

Linux on the portuguese schools: the Caixa Mágica experience

Susana Nunes, Flávio Moringa, Miguel Lourenço
ADETTI / Caixa Mágica
Lisbon, Portugal
{sicsn,fasma,mlrl}@caixamagica.pt

Paulo Trezentos
ISCTE / ADETTI
Lisbon, Portugal
prrt@caixamagica.pt

Abstract – This article depicts the experience of Caixa Mágica in the deployment of 14.000 computers with dual boot in the portuguese schools. Caixa Mágica's role was preparing its Linux distribution to become friendly to students and teachers.

This project was very successful and is now beginning with a second phase with 5.000 more computers.

In this experience report are present some of the obstacles and achievements accomplished in "Salas TIC".

I. INTRODUCTION

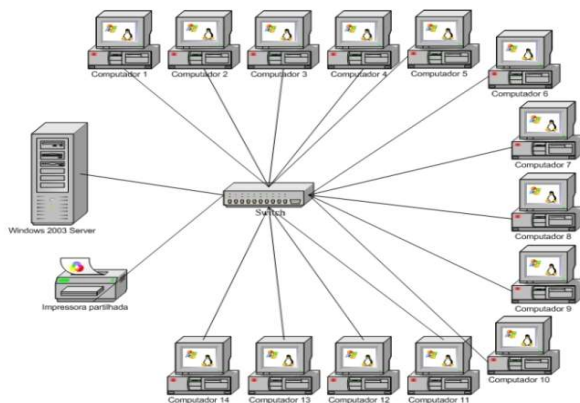
Caixa Mágica is the portuguese Linux distribution and was initially developed in the scope of a portuguese research center: ADETTI. Today it has a developer team in ADETTI and a spin-off company responsible for the commercialization: Caixa Mágica Software.

The goal of the project "Salas TIC" was to prepare 1.200 school rooms to receive a new subject [1] related with ICT issues such as Word processing and Linux.

Each room was equipped with one server with Windows 2003 Server and 14 dual boot work-stations (Linux Caixa Mágica and Windows XP).

PICTURE 1

ICT ROOMS ARCHITECTURE



II. GOALS OF THE CAIXA MÁGICA TEAM

Several partners were involved in the project: Caixa Mágica, Sun Microsystems, Microsoft, Fujitsu Siemens, Dell and Acer. The coordination was done by the Ministry of Education.

The goals of the Caixa Mágica team were:

- Friendly Graphical User Interface, with only one application by need (one email client, one browser, one office suite,...)

- Total interoperability with Windows Server
- Total support of devices (PC hardware, printers, webcams,...)

This goals were established after the global goals of our team [2]: security [3], functionalities and affordable price.

III. PROCESS PHASES

The process had several phases:

1. Requirements definition
2. Development
3. Integration
4. Quality Assurance (QA)
5. Deployment

1. Requirements definition

In the requirements phase we defined what kind of software would be installed. We chose KDE, OpenOffice and Mozilla as the target applications. KDE educational programmes were an extra-value for the users (Keduca, Kalzium, Kgeo, KmPlot, Kporcento, Kstars,...).

2. Development

The software for replacing problematic workstations had to be developed based on our installer. The reason is that Microsoft argue that their system based on RIS was not compatible with Linux. The installation/ reposition process would check if a more recent image were in the server and in that case would download it. Otherwise the image in the CD would be used for installation.

The installation software is responsible for detecting the hardware configuration and install the needed files.

A patch was also produced for Samba integration with CIFS.

3. Integration

The critical part was supporting the 3 different hardware configurations and the interoperability with Windows 2003 Server. The hardware support was easily accomplished. Though some drivers had to be added.

For interoperability we needed that Linux users be able to login in the 2003 server, mount their personal area and shared folders.

The technology used was: Samba for the file sharing, Winbind for authentication and PAM modules for user login.

4. Quality Assurance

In order to guarantee that the requirements were fully accomplished, a QA (Quality Assurance) program with a acceptance grid was used.

This prevented that faults generated by other partners would interact with CM work. Some troubles were prevented with the acceptance grid definition.

4. Deployment

Deployment phase was a success and the three hardware providers were able to install the rooms with Linux Caixa Mágica.

A check list provided by us was used by the teacher that received the room in order to guarantee that it was a turn-key solution.

PICTURE II
DESKTOP SNAPSHOT



IV. CONCLUSIONS

Taking in account the dimension of the project and the partners, some risks were involved. The coordination from Ministry of Education prevented that hostility between partners under pressure reached higher proportions.

Linux Caixa Mágica achieved the degree of interoperability that we aimed in the beginning of the project. The feedback from teachers and students is being great.

The main difficulty in disseminate this environment to private schools is assuring the server with the same configurations. With some slight modifications this infrastructure could easily be deployed in private organizations.

V. REFERENCES

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