research the decision was made on the Asterisk solution. The main difficulties deploying the low number of companies in the Czech Republic were willing to support the solution. Otherwise, the telephone exchange was used in a distributed CRM solutions, where a single call center operators were composed of various communities and organizations connected with the SIP protocol.

Components used: Asterisk PBX, AstBoxLinux, Mysql, PHP, Apache

Evaluation

Implemented both in-house and externally. No staff preparation.

Organisational problems: negligible

Technical problems:

- connection with phone devices.
- configuration troubles with AstBoxLinux.

There was no source code modification.

Satisfaction with the applied solution within the organisation was high concerning cost effectiveness, productivity and operational flexibility. In relation to system security, data privacy and services addressed to the public, satisfaction was low to medium.

Lessons learnt

Not enough data was provided.

Documentation and resources

<http://www.asterisk.org/applications/pbx>

3.4.6. Pfsense firewall solution, Extremadura Region, ES

Title	Pfsense firewall solution, Extremadura Region, ES
Precise issue tackled	<p>In the organization we have a growing demand from users where requested, among other things, to have access to information from outside the organization, enable and provide access to those attending the meetings within the organization , etc.</p> <p>After several weeks of research and investigation we found the solution and implement software to better meet the needs on the one hand, provide coverage to users in their requests and on the other, do not lose data integrity and to do so introducing certain measures of computer security and access control. The solution was pfSense.</p>
Objectives	<ul style="list-style-type: none"> • <i>Optimization/ Simplification of organisation processes</i> • <i>Facilitation of the exchange of data and shared development strategies</i>
Location	Foundation for the development of science and technology in Extremadura / FUNDECYT. Extremadura Region, Spain
Contact information	<p>Gustavo A. Garcíagustavo@fundecyt.es</p> <p>gustavo@fundecyt.es</p>

Detailed description of the OSS solution

In the organization we have a growing demand from users where requested, among other things, to have access to information from outside the organization, enable and provide access to those attending the meetings within the organization , etc. For the crew this meant a number of drawbacks especially in ensuring the security problem as the first and second find a tool that would give us a comprehensive and do not use different applications for each solution adopted. After several weeks of research and investigation we found the solution and implement software to better meet the needs on the one hand, provide coverage to users in their requests and on the other, do not lose data integrity and to do so introducing certain measures of computer security and access control. The solution was to pfSense. PfSense is a distribution which is derived from BSD Unix that serves as Firewall, Captive Portal, VPN server, DDNS, DHCP, among others. PfSense is an open source security solution meaning that any developer can add improvements to the OS

under certain legal conditions We choose pfSense because its development model is open source, the core is based on the free operating system called BSD, the type of core-type of pfSense is monolithic. According to the official website for 2010 pfSense pfSense has had more than one million downloads which has been successfully installed in environments ranging from home networks to large corporations. PfSense has a package manager from GUI remotely accessed to expand their capabilities, to choose the desired package system downloads it and installs it automatically. There are 60 modules available for download to install pfSense and among these are the IMInspector squid proxy, Snort, ClamAV and others. To handle pfSense do not need advanced knowledge of BSD command line. PfSense can be installed on any PC or server regardless of the architecture that has a minimum 2tarjetas network. Possessing open source software, the developer community can support and assistance with cost of BSD Perimeter. Each person is free to modify and sell your own distribution conciertas conditions. Hardware Requirements: To install pfSense on i386 hardware requirements are as follows. 1. Intel Pentium III, Intel Xeon up, 2. RAM from 256 MB to 3 GB 3. Hard Drive 2 GB to 80 GB, IDE, SCSI, SATA and SAS-SATA. 4. Wired network cards Intel and Realtek 5. Server or dedicated PC.

PfSense is an application that is installed as an operating system because it has several features among these parts of LANs and WANs, detailing these services are: Firewall: PfSense can be configured as a firewall allowing and denying certain network traffic both inbound and outbound from a network address whether or host of origin and destination, also making advanced filtering packets by protocol and port. VPN Server: PfSense can be configured as a VPN server using tunneling protocols such as IPSec, PPTP, among others. Server Load Balancing: PfSense can be configured as load balancing inbound and outbound, this feature is commonly used on web servers, mail, DNS. Also to provide stability and redundancy in the traffic sent across the WAN link to avoid bottlenecks.

Captive Portal: this service consists of forcing the user authentication redirecting them to a special page for authentication and / or to accept the terms of use, to make a payment, etc. to access the network.

State table: PfSense is a stateful firewall, which main feature you will keep the state of open connections on a table. Most firewalls do not have the ability to precisely control the state table. PfSense has a huge number of features that allow fine-grained management of the state table.

DNS server and forwarder DNS cache: PfSense can be configured as a primary DNS server and forwarder DNS queries.

DHCP server: Also works as a DHCP server, you can also implement VLAN from pfSense.

PPPoE server: This service is used by ISPs to authenticate users who can access the Internet, on a local basis or via radius.

Static Routing: PfSense functions as a router as IP addressing and delivery does nat out.

Redundancy: PfSense allows two or more firewalls through the protocol CARP (Common Address Redundancy Protocol) for firewall if one falls the other is declared as primary firewall.

Reporting and Monitoring: through the pfSense RDD graphics shows the status of the following components: CPU utilization, total performance, firewall status, individual performance for each interface, packets sent and received by each interface, traffic management and bandwidth.

Evaluation

There was not staff training since for the staff of the organization the solution is clear. We have not had difficulties in implementing the solution adopted by the official manuals support.

The staff was considerably satisfied with the applied solution. The solution was implemented in 2011 and it is expected to be retained/sustained.

Lessons learnt

The software routers such as pfSense, are an excellent choice for networks small or medium, which generally do not present much traffic; because they are inexpensive and relatively easy implementation. Moreover, being a computer (with all its layers) you can add more features such as FTP servers, music servers as MPD, web servers, etc. All these features make the design of the network can be centralized in one equipment, further reducing costs. But this can also play against, because eventually failing the PC, the entire network would fail.

Documentation and resources

<http://www.pfsense.org>

Documentation language(s): English.

3.5. Servers, databases and internet applications

3.5.1. Untangle: a powerful suite for Internet management applications – CY

Title	Untangle: a powerful suite for Internet management applications
Precise issue tackled	<i>"It was both the Management and the IT department effort to have an internet content filter solution with the less cost as possible for the municipality. The solution was needed for the improvement of the productivity of the municipality's staff by minimizing the time spent on not work related on internet usage. In addition by implementing such a solution the effort was to provide better security for the Municipality network."</i>
Objectives	<ul style="list-style-type: none"> • Improvement of performance and effectiveness of the organisation • Strategic independence from vendors lock-in • Reduction of procurement costs • Enhancement of system security
Location	Municipality of Strovolos, Nicosia, Cyprus
Contact information	Mr. Nicos Kyriakides, nkyriakides@strovolos.org.cy

Detailed description of the OSS solution

In October 2009 the municipality of Strovolos was looking for an internet content filter solution with the less possible cost in order to enhance the productivity of the municipality's staff by minimizing the time spent on internet by the staff and also to strengthen the system security of the municipality. After one person month of studying the alternative solutions and half person month spent in the implementation of the Untangle application, the IT department of the municipality could finally benefit from the features of Untangle: web filter, virus blocker, spam blocker, ad blocker etc.

The only open source component used for the installation of the software package of Untangle was a Linux server. The source code of the application was not modified. No proprietary software component was used. Untangle is licensed under GNU Public License v2 (GPLv2).

The most important organisational problem encountered by the municipality of Strovolos during the implementation of Untangle was the “*bad comments*” of the end – users, as they “*were not used to have Internet web filter*”. The main technical issue arisen was to find out the most appropriate way to set up Untangle in the existing system in order to work correctly within the network of the municipality.

The adoption of Untangle was locally funded and implemented both from the IT department of the municipality and with the contribution of an external consultant on open source software. The total implementation costs are estimated between 1 and 15.000 €.

Evaluation

As Mr. Nicos Kyriakides, IT officer of the municipality of Strovolos declares, in the municipality they are considerably satisfied from the installation of Untangle in terms of cost– effectiveness, operation of the organisation/ flexibility of processes, productivity of the organisation and system security. Regarding data privacy they are moderately satisfied, while they are almost dissatisfied in terms of effectiveness of services addressed to the public and software and hardware interoperability.

The main achievements from the adoption of Untangle are:

- The improvement of performance and effectiveness of the organisation
- The strategic independence from vendors lock-in
- The reduction of procurement/ licensing costs
- The enhancement of system security

Untangle application is nowadays in operation and the perspective for the next years is to be enhanced, expanded or replicated.

Lessons learnt

The main lessons learnt from the experience with Untangle application are:

- “*Open source software can be reliable, with as less customization and support as possible*”
- Open source solution can enhance the productivity of a public organization

Furthermore, according to Mr. Nicos Kyriakides, one of the most important success factors affecting the adoption of Untangle was the support provided by the Management of the municipality during the implementation of Untangle.

Documentation and resources

Related website: www.untangle.com

Languages of the available documentation: English

3.5.2. Touristic web portal – CZ	
Title	Touristic web portal
Precise issue tackled	<i>"It is an interactive web portal which contains touristic information and applications. You can search accommodation, historical information and mainly information for winter sports (especially skiing)."</i>
Objectives	<ul style="list-style-type: none"> • Strategic independence from vendors lock-in • Enhancement of performance and effectiveness of the IT system • Promotion of open source software • Minimize the need for technical support
Location	Jihlava/Vysocina Region, Czech Republic
Contact information	Mr. Jaroslav Krotky, vysočina03@bestpractices.osepa.eu

Detailed description of the OSS solution

Vysocina Tourism, an allowance organisation of Czech Republic, started in March 2007 to study the possibility of creating a touristic web portal based on OSS tools in order to reduce licensing costs. Five months later, the Vysocina Tourism implemented the touristic web portal. Only four person months were invested from the internal resources of the Vysocina Tourism and the web portal was ready for use. *"We decided to use OSS because it was suitable solution for this project. Low (zero) cost and very good functionality of OSS software were the main motives for this selection. We had also very good knowledge and skills with implementation of OSS because we used these components in some small projects."*

The major OSS components used are the web server Apache 2, the hypertext preprocessor PHP4/5, Google API, MySQL database SQL server, Mozilla Firefox web browser, GIMP 2.6 graphical software and Open Office. The source code of the OSS components was not modified for the implementation of the solution and the license granted was GNU General Public License. The only proprietary software used was the operating system of the server, the Microsoft Windows 2003 Server.

The main organisational problems encountered during the implementation of the web portal were that there were a lot of changes and modifications related to the structure of the OSS solution until the final version was developed and there were a lot of preliminary data to be imported to the database server, *"there was a lot of dirty data"*. The technical difficulty confronted was the incompatibility of some modules of Apache 2 web server and PHP4/5 with Windows 2003 Server operating system.

The touristic web portal was financed by regional funds and the total implementation costs amounted to 1 – 15.000 Euros.

Evaluation

In the Vysocina Tourism they are highly satisfied from the adoption of the touristic web portal in terms of cost– effectiveness and productivity of the organisation. Regarding operation of the organisation/ flexibility of processes, effectiveness of services addressed to the public, data privacy and system security they claim to be considerably satisfied, whereas the level of satisfaction in terms of software and hardware interoperability is moderate.

The main achievements from the implementation of the touristic web portal are:

- The strategic independence from vendors lock-in
- The enhancement of performance and effectiveness of the IT system
- The promotion of open source software
- The minimize of the need for technical support

Nowadays the touristic web portal is in operation and the perspective for the next years is to be expanded, enhanced and replicated.

Lessons learnt

The main lessons learnt from the experience with the touristic web portal based are:

- Open source software adoption leads to cost – effectiveness within a public organisation
- The implementation of OSS application is quick and effective
- Open source software communities can help in the development of an OSS solution both effectively and quickly

Documentation and resources

Related website: <http://www.region-vysocina.cz/index.php?jazyk=en>, <http://www.region-vysocina.cz>

Languages of the available documentation: Czech, English

3.5.3.Xen, hypervisor for server virtualisation – SE	
Title	Xen, hypervisor for server virtualisation
Precise issue tackled	“We needed a flexible, scalable platform for execution of software test environments. We knew virtualisation was the way to go, but were unsure which platform we should choose. ...And our choice was the OSS Xen.”
Objectives	<ul style="list-style-type: none"> • Reduction of procurement costs • Enhancement of performance and effectiveness of the IT system • Experimentation with new IT technologies • Simplification of client and / or server architecture
Location	Compare Karlstad Foundation Compare Testlab, Karlstad/Hammarö, Värmland, Sweden
Contact information	Sven wedemalm: sven.wedemalm@compare.se

Detailed description of the OSS solution

In January 2010 the Compare Karlstad Foundation Compare Testlab started to study the alternative virtualization platforms to be used for the execution of various software test environments. Three months later, they decided to adopt the Xen hypervisor for server virtualisation. The implementation phase lasted for four months and about one to six person months were invested from the internal resources of Compare Testlab in the implementation of Xen.

The source code of Xen was not modified and no proprietary software component was used.

The most important problem encountered during the implementation of Xen hypervisor were some dysfunctionalities during the upgrade of the system.

The Xen hypervisor was nationally funded and implemented mostly in – house. The total implementation costs are estimated between 1 and 15.000 €.

Evaluation

The level of satisfaction from the implementation of Xen hypervisor is considerably high in terms of cost– effectiveness, operation of the organisation/ flexibility of processes, productivity of the organisation, data privacy and system security. Regarding software and hardware interoperability, the level of satisfaction is moderate.

The main achievements from the implementation of Xen hypervisor are:

- The reduction of procurement/ licensing costs
- The enhancement of performance and effectiveness of the IT system
- The experimentation with new IT technologies
- The simplification of client and / or server architecture

Xen hypervisor is now in pilot phase, but the perspective for the next years is to be enhanced, expanded or replicated.

Lessons learnt

As they declare in the Compare Karlstad Foundation Compare Testlab *"It's very important to define what you want to achieve."*

Documentation and resources

Related website: www.compare.se/testlab

Languages of the available documentation: English

3.5.4.FREEDBSD Firewall solution, Vysocina Region, CZ	
Title	FREEBSD - Firewall solution, Vysocina Region, CZ
Precise issue tackled	External firewall to shield the local network from the Internet.
Objectives	<ul style="list-style-type: none"> • Independence from vendor lock-ins • Reduction of licensing / procurement costs • Facilitation of data exchange and shared development strategies
Location	Vysocina Region, Czech Republic.
Contact information	Jaroslav Krotky: vysocinaB1@bestpractices.osepa.eu

Detailed description of the OSS solution

External firewall to shield the local network from the Internet. The firewall was enabled packet filter, which is to prevent attacks from the Internet and to shield the local network. The solutions were stored in the firewall logs from your log system for later analysis. Firewall has 8 interfaces - 1Gbit, there are 20 active VLANs, protocols which are allowed IPv4, IPv6.

Evaluation

Staff was prepared and highly supportive.

No significant technical/organisational problems.

There was no source code modification.

The implemented solution is expected to be retained/sustained in the next 1-2 years.

Lessons learnt

Very easy to install and implement the entire solution. Quality Internet community support in case of problems. A stable solution that is not subject to commercial pressures.

Documentation and resources

Not provided.

3.5.5.Promox Virtualisation Platform (hypervisor), Valmiera City Council, LV	
Title	Promox Server Virtualisation Platform, Valmiera City Council, LV
Precise issue tackled	Server virtualisation.
Objectives	The main objective is to test open source solutions for server virtualisation. One of them is Proxmox.
Location	Valmiera City, Latvia
Contact information	Zane Duze zane.duze@lps.lv

Detailed description of the OSS solution

The decision to move our virtualisation platform to Proxmox was taken by the IT manager at Valmiera City Council considering Proxmox as the ultimate hypervisor (it runs two types of hypervisors on one physical server). Server virtualisation before was also done using open source tools. The migration from the old solution to the new was done online, no real downtime of services occurred. Another good factor for Proxmox is that it is really easy to setup and has all necessary documentation. If we are speaking about the alternatives, there are none that provide this level of functionality. From the moment, we started using Proxmox, we have never thought about changing the hypervisor! We have also managed to migrate physical MS Windows servers into this solution. It gives us a really good level of service.

Proxmox supports online migration between cluster nodes and it runs on Debian Linux. Most configuration is done via web interface. No adoption of the software was needed, it fitted perfectly our needs!

Evaluation

All staff members have experience working with open source. No additional preparation was needed. Administration is easy and intuitive. The solution was implemented in 2010 and is still in operation. It is expected to be expanded or replicated. Satisfaction within the organisation on the implemented solutions is high in terms of cost-effectiveness, productivity and interoperability and considerable when it comes to data privacy and system security.

Lessons learnt

The only lesson is that if you have the 'braveness' to try open-source tools in most cases you will succeed! You just have to try! And if you have in-house knowledge, you will probably achieve your goals with very little expenses comparing to commercial products.

Documentation and resources

<http://www.valmiera.lv/en>

Documentation language(s): English

3.5.6. Bacula Open Source Network Backup Solution, Extremadura, ES

Title	Bacula Open Source Network Backup Solution, Extremadura, ES
Precise issue tackled	In our role as system administrators, there is always a task that is tedious, but at the same time, is the most important for the safeguard of our information, data backup. Data backup is undoubtedly a vital role to recover our information when a problem occurs, either hardware or software, for which, it is important to have appropriate policies and tools for this activity.
Objectives	<i>Simplification of client and / or server architecture</i> <i>Enhancement of system security</i> <i>Strengthening data security</i> <i>Software compatibility or interoperability</i>
Location	Foundation for the development of science and technology in Extremadura / FUNDECYT. Extremadura Region, Spain
Contact information	Nicolas Lopez de Lerma nicolas@esdebian.org

Detailed description of the OSS solution

In our role as system administrators, there is always a task that is tedious, but at the same time, is the most important for the safeguard of our information, data backup. Data backup is undoubtedly a vital role to recover our information when a problem occurs, either hardware or software, for which, it is important to have appropriate policies and tools for this activity. Basically, an application is network-based backup. Its structure is ideal for maintaining support from different computers (clients) with a centralized control server (director), and other data storage (storage). Bacula stores the list of jobs, files and volumes associated in a database. Bacula can backup data stored in different types of media such as tape drives or hard drive. The disk backup can be on a directory or directly on the raw partition. Restoring Files: the goal of maintaining a backup is to recover and restore data as quickly as possible. This task becomes trivial from bacula, all that is required is to have properly configured the demons and keep on hand bconsole command. Conclusion: Bacula is a great tool to keep track of automated backup of a network by adding very little burden on customers and maintaining centralized control. In my view, is one of those tools that all system administrators should be marked as essential to its

operation. The major complication that I noticed is the huge amount of options and the learning curve involved. But once understood, really can save you from many disasters, and save you time in the restoration of your systems. As a final comment, it should be stressed that although we facilitate the work bacula backup is very important to have backup policies and retention of well-defined data to maximize our resources.

What is Bacula? Bacula is a set of computer programs that permits the system administrator to manage backup, recovery, and verification of computer data across a network of computers of different kinds. Bacula can also run entirely upon a single computer and can backup to various types of media, including tape and disk. Bacula is made up of the following five major components or services: Director, Console, File, Storage, and Monitor services. Bacula Director: The Bacula Director service is the program that supervises all the backup, restore, verify and archive operations. The system administrator uses the Bacula Director to schedule backups and to recover files. The Director runs as a daemon (or service) in the background. Bacula Console: The Bacula Console service is the program that allows the administrator or user to communicate with the Bacula Director. Currently, the Bacula Console is available in three versions: text-based console interface, QT-based interface, and a wxWidgets graphical interface. Bacula File: The Bacula File service (also known as the Client program) is the software program that is installed on the machine to be backed up. It is specific to the operating system on which it runs and is responsible for providing the file attributes and data when requested by the Director. The File services are also responsible for the file system dependent part of restoring the file attributes and data during a recovery operation. This program runs as a daemon on the machine to be backed up. Bacula Storage: The Bacula Storage services consist of the software programs that perform the storage and recovery of the file attributes and data to the physical backup media or volumes. Catalog: The Catalog services are comprised of the software programs responsible for maintaining the file indexes and volume databases for all files backed up. The Catalog services permit the system administrator or user to quickly locate and restore any desired file. The Catalog services sets Bacula apart from simple backup programs like tar and bru, because the catalog maintains a record of all Volumes used, all Jobs run, and all Files saved, permitting efficient restoration and Volume management. Bacula currently supports three different databases, MySQL, PostgreSQL, and SQLite, one of which must be chosen when building Bacula. Bacula Monitor: A Bacula Monitor service is the program that allows the administrator or user to watch current status of Bacula Directors, Bacula File Daemons and Bacula Storage Daemons.

There are a number of different licenses that are used in Bacula. GPL: The vast bulk of the source code is released under the GNU General Public License version 2.GplChapter. Portions may be copyrighted by other people. These files are released under different licenses which are compatible with the Bacula GPLv2 license. LGPL: Some of the Bacula library source code is released under the GNU Lesser General Public License.LesserChapter This permits third parties to use these parts of our code in their proprietary programs to interface to Bacula. Public Domain: Some of the Bacula code, or code that Bacula references, has been released to the public domain. E.g. md5.c, SQLite.

Evaluation

No staff preparation was considered necessary since “Bacula is a solution oriented to system administrators and the final users are not involved in this task”.

The main organizational difficulty is that installation and preparing the backup system is complicated and there should always be reference to the official documentation. High level of knowledge of the tool is also required.

Lessons learnt

Not enough data provided.

Documentation and resources

Documentation language(s): English, Spanish.

3.5.7. Open source online survey tool, University of Sheffield, UK

Title	Open source online survey tool, University of Sheffield, UK
Precise issue tackled	The use of a FOSS solution to conduct an online survey on Open Source usage and perceptions in public administration across 20 European countries targeting 12 thousand respondents.
Objectives	LimeSurvey online survey software was used to conduct a survey across 20 European countries targeting 12 thousand respondents.
Location	University of Sheffield, UK
Contact information	Andrea Corbett: ufsd01@osepa.eu

Detailed description of the OSS solution

The OSEPA (Open Source software usage by European Public Administrations) survey will be implemented among the public administrations of at least 20 European countries with the purpose to assess the level of FOSS (Free and/ or Open Source Software) usage within the European public administrations. The OSEPA questionnaire aims to collect individual views and opinions based on significant relevant experience with the issues of FOSS adoption and of IT infrastructures within European public administrations. The purpose of the OSEPA survey is the identification of FOSS usage level among European public administrations. More specifically the OSEPA survey intends to:

- Reveal the benefits and drawbacks related to FOSS adoption within European public administrations
- Investigate the key factors (motives and inhibitors) in legal, financial, technical/ technological, organizational/ administrative and strategic level influencing the migration potential of European public administrations to FOSS
- Assess the readiness of European public administrations to migrate to FOSS,
- Identify attitudes and experiences of the personnel working for European public administrations towards FOSS adoption.

The survey was targeted to 12 thousand respondents in 20 European countries.

Evaluation

The solution was implemented in 2011. Very few members of staff were involved all with technical ability. There were some issues with automatic translation of the survey into the languages required as it uses Google translate which does not operate for large scale translation. Translations, therefore, had to be carried out largely manually. Overall satisfaction with the applied solution was high in terms of cost-effectiveness and medium to considerable when it comes to services addressed to the public, flexibility of processes and interoperability.

Lessons learnt

This was a successful implementation of a survey targeting large numbers of respondents in a number of countries. We would recommend this solution for subsequent surveys.

Documentation and resources

<http://www.osepa.eu/>

Documentation language(s): English

3.6. E-government / public service platforms

3.6.1. Digital visit, SE	
Title	Digital Visit
Precise issue tackled	POI navigation, visitor experience.
Objectives	<ul style="list-style-type: none"> • “Quality of the experience for the visitor” • “Economic impact for business in the region” • “Reducing tourist bureau workload”
Location	Umeå kommun, SE
Contact information	Thomas Kvist: thomas.kvist@umea.se

Detailed description of the OSS solution

The guide is basically a web application built in the CMS Joomla with an interface suited for mobile phones. Joomla is in turn built on a LAMP-stack (Linux, Apache, MySQL, PHP). The Mobile Guide is accessed using the web browser of a mobile phone or a tablet/computer. The code was originally developed for Joomla 1.5.xx but has been or is about to be adapted to Joomla 1.6.xx. The additional templates, plug-ins and components created to enhance the existing functionality in Joomla have also been released as OSS, hence making it possible for anyone wanting to adapt and use the guide to do so. The components etc created by the project are:

- **MobiView and MobiVisit:** templates for Joomla designed to fit the screen of most smartphones and tablets on the market
- **MobiMaps:** a plug-in that shows the POI on a scrollable map in which you can activate/deactivate different layers. You can also fetch geotagged images from the image hosting site Flickr that are geotagged with a position close to the POI you are looking at
- **MoreInfo:** a small plug-in that provides contact information and other information connected to the POI.
- **MobiRate:** a component that provide functionality for the visitor to rate and comment on the performance/quality of the POI.
- **MobiShare:** a plug-in that connects the Mobile Guide to Facebook and Twitter, making it easy to switch to that system for commenting on the POI.

- **MobiForms:** a component that provides functionality for the visitor to answer questions in the form of a survey or a competition.

The guide also has functions for importing information about POIs from Tellus and a function for initiating a telephone call to a predefined number by touching an icon. The latter function is used to provide an “audio guide” by directing the call to an answering machine with a recorded message containing information about the POI. We have avoided using JavaScript in the code we developed. Some phones do not support JavaScript and some users have disabled JavaScript on their phones due to security concerns. The webpages generated with the code created by the project complies to W3C Standards XHTML Mobile Profile v1.2 and CSS Level 2.1.

The project has created official visitor guides accessed using web browsers on mobile phones. Existing open source software (OSS) has been combined with extensions created by the project to achieve the required functionality. The guides were created to provide visitors with information when tourist bureaus and tourist-oriented companies are either closed or do not exist. The project originated in a study increasing the region's attractiveness as a tourist destination and economic output from tourism by providing information to visitors about points of interest (POIs). The project was conducted by Umeå Municipality and was funded by Umeå, Robertsfors, Skellefteå and Piteå municipalities and the regional authorities for Västerbotten and Norrbotten, together with the European Union's Structural Funds.

The project's main objectives can be divided into these three “dimensions”:

- “Quality of the experience for the visitor”
- “Economic impact for business in the region”
- “Tourist bureau workload”

For “Quality of the experience for the visitor”, the objective was to create additional information that did not already exist and, foremost, to increase the availability of already existing information about the POIs for visitors before and during their stay at the POI in order to enhance the visitor's experience. In many cases, information to visitors only includes information about the municipality/region and is thus not useful for visitors who want information about POIs in the neighbouring municipality, even though the POIs may be very close geographically. This implementation of invisible administrative borders decreases the quality of the experience for the visitor. Information should be available to visitors when they wanted it without them having to carry around a computer or having to have guidebook with them all the time. For the “Economic impact for business in the region” dimension, the presumption was that increased availability of information about POIs would increase the number of visitors and/or encourage visitors to stay longer and spend more money in the region. By providing information about additional commercial POIs, such as restaurants and arts & crafts shops, in the vicinity of both existing non-commercial POIs and commercial POIs, more business activity would occur. It was also important that the solution can be used by small destinations, small commercial operations in the tourist industry and by non-profit organizations without them having to pay expensive licensing fees and so on. Small financial resources should not prevent anyone from creating their own guide. Low costs for creating and running a guide would also make it financially viable to create guides for smaller target groups that could be a significant target group for a small actor.

For the “Tourist bureau workload” dimension, a cost-effective solution was important, especially regarding the cost of maintaining and running the guide after the system development phase. To limit additional workload on the tourist bureaus or destination companies, it was crucial that the existing information about POIs in current the systems for official web pages could be re-used in the mobile guide. It was also important that the solution did not involve any hardware that must be sold, lent or rented from the tourist bureaus or destination companies since the level of wear and tear is high and this generates cost. Dependence on lent or rented hardware also makes it impossible use the solution outside office hours. Smaller destinations might not even have premises in which a lending/renting operation could take place.

The reason for choosing a web application was mainly the cost of future maintenance of the application. For a non-web application to work for most mobile phones requires maintaining multiple versions of the code. Non-web applications are often only possible to install using an “app-store” owned by the a particular company, e.g. Apple's App Store. And if Apple or some other app storeowner wants to cut you off from their distribution channel, they can do that if they want. And since alternative distribution channels do not exist, being prohibited from distributing through the official channels can cause serious problems.

The reasons for choosing open source software were:

Many small tourist bureaus or destination companies have small budgets but might have access to people who have knowledge about IT. Since this guide is available free of charge and will be very cheap to adapt and run due to the lack of licensing costs, any interested party that has knowledge but lacks financial resources will be able to act thanks to the use of OSS.

By using open source software, much of the basic functionality is already created by someone else. We can focus on adding functions that increase value explicitly to visitors/tourists. We can also take advantage of the on-going development of “Joomla” We have used an agile developing method with frequent releases made operational, each iteration adding to the functionality in the previous version

Evaluation

The project was mostly implemented by external consultants. No major problems. A minor problem is the difference of size and resources between the different municipalities involved in the project. Technical problems: we tried to use the integration tool “Apatar” in the integration towards the tourist information system “Tellus” but did not succeed. The documentation of Apatar was not good enough. The release of Joomla 1.6 was a big change from version 1.5 and forced us to rewrite quite a lot of code.

The overall satisfaction within the organisation is ranges from “considerable” to “high”.

The implemented solution is to be expanded/replicated.

Lessons learnt

If possible, start with an CMS. You get a lot of pre-constructed functionality. Anticipate problems with the suppliers of proprietary systems that contain data you want to access. Make sure that you know how the contracts are written. Work in an agile manner. Release new versions at least bi-monthly for the organisations users to test and get ideas for new or improved functionality. The creativity is triggered by testing the application hands on. And the ideas are better than the ideas hatched in a conference room looking at powerpoints etc.

Documentation and resources

Documentation language(s): Swedish

3.6.2. INovomestsko project: Free accessible network of internet kiosks for eGovernment services – CZ

Title	INovomestsko project: Free accessible network of internet kiosks for eGovernment services
Precise issue tackled	<i>“The main objective of the project was to establish an integrated communications infrastructure remotely administrated network of information kiosks that are connected to broadband Internet”</i>
Objectives	<ul style="list-style-type: none"> • Strategic independence from vendors lock-in • Simplification of client and / or server architecture • Software interoperability or compatibility issues • Minimize the need for technical support
Location	Municipality Nové Město na Moravě, Vysocina Region, Czech Republic
Contact information	Mr. Jaroslav Krotky, krotky.j@kr-vysocina.cz

Detailed description of the OSS solution

The discussion of the INovomestsko project preparation in the municipality Nové Město na Moravě started in early 2003. One year later started the implementation of the free accessible network of internet kiosks with the intention to facilitate eGovernment services for citizens and tourists. The internet kiosks also serve as source of touristic information and have multi – language support.

The OSS solution was implemented mostly in – house by the IT department of the municipality Nové Město na Moravě. An ICT (Information and Communication Technologies) specialist from the municipality developed the open source application for the management of the network.

The major OSS components used are Linux operating system, Apache 2 web server, PHP 4/5 hypertext preprocessor, MySQL4 database SQL server, Python programming language and the web browser Mozilla Firefox. The source code of the OSS components was modified so as to meet the needs and expectations of the municipality and the license granted for the implementation of the OSS solution were GNU and GPL. No proprietary software component was used.

The main organisational problem encountered by the municipality Nové Město na Moravě was the difficulty to collaborate with a large amount of municipalities (35 municipalities in total), while in technical sector they had difficulties related to the remote monitoring and the remote provision of technical support for the internet kiosks.

The OSS solution was financed by local and European funds. The total implementation costs amounted to 1 – 15.000 Euros.

Evaluation

In the municipality Nové Město na Moravě they are highly satisfied from the experience with OSS in terms of cost– effectiveness, operation of the organisation and flexibility of processes, effectiveness of services addressed to the public. Regarding the productivity of the organisation, data privacy and system security, they declare to be considerably satisfied, whereas the satisfaction from software and hardware interoperability of the OSS application is moderate.

The main achievements from the experience with OSS are:

- The strategic independence from vendors lock-in
- The simplification of client and / or server architecture
- The software interoperability or compatibility issues
- The minimization of the need for technical support

The project is today in operation, new online applications have been developed and the perspective for the next years is to be further developed and expanded.

Lessons learnt

The main lessons learnt from the experience with OSS are:

- Open source software is “cheaper” in comparison with proprietary software, as it is “*is not necessary to pay for licenses*”
- The open source solutions can be configured according to the needs of the public administration
- The involvement with OSS contributes to the gathering of experiences related with OSS
- The OSS communities increase in number and therefore, the public organisation can easily find technical support and troubleshooting in the field of open source software

Documentation and resources

Related website: <http://ruprt.nmnm.cz/doku.php?id=projekt> , <http://ruprt.nmnm.cz/doku.php?id=kiosek> , <http://drupal-en.nmnm.cz/>

Languages of the available documentation: Czech, English

3.6.3. Local Government Access Framework (LGAF) platform – GR	
Title	Local Government Access Framework LGAF) platform
Precise issue tackled	In the context of the project “Coordination of Local Government Authorities”, Central Union of municipalities and communities of Greece (KEDKE) implemented the LGAF platform for the provision of online services to the public and the automation of processes and services provided by the Greek local authorities to citizens and businesses.
Objectives	<ul style="list-style-type: none"> • Improvement of performance and effectiveness of the organisation • Strategic independence from vendors lock – in • Reduction of procurement (licensing) costs • Enhancement of performance and effectiveness of the IT system • Optimisation/ simplification of organisation processes • Software interoperability or compatibility issues
Location	Greece
Contact information	Mr. Nikos Roussos, nikos.roussos@eellak.gr

Detailed description of the OSS solution

Central Union of Municipalities and Communities of Greece adopted LGAF platform, which constitutes an application platform for the provision of online services to the public. LGAF is mostly based on BETACMS, which is an open source software content management system (CMS).

LGAF platform supports online services to local citizens (e.g. family record certificates, municipal tax payments, recycling of electrical appliances etc) and to businesses (e.g. municipal tax payments). More specifically, the LGAF platform focuses on five key areas of functionality that make up the modern enterprise applications and infrastructure of electronic services:

- Modeling and user management (Identity Management)
- Modeling and business process management as a synthesis of various reusable functions (BPM and SOA)
- Modeling and enterprise content management (ECMS)
- Composition and orchestration of heterogeneous systems (ESB)
- Easy access to electronic services by machines and humans through interfaces based on Web (RESTful APIs, Web Browser)

LGAF platform establishes online task management of the activities related to online services delivery and defines a framework for digitizing eGovernment services provided by local government authorities through the automation of business processes.

The study phase of LGAF platform started in January 2009, while the implementation commenced in January 2010.

The license granted in the context of LGAF platform adoption is the LGPL (Lesser General Public License) and no proprietary software components have been used.

The most important organisational problem encountered by KEDKE was to overcome the reluctance of the staff for the migration to a new platform. Secondly, there was a lack of funding and therefore it was *“hard to find developers or companies to support the project”*.

The most significant technical problem encountered was the lack of software interoperability, that is, to convert old documents of proprietary formats to open standards.

LGAF platform was privately funded and implemented mostly by external consultants. The total implementation costs are estimated between 1 and 15.000 €.

Evaluation

In KEDKE they are highly satisfied from the adoption of LGAF platform in terms of cost-effectiveness and software and hardware interoperability/ data longevity. Regarding the operation of the organisation/ flexibility or processes, the productivity of the organisation, the effectiveness of services addresses to the public, data privacy and system security, they declare to be considerably satisfied.

The main achievements from the adoption of LGAF platform are:

- Improvement of performance and effectiveness of the organisation
- Strategic independence from vendors lock – in
- Reduction of procurement (licensing) costs
- Enhancement of performance and effectiveness of the IT system
- Optimisation/ simplification of organisation processes
- Software interoperability or compatibility issues

LGAF platform is still in pilot phase and the perspective for the next years is to be enhanced, expanded or replicated.

Lessons learnt

The main lesson learnt from the adoption of LGAF platform is that a strong community in the field of OSS has to be developed before the adoption of OSS solutions from an organisation. The development of OSS communities helps to expand and support the adoption and the customization of OSS solutions.

Documentation and resources

Related website: <http://lgaf.kedke.org/>

Language of the available documentation: Greek

3.6.4.JBOSS portal Municipality of Archalochori, Crete, GR

Title	JBOSS Portal Server
Precise issue tackled	Development of an Information Portal for the Municipality having as main target the promotion of the local area and cultural attractions.
Objectives	Development of an Information Portal for the Municipality having as main target the promotion of the local area and cultural attractions.
Location	Municipality of Archalochori, Crete, Greece
Contact information	George Lytras: g.lytras@cyberce.gr

Detailed description of the OSS solution

JBOSS Portal Server OSS has been adopted for the development of an Information Portal for the Municipality having as main target the promotion of the local area and cultural attractions.

The Information Portal has been funded partially from EU and partially from national resources. The project has been successfully fulfilled in cooperation of the technology provider CYBERCE SA, an IT company specialised in e-commerce and e-business applications, after an open tender process followed and assignment of the project to the selected technology provider after evaluation of the submitted offers. The final overall system consists of a set of OSS and commercial solutions, while the main Portal Server is JBOSS OSS software. During the project 5 Municipalities (Archalochori, Thrapsano, Oropedio Lasithiou, Krousonas and Tylisos) cooperated with the technology provider in order to provide the necessary requirements. The communication of the involved parties has been excellent, but this could be considered as the most difficult task of the project (involvement of many key players). Data from the existing Portals of the involved Municipalities have been migrated successfully to the new Information Portal.

Components used: The selected OSS solutions for the development of the Information Portal include the following: JBoss Application Server (application server), JBoss Cache (complementary software of the application server), Jboss Profiler (traffic monitoring), JBoss Portal Server (portal server), OpenLDAP (LDAP server) and Eclipse IDE (development environment)

Licences used: JBoss Application Server (application server), JBoss Cache (complementary software of the application server), Jboss Profiler (traffic monitoring), JBoss Portal Server (portal server), OpenLDAP (LDAP server) and Eclipse IDE (development environment)

Evaluation

Organisational problems: Coordination of the involved parties, lack of full time availability of the involved personnel due to other obligations to their day to day working activities.

Technical problems: Integration of the OSS software with the proprietary solutions (successfully integrated).

The staff was prepared through training and presentations and was highly supportive.

The satisfaction with the implemented solution within the organisation ranges from “high” in terms cost-effectiveness, operational flexibility and services provided to the public to “medium” or “considerable” when it comes to system security, data privacy and interoperability:

The implemented solution expected to be transferred/replicated in the coming years.

Lessons learnt

Flexibility in maintainability, extensibility and mobility

Documentation and resources

www.ways2crete.gr

Documentation language(s): Greek, English

3.6.5.PloneGov	
Title	PloneGov
Precise issue tackled	Many of the organizations using Plone (a free software enterprise-class CMS) joined to share experiences and founded PloneGov (www.plonegov.org). PloneGov Italia is the national branch of PloneGov.
Objectives	<ul style="list-style-type: none"> • Independence from vendor lock-ins • Reduction of licensing/procurement costs • Strengthening of data security
Location	Italy (project implemented on national scale)
Contact information	Cesare Brizio: cesare@zeapartners.org

Detailed description of the OSS solution

Plone is among the top 2% of all open source projects worldwide, with 340 core developers and more than 300 solution providers in 57 countries. The project has been actively developed since 2001, is available in more than 40 languages, and has the best security track record of any major CMS. It is owned by the Plone Foundation, a 501(c) (3) not-for-profit organization, and is available for all major operating systems. PloneGov (<http://www.plonegov.org>), a multi-awarded world wide initiative, for two times in a row a finalist at the european e-Government awards, is perhaps the most successful experience - on a global scale - in collaborative software ecosystems for the Public Sector. With its galaxy of subcommunities in four continents and twenty countries, among which the Italian subcommunity PloneGov Italia (<http://www.plonegov.it>), PloneGov proved capable to unite the efforts and the experience of public organisations, cities and local governments faced with the same situations and challenges in terms of e-government. All the participant organisations share a common technology, the free CMS Plone, world noted as the most complete and versatile software framework to build Web portals and Intranets, as well as application software including document and workflow management, and capable to integrate with third-party services (like those from Google), as well as of providing more than a thousand free add-ons for specific uses including newsletters, forum, multimedia, "Web 2.0" interactivity, surveys, online forms and many more. PloneGov provides both a software repository for sharing several different solutions based on Plone, and a mind pool where any organisation from the Public Sector can offer or receive - for free - reusable Plone solutions, expertise and know-how from the very same people that designed and developed those best-practice solutions, fit for the public sector. PloneGov takes advantage of the technical support by ZEA Partners, a global network of SMBs, available when needed. Thanks to this support and to the active involvement of both the PloneGov member organizations and of the SMBs in the Plone community, PloneGov is constantly growing along with the number of solutions available. Plone SMBs may help even the smallest organizations willing to engage in reuse, a good practice usually precluded to those lacking an internal IT staff. Based on a powerful, enterprise Content Management System, the PloneGov initiative can:

- include groups at risk of exclusion in eGovernment practices;
- improve user segmentation in eGovernment services;
- provide invaluable experiences, like those from the awarded best practice, Health Atlas Ireland, for inclusive eGovernment in healthcare;
- provide multichannel delivery services and eGovernment services at the different levels of the value chain;
- give autonomy to the Public Organizations in all the lifecycle of design, production, delivery, access and use of inclusive eGovernment services;
- boast an "Inclusive by design" approach, thanks to an architecture designed for accessibility by users, including those sensorially impaired, and for crawlability by search engine spiders;
- leverage on Plone to market, target and promote eGovernment services for specific disadvantaged groups.

Initiated by small towns, PloneGov is open to all type of collaborations. It already reaches cities, regions, parliaments and administrations. Truly international, the project spans over 4 continents and reaches 20 countries. PloneGov success results from a close collaboration between public organizations, open source communities and Zea Partners, an international non-profit network for companies building open source solutions, with registered office in Ferrara, Italy. Compared with other PloneGov subcommunities, PloneGov Italia is both the most lively and the one encompassing the highest diversity of organizations, making it a scaled-down version of the PloneGov global initiative. In Italy, the diffusion of Plone and the success of PloneGov Italia were favored by the advanced Italian Laws encouraging the reuse of software among Public Organizations. Deciders from the Public Sector felt encouraged, and the availability of technical support from several SMBs - in particular, those from the ZEA Partner business network mentioned above - providing installation, customization and training services, put the Italian Public Sector in the condition of adopting Plone in a variety of niches. Among the key users of Plone in Italy, we must cite the influential Emilia Romagna Region. A Plone solution from Emilia Romagna, like the Youth Information Portal, was selected by the Ministry of Youth for national adoption.

The source code was modified.

Licences used:

Plone itself is released under the GNU General Public License (GPL) version 2. This is the same license used for the Linux operating system. See LICENSE.txt and LICENSE.GPL in the Plone distribution, or see <http://www.gnu.org/licenses/gpl.html> and <http://www.gnu.org/licenses/gpl-faq.html> for further information. The adoption of EUPL license is under discussion within PloneGov Italia: that license can be implemented with non-conflicting additional clauses that may include the obligation to release any derivative work to the PloneGov Italia community.

Added reasons and achievements: compliance with the laws about website accessibility p. Compliance with laws about software reuse in the Public Sector

Evaluation

Nationwide practice of major scale, implemented both in-house and externally.

Staff was trained and prepared through a series of events and initiatives (presentations, seminars and training processes, PloneGov Italia events) since “although content editing in Plone sites and Intranets does not require any specific ability (apart the use of a Word-like text editor interface), setting up and maintaining a Plone portal or intranet require specific training.” The staff was highly supportive to the implemented solution.

Organisational problems: 1) Most adopters chose Plone to substitute a previous CMS solution. Migrating from previous commercial CMS solutions: this issue is unrelated to Plone itself, it's the classical issue of changing habits. 2) the "More power, more responsibilities" issue. Plone, thanks to its ease of use and through the web approach, lets each office in the organization perform its own content management, instead than the classic approach of a single central editorial office. Plone does that, while preserving security and allowing control on publication of approved contents both at local and at central level. In a general sense, those opportunities led to higher level of responsibility in the offices that previously did not manage their contents themselves. This issue necessitated organizational adjustments. 3) Some misconceptions and prejudices about free software needed to be overcome, including that the lack of a big corporate sponsor implies lack of technical support. This is very far from true because, apart the companies part of the ZEA partners network mentioned above, several businesses and free lance consultants are active all over the world.

Technical problems: I would talk about challenges, all solved, rather than problems. Migration from the oldest releases of Plone to the newest releases may be tricky, but publicly available components have solved that issue. Interaction with third-party web services may need case-specific Python development. Zope and Plone cannot scale-up by themselves: configuring the system for redundancy, high availability, content caching requires defining context-specific strategies. Plone has the highest security standard of any CMS and its very unfrequent security issues are fixed by the community in a very few days.

Lessons learnt

There is intrinsic laziness in the Public Sector, and at least in Italy there is no viable administrative path for economic pooling among Public Organizations, especially diverse organizations referring to different ministries. This was the main obstacle for collaboration, the unavailability of an official "modus operandi" to manage resource pooling. Despite that, the most active PloneGov Italia members were able to involve other organizations and collaborated with the SMBs providing Plone services, in the organization of important events, also at a national scale. PloneGov Italia is still warming up, there are great hopes for the future because this kind of collaboration makes the public sector less expensive and encourages innovation. Many other positive aspects may be deduced from the other fields in this survey.

Documentation and resources

<http://www.plonegov.it/> (Italian text only) <http://www.plonegov.org/references/> (English, includes references to the Italian sub-community) <http://plone.org>

Whole CMS-based solutions, including institutional Web Portals, Intranets, Web applications. Furthermore, thanks to the modular nature of Plone, based on the Python language, hundreds of add-ons ("Plone products") are available on <http://pypi.python.org/pypi?%3Aaction=search&term=plone&submit=search> and on <http://plone.org/products>. Besides customizing their Plone installation with those product, many Public Organizations in Italy developed their own new products and often released them for public reuse. At Intranet level, complex document-management and process-management solutions were developed, including <http://plone.org/support/case-studies/quasar-scrivania-virtuale>

Documentation language(s): Native support of several languages.

3.6.6. Electronic Systems for Vending Machines - Codes service Provision (E-CODES), GR

Title	Electronic Systems for Vending Machines - Codes service Provision (E – CODES)
Precise issue tackled	Development of an remote electronic system for vending machines for the better provision of services from businesses to citizens
Objectives	<ul style="list-style-type: none"> • Reduction of procurement (licensing) costs • Improvement of performance and effectiveness of the organisation • Enhancement of system security • Strengthening of data security
Location	Patras, Achaia, Greece
Contact information	Vasileios Kokkinos, kokkinos@upatras.gr

Detailed description of the OSS solution

The solution intended to manage geographically propagated vending machines, however it can be transferred to Public Administrators for example to control parkings, parking meters, tourist kiosks, etc. The solution is currently used to control more than 50 vending machines in the wider area of Western Greece Region. The system is able to manage propagated geographically vending machines that provide specific services. These vending machines (via their equipment) fulfill specific services to the citizens (such as provision of theater tickets, vending cards for mobile telephones). In order to keep the cost for the whole system in acceptable levels (since the number of vending machines increases rapidly), an open source operating system (Debian-Linux) was selected for the vending machines. Moreover, it is worth mentioning that the installed version in the vending machines was Debian Stable Netinst (base installation) with the addition of several packages for desktop environments (xserver, fluxbox, etc.). This version was selected in order to reduce the installation space (running from a memory card of 1GByte). All the unnecessary packages were removed from the basic installation. The installation space was finally reduced to 380-400 MBs. Among others, Debian Linux was selected for the following advantages: upgradability, cost-efficient (it's free), bug tracking system, small size of distribution. The user interface in the vending machines was implemented using Mozilla Firefox. R-kiosk extension was used that defaults to full screen, disables all menus, toolbars, key commands and right button menus. This extension could prevent end-users from exiting the application and possibly damage the operation of the vending machines. The system was designed in order to ensure the security and record all running operations. All the distributed information from and towards the vending machines is stored in a data base created in MySQL. The operations executed in the data base include the management and registration of all the terminals that belong to the system, monthly

recording of the provided services, monitoring of the terminals with diagnostic tools, storage the information. In order to manage the information and stored data the system uses phpMyAdmin.

Software packaged for Debian is normally classified into one of four categories. There is free software (main), non-free software (non-free), free software which depends on some non-free software (contrib) and software which cannot be redistributed (not included). For the implementation of the project E-Codes we used the free software (main) that is under the Debian Free Software Guidelines (DFSG). For more information please refer to http://www.debian.org/social_contract#guidelines. - All Mozilla software is open source. This means that it is not only available for download free of charge, but you have access to the source code and may modify and redistribute our software subject to certain restrictions as detailed in our license agreements. Although the code is free, it is very important that there are strictly enforced the trademark rights, in order to keep them valid. The trademarks include, among others, the names Mozilla®, mozilla.org®, Firefox®. - PhpMyAdmin is released under GNU General Public License, version 2. This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; version 2 of the License. - The MySQL Software that was used for the implementation is provided under the GPL License.

The vending machines and the central servers do not use any proprietary software components. The only proprietary software necessary were the drivers for the corresponding peripheral devices (such as printer and touch screen).

The study phase of the OSS solution started in March 2003 and lasted for ten months. After the study phase started the implementation of E-CODES, which lasted a whole year (till the end of 2004).

The staff of the organisation was somewhat supportive towards the adoption of E-CODES system and was prepared through presentations, demonstrations and audiovisual supporting material for the effective migration to E-CODES.

During the implementation of the E-CODES system no specific managerial or technical problem was encountered. However, the available space of the basic installation (Debian Stable Netinst) had to be reduced and the unnecessary packages were finally removed from the basic installation.

Evaluation

E-CODES system highly satisfied the organisation where it was adopted in terms of cost-effectiveness, productivity of the organisation, effectiveness of services addressed to the public and data privacy and system security. Regarding the operation of the organisation and the flexibility of processes after the adoption of the E-CODES system, the organisation claims to be moderately satisfied, while the satisfaction is low in relation with software and hardware interoperability and data longevity.

The adopted oss solution encountered no major organisational or technical problems during the implementation. The main difficulty was the reduction of the basic installation (Debian Stable

Netinst), since the operating system was running from a memory card of 1GByte. However, after some effort all the unnecessary packages were removed from the basic installation. The installation space was finally reduced to 380-400 MBytes.

The main achievements from the adoption of the E-CODES system are:

- The improvement of performance and effectiveness of the organisation
- The strategic independence from vendors lock – in
- The optimization/ simplification of organisation processes
- The minimization of need for technical support

E - CODES system is nowadays in operation and the perspective for the next years is to be enhanced, expanded or replicated. The system is operating at the moment and controls more than 50 vending machines. With minimal changes it may be used by local or regional public administrations.

Lessons learnt

Generally the usage of open source software for the implementation of the E- CODES system proved to be beneficial for the IT team involved in the project. The main lessons learnt from the experience with E – CODES system are the following:

- OSS is considered to be stable and reliable
- Open standards give users the flexibility to change between different software packages, platforms and vendors
- The use of OSS programs leads to the reduction of licensing costs and to the increase of savings within an organisation
- From a business perspective the most important lesson learnt is related to the total cost of ownership (TCO). According to RACTI, the solution with lowest TCO is usually the most desirable one and the most applicable for the predominant business models.

The systems relies on FOSS and is stable and reliable. - The license cost was very low and the whole budget was significantly reduced. - The solution can be transferred to PAs and municipalities (to contro/manage oarkings, parking meters, info kiosks for tourists, etc)

Documentation and resources

Related websites:

- <http://www.debian.org/index.en.html>
- <http://www.mozilla-europe.org/en/firefox/>
- <https://addons.mozilla.org/en-US/firefox/addon/1659/>

- <http://www.mysql.com/>
- http://www.phpmyadmin.net/home_page/index.php

Language of the available documentation: Greek

3.7. Education / E-learning platforms

3.7.1. MOODLE: e – learning software platform – CY	
Title	MOODLE: e – learning software platform
Precise issue tackled	<i>“At the time and until now, University of Cyprus has a proprietary Course management system called blackboard... Because the IT department... was not very satisfied of the performance of the blackboard system they took the decision to make a research for a similar OSS”.</i>
Objectives	<ul style="list-style-type: none"> • Improvement of performance and effectiveness of the organisation • Strategic independence from vendors lock-in • Reduction of procurement costs • Minimize the need for technical support
Location	University of Cyprus, Computer Science Department, Nicosia, Cyprus
Contact information	Mr. Nicos Kyriakides, knicos@gmail.com

Detailed description of the OSS solution

In July 2008 the IT department, responsible for the development and support of software application within the Computer Science department of the University of Cyprus, took the decision to adopt the MOODLE platform as an alternative to the proprietary course management system previously used, *blackboard*. MOODLE (Modular Object-Oriented Dynamic Learning Environment) is a free and open-source e-learning software platform, belonging to the Content Management Systems (CMS). The adoption of MOODLE was overall successful, as *“there weren't any problems during the adoption of the software and not any migration was needed. No legal issues were arisen at the time.”*

The open source components used were Linux server, Apache web server and MySQL database. The source code of MOODLE was not modified. No proprietary software component was used. MOODLE is released under GPL license.

The staff of the University was somewhat supportive towards the adoption of MOODLE and was prepared through seminars and training for the migration to the open source platform.

The adoption of MOODLE was locally funded and implemented by the IT department of the Computer Science department of the University of Cyprus. The total implementation costs are estimated between 1 and 15.000 €.

Evaluation

In the Computer Science department of Cyprus University they are highly satisfied from the adoption of MOODLE in terms of cost– effectiveness and considerable satisfied regarding the operation of the organisation/ flexibility of processes, the productivity of the organisation, system security and software and hardware interoperability. However, they declare to be totally dissatisfied in terms of effectiveness of services addressed to the public and data privacy.

The main achievements from the adoption of MOODLE are:

- The improvement of performance and effectiveness of the organisation
- The strategic independence from vendors lock-in
- The reduction of procurement/ licensing costs
- The minimization of the need for technical support

MOODLE is nowadays in operation and the perspective for the next years is to be enhanced, expanded or replicated.

Lessons learnt

The main lessons learnt from the experience with MOODLE are:

- There was not any special problem encountered during the adoption of MOODLE
- The OSS solution adopted *“can offer the same benefits as a proprietary system with less cost”*.

Documentation and resources

Related website: www.moodle.org

Languages of the available documentation: English

3.7.2. Web portal for the schools' IT operations and IT-based teaching – GE

Title	Web portal for the schools' IT operations and IT-based teaching
Precise issue tackled	Adoption of a complete IT solution with many additional components for the central and decentralized management of the schools' IT operations and IT-based teaching
Objectives	<ul style="list-style-type: none"> • Strategic independence from vendors lock-in • Reduction of procurement costs • Enhancement of performance and effectiveness of the IT system • Optimization/ Simplification of organisation processes • Simplification of client and / or server architecture • Minimize the need for technical support
Location	Government for Education and Science, Bremen, Germany
Contact information	Mr. Ralf Peter Hinze, ralf-peter.hinze@bildung.bremen.de

Detailed description of the OSS solution

The Government for Education and Science of Bremen in Germany is a national public organisation with a large number of employees. In 2003 the public administration decided to adopt a complete IT solution with a lot of additional components for the creation of a web portal for the central and decentralized management of the schools' IT operations and IT-based teaching.

The study phase of this OSS solution began in February 2003 and after six months the implementation of the web portal started and lasted for three months. The person months invested from the internal resources of the administration were between six and twelve months.

The source code of the open source software components was not modified and the only proprietary component used was the operating system Microsoft Windows XP.

The most important organisational problems encountered during the implementation of the web portal were the need for training on the use of standardised software by the administrations of the schools and the need for the development of an adequate network infrastructure for schools so as support and maintenance are provided, where needed. The main technical problems confronted were the requirement for enhancement of performance of the Open LDAP ([open source](#) implementation of the Lightweight Directory Access Protocol) and the optimization of network operation.

The web portal for schools was nationally funded and implemented both in – house and with the contribution of external consultants. The total implementation costs are estimated between 50.000 and 99.000 €.

Evaluation

In the Government for Education and Science they are highly satisfied from the implementation of the web portal for schools in terms of effectiveness of services addressed to the public, productivity of the organisation, data privacy, system security software and hardware interoperability. Regarding cost– effectiveness and operation of the organisation/ flexibility of processes, they declare to be considerably satisfied.

The main achievements from the web portal adopted are:

- The strategic independence from vendors lock-in
- The optimization/ Simplification of organisation processes
- The enhancement of system security

The web portal for schools of the Government for Education and Science is nowadays in operation and the perspective for the next years is to be enhanced, expanded and replicated.

Lessons learnt

The main lessons learnt from the experience with the web portal for schools are:

- Open source software provides a high degree of flexibility regarding the solutions to be developed and modified
- Open source software is supported by a large OSS community
- Adopting open source software does not mean that the process will be implemented without any cost

Documentation and resources

Related website: <http://www.subiti.de>

Languages of the available documentation: German

3.7.3. Survey System – GR	
Title	Survey System
Precise issue tackled	<i>“E-Government Application for Integrated, Multi-level Management of Large Scale resources of the Greek Primary and Secondary Education.”</i>
Objectives	<ul style="list-style-type: none"> • Improvement of performance and effectiveness of the organisation • Optimization/ Simplification of organisation processes
Location	Ministry of Education, Lifelong Learning and Religion, Greece
Contact information	racti01@bestpractices.osepa.eu

Detailed description of the OSS solution

The survey system was implemented in 2002 by the Greek Ministry of Education, Lifelong Learning and Religion with the purpose to provide an *“integrated G2G⁶ / G2E⁷ information environment for the ministry and all its managerial units”*. The primary objective of this system was to develop a useful tool for the effective administering of activities and the organization of the educational system. Secondary objective was to provide various services to the employees. In order to achieve these goals several subsystems were developed and applied to create an online inventory of resources (personnel, students, infrastructures, schools, managerial units). The survey system proved to be the most appropriate system to satisfy the aforementioned needs and requirements.

In the Greek Ministry of Education, Lifelong Learning and Religion, the survey system is described as *“a web application resembling a portal. The application is accessed after authentication through a browser. ... The organizational model of the Ministry includes several levels of structures from central administration to schools. ... Every level has access to the units that supervises. Also, the above level has under observation the below level ensuring the right functioning of the system. ... This model proposes a concrete interaction method in which each level has to collaborate only with its predecessor and successor. Each user belonging to an upper level can access queries, statistics and services referring to all other levels below them. For example: Central administration authorized users can have access to integrated statistical reports concerning number of schools*

⁶ Government to Government

⁷ Government to Employees

and teachers in the whole Greece. Teachers can have access to their own information (history, hours teaching etc)."

The study phase of the survey system began in October 2002 and lasted for three months; the implementation of the survey system began in January 2003 and needed nine months to be completed.

The survey system was developed using PHP/MySQL application environment.

The main difficulties encountered were:

- The needs to satisfy the requirements of various administrative units
- The difficulties on system acceptance from end – users related with the collection of excel sheets
- The need to integrate the new system with the LDAP (Lightweight Directory Access Protocol) of the Greek School network in order to facilitate and to accelerate the access to the system

The survey system was nationally funded and implemented mostly in – house. The total implementation costs are estimated between 50.000 and 99.000 €.

Evaluation

In the Ministry of Education, Lifelong Learning and Religion they are highly satisfied from the adoption of the survey system in terms of operation of the organisation/ flexibility of processes. Regarding cost– effectiveness, productivity of the organisation, software and hardware interoperability, data privacy and system security, they declare to be considerably satisfied, while they are moderately satisfied in terms of effectiveness of services related to the public.

The main achievements from the adoption of the survey system are:

- The improvement of performance and effectiveness of the organisation
- The optimization/ simplification of organisation processes
- The enhancement of system security
- The strengthening of data security

Survey system is nowadays in operation and the perspective for the next years is to be enhanced, expanded or replicated.

Lessons learnt

Regarding the main lessons learnt from the experience of the Ministry of Education, Lifelong Learning and Religion with the survey system, they declare *"The necessity of the Survey System to be on line and open to alterations in the data about the school arises by the need of the system to be up-to-date. This makes it dynamic and powerful, since it depicts the precise status of the school and administration units of Primary and Secondary Education in Greece every time even though*

the alterations are minor. This is one of the most important features of the application, because the Ministry can remark changes and modifications through comparisons and can reach to useful conclusions based on real data. In general the feedback provided by the Survey System through the statistics and the ability to monitor the school entries and the information about the teachers, results in the speed up of the procedures related with transfers and redistributions of the teaching power for coverage of the needs. Moreover, this results in elimination of the lost teaching hours for the students and the improvement of the teaching procedure in general. The unlimited provision of statistics and the complete and integrated view of the resources in the distributed environment of the educational units established the Survey System as a useful consultant. Therefore, it is supported in a powerful way by the Ministry of Education and the work team that developed it as a valuable tool."

Documentation and resources

Related website: <http://survey.sch.gr>

Languages of the available documentation: Greek

3.7.4. Web based tool for the collection and analysis of students' and teachers' absences on a daily basis from the educational units in Greece – GR

Title	Web based tool for the collection and analysis of students' and teachers' absences on a daily basis from the educational units in Greece
Precise issue tackled	The spread of the virus H1N1 in 2009 lead the Greek Ministry of Education, LifeLong Learning and Religious Affairs with the collaboration of the Greek center of monitoring and prevention of deceases, KEELPNO, to implement a system for the monitoring of students' and teachers' absence in schools in order to impede the spread of the virus in schools
Objectives	<ul style="list-style-type: none"> • Improvement of performance and effectiveness of the organisation • Optimization/ Simplification of organisation processes
Location	Greece (national level)
Contact information	Andreas Koskeris: koskeris@cti.gr

Detailed description of the OSS solution

In July 2009, due to the spread of virus H1N1 worldwide, the Greek Ministry of Education, LifeLong Learning and Religious Affairs with the collaboration of the Greek center of monitoring and prevention of deceases, KEELPNO, implemented a system enabling the monitoring of students' and teachers' absence from the schools for the imposition of the appropriate measures to restrain the spread of H1N1 in schools. The web based system for the reporting of students' and teachers' absence from the educational units is an extension of the Survey System of the Greek Ministry of Education – case study 3.15 – since it retrieves data from the latter and uses them for the monitoring of the daily students' and teachers' absences. It is a web – based application and therefore requires authentication in order to access it. Every system's user has access codes and according to them the application interface is organized appropriately, rendering only the content that the user is authenticated to deal with. The Greek Ministry of Education, LifeLong Learning and Religious Affairs has the responsibility of the administering of the web based system.

The web – based system runs in a PHP/MYSQL application environment and some of the functionalities of the aforementioned web based system are: account management, data entry and statistics.

The most important problem encountered by the Greek Ministry of Education, LifeLong Learning and Religious Affairs during the implementation of the web – based system for the reporting of students’ and teachers’ absence was the need to integrate the new system with the LDAP (Lightweight Directory Access Protocol) of the Greek School network in order to facilitate and to accelerate the access to the system.

The web – based system for the reporting of students’ and teachers’ absence is nationally funded and implemented mostly within the Greek Ministry of Education, LifeLong Learning and Religious Affairs with the collaboration of the Greek center of monitoring and prevention of deceases, KEELPNO.

Evaluation

In the Greek Ministry of Education, LifeLong Learning and Religious Affairs they are pretty satisfied from the implementation of the web – based system for the reporting of students’ and teachers’ absence. The level of satisfaction is high in terms of cost– effectiveness and operation of the organisation/ flexibility of processes; whereas the results are considerably satisfying regarding productivity of the organisation, effectiveness of services addressed to the public, software and hardware interoperability, data privacy and system security.

The main achievements from the implementation of the web based system for the reporting of students’ and teachers’ absence are:

- The improvement of performance and effectiveness of the organisation
- The optimization/ simplification of organisation processes
- The enhancement of system security
- The strengthening of data security

Lessons learnt

The main lessons learnt from the experience with web based system for the reporting of students’ and teachers’ absence are:

- *“The...Greek Community has the ability to know almost exactly how widespread the flu in the country is. Furthermore, with this system it was easy for the Ministry of Education, Life Long Learning and Religious Affairs to have an overview of how many schools are closed in a daily basis”*
- *“The Absences system provides valuable information for the Center of Disease Control and Prevention, which monitors the evolution of the epidemic and provides several statistics for comparative analysis results.”*

Documentation and resources

Related website: -

Languages of the available documentation: Greek

3.7.5. Edubuntu SE	
Title	Edubuntu SE
Precise issue tackled	"Edubuntu 10.04 Fosie Distro" an Edubuntudistro specially made for young children learning in collaboration with teachers
Objectives	Independence from vendor lock-ins Reduction of licensing / procurement costs
Location	Malmö City, Sweden
Contact information	Staffan Hessel: staffan.hessel@gmail.com

Detailed description of the OSS solution

The solution has been deployed in cooperation with teachers in finding a stable, flexible, easy manageable solution for young childrens learning. Also finding a Sustainable solution for reusing computers not strong enough for other complex proprietary software use. IT is also a learning project that has had an evolutionary growth as more teachers can handle their technology themselves.

Evaluation

No source code modification. Implemented mostly in-house. Staff was prepared and highly supportive.

Organisational problems:

- Low knowledge about OSS in organisation
- Sceptical users of proprietary software.

Technical problems:

"As we use an easy manageable self sufficient structure, those problems were minimal. We excluded applications that did not run well."

The satisfaction with the implemented solution within the organisation is reported "medium" (productivity, system security, interoperability) to "high" (cost effectiveness).

The implemented solution is expected to be expanded or replicated in the next 1-2 years.

Lessons learnt

It is possible to use OOS in a cost efficient way and increase sustainability for educational use. It is possible to in a limited time period and for a low cost develop and increase the use of an OSS solution in school community. The main factor is knowledge and checking what goes on internationally.

Documentation and resources

www.fosienet.se (in Swedish short article in English:

http://www.wideminds.eu/cms/index.php?option=com_content&view=article&id=307:linux-for-kids-the-edubuntu-project&catid=45:bestpractice&Itemid=69 Presentation about sustainable computing in English: <http://www.wideminds.eu/moodle/mod/resource/view.php?id=10522>

Documentation language(s): Swedish, English

3.7.6. Open source Course Management System that supports Asynchronous eLearning Services

Title	Open source and complete Course Management System that supports Asynchronous eLearning Services
Precise issue tackled	E-gnosi platform is a complete Course Management System that supports Asynchronous eLearning Services via a simple web browser.
Objectives	Its goal is the incorporation and constructive use of the Internet and web technologies in the teaching and learning process.
Location	Athens, Greece
Contact information	Vasileios Kokkinos: bill_kokkinos@hotmail.com

Detailed description of the OSS solution

The e-gnosi platform is based on OPENeCLASS platform (<http://www.openeclass.org>). OPENeCLASS, is based on the philosophy of open source code, it is actively supported by GUnet and is freely distributed (under GNU GPL license). For the installation of OPENeCLASS platform the following applications may required: Apache, MySQL, PHP, XAMPP, LAMP, WAMPP, EasyPHP, phpMyAdmin. In detail, the e-gnosi platform is a complete Course Management System that supports Asynchronous eLearning Services via a simple web browser. Its goal is the incorporation and constructive use of the Internet and web technologies in the teaching and learning process. It supports the electronic management, storage and presentation of teaching materials, independently of the spatial and time limiting factors of conventional teaching and creating the necessary conditions for a dynamic teaching environment. The introduction of eLearning into the traditional teaching process provides new capabilities and allows new means of interaction between students and teachers, through a contemporary technological peak environment.

Openeclass is released under GNU GPL license. No proprietary software component was used.

Evaluation

The staff was highly supportive and they were no specific organisational / managerial problems. Started in 2009, the implemented solution is in operation and several users already use the Openeclass platform. Its main achievements had to do with the reduction of licensing / procurement costs and the improvements of the organization processes.

Lessons learnt

- The platform is open, stable and reliable
- There were no licensing costs
- The solution can be used by other organisations

Documentation and resources

e-gnosi platform: <http://egnosi.info-peta.gr/> openeclass platform: <http://www.openeclass.org/>

Documentation language(s): Greek

3.8. Geographic Information Systems (GIS)

3.8.1. Geographic Information System (GIS) for viewing, querying and editing of geographic data in a GIS-Viewer on a client computer – BE

Title	Geographic Information System (GIS) for viewing, querying and editing of geographic data in a GIS-Viewer on a client computer
Precise issue tackled	Setting up a Geographic Information System (GIS) where every functionary in the municipality of Schoten having access to the internet can view, query and edit geographic data in a GIS-Viewer on his desktop
Objectives	<ul style="list-style-type: none"> • Improvement of performance and effectiveness of the organisation • Strategic independence from vendors lock – in • Optimization/ Simplification of organisation processes • Strengthening of data security • Software interoperability or compatibility issues
Location	City of Schoten, Belgium
Contact information	Mr. Steven Vermeir, steven.vermeir@schoten.be

Detailed description of the OSS solution

In 2006 the City of Schoten took the decision to adopt a GIS Manager in order to set up a GIS system in the whole municipality of Schoten. The implementation of the GIS system derived from the need to organise and administer the available geographic data in a common system, which could be used by each municipality in Flanders. The criteria for selecting between the available solutions were the cost of implementation and of maintenance for the next five years, the quality, the interoperability, the knowledge transfer and the previous experience with OSS. The study phase lasted for eight months. The implementation of the selected OSS solution started in early 2007 and completed within half a year.

Firstly, the various geographic data were imported in a PostGIS database, which is a component of PostGreSQL. Then, a geoserver was used so as to provide access to the geographic data. The geoserver uses OGC-standards (Open Geospatial Consortium): the WMS (Web Map Service) in order to produce maps from vector and raster data and the WFS (Web Feature Service) to show attribute information from vector data in the viewer. Multiple geoportals can be consulted in GIM WebGIS. GIM WebGIS is a CMS (Content Management System) where the GIS Manager configures the required parameters and data and the end-users view detailed maps. With GIM WebGIS the GIS Manager can make geoportals. In a geoportal, data belonging to a specific theme can be grouped (planning, environment, cemetery, addresses, etc). The GIS Manager can create as much geoportals as it is required. The GIS Manager administers and decides about the rights of the users regarding their access to geoportals. The aforementioned OSS components run on a server with Linux CentOS as operating system. All vector data are stored in a PostGIS database. Raster data are stored in files on the geoserver.

The only proprietary software used for the implementation of the OSS solution by the City of Schoten was GIM WebGIS, which is though partly proprietary, as it uses open standards. The source code of the OSS components which have been used was not modified and the GPL (General Public License) license was granted for the implementation of the GIS system.

The most important problem encountered by the City of Schoten during the implementation of the GIS system was the lack of interoperability with proprietary software programs, such as *“administrative programs for building and environmental licences, for the cemetery and for data about people”*.

The staff of the organisation was somewhat supportive towards the adoption of the GIS system and prepared through presentations and demonstrations and also through gifts for private use like books and DVDs. As Mr. Steven Vermeir from the City of Schoten declares *“The users were positive about the system because they could save a lot of time by using it”* and *“There was a huge transfer of knowledge towards the GIS-manager”*.

The GIS system was locally funded and implemented mostly by external consultants. The total implementation costs are estimated between 50.000 and 99.000 €.

Evaluation

In the City of Schoten they are highly satisfied from the adoption of the GIS system in terms of cost– effectiveness, operation and productivity of the organisation, system security and software and hardware interoperability. Regarding the effectiveness of services addressed to the public and data privacy, they declare to be considerably satisfied.

The main achievements from the adoption of the GIS system are:

- The improvement of performance and effectiveness of the organisation
- The strategic independence from vendors lock-in
- The optimization/ Simplification of organisation processes
- The strengthening of data security

- The software interoperability or compatibility issues

The GIS system implemented by the City of Schoten is nowadays in operation and the perspective for the next years is to be enhanced, expanded or replicated.

Lessons learnt

The main lessons learnt from the experience with the GIS system are:

- A GIS based on open source software can be adopted by a public administration when the exchange of knowledge between the responsible persons is effectively organised
- Open source solutions allow for interoperability with other systems, especially with other open source software applications
- On the long run open source adoption can save a lot of money for public organisations
- Open source software offers the flexibility to a public organisation to switch easily to another system or vendor, due to the fact there is access to the data implemented by the organisation

Documentation and resources

Related website: <http://geoserver.org> <http://postgis.refractory.net/> , <http://www.gim.be>

Languages of the available documentation: English, Dutch, French

3.9. Guides, methodologies

3.9.1. Methodology for the implementation of FOSS using psychological principles of motivation, University of Sheffield, UK

Title	Methodology for the implementation of FOSS using psychological principles of motivation, University of Sheffield, UK
Precise issue tackled	Improvement of performance and effectiveness of the organisation
Objectives	Improvement of performance and effectiveness of the organisation
Location	University of Sheffield, UK
Contact information	Andrea Corbett andrea.corbett@sheffield.ac.uk

Detailed description of the OSS solution

There are different sorts of people in an organization People (in general) don't like change People are unpredictable Change in an organization WILL cause resistance Managing that resistance is critical to success Resistance to change from the management perspective Often negatively interpreted as: Laziness Stubbornness Stupidity Conflict Testing management Disinterest The user perspective Fear of failure, looking stupid, reduction in productivity Lack of knowledge/leadership/supportive environment Uncertainty Afraid of being blamed if things go wrong Don't understand the benefits of the new way or the need to change Cannot see the final result Resistance to change Leaders and managers put 90% energy into selling the solution and only put 10% energy into selling the problem Resistance to change is NORMAL and should not be seen as a negative Treat it as a symptom, an opportunity or an essential part of a project Managers and leaders cannot change people they can only provide an appropriate and supportive environment Plan and budget for managing resistance to change Managers and leaders need to provide motivation to embrace the change Motivation All behaviour is determined by the seeking of pleasure and the avoidance of pain. (Hobbes, 17th Century) All those pushes and prods – biological, social and psychological – that defeat our laziness and move us, either eagerly or reluctantly, to action. (Miller, 1962) ..energize, direct and sustain a person's behaviour. (Rubin and

McNeil, 1983) Motivation for behaviour Internal and external motivators Need for control of our own destiny, achievement and to maintain self image Social needs Be seen to be successful Contribute to the social group Shaping behaviour Strengthens behaviour - Positive and negative reinforcement Weakens behaviour - Punishment Primary and secondary reinforcers Learning Observational learning More abstract reinforcers – consequences, career, promotion Implementing changes Include users from the start Positive reinforcement - introduction of something positive eg. increased social status Negative reinforcement - removal of something negative eg. make problems go away Punishment introduction of something negative eg. shorter breaks?? Be prepared to adapt to changes in requirements from users So now you can apply some psychological theory Help users to: take control of their own destiny achieve maintain self image be seen to be successful contribute to the social group facilitate learning be explicit about the consequences How? Sell the problem first then market the solution Champions Train the trainer – cascade training Social networking tools Small wins not a ‘big bang’ approach Discussion forums Wiki’s Informal project groups Training and support Management lead the way Do not stop on ‘go live’ day – keep going Support forums Share solutions to problems Management lead by example Make it fun, interesting and relevant Above all communicate.

Evaluation

Not enough data provided.

Lessons learnt

Not enough data provided.

Documentation and resources

Not enough data provided.

4. References

List of documents and URLs studied and used for the implementation of the catalogue with case studies on open source software usage within European public administrations:

- i. European Union, ERDF, 'INTERREG IVC Operational Programme: Contributing to the European Commission's Initiative Regions for Economic Change', 18.12.2008
- ii. European Union, ERDF, 'INTERREG IVC Programme Manual', 5.11.2009
- iii. www.opensource.org
- iv. www.osor.eu
- v. www.wikipedia.org
- vi. www.untangle.com
- vii. www.vmware.com
- viii. www.debian.org
- ix. www.mediawiki.org
- x. www.samba.org
- xi. www.kde.org
- xii. www.ingres.com
- xiii. www.xen.org
- xiv. www.ocsinventory-ng.org/

xv. www.otrs.org

xvi. www.glpj-project.org

xvii. www.openldap.org

5. Annex: questionnaire used by OSEPA partners to report cases and practices on open source software usage

1. IDENTITY OF THE ORGANISATION WHERE THE OSS SOLUTION IS ADOPTED		
1.1	*Name of the organisation in original language	<input type="text"/>
1.2	*Name of the organisation in English	<input type="text"/>
1.3	*Country :	<div> <input type="checkbox"/> Albania <input type="checkbox"/> Andorra <input type="checkbox"/> Armenia <input type="checkbox"/> Austria <input type="checkbox"/> Azerbaijan <input type="checkbox"/> Belarus <input type="checkbox"/> Belgium <input type="checkbox"/> Bosnia and Herzegovina <input type="checkbox"/> Bulgaria <input type="checkbox"/> Croatia <input type="checkbox"/> Cyprus <input type="checkbox"/> Czech Republic <input type="checkbox"/> Denmark <input type="checkbox"/> Estonia <input type="checkbox"/> Finland <input type="checkbox"/> France <input type="checkbox"/> FYROM <input type="checkbox"/> Georgia <input type="checkbox"/> Germany <input type="checkbox"/> Greece <input type="checkbox"/> Hungary <input type="checkbox"/> Iceland <input type="checkbox"/> Ireland <input type="checkbox"/> Italy <input type="checkbox"/> Latvia <input type="checkbox"/> Liechtenstein <input type="checkbox"/> Lithuania <input type="checkbox"/> Luxembourg <input type="checkbox"/> Malta <input type="checkbox"/> Moldova <input type="checkbox"/> Monaco <input type="checkbox"/> Montenegro <input type="checkbox"/> Netherlands <input type="checkbox"/> Norway <input type="checkbox"/> Poland <input type="checkbox"/> Portugal <input type="checkbox"/> Romania <input type="checkbox"/> Russia <input type="checkbox"/> San Marino <input type="checkbox"/> Serbia <input type="checkbox"/> Slovakia <input type="checkbox"/> Slovenia <input type="checkbox"/> Spain <input type="checkbox"/> Sweden <input type="checkbox"/> Switzerland <input type="checkbox"/> Turkey <input type="checkbox"/> Ukraine <input type="checkbox"/> United Kingdom <input type="checkbox"/> Vatican City State <input type="text"/> Other </div>
1.4	City / Region	<input type="text"/>
1.5	*Type of organisation:	<input type="text"/> Please choose.. <input type="text"/> Other: <input type="text"/>
1.6	*Estimated number of client computers used by the staff working for the organisation:	<input type="text"/> Please choose..
1.7	*Estimated number of servers:	<input type="text"/> Please choose..
2. DESCRIPTION OF THE OSS SOLUTION		
2.1	*Brief description of the adopted oss solution. Max 200 chars.	<input type="text"/>
2.2	*Identification of the major oss components which have been developed/ used of the adopted oss solution. Max. 3.000 characters.	<input type="text"/>

2.3	*Technical area of the adopted oss solution:	<input type="checkbox"/> a. Operating system <input type="checkbox"/> b. Database <input type="checkbox"/> c. Internet application <input type="checkbox"/> d. Application platform <input type="checkbox"/> e. Office application <input type="checkbox"/> f. Administrative application <input type="checkbox"/> g. I do not know/ I do not want to answer Other: <input type="text"/>	?																																										
2.4	*Current state of the adopted oss solution:	Please choose.. <input type="text"/>	?																																										
2.5	*Start date and duration of the study phase of the oss solution:	<input type="text"/> ...	?																																										
2.5.1	Duration in months :	<input type="text"/>																																											
2.6	*Start date and duration of the implementation phase of the oss solution:	<input type="text"/> ...	?																																										
2.6.1	Duration in months :	<input type="text"/>																																											
2.7	*Number of person months invested from the internal resources in the implementation of the oss solution in question:	Please choose.. <input type="text"/>	?																																										
2.8	*Comprehensive description of the oss solution adopted. Max 6.000 characters.	<input type="text"/>	?																																										
2.9	*Website with relevant info:	<input type="text"/>	?																																										
3. MANAGEMENT ISSUES																																													
3.1	*How was/is the oss solution implemented?	Please choose.. <input type="text"/>	?																																										
3.2	*Funding source of the oss solution:	Please choose.. <input type="text"/> Other: <input type="text"/>	?																																										
3.3	*Was any preparation of the staff working for the organisation necessary for the use of the adopted oss solution? If not, why?	Please choose.. <input type="text"/> Comment: <input type="text"/>	?																																										
<small>[Only answer this if the following conditions are met:] -to question '3.3', answer = '3.3' OR = 'Yes'</small>																																													
3.3.1	*How has the staff of the organisation been prepared to use the adopted oss solution?	<input type="checkbox"/> a. Through presentations and demonstrations. <input type="checkbox"/> b. Through emails, intranet, newsletters, forums and/ or wikis. <input type="checkbox"/> c. Through seminars and training processes. <input type="checkbox"/> d. Through contests, serious games and other interactive processes. <input type="checkbox"/> e. Through audiovisual supporting material (CDs, DVDs, leaflets and manuals). <input type="checkbox"/> f. I do not know/ I do not want to answer	?																																										
<small>[Only answer this if the following conditions are met:] -to question '3.3', answer = '3.3' OR = 'Yes'</small>																																													
3.3.2	*What were the reactions of the staff of the organisation regarding the use of the adopted oss solution?	Please choose.. <input type="text"/> Other: <input type="text"/>	?																																										
3.4	*What are the total implementation costs, roughly estimated?	Please choose.. <input type="text"/>	?																																										
3.5	*Describe 2 – 3 main organisational/ managerial problems or difficulties encountered during the implementation of the oss solution adopted.	<input type="text"/>	?																																										
4. TECHNICAL ISSUES																																													
4.1	*Was the source code of the adopted oss solution modified so as to meet the needs of the organisation?	Please choose.. <input type="text"/>	?																																										
4.2	*What types of licenses have been granted in the context of the adoption of the oss solution? Max. 3.000 chars.	<input type="text"/>	?																																										
4.3	*Which proprietary software components have been used for the implementation of the solution? Max. 3.000 characters.	<input type="text"/>	?																																										
4.4	*Describe 2 – 3 main technical problems or difficulties encountered during the implementation of the oss solution adopted.	<input type="text"/>	?																																										
5. IMPACT/ BENEFITS/ RESULTS																																													
5.1	Specify up to 4 reasons and up to 4 achievements of the oss solution adopted.	<table border="0"> <thead> <tr> <th></th> <th>Reason</th> <th>Achievement</th> </tr> </thead> <tbody> <tr> <td>c.Improvement of performance and effectiveness of the organisation</td> <td><input type="text"/></td> <td><input type="text"/></td> </tr> <tr> <td>a.Strategic independence from vendors lock-in</td> <td><input type="text"/></td> <td><input type="text"/></td> </tr> <tr> <td>b.Reduction of procurement (licensing) cost</td> <td><input type="text"/></td> <td><input type="text"/></td> </tr> <tr> <td>d.Enhancement of performance and effectiveness of the IT system</td> <td><input type="text"/></td> <td><input type="text"/></td> </tr> <tr> <td>e.Optimization/ Simplification of organisation processes</td> <td><input type="text"/></td> <td><input type="text"/></td> </tr> <tr> <td>f.Facilitation of the exchange of data and shared development strategies</td> <td><input type="text"/></td> <td><input type="text"/></td> </tr> <tr> <td>g.Promotion of oss</td> <td><input type="text"/></td> <td><input type="text"/></td> </tr> <tr> <td>h.Experimentation with new IT technologies</td> <td><input type="text"/></td> <td><input type="text"/></td> </tr> <tr> <td>i.Simplification of client and / or server architecture</td> <td><input type="text"/></td> <td><input type="text"/></td> </tr> <tr> <td>j.Enhancement of system security</td> <td><input type="text"/></td> <td><input type="text"/></td> </tr> <tr> <td>k.Strengthening of data security</td> <td><input type="text"/></td> <td><input type="text"/></td> </tr> <tr> <td>l.Software interoperability or compatibility issues</td> <td><input type="text"/></td> <td><input type="text"/></td> </tr> <tr> <td>m.Minimize the need for technical support</td> <td><input type="text"/></td> <td><input type="text"/></td> </tr> </tbody> </table>		Reason	Achievement	c.Improvement of performance and effectiveness of the organisation	<input type="text"/>	<input type="text"/>	a.Strategic independence from vendors lock-in	<input type="text"/>	<input type="text"/>	b.Reduction of procurement (licensing) cost	<input type="text"/>	<input type="text"/>	d.Enhancement of performance and effectiveness of the IT system	<input type="text"/>	<input type="text"/>	e.Optimization/ Simplification of organisation processes	<input type="text"/>	<input type="text"/>	f.Facilitation of the exchange of data and shared development strategies	<input type="text"/>	<input type="text"/>	g.Promotion of oss	<input type="text"/>	<input type="text"/>	h.Experimentation with new IT technologies	<input type="text"/>	<input type="text"/>	i.Simplification of client and / or server architecture	<input type="text"/>	<input type="text"/>	j.Enhancement of system security	<input type="text"/>	<input type="text"/>	k.Strengthening of data security	<input type="text"/>	<input type="text"/>	l.Software interoperability or compatibility issues	<input type="text"/>	<input type="text"/>	m.Minimize the need for technical support	<input type="text"/>	<input type="text"/>	?
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5.1.1	Other(s) : please specify	<input type="text"/>	
5.2	*To your opinion, which is the overall level of satisfaction in the organisation from the adoption of the oss solution concerning:	<p>c. productivity of the organisation ? <input type="text" value="Please choose.."/></p> <p>a. cost-effectiveness ? <input type="text" value="Please choose.."/></p> <p>b. operation of the organisation / flexibility of processes ? <input type="text" value="Please choose.."/></p> <p>d. effectiveness of services addressed to the public ? <input type="text" value="Please choose.."/></p> <p>e. data privacy ? <input type="text" value="Please choose.."/></p> <p>f. system security ? <input type="text" value="Please choose.."/></p> <p>g. software and hardware interoperability / data longevity ? <input type="text" value="Please choose.."/></p>	
5.3	*To your opinion, what is the perspective of the oss solution within the next 1-2 years:	<input type="text" value="Please choose.."/>	
5.4	*Specify some conclusions or main lessons learnt (up to 3) from the adoption of the oss solution. Max 3.000 chars.	<input type="text"/>	
6. TRANSFERABILITY ISSUES			
6.1	*Would you give your consent to be contacted by potential adopters in order to offer advice regarding the adoption of the oss solution?	<input type="text" value="Please choose.."/>	
6.2	*Language(s) of origin of the oss solution and supporting materials:	<input type="checkbox"/> Albanian <input type="checkbox"/> Armenian <input type="checkbox"/> Azerbaijani <input type="checkbox"/> Belarusian <input type="checkbox"/> Bosnian <input type="checkbox"/> Bulgarian <input type="checkbox"/> Catalan <input type="checkbox"/> Croatian <input type="checkbox"/> Czech <input type="checkbox"/> Danish <input type="checkbox"/> Dutch <input type="checkbox"/> English <input type="checkbox"/> Estonian <input type="checkbox"/> Finnish <input type="checkbox"/> French <input type="checkbox"/> German <input type="checkbox"/> Georgian <input type="checkbox"/> Greek <input type="checkbox"/> Hungarian <input type="checkbox"/> Icelandic <input type="checkbox"/> Irish <input type="checkbox"/> Italian <input type="checkbox"/> Latin <input type="checkbox"/> Latvian <input type="checkbox"/> Lithuanian <input type="checkbox"/> Maltese <input type="checkbox"/> Moldovan <input type="checkbox"/> Montenegrin <input type="checkbox"/> Norwegian <input type="checkbox"/> Polish <input type="checkbox"/> Portuguese <input type="checkbox"/> Romanian <input type="checkbox"/> Russian <input type="checkbox"/> Serbian <input type="checkbox"/> Sign language <input type="checkbox"/> Slovak <input type="checkbox"/> Slovenian <input type="checkbox"/> Spanish <input type="checkbox"/> Swedish <input type="checkbox"/> Turkish <input type="checkbox"/> Ukrainian <input type="text" value="Other"/>	
6.3	*In your opinion, what are the 3 most important factors enabling the transferability of the oss solution adopted?	<input type="checkbox"/> a. Availability of warranties from 3rd parties providing the oss solution <input type="checkbox"/> b. Previous adoptions <input type="checkbox"/> c. Large community support <input type="checkbox"/> d. Availability of skilled IT support <input type="checkbox"/> e. Compatibility with technical standards <input type="checkbox"/> f. Compatibility with EU regulations and legislation <input type="checkbox"/> g. Backwards compatibility <input type="checkbox"/> h. Interoperability <input type="checkbox"/> i. I do not know/ I do not want to answer <input type="text" value="Other"/>	
<input checked="" type="checkbox"/> Finalize response submission <input type="checkbox"/> Save for further completion by survey user <input type="button" value="Submit"/>			