

REPORT ON THE SCI CLASSES/OFFICES LAN

Introduction

SCI CLASSES/OFFICES LAN was first created in 1999 under the sponsorship of Universities Investment Project (UIP), a World Bank funded project.

The project achieved the following:

- ✓ Network backbone: implemented a 100 Mbps fibre (FDDI based) backbone network at Chiromo campus replacing the 10 Mbps thick-ethernet backbone. This backbone network went through all the buildings in Chiromo Campus and was extended to the Main Campus, initially terminating at the Jomo Kenyatta Memorial Library.
- ✓ Data Points: implemented structured cabling and creating of over 100 new data points in all the buildings in Chiromo Campus and Main Campus at JKML
- ✓ Personal Computers: added 80 new PCs and nine (9) printers to the University network.
- ✓ Internet connection: implemented a high-speed connection to the internet, initially at 64 Kbps and later upgraded to 128 Kbps. This connection enabled electronic communication, information exchange among students and staff and access to the internet.
- ✓ Remote Internet connection: upgraded a remote access server to enable more staff, who do not have access to Internet services. Staff in Chiromo Campus were able to achieve this remote connection through PABX extensions.

The School (SCI) gained in this project and the main highlights are:

- ✓ Creation of 40 data points of which 25 connected staff and 15 were set in the students Computer Labs.
- ✓ Internet connection became possible and both students and staff enjoyed these facilities
- ✓ Improved network infrastructure which resulted in better bandwidth and access of network services

Aims and Objective of the Upgrade

School of Computing and Informatics has constantly recorded a steady growth path in terms of network users and services. While the ICT infrastructure that supports this population are getting old, running slowly and will reach the end of their working life within the next few years.

This project was initiated to upgrade the SCI Offices/Classes network and greatly improve the wired/wireless data and telephony networks that will enable access of modern technologies and services.

Network Upgrading Process

Five (5) main phases necessary for the network upgrade were followed and summarized in the table below.

PHASE	EXPLANATION	FINDING	
Requirement Gathering	<ul style="list-style-type: none">▪ Survey of the network and list of materials	<ul style="list-style-type: none">▪ Cat 5 cable used	<ul style="list-style-type: none">▪ 15 boxes of Cat 6e cable used

	and tools needed for the work identified	<ul style="list-style-type: none"> ▪ Few data points identified ▪ Very low speed (10/100 mbps) 	<ul style="list-style-type: none"> ▪ 100 data points were created ▪ High speed (100/1000 mbps) ▪ 5 new 24 port patch panels were used ▪ 1 new 7 U cabinet was installed
Selection and design	<ul style="list-style-type: none"> ▪ LAN documentations were viewed. Trade-offs in performance and cost evaluated. 	<ul style="list-style-type: none"> ▪ Old network required many resources (cables) ▪ Need of network segmentation 	<ul style="list-style-type: none"> ▪ New physical design was developed ▪ Necessary to implement network segmentation
Implementation	<ul style="list-style-type: none"> ▪ Implementation plan is an estimated time that the project is likely to take. ▪ Must take into consideration unexpected events ▪ Approximated 7 days 	<ul style="list-style-type: none"> ▪ Developed and communicated work plan ▪ Possible interruptions of services and noise, staff and students 	<ul style="list-style-type: none"> ▪ The process took 9 days ▪ 2 days more than expected coz of the other activities like students registration
Operation	<ul style="list-style-type: none"> ▪ Is the production environment where the is considered live and performs all the tasks 	<ul style="list-style-type: none"> ▪ 	<ul style="list-style-type: none"> ▪ Performance test on the nodes and services was done ▪ Some points which did not give desired results were corrected ▪ Good results recorded
Review and evaluation	<ul style="list-style-type: none"> ▪ Included costs, performance and appropriateness for the environment 	<ul style="list-style-type: none"> ▪ 	<ul style="list-style-type: none"> ▪ Received user positive feedback on the upgrade ▪ New designed helped make savings on cables and reduced the time lags ▪ Installations and labelling were well done and documented.

Observation

Recommendation

Summary

Networks usually experience unexpected growth and develop in a disorganized manner and SCI networks are not exceptional to this fact. When this happens, network performance degrades slowly with each new device added. And this may continue to the point where the network no longer supports the traffic generated by the users.

Whether the network upgrade is forced or planned, the upgrade process must be conducted in an organized manner. The upgrade plan must consider the strengths and weaknesses of and opportunities and threats posed by the network installation. Timing of the upgrade process must be well defined and clearly agreed on by all the stakeholders.

Network upgrade should be planned and an estimate growth rate should be provided for periodically and factored in the budget. This should entail a projected estimate for growth in the number of users, network nodes and geographically dispersed sites. But most importantly the growth in application traffic should always be given special attention