Serverside Possibilities

These are services run on a dedicated *Linux* machine. The can run on the same one, though.

Web Server

The well-known *Apache* web server prefers to be run on *Linux*. Possible uses include, besides the school's own web pages:

- Web space for Students, for personal experiences with HTML
- Running a Wiki for the IT department, do document the system and keep track of TODO lists
- Running a Wiki, to students share their knowledge in a modern way
- Running Blogs for staff and students
- anything else...

Mail Server

Several good mail servers are available for *Linux*, most notably *sendmail*, *postfix*, *qmail* and, my favorite, *exim*. Added value comes through the possibility of

- IMAP and POP servers
- Good spam filter, including self-learning ones
- Mailing lists for student projects and staff groups
- Together with a web server, web mail access can be provided.

Network Services

The *Samba* program can serve Windows clients as a file server, and also act as a Domain Controller and print server. The canonical *bind* DNS server runs on linux, as well as DHCP servers. The *Linux* kernel has a built in packet filter, allowing it to run as a router and firewall. VPN capabilities are provided by *openvpn* or *IPSec*. A network time server, *ntpd*, exists as well.

Subversion/CVS Server

To allow students to learn proper team-based programing, *subversion* or *CVS* can be used as the remote revision control system. Can also be useful for internal documents of the IT department, to track and distribute changes. Good Windows clients are available.

Shell Server

To allow students to get hands-on experience on the *Linux* command line, one central server is sufficient, as remote shell clients for Windows exist.

Workstation Possibilities

These options require changes to some or all of the computers in the labs.

Free Software Alternatives on Windows

A lot of well-known Free Software is available for Windows, too, and can easily be installed along the current choice of software. Most important are:

- *Firefox*, the web browser. Very popular for it's speed, nicer user interface and it's increased security, compared to the Internet Explorer. Personally, I don't know any serious computer user in Germany that still uses the Internet Explorer.
- *Thunderbird*, the e-mail client. As mosts e-mail worms are relying on the widespread use of Outlook and it's security problems, it is generally not recommended to use Outlook anymore. *Thunderbird*, made by the authors of *Firefox*, is the powerful and popular alternative. Includes a built-in spam filter.
- *OpenOffice*, the Free brother of *StarOffice*, is a very nice alternative to Microsoft Office, offering all commonly used features and more, and supports the OpenDocument format, a ISO standard file format that in some governments already is mandatory to escape the dependency on Microsoft.

Linux Installations on the Workstations

Linux can be installed parallel to Windows, allowing the user to choose at startup. A lot of things can be done with *Linux*, here some that come to my mind:

- Safer surfing. The security of *Linux* is usually better than on windows, as there are close to no viruses or worms. The user can use the same tools – *Firefox* etc. – he would use on windows.
- Programming. *Linux* is the operating system of choice on most universities for their programming courses. Available languages include: *Java*, *C*, *C++*, *Perl*, *Python*, *Ruby*, *PHP*, *Haskell*, *Lisp*, *Prolog*, *Ada* and many more.
- Graphics. The program *GIMP* is a feature-rich image manipulation program. *Blender* provides professional-quality 3D modeling and rendering. Vector graphic programs are available.
- *LaTeX*. Almost all science papers, documents and books are nowadays created using *LaTeX*, a typesetting program that comes with *Linux*. Students could learn it to write good looking texts including proper set math formulas.
- Everything else. With *OpenOffice* and all the other tools, *Linux* can fulfill all the usual and unusual tasks involved with computer use.