

ST SCHOLASTICA SCHOOL

The St. Scholastica School offers a practical course on Information Technology for their students. In this context, multiple workstations are provided which can minimally handle the high demand of intellectuality being sought by the students. Over time, defects of hardware components have occurred more often, which in turn is demanding human interaction in order to ensure further operation of the lab. Moreover, the infrastructure is only accessible during certain days of the week and for a limited amount of time (30 minutes per class) due to the institutions opening hours. As the school is attended by students of various backgrounds located around and in different estates around the school, at different places, the students' time of travel is considerably high as well. In order to improve the situation and save valuable time of the teaching staff, the virtualization of a whole new computer lab and courses would seem to be a suitable solution.

The Lab Course Case

The lab course mainly deals with basic hardware, and MS Office applications. Security flaws were minimally explained, seeing that they do not have an anti-virus running on either machine, and the misuse of the computers are of those illustrated such as tasks of which students have to deal within the course. The labs carry a capacity of about 30-40 students working together in groups of two, each group having one to no computers at hand.

Thus, a mechanism for simple and dynamic adaptation of the infrastructure is necessary.

Requirements

In the context of the practical lab course, four major requirements have to be fulfilled while restoring St. Scholastica's lab infrastructure:

1. Security.

Due to the fact that the lab deals with students of different age groups and backgrounds, one important factor while thinking about the lab is defined by IT security itself. Users are a primary issue in order to guarantee a highly available and secure course environment. As there are many users, the protection of the outer world is an important fact as well, while access to the Internet is necessary to download software components, of which the school is not in a capacity to provide.

2. Transparency.

The initialization must not be visible to the students. No student needs to have any access to or knowledge of the underlying physical **hardware** components, unless very necessary. Students don't even have to know about the initialization order to work with the components provided/those that will be installed on the computers.

3. Accessibility.

Access to the machines should be possible from any workstation connected on the Intranet, including both console access and the use of graphical user environments in a secure manner with adequate performance supporting all the users. Linux/UNIX on the client side should be usable, while the terminal server is based on Linux without exception. This would promote the use of FREE OSS other than cracked versions of Microsoft which would not be beneficial on their side in the long run.

4. Management.

Management aspects have to be separated into two major dimensions:

(a) Management of the lab infrastructure.

To ease the management of the lab, it has to be comparatively easy to keep the lab up and running and to ensure a secure environment for the students. This discipline is left to the teaching staff and system administrators, as it only deals with the hosting system itself and not with workstations.

(b) Management of the machines.

The management of the workstations shall be left to the students, releasing the teaching staff and system administrators from that duty. It has to be possible for all the students participating in a lab session to manage their own machines in a comfortable way. In particular, they have to be able to restart their machines if a problem occurs. This task is usually left to the teacher in charge at that time making it a bit difficult for control.

Hardware Basis

Throughout my visit to the school, there was a realization that various attempts have been made to make the school better when it comes to information technology. Only a certain number of computers are working having RAM of about 64MB which slows down the 10 working machines. RAM is crucial as 10 machines for 30 students in a 35minute class is a bit under drawn.

Available

10 working PCs with Ram of 64MB

Windows 98(9 machines)

Windows 2000 (1 machine)

Office packages

Recommendation

Linux filesystem with installer including tools for development, the graphical desktop environment KDE and some free disk space for the students to work with.

Those plus additional disk space for backups have to be hosted on the terminal server.