OpenClassroom
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Version 0.2

OpenClassroom's software engineering process.

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This section is based upon the chapter on "Software Engineering" by Paul Vixie in the book "Open Sources: Voices from the Open Source Revolution" by O'Reilly.

Market Requirements Document (MRD).

Objectives:

- Describe target customers and their reasons for needing this product
- "what should we build, and who will use it?"

The Openclassroom toolset is targeted at the following markets:

- Schools
- Distance-learning institutions
- Non-governmental organisations (NGOs) that need to diseminate information and educational materials
- Community-information centers
- Tele-centers

This image presents a typical deloyment of the OpenClassroom toolset in a school or on a movable container
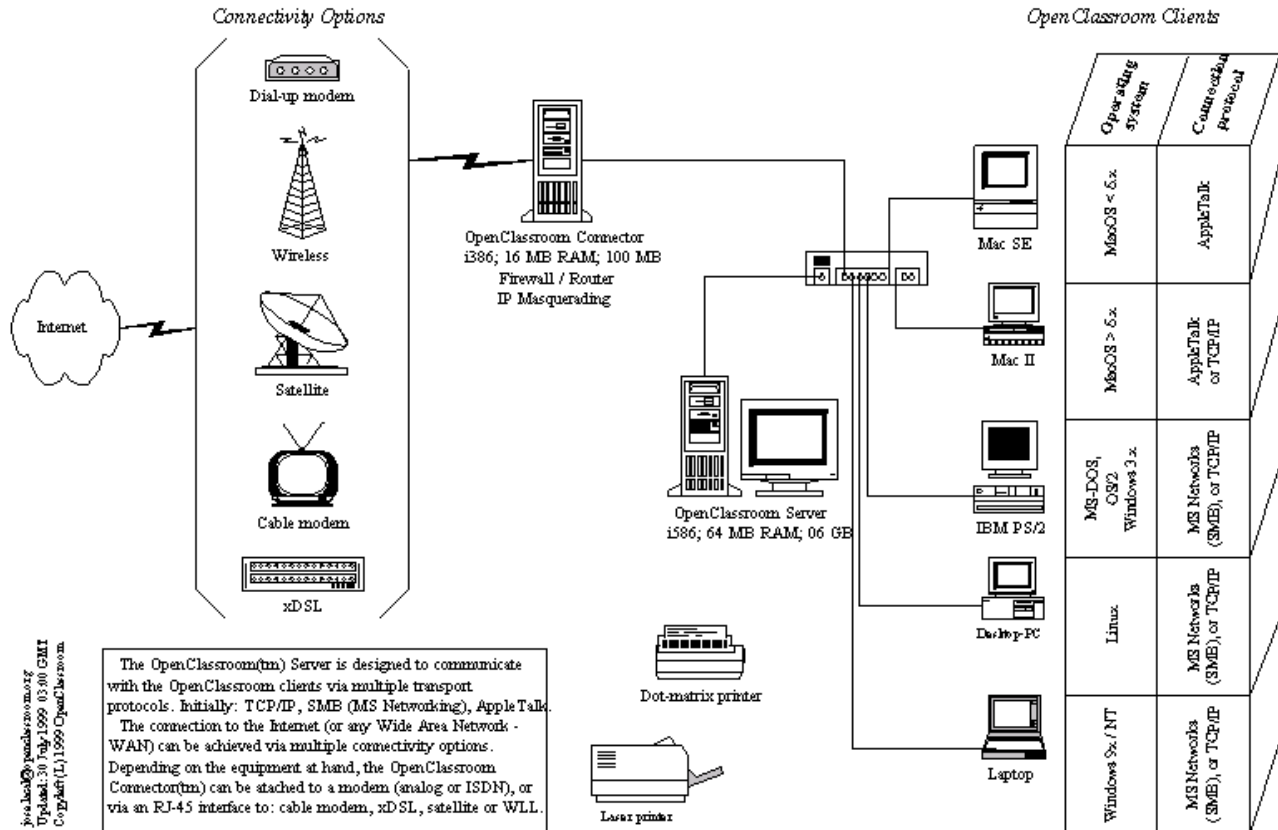
("telecenter on wheels").

OpenClassroom
http://www.openclassroom.org

OpenClassroom (tm)

Topic: Sample LAN layout.

Summary:
This document presents a sample layout of PCs connected in a Local Area Network (LAN) using the OpenClassroom(tm) software toolset. This LAN can be installed either on a fixed (school) or mobile location (a container).

Connectivity Options

OpenClassroom Clients

Dial-up modem

Wireless

Internet

Satellite

Cable modem

xDSL

OpenClassroom Connector
i386; 16 MB RAM; 100 MB
Firewall / Router
IP Masquerading

OpenClassroom Server
i586; 64 MB RAM; 06 GB

Dot-matrix printer

Laser printer

Mac SE

Mac II

IBM PS/2

Desktop-PC

Laptop

	Operating System	Connection protocol
	MacOS < 8.x	AppleTalk
	MacOS > 8.x	AppleTalk or TCP/IP
	MS-DOS, OS/2, Windows 3.x	MS Networks (SMB), or TCP/IP
	Linux	MS Networks (SMB), or TCP/IP
	Windows 9x / NT	MS Networks (SMB), or TCP/IP

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Updated: 30 July 1999 03:00 GMT
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The OpenClassroom(tm) Server is designed to communicate with the OpenClassroom clients via multiple transport protocols. Initially: TCP/IP, SMB (MS Networking), AppleTalk. The connection to the Internet (or any Wide Area Network - WAN) can be achieved via multiple connectivity options. Depending on the equipment at hand, the OpenClassroom Connector(tm) can be attached to a modem (analog or ISDN), or via an RJ-45 interface to: cable modem, xDSL, satellite or WLL.

Why targeting the educational market?

- The challenge for educational institutions and governments is to offer their students access to updated ICTs (Information and Communication Technology) in order to make education relevant in today's Digital Economy.
- The educational market's willingness and ability to pay per-user license fees is decresing. This presents a tremendous opportunity for an OpenSource solution like OpenClassroom's.

The OpenClassroom Server is based on GNU/Linux and OpenSource packages that deliver specialized functionality such as:

- Content Filtering
- Grading
- Back-office applications
- K12 Admin functionality
- Mailing list management software
- Publicly-available content (Project Gutenberg, etc.)

Why using GNU/Linux and OpenSource?

- For many countries, especially developing nations, commercial software is very expensive. Using GNU/Linux and OpenSource software, those countries can download the software, modify it to suit their needs, make unlimited copies, and no hard currency flows out of their countries.
- By following the OpenSource model we will be able to offer our target market the most cost-effective (not just FREE) solution to their challenges.
- By making our toolset freely available it will be widely distributed and installed quicker and thus deliver a larger user base than would otherwise be the case should we have not followed the OpenSource model.

The OpenClassroom Server is not dependent on any specific type of client PC and will work with any modern PC: Windows 95, 98, NT, any flavor of UNIX and recent Macintosh systems.

In addition to the Server, we also offer the OpenClassroom Client for users of older PCs (down to 386s, and old Macs). The OpenClassroom Client is provided by a partner initiative, The Volks-PC Initiative. For more details please visit http://www.volks-pc.org).

So, what happens if these OpenClassroom folks go out of business? All our work will be OpenSource and publicly available under the GPL. If we fail, other members of the OpenSource community can pick up where we left and continue this initiative. This scenario (taking the baton from a fallen or stalled OpenSource group) has been played out before (successfully) in the OpenSource community.
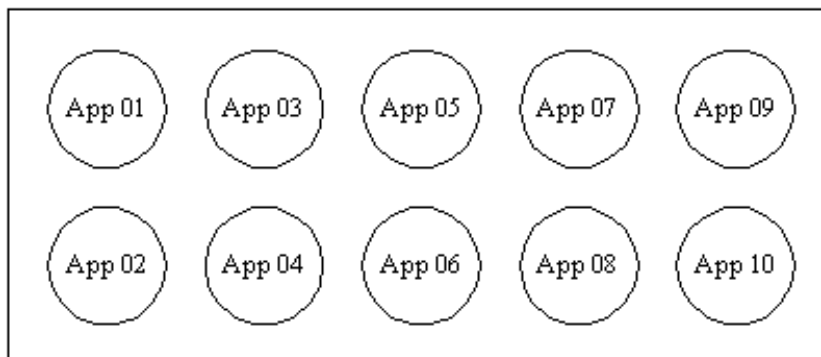
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System-level Design (SLD).

Objectives:

- High-level description of the product, in terms of "modules"
- the interaction between those modules

In terms of development effort, this is Phase 01: identifying the components that will integrate the OpenClassroom toolset. It looks like this:

Phase 01

Identification and selection of the applications to be included as basic components of OpenClassroom Server.

This image presents a draft of the SLD for the OpenClassroom toolset.
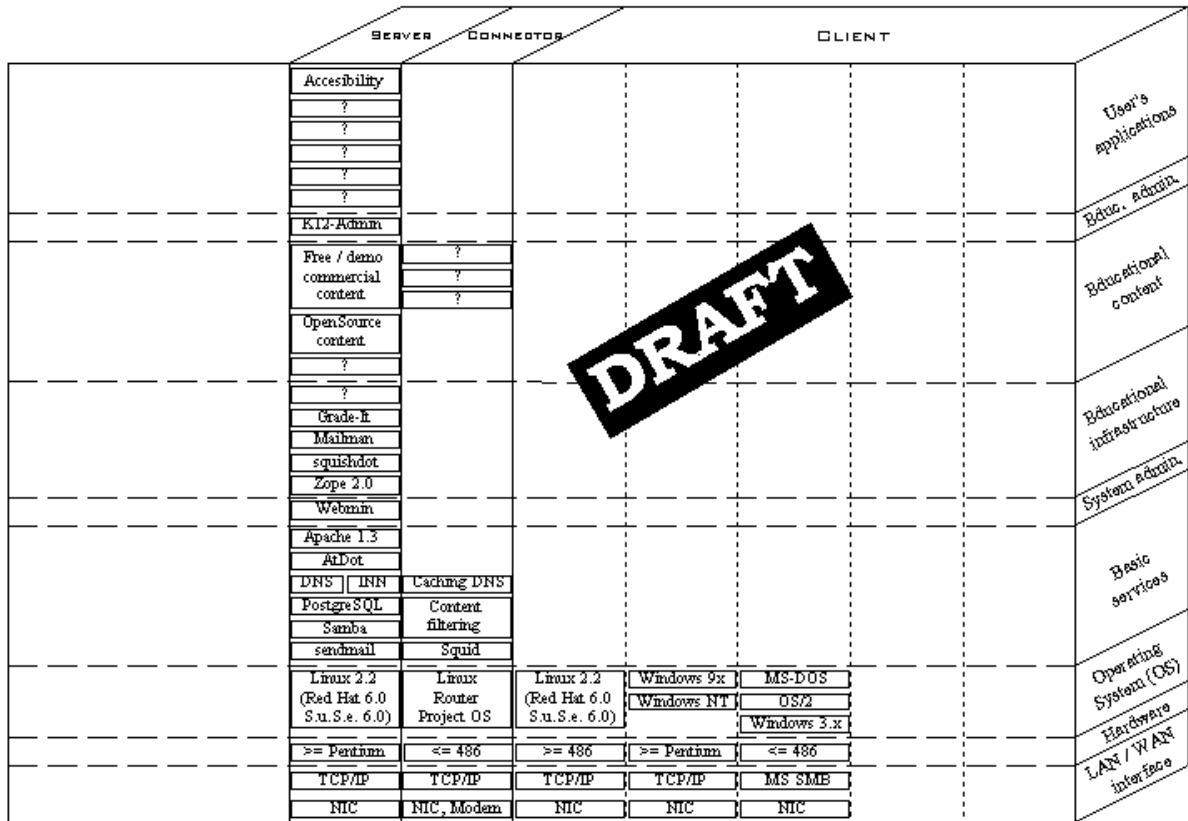
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OpenClassroom (tm)

Topic: Distribution's structure.

Summary:
This document presents a graphical representation of the OpenClassroom(tm) software toolset.

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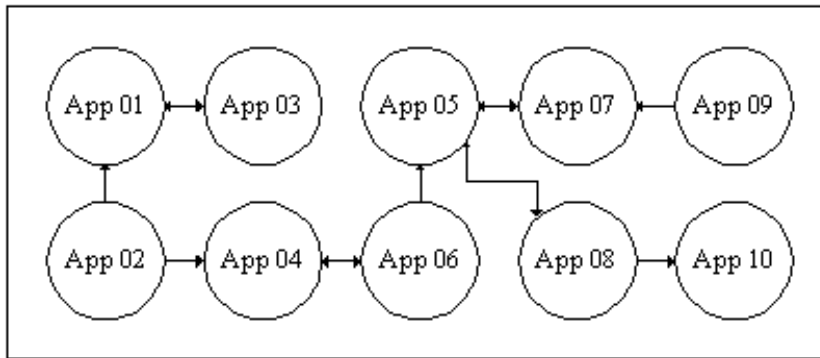| Server	Connector	Client			
Accesibility					User's applications
?					
?					
?					
?					
?					
K12-Admin					Educ. admin.
Free / demo commercial content	?				Educational content
	?				
	?				
OpenSource content					
?					
?					
Grade-It					Educational infrastructure
Mailman					
squishdot					
Zope 2.0					
Webmin					System admin.
Apache 1.3					Basic services
AtDot					
DNS | INN	Caching DNS				
PostgreSQL	Content filtering				
Samba					
sendmail	Squid				
Linux 2.2 (Red Hat 6.0 S.u.S.e. 6.0)	Linux Router Project OS	Linux 2.2 (Red Hat 6.0 S.u.S.e. 6.0)	Windows 9x	MS-DOS	Operating System (OS)
			Windows NT	OS/2	
				Windows 3.x	
>= Pentium	<= 486	>= 486	>= Pentium	<= 486	Hardware
TCP/IP	TCP/IP	TCP/IP	TCP/IP	MS SMB	LAN / WAN interface
NIC	NIC, Modem	NIC	NIC	NIC	

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Detailed Design.

Objectives:

- Detailed analysis of the interfaces between modules
- Definition of dependencies between modules

Once we selected the components of the OpenClasroom toolset, we analyzed the interactions / interfaces between those components / modules. It looks like this:
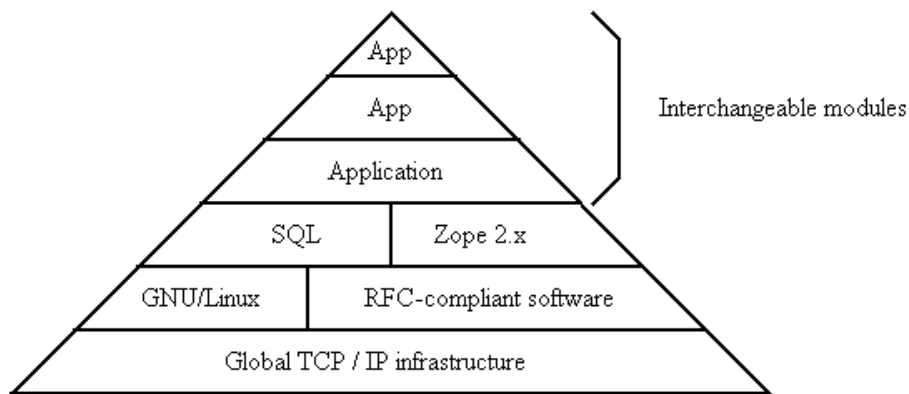
4

Phase 02

Integration of the applications via common interface elements.

Conceptually, this is another way at looking at the dependencies between the multiple components of the toolset:

Module plug-in framework.

What the image depicts is the fact that our toolset is merely the tip of the iceberg of under-lying technologies and open standards-based modules. We are not re-inventing any wheel, we are just re-packaging exsiting elements into an easier-to-use wheel.

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Implementation.

Objectives:

- Creation (coding). testing, and use of each module

This is, indeed, the hardest part we have identified. Here we can use your help.

- join our mailing lists
- contribute code
- help us write the documentation
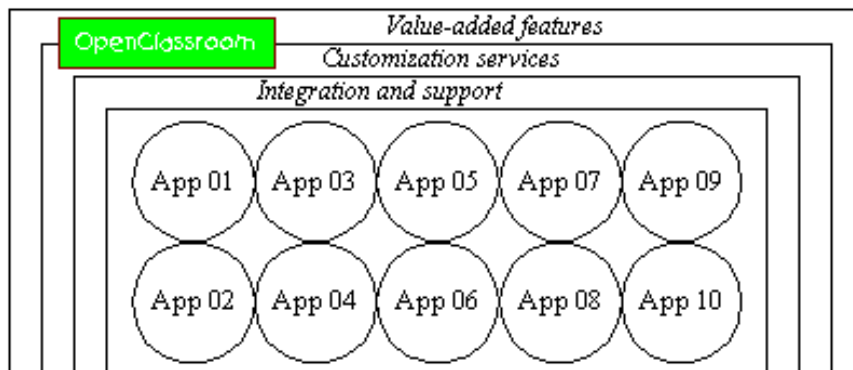- volunteer to become a beta site

Integration.

Objectives:

- System-level tests to insure interoperability between modules

In this phase, the ultimate objective is to create a CD-ROM and a boot diskette that **non-technical users** can insert into their PCs, boot off the floppy, and proceed to install and customize the entire OpenClassroom toolset. Graphically, it looks like this:

Obviously, there are a lot of tests that need to be conducted before we can release the toolset to our target usrs.

Field Testing.

Objectives:

- Deloyment on friendly customers' site
- Non-developers using the program in non-predicted ways

This is "where the dreams meet reality." We are painfully aware of the fact that all of the work prior to this stage is meaningless unless we can deliver a solution that works as intended outside of our development environment. Anything short of that is not acceptable.

Please volunteer to become a beta site. It is free, and all we ask of you in return is that you provide us with detailed feedback on your experiences using the OpenClassroom toolset. You can send us an e-mail or register on-line

Support.

Objectives:

- On-going bug fixing and fine-tuning

For this phase, we expect to have our Local Tutors up and running.

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Feedback.

Please direct any comments and suggestions on how to improve this document to jose.lacal@openclassroom.org. Thank you.