Mini Project
CSE405 (Computer Networks)

Title: Design a full-fledged network for an organization with multiple subnets.

Dynamics

The project must be done individually. A technical report must be submitted upon the completion of your work. Please submit both packet tracer file and the report (pdf) using Google classroom.

Background

INTERNATIONAL APEX University, is an enterprise like East West University, owns a large number of computers, with a complex network infrastructure. Apart from wired internet access to all the classrooms, labs, employee PCs, library and other administrative and academic wings, the university also provides wireless internet access for everyone. On top of that the university runs a number of complex networked systems to support several of its business process like admissions, advising, results, eTender, library management, accounts and so on.

This complex network infrastructure is subnetted and switching/routing mechanisms are in practice.

Tasks

Your task is to create a complete model of a complex network by discovering the interconnectivity of the systems and subnetworks, which will reflect the INTERNATIONAL Apollo University's structure and facilities, features within the network will include the followings:

- Web page of the university will reflect International Apollo University's web page.
- DNS sever needs to be installed to locate webserver - meaning people will browse University's web site with the following address: http://www.apollointernational.edu
- Among the hosts make sure wireless links to the networks are available.
- University's full network has covered its six campuses with six routers, among them 3 campuses are in a loop; Connectivity between the campus routers are given at the end of handout.

- Connectivity between all the hosts needs to be established.

While designing, keep the issue of future expansion/growth in mind for each of the subnets (if required) and preserve spaces. It is compulsory to incorporate wireless devices along with wired hosts in the LAN as well. In the physical design, it is a good practice to have a server room where all the servers are positioned in one LAN segment.

Tools

You are free to use any tools necessary. For the design of network topology and modeling, and for implementation of DNS and Web server 'Packet tracer' is recommended.

Report

Develop documentation professionally where requirements, design specifications will be included. Include the preface, physical diagram, design issues, i.e., number of hosts, networks, limitations and lines of codes used to configure the network in your report.

Assessment methods:

You will be assessed depending on functionality of the network meeting all the requirements. In addition, your report should reflect professionalism and network design should be concise and well organized.

Grading

The overall mark for the project is 20. Assessment would be on complex professional design and arrangement of the network that meet all requirements with functionality. Report should reflect professionalism.

Submission Process:

You should submit your packet tracer file and the report using Google classroom within the deadline, mailing is not an option.

Features to get Bonus!

- Configure the whole network in such a way that IP for the hosts of different campuses will be automatically assigned by a single DHCP server.
- Network addresses will be from all 3 classes.
- Incorporation of subnets

Special note: Keep your own design with yourself; do NOT distribute your design.

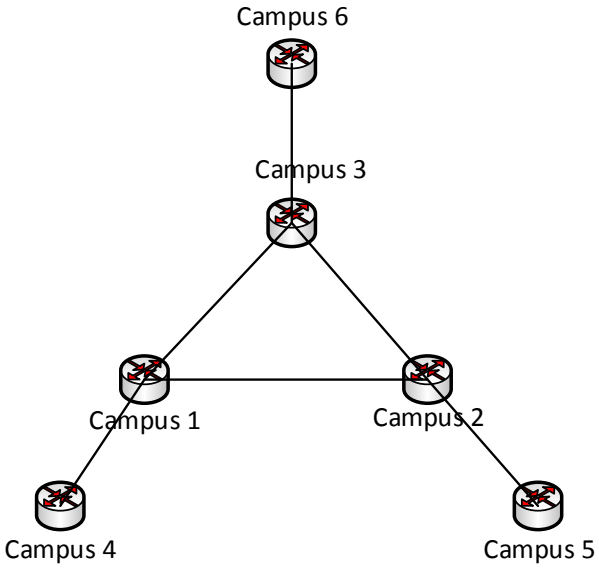

Fig: Connectivity between campuses