

BLM 3022 - Computer Networking Technologies

Lab 2 - VLAN

The purpose of this assignment is to design and configure a VLAN(Virtual Local Area Network) using Cisco Packet Tracer.

You need to create a network for a faculty that consist at least 3 different departments and all of these departments need to consist at least three different group of people. In the network that you need to create each one of the group from one department should be able to communicate with the same group from different departments. For example, faculty could be Engineering Faculty; departments could be "Computer Engineering", "Electrical Engineering", "Biomedical Engineering". Different groups could be "Students", "Lecturers", "Administrative Staff". For this example students from "Computer Engineering", "Electrical Engineering" and "Biomedical Engineering" should be able to communicate with each other. Also lecturers from "Computer Engineering", "Electrical Engineering" and "Biomedical Engineering" should be able to communicate with each other, and Administrative staff from "Computer Engineering", "Electrical Engineering" and "Biomedical Engineering" should be able to communicate with each other. On the other hand, different groups from different departments should not be able to communicate with each other. For this example "Students" from "Computer Engineering" should not be able to communicate with "Lecturers" from "Electrical Engineering".

Requirements:

1. For this lab, you are responsible for designing correct topology with choosing correct network elements, making the necessary connections with correct cables and making the necessary VLAN configurations.
2. First, you need to design the network topology, make the connections. After that you need to make necessary configurations for VLAN.
3. Ensure that same groups of people from different departments can communicate with each other by sending pings(Example:"Students" from "Computer Engineering" and "Students" from Electrical Engineering" should be able to communicate).
4. Ensure that different groups of people from different departments can not communicate with each other by sending pings. (Example:"Students" from "Computer Engineering" and "Administrative Staff" from "Biomedical Engineering" should be able to communicate).
5. Prepare a brief report (2-3 pages) explaining your network topology, device configurations, and briefly, how OSI layers function in this objective.

Submission:

You should submit two files:

1. Your Packet Tracer file (.pkt) named LAB2-studentid1-studentid2.pkt
2. The report in PDF named LAB2-studentid1-studentid2.pdf.

Evaluation:

Both students will be asked general questions related to the network topology.

The lab will be evaluated based on the following criteria:

1. Network design and topology.
2. Proper device configuration and IP address assignment.
3. Clarity and organization of the report.
4. Understanding of basic networking concepts and device configurations.
5. Understanding of VLAN; pros, cons of VLAN.