World University of Bangladesh

Course Title : Data Communications & Networking Lab
Code : CSE 902

Case Study

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Question 1.

Description

"Dynamic Routing Protocol Implementation Decision between EIGRP and RIP Based on Technical Background Using Cisco Packet Tracer". And submit a brief summary of this article in your own words. Your summary should not exceed the minimum limit of 1200 words.

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Study the following information carefully and answer the case study properly.

Abstract:
Introduction:
Background of the study:
Methodology:
Design:
Result:
References:

Answer to the question no. 1

Abstract:

In this case study we will be talking about the networking and routing. If we more specify this topic then the routing in networking is generally devided into two parts Static routing and Dynamic routing. The dynamic routing has four parts. Among them we will discull about two parts they are RIP and EIGRP. We will try to explain where we will choose RIP and EIGRP.

Introduction:

We all use the internet in the present days almost everyone. And for this we need devices. And these devices communication needs a medium. For this the computer networks has became the most important thing in the present days. The offices and companies run well organized networks for maintaining the administration, communications, automation, e-business etc. The computer networks can be in many froms like LAN, WAN, MAN, WLAN, PAN, SAN etc. But in most of the offices has it's own LAN networks where they maintain the connections. The LAN network is unuseful in many ways like storage media mainframe computers or mini computers and high speed printers. For handling these tasks we need the proper system managers and softwares to use them. The simulaton tools can give us the way which hardware will work how if we connect it in the network. Here we will use the Cisco packet tracer to sumulate these things. This paper will show how the tool can be used to develop a simulation model of the LAN for an organization in the form of messages, databases and so forth. Whatever the network is located in a building or the network within an area the need of networking in computing is just a revolution in the history. Here we will model the network routing and security using Cisco network simulation software , which ordinarily will not work without some set of configurations. We employed the Cisco simulator software in modelling the router and to provide a robust security. The simulator software in which the network design was made is Packet Tracer. Packet Tracer was used because it has all the tools that can be used to design a Cisco network and accept configurations by a network administrator if they are correct and acceptable by the Cisco equipment. The model is validated with a very satisfying result.

Background of the study:

The "Cisco" networking company is a top rated company that makes high level security networking accessories. The cisco networking in the networking that contains high level of security because of the advanced configurations that is installed pre default and they are able to run with the different models. The OSI model was created by the international organization of standardizaiton. In this here is meant to support the vendors who create the universal devices that connects to the networks and software in the form of protocols so that they can communicate and work with each other. Though most of the devices work very well but somewhere there are exceptions. It would be a very good opportunity if it is possible to do with each and every devices. In these days the internet has become a mainstream activity. Everybody use the internet these days. So, networking here is a core element. Here, networking means at least linking two or more devices and the connection between them is called networking. The difinition of networking is an invisible thing but we use it by the activity of the softwares and hardwares. The data networks are made as a result of business applications that were written for microcomputer. In that time the microcomputer were not connected as computer terminals so the sharing of the data wasn't possible that time. This situation was in the beginning of the invention of the floppy disk. The floppy diskk wasn't effective also the floppy disk was a very costly thing that time it was hard to run the minor business organizations. Every time the sneaker create the multiple copies of data it need to be shared again with the users we need the file. When double prople modifies it then shares it the thing is one set of the file used to lost. So, the need of solution arises for the following problems :-

I. Efficiently communication
II. Files duplication
III. Setting a network and managing

Methodology:

The full form of RIP is routing information protocol. It contains slower convergence time. That time can not be counted easily. The routing informaion protocol uses the full rouing table which is time and space consuming and a little bit more time takes to read. This is an application layer protocol used to route data packets and it's by finding the best hop count. The full form of EIGRP is Enhancd Interior Gateway Routing Protocol. The EIGRP is in the branch of dynamic routing protocols. The EIGRP is thought as very switable and more acceptable because it's high speed convergence time that is easily counted by the Cisco Systems. Vendor specific protocols coverted it into open standared in 2013 and released in RFC 7868 in 2016. It is a Hybrid distance vector protocol that means it combines the features of distance vector routing protocols. EIGRP converted Interior gateway routing protocol and distance vector routing protocol and it wasn't able to handle the VLSM and CIDR. EIGRP only shows the incremental udates instead of the full routing table, that means updates are only sent because for the change in topology. It uses the 3rd layer communication. For calculating the best path to the destination it uses the mathematical algorithms.

Designs:

The designs of the RIP and EIGRP protolocls are mentioned below.

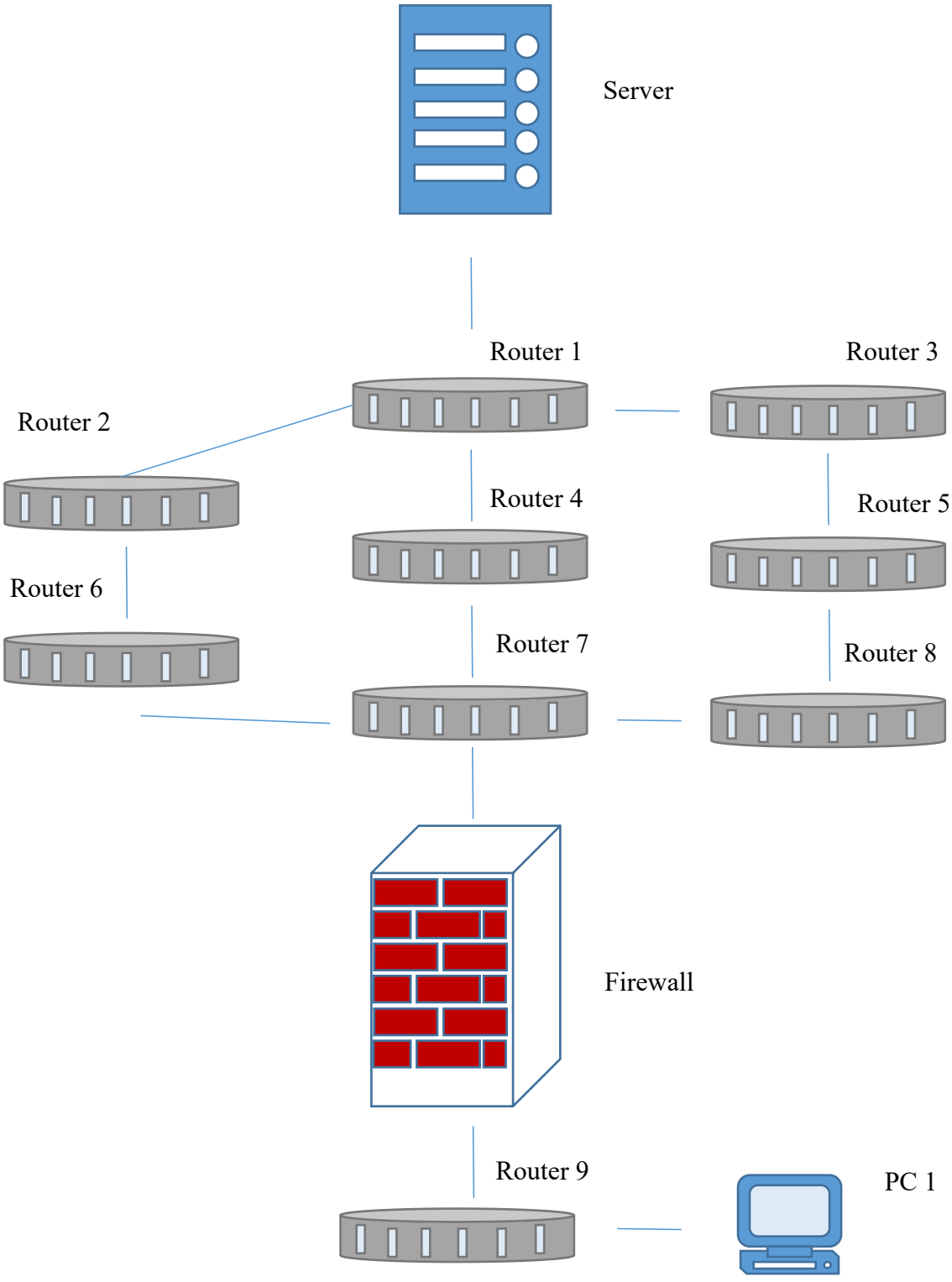
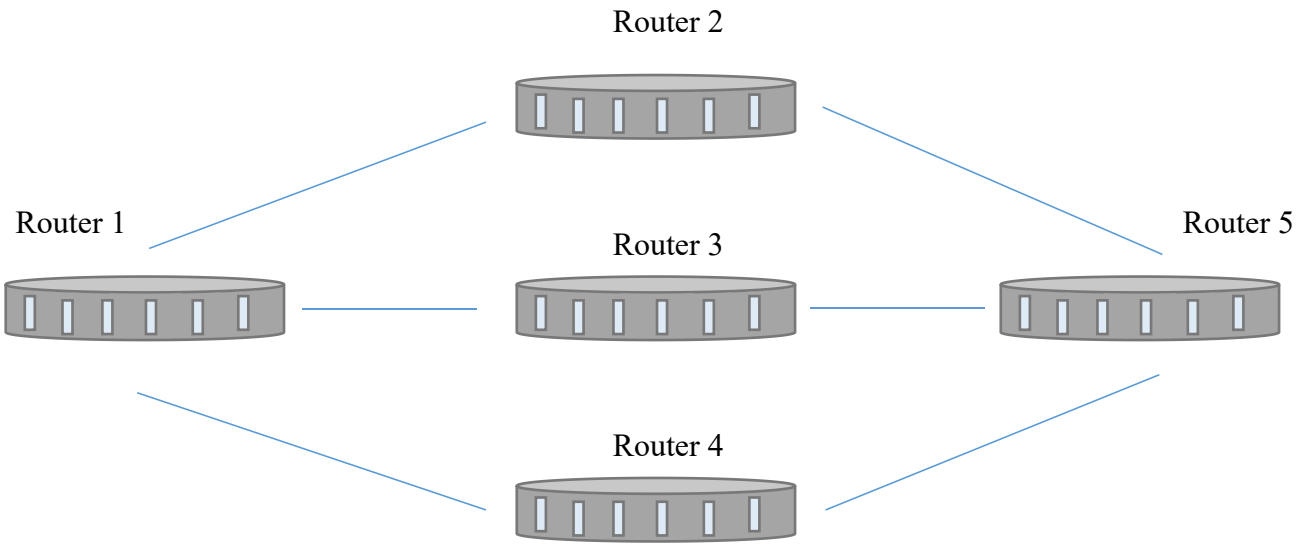


Fig : Routing Informaiton Protocol



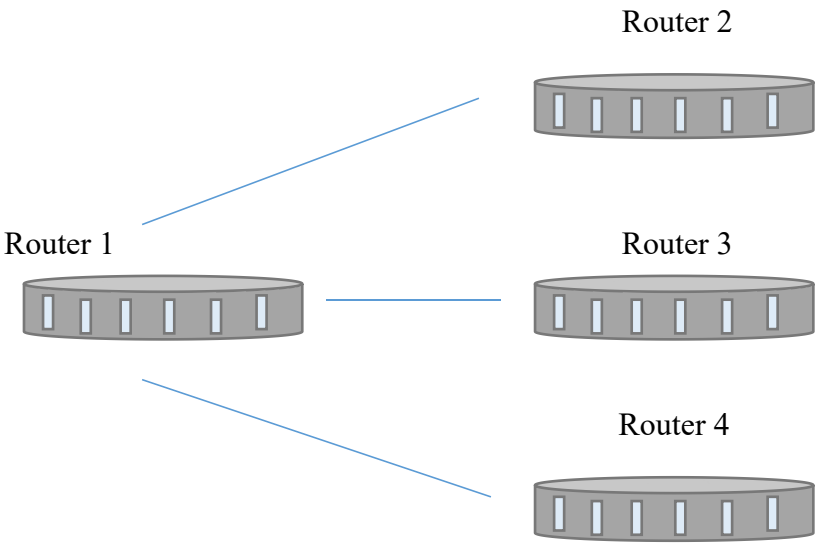


Fig : Enhanced Interior Gateway Routing Protocol

Results:

Now we can see in the RIP image the main router to the server has many ways to go but which path we would choose it will decide the RIP or the routing information protocol. We can see in the image the router count the smallest hop count so it chose the way of R9 -> R7 -> R4 -> R1.

First the main router checks the upcoming routers and choose the best router as a path. Then a router is chosen as a best path. The two routers running EIGRP on the same link are agreed to make a neighbouring relation. They exchange their topology values with each other. Each router chooses the best routers to join to it's table. Neighbouring routers can send update messages between them. They will share their routing information.

References:

I) Google
II) Youtube
III) University given lecture
IV) My work sheets