YILDIZ TECHNICAL UNIVERSITY

FACULTY OF ELECTRICAL AND ELECTRONICS

Computer Networking Technologies
(BLM 3022)
LAB #1 REPORT

19011619 – Rıdvan Ülker
18011072 – Mustafa Kemal Ekim

ridvan.ulker@std.yildiz.edu.tr

kemal.ekim@std.yildiz.edu.tr

DEPARTMENT OF COMPUTER ENGINEERING

1. INTRODUCTION

The configuration of different network elements, such as nodes, devices, and connections, is referred to as network design and topology. It outlines the network's data flow and the connections between various devices. A number of variables, including scalability, affordability, reliability, and performance requirements, influence the choice of network topology and design.

There are several network topologies that can be used in network design. These include: Bus topology, Star topology, Ring topology, Mesh topology and Hybrid topology.

There are two primary strategies for network design:

- Centalized Design: All network components are monitored and controlled from one central location in a centralized design. This makes management and troubleshooting simple, but it may be less scalable and more vulnerable to single points of failure.

- Distributed design: In this method, network parts are dispersed and independently managed. More scalability and resilience are made possible, although management of this can be more challenging.

The final decision about network topology and design will be made in light of the particular network requirements, including the quantity of devices, their distance from one another, and the volume of data that must be transported. The purpose of the laboratory is to understand the logic and operation of inter-device communication and to perform test operations in real and simulation environments.

2. METHOD

Discuss about the method, device configuration, and other considerations.

To create a subnet-level network topology that allows communication 2 Cisco 2960 switches, 1 Cisco 1941 router and 4 computers were used. Two PCs in each department are connected to the corresponding department switches, and these switches are connected to each other through the router. All devices are connected with copper flat cables.

The computers in each department are connected to the router through their respective default gateways. It used to be enabled on the router for each subnet.
Department A Default Gateway: 192.168.1.1
Department B Default Gateway: 192.168.2.1

Computers which connected to switches are given special IPv4 addresses. IPv4 addresses consist of 32 bits and the trailing 8 bits are subject to change.

In order to control the communication of all computers in the network with each other, packets can be sent with ping requests via command prompt or packet sending can be easily monitored with the "add simple pdu" offered by the Cisco Packet Tracer application.
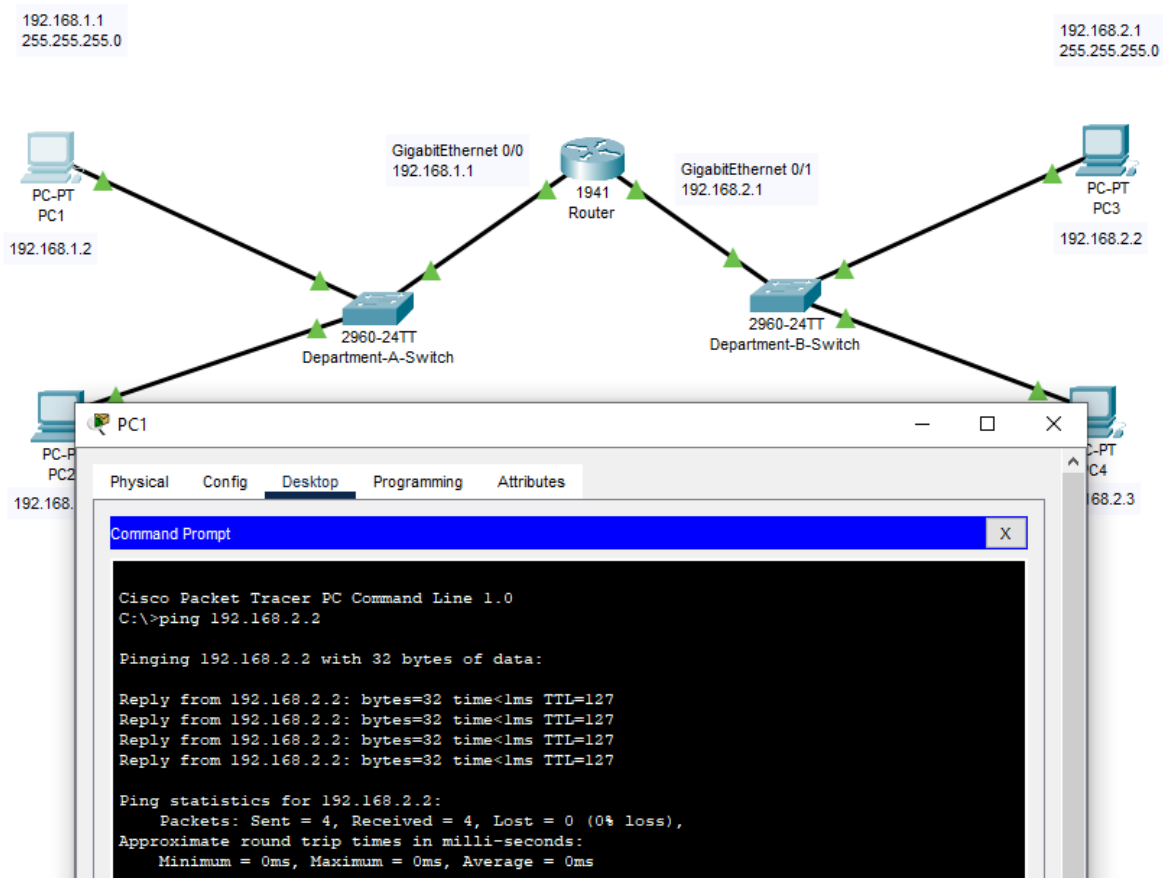

Fig 1. Ping from PC1 to PC3

3. RESULTS

The following figure shows packet sending from PC1 to PC3. Thanks to the simulation environment of the application, the package details can be accessed.
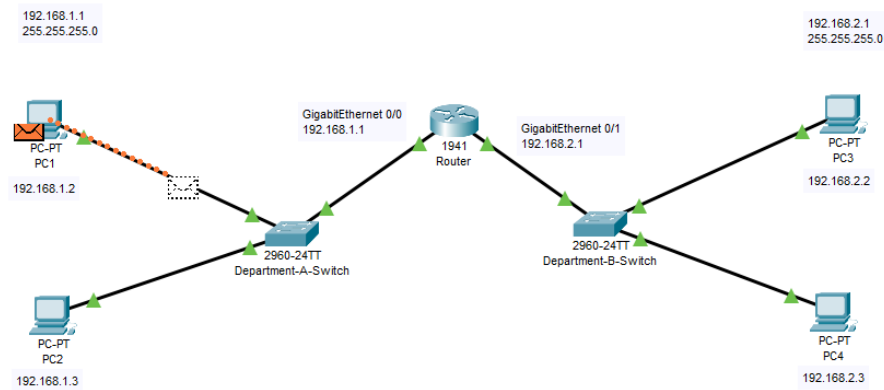

Fig 2. Packet Delivering

Fig 3. Successful Delivery