Open Source Software Survey in Italian Schools

The Italian Osservatorio Tecnologico launched a survey on May 2005 to analyse the use of open source software at Italian schools. The preliminary results, presented in June 2005, showed that some institutions within the educational sector are using open source software heavily. This report gives a review about the Italian research project.

Introduction

The Italian Osservatorio Tecnologico (OTE) is an experimental nationwide service on communication technology for schools of all levels. It recently carried out a survey on the use of open source software in Italian schools. The survey is based on a detailed analysis of FLOSS experiences of more than one hundred Italian schools as a part of about one thousand schools actually using open source software for their daily activities. OTE found that schools are mainly using free software within network environments. Schools are also providing open source related lectures and training for students.

OTE's mission is to promote technology transfer from the most advanced areas of Information and Communication Technology (ICT) to schools, to ensure a constant relationship between academic communities, research centers, net-economy companies and school.

Since 1999, OTE has been dealing mainly with open source software and provides the following services for schools:

- reports about the most common Linux distribution (both on client and on server) and other FLOSS, like networking programs and application programs
- ''portability reports'' aiming to resolve the compatibility issues among different office suites and formats
- suggestion for the migration process
- review of papers, slides and articles about the topic of FLOSS
- data repositories about FLOSS in Italian schools.
- ''good practice'' repository of school LAN

Open Source Software in Schools

Numerous reasons show that open source software is suitable for use within educational institutions:

- The open source code of OSS provides students with the ability to learn more about software programming and architecture. They can understand better how computers and operating systems work.
- OSS encourages the creation of different skills and widens the learning spectrum of the students.
- OSS helps to reduce the total cost for hardware and software. Due to low hardware requirements of the operating system Linux, older systems can be refurbished and reinserted.
- OSS is more secure from virus attacks than proprietary ones.

According to OTE, different scenarios of the use of open source software are widely debated in school. Linux can be adopted for server environments, networks and on-line services management. Open source based office suites like OpenOffice.org can be introduced to teach word processing. Various subjects such as basic computer education primary school, physics or computer science education for technical school students, etc. can be realised with open source software.

From the teaching point of view, the use of open source packages together with proprietary applications helps students to understand that there is a wide choice and numerous software alternatives are available. The open source code of OSS helps teachers demonstrate the principles and techniques of computer science e.g. the organisation of a compiler or the structure of a network server. The observation of various source codes demonstrates different programming methods as well as best practice examples. Open source software can also play an important role in advanced laboratory work in the field of development and integration of OSS. It can significantly increase the capabilities and skills of the students. Teachers can modify open source software to meet their own needs or to develop utilities for teaching and school administration.

But the open source software debate also brings with it the classic issue for teachers.

‘‘*Is it better to teach students to use products most requested by the "market" or free software that gives more competence, allowing them to analyse how it works?”*

The Italian ministry of education has developed, in cooperation with the Italian Council of research and AICA (a non profit organisation), a Linux distribution optimised for the school sector. The distribution, entitled SodiLinux, is based on EduKnoppix and includes educational applications.

The Survey

The main objective of OTE's IT related educational research activities is to provide examples of open source software use in Italian schools. To come up with a resource of open source adoption cases, OTE launched a nationwide survey in May 2005. One month later, the institute presented the results of more than 100 Italian school responses. Schools supplied a complete and detailed description about their open source software use and experience as well as free software projects.

Schools with significant open source software experience filled out a form giving responses to questions such as:

- who was involved in the open source adoption process
- what kind of skills were necessary
- why the choice to use it
- how they used it in classroom activity
- feedback from the students

This information is complementary to the data on FLOSS of the database about the hardware and software environment of Italian schools. The database belongs to the Italian Ministry of Education.

Significant descriptions, completed with quantitative data about FLOSS from the schools, can be found at: Good practices on Free Libre Open Source Software in Italian schools. A new release of the survey will be published at the end of 2005.

Survey Results

According to the survey almost 1000 Italian schools are using Linux. The majority of them have implemented the operating Linux within their server environments. Research as well as development projects in various educational institutions show the interest of open source software based system. The list of experiences received by schools shows the trends of FLOSS in schools. The following results are presented by OTE:

- The schools involved are distributed throughout the national territory, with some areas of excellence and others participating in clusters.
- Many experiences are computer science training oriented and consist of courses or lectures on open source software for students.
- Often the experiences include the implementation of network and ICT infrastructures (laboratories, test centres, etc) in the school, implemented with FLOSS.
- Frequently, refresher courses for teachers are held on the basic issues of FLOSS, often related to previous teacher training processes.
- In some schools open source platforms are used for E-learning and Content Management System.
- The use of the suite StarOffice together with OpenOffice.org is frequent.
- Several kinds of FLOSS are used (not only LINUX).
- A few very interesting projects are focused on FLOSS development.
- Sometimes there is significant partnership with local corporations and public administrations.

Cases

According to the survey, two regions, Regione Autonoma Valle d'Aosta and Intendenza Scolastica Italiana di Bolzano, are definitely focusing on open source software.

OTE found out also that the Piemonte region is a significant catalyst for FLOSS. In this region, a high number of good practices on open source software use can be observed. Dschola, a large community of local schools encourages the adoption of free software.

Furthermore, schools of the region of Lombardia launched the ISI Network (Intranet Scolastiche Integrate) aiming to create a school IT community. The ISI website presents information to IT related projects as well as open source software. The network is also open for schools of other regions of Italy.

Province of Bolzano

Hundreds of schools in the Italian province of Bolzano have replaced Windows XP with Linux. 6,000 students are using the operating system Linux from 12 September, 2005. About 40 IT professionals set-up the Debian based Linux distribution on 2,460 PCs during July and August.

All of the Italian-language schools in the province have adopted the software, according to Christopher Gabriel, chief technical officer with Truelite SRL, an Italian GNU/Linux consultancy company that is co-ordinating the deployment. Truelite was responsible for the technical aspects of the migration, for software development as well as for teaching the courses.

The migration, known as the Fuss Project was funded by the Italian Scholastic Intendancy of the Province of Bozen, the European Social Fund and the Centre for Professional Training - CTS "Luigi Einaudi" in Italian.

"All the teachers will use this software, and the Fuss Project will print and distribute about 20,000 CDs to the students' families so they can install the software at home. (…)There are some similar projects here in Italy, all in an embryonic phase. Fuss is the only project which has already installed software onto schools' computer systems," said Christopher Gabriel.

Regione Autonoma Valle d'Aosta

The region started to adopt the open source software distribution [Pingoo]. Pingoo is a communication server based on Debian. According to OTE's survey results, the region plans to finish the adoption at schools by end of 2005.

Evaluation

Due to the information gathered, OTE evaluates positively the wide diversity of experiences, profusion of ideas and operative solutions. The institution mentioned the variety of adopted open source solutions within the Italian schools. But OTE observed also many fundamental school problems, e.g. internal organisation and external communication and education issues.

''*The main weakness is the lack of maturity in design. It still appears fragmentary and is described in self referential terms, only accessible to experts; it is in fact hardly understandable outside the school context.*''

A critical issue is the lack of professional human resources in schools both in terms of open source skills and of the number of IT stuff available. Saved IT expenses should be reinvested in employee training, stated OTE.

Another critical point is the integration of various open source and proprietary systems. Schools interested in the open source software have to decide if they want to adopt free software in a radical change or to realise a mixed IT environment OSS and proprietary software use.

''*The ability to make informed, autonomous choices will open new perspectives for Open Source in school,*'' reported by OTE.

To encourage the adoption of open source software in schools, it is essential to provide solutions and distribution channels designed specifically for educational sector. Schools need an information portfolio of realistic and well documented software solutions that can be inserted in schools and meet the requirements. Fostering the growth of a network of open source related competence at schools and universities is of fundamental importance.

Upcoming Projects

The project RASIS (Rete Aperte e Soluzioni Integrate per le Scuole), built by AICA, CSP e INFN, aims to support schools to identify their needs about the use and need of information technology. The initiative intends to provide standardised guidelines for open source software at schools.

"This approach is fundamental to enable the aggregation of school and the FLOSS can foster the match between school demand and ICT enterprise supply."

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Further Information:

OTE Homepage

http://www.osservatoriotecnologico.net/en/

Survey results

http://www.osservatoriotecnologico.it/software/esperienze/index.htm