

Free software in education, successes and failures

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- However at this time, software started to be distributed in **binary only** form
- A problem for software engineer capable to fix bugs in third party software

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 - 2 study the system
 - 3 modify and fix the system
 - 4 distribute the system, modified or not

The GNU General Public License, the legal frame

- Secure the freeness of the GNU project
- Avoid proprietary software to take advantage of the GPL free software
- Encourage the collaboration between developers

Design of the first components

All the component necessary for an Unix like OS:

- Shell, Bash
- C compiler, GCC
- Debugger, GDB
- Editor, Emacs
- Standard C library, Glib

The important missing part, the kernel

- In 1991, Linus Torvald (21 at this time), started to write a kernel;
- It was the missing part of the GNU project
- Merged with the GNU project it forms the GNU-Linux operating system

GNU, a software engineer project

The first users of the GNU project were software engineers:

- It helps to bootstrap it
- They were able to fix bugs and to write additional components

GNU, a newbie operating system

Now grandma, grandpa and newbie can take advantage of the GNU-Linux desktop. It is the perfect OS for simple Internet, mail and word processing:

- Fast
- Reliable
- Virus free
- To summarise: **TROUBLE LESS**
- It also run very well on not very new computer (4 years old)

GNU and free software at school

- GNU-Linux in the server side
- GNU-Linux in the workstation side
- Free software with non free OS

The key elements

GNU-Linux has the following features

- It is an UNIX clone, therefore designed for network and multi-process
- It attracts software developers to write cross-UNIX software like Samba:
 - 1 it is a Microsoft Windows server *emulator*
 - 2 without the seat cost
 - 3 as usual it is **highly** customisable to be adapted to the specific needs of the users
 - 4 it is well documented
 - 5 there are a lot of support from the Internet

GNU-Linux and Samba

In the '90s, GNU-Linux with Samba attracted a lot of school administrators to give a try, as a consequences:

- A lot of different solutions were packaged as server side GNU-Linux distribution for school
- GNU-Linux played an important role in the raise of the Internet age in school (at least in France)
- These distributions were shipped with other free software components as:
 - proxy & filtering system
 - user administration tools
 - print & file sharing system
 - mail and intranet services

Situation

In France several specific server side GNU-Linux distributions for school are **developed and supported by governmental agencies**.
The same is true in other countries.

Let's look at a few examples...

Pingoo distribution

<http://www.pingoo.org>

- Developed and supported by the local government of Haute-Savoie – <http://www.cg74.org>
- Deployed in hundred of primary, junior high schools, town halls, tourism offices
- Administered and updated remotely from the computer resource centre – <http://www.cri74.org>
- An Internet and Intranet server

SLIS distribution

`http://www.ac-grenoble.fr/carmi-internet/slis/`

- Developed and supported by Grenoble academia agency – `http://www.ac-grenoble.fr`
- Deployed in more than 700 schools in this area
- It is only a router and communication server with filtering capabilities

EOLE distribution

`http://eole.orion.education.fr`

- Directly supported by the French education Office.
- **6000** officially installed servers in junior and senior high schools!

See this map:

`http://eole.orion.education.fr/carte.html`

- A modular server solution ranging from a minimal communication server to a complete intranet solution

SambaEdu

`http://www.crdp.ac-caen.fr/se3/`

Supported by the CRDP of Normandy. It is part of the SCEREN/CNDP network – `http://www.sceren.fr` – a national agency related to ICT and pedagogical resources.

Common characteristics

These solutions share a lot of aspects:

- Administration of the server is centralised
- No or little local administration at the school level is expected
- Cover the same functionalities: at minimum a Internet-LAN router up to a drop-in replacement to a Windows server with file and printing sharing services
- Workstations are expected to be Windows ones

Why these deployments are successful?

- The distributions are designed for a limited scope
- The deployments are carefully planed, with the assorted needed human resources
- No specific local school knowledge is required, the installed server are like black box which can not be accessed
- The proposed functionalities are limited
- Possibilities of extension are low, in most case only software update
- The workstations are Windows ones, the user behaviour is not disturbed

The key elements

- Important progresses in the workstation side in the recent year
- GNU-Linux in the workstation side is a lot of change for the user
- Need appropriate support for the end user

GNU-Linux desktop

With the recent improvements of the GNU-Linux desktop (mainly Gnome and KDE):

- GNU-Linux is more and more user friendly
- Traditional high tech corporations are supporting the rise of the GNU-Linux desktop (SUN, IBM, HP, Troll Tech,...)
- New distributions, desktop oriented for schools are emerging

Situation

Although GNU-Linux in the workstation side is a much bigger challenge, some pioneers started to promote this approach in the late '90s.

Let's look at a few examples...

AbuEdu

<http://www.abuledu.org>

- At first a community project from France, Bordeaux
- A thin client server with communication capabilities
- Became a corporate solution – <http://www.abuledu.com> – provided only through purchased servers
- Estimate user base around 30000
- Mostly not supported by the public institution

Debian-Edu

`http://www.skolelinux.org`

- A community project, emerged from Norway, and now attached to Debian
- A thin client server with communication capabilities
- 141 registered schools using it
- Supported by some NGO from Norway

Linex and Guadalinux

<http://www.linex.org> & <http://www.guadalinux.org>

- Public supported projects by the local governments of Extremadura and Andalucia in Spain.
- Supported by the European Union as well
- Not a thin client solution but a classic distribution for desktop
- Equip the computer of schools and public offices of these two regions
- Very large deployment, more than 100k computers

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- The other one relying on institutional support:
 - slower to start
 - more reliable on the long term
 - as the deployments are generally bigger it forces uniformity in the GNU-Linux desktop bazaar
 - *may* help to bootstrap a local ICT economy

The desktop issue

The GNU-Linux desktop is facing important issues:

- multitude of desktops
- tenth of widget *vendors*
- there is a lot of stress on the user to understand the different graphic user interface paradigms
- To save a file, depending on the applications, a user may face 8 different dialog layouts.
- **Worst!** This problem is endemic to GNU-Linux.

Nevertheless, as the Gnome and KDE desktop are emerging as the major desktops for GNU-Linux, it forces for aggregation and attract the developers. There is hope, but a lot will stay off the road!

The risks of the GNU-Linux desktop

A fact: In France, several public institutions are supporting server side projects but *none* for the desktop.

- User may reject the GNU-Linux desktop
- Knowledge about the know-how and how-to is not as common as the Windows one
- Support for developing, installing and training is not common
- Educational software vendors are Windows oriented, politically the GNU-Linux desktop at school adds more pressure
- Fewer & poorer educational oriented software
- The development model for **free educational software** has still to be invented

The pragmatic way

- When you can't promote the use of the GNU-Linux desktop, promoting free software on non free operating system is an easier way: there are tenth of cd-rom cd-roms ready to be distributed.
- Nevertheless, be ready to face negative reactions: not everyone cherish freedom or respect copyright.
- In my local area, where notebooks are distributed to each junior high school student, I successfully promoted the shipment of The Gimp, Dia, Audacity and Squeak in top of OpenOffice.org, Mozilla.

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- It is about liberalism! As the economic liberalism has boosted the XIXs and XXs economy, the free software is and will boost ICT because it is adaptive and un-conservative
- Big players are massively adopting it: IBM, Boeing, UPS,...

The move in the education

- Several geographic areas are massively adopting the GNU-Linux desktop. It is interesting to examine the evolution of these projects..
- **Ubuntu** and its educational variant **Edubuntu** enters the education market.
If Edubuntu reaches the Ubuntu level of excellence, this distribution will boost the penetration of the GNU-Linux desktop in schools.
- Nevertheless, the educational institutions are very often conservative – lack of internal competences on the matter – so the shift will be slow.