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Open Source software in Education: An Experience from Francophonie Institute of Computer Science

Purpose: Information
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and Open Course for E-Learning
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Open Source Software in Education

An experience from IFI

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Difficulty in selecting OS software

- ♦ OS software has not been used in universities
- ♦ Too many OS software available in Internet
- ♦ The selection of the right OS software is a headache for many institutions



- ♦ Which OS software has been implemented at IFI
- ♦ Practices to introduce OS for students



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Francophone Institute for Comp. Sci.

♦ Master level in computer science

- Systems and Networks
- Artificial Intelligence & multimédia

♦ Ph.D. in co-direction in computer science

- 12 candidates
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♦ Results

- over 230 Master
- 55+ pursuing Ph.D., 30+ completed Ph.D.

♦ Web site

<http://www.ifi.auf.org>



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OS software in Education

- ♦ IT infrastructure (computer networks and servers)
- ♦ Administration (course management systems & library)
- ♦ OS software tools for IT training (office, programming skill, etc)
- ♦ OS software for Software Engineering training (tools for Analysis, Design, Implementation, Test, etc.)
- ♦ OS software for research



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OS software for IT infrastructure

Computer Networks

- ♦ Very easy to set up a network with GNU/Linux operating systems
- ♦ Many Linux distribution available: RedHat, SUSE, Mandriva, etc.
- ♦ Community distribution: Debian, Gentoo Linux

At IFI, server is under Linux Debian SARGE 3.0



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OS software for IT infrastructure (suite)

Service server

- ♦ **Email service:** SendMail & PostFix (similar to Microsoft Exchange),
IFI uses PostFix
- ♦ **Web Mail:** Popper, IMP, SquirrelMail
IFI uses IMP 4.0
- ♦ **Web server:** Apache is the most popular
- ♦ **Network printer:**
 - Linux based client: use CUPS or Lprng to share resources
 - Windows based client: Samba to implement a virtual WinNT, allowing to clients to use ressources on Linux servers



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OS software for IT infrastructure (suite)

Client computer

- ♦ At IFI, French is teaching language so MandrakeLinux 10.x distribution is selected & implemented in all client computer (desktop et portable)
- ♦ We also test other Linux distributions as Debian, Fedora Core, Ubuntu, Knoppix,... They are all operational & stable.



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OS software for IT infrastructure (suite)

Office

- ♦ **OpenOffice:** similar to Microsoft Office, runnable on Windows & Linux, build-in utility for creat PDF file
- ♦ Graphical tools: GIMP, similar to Photoshop
- ♦ Web browsers: Mozilla Firefox, Thunderbird (Email)
- ♦ Drawing tool: Dia, similar to Visio
- ♦ Many other utilities



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OS software for Administration

Library management

- ♦ [Koha](http://www.koha.org) (www.koha.org): 2 versions for both Linux & Windows.
- ♦ [PhpMyLibrary](http://phpmylibrary.sourceforge.net) (phpmylibrary.sourceforge.net) & [OpenBiblio](http://obiblio.sourceforge.net) (obiblio.sourceforge.net).
- ♦ At IFI, we use [PMB](http://www.sigb.net) (www.sigb.net) with French interface.



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OS software for Administration

E-learning plat-form

- ♦ Claroline, Dokeos, Atutor, SAKAI
- ♦ [Moodle](http://www.moodle.org) (www.moodle.org) is very popular in Viet Nam (with interface in Vietnamese)
- ♦ IFI uses Moodle & developed new utility for [Collaboratif Learning online & in Contexte](#) (Research project PCSI-AUF 20 K€, 2005-2006, IFI, Univ. Sc. Naturelles HCM, Univ. de Moncton (Canada), Univ. Cadi Ayyad (Maroc))



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OS software for Administration

Content Management Systems

- ♦ [uPortal](http://www.uportal.org) (www.uportal.org), [Mambo](http://www.mumboserver.com) (www.mumboserver.com), [Postnuke](http://www.postnuke.com) (www.postnuke.com), [TikiWiki](http://www.tikiwiki.org) (www.tikiwiki.org).
- ♦ [SPIP](http://www.spip.net) (www.spip.net): a publishing tool
- ♦ [Blog](#): Web-based environment for exchanging between students & lecturers. [B2evolution](http://b2evolution.net/) (http://b2evolution.net/)



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OS software for IT training

- ♦ **Operating Systems:** [Linux](#) is an environment of choice for teaching the following modules: Operating Systems, Computer Networks, Distributed Systems, etc.
- ♦ **Programming:** [GNU](http://www.gnu.org) (www.gnu.org) provides many compilers for programming languages: Java, C/C++, Pascal, LIPS, Prolog.
- ♦ [GNU gcc/g++](#) for C/C++, Dev-C/C++ : Windows & Unix;
- ♦ [Eclipse](#) : Java, C++



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OS software for teaching Software Engineering

- ♦ <http://www.tigris.org/> & <http://sourceforge.net/>: provide a collection of tools for Software Engineering
- ♦ Object-Oriented Analysis & Design: ArgoUML (argouml.tigris.org), Umbrello (uml.sourceforge.net/).
- ♦ IDE-Intergrated Development Env : Eclipse – a professional IDE for Java/ C++ applications at IFI
- ♦ Testing: JUNIT & *Unit for unit test at IFI



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Practices to introduce OSS in Education

- ♦ 2-weeks intensive course: Linux & tools
- ♦ Non-license software are forbidden to use at IFI
- ♦ OS software are encouraged to use in all courses
- ♦ OS software for preparing all reports, presentation, homework, etc.



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Center for Linux & OS Software

- ♦ Partners
 - AUF – Agence Universitaire de la Francophonie
 - HaNoi University of Technology
 - IFI, U of CanTho, UNS of HCMC, INT Evry (France)
- ♦ 3 principal actions
 - ♦ Propagate & stimulate the use of OS software in universities & public
 - ♦ Traingning (Certificate LPI)
 - ♦ Development & solution for OS software



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Conclusion

- ♦ Over 10 years experience of using OS software at IFI, we think that OS software can support IT architecture of a higher education institutions
- ♦ Universities in VietNam should try & embark in the OS movement



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