

CHAPTER 1

INTRODUCTION

1.1 Project Background

Internet is a worldwide network of computer networks. It is an interconnection of large and small networks around the globe. To connect one network to another we need some sort of linkage, this linkage provided by an electronic device, which its function is to connect two or more networks and routes incoming data packets to the appropriate network. The well-known term for such device is “router”. **Figure 1.1** showed the simple routing process.

We all know that in any computer network, data is transported from one location to another location. This transportation of data is known as “routing”. Routing is often contrasted with bridging, which might seem to accomplish precisely the same thing to the casual observer. Bridging is a forwarding technique used in packet-switched computer networks. Unlike routing, bridging makes no assumptions about where in a network a particular address is located. Instead, it depends on broadcasting to locate unknown devices.[1]

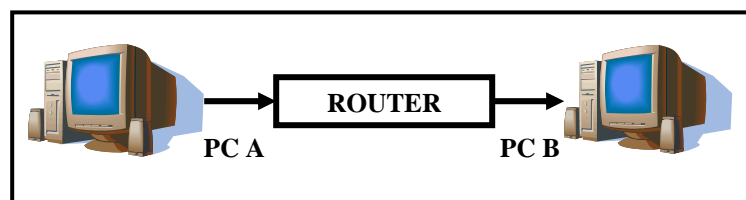


Figure 1.1 The Simple Routing Process

1.2 Problem Statements

The problem statements of this project are about to create a more economical router that can be used in an area. There are many routers provided for users today, but it comes at a high prices.

There are routing software used widely today, for example, Cisco and Zebra (Quagga). Most of the routers used on the internet are made by Cisco. Although these have good performance, they come at high price. However, the performance of the router makes it an attractive alternative when concerned with economizing, and here we find the solutions.

1.3 Objectives

The main goal of this project is to develop, examine and simulate various security and routing models that might ultimately prove suitable and economizing for use in a space-networking environment, using Quagga.

The other objectives of this project entitled 'Development of PC Base Router Using Quagga' is to learn the basics of routing protocols and the differences between link-state and distance vector routing protocols.

Next are to learn about the metrics used by routing protocols to determine path selection and to know the basics of how data travels from end stations through intermediate stations and on to the destination end station, and at the same time, are to understand the difference between routed protocols and routing protocols.

1.4 Scopes of the project

The router will operate in limited areas, such as a building, a campus, or a university (using LAN), which is surely connected.

The router will transfer information between the source and destination if the TCP/IP is correct.

This project will give users some benefits, such as easily to share the internet, share files in networking neighborhood, enable NETWORK; like able to play NET games, messaging and share printer.

1.5 Applications

Function of the router is to take out the destination IP address from the packet and determines the next network point to which a data packet should be forwarded towards its destination. When ultimately packet reaches to the destination machine, that machine uses the source IP address of the packet to send-to-send acknowledgment indicating that packet has arrived.

One of very important function played by router is acting as “firewall”. It does not allow computer’s IP address to directly exposed to the internet. Besides, in situations where we need to economize, this router is an attractive alternative. When used as a simple gateway for a LAN, it can be almost free.