

Internship on Computer Network System in CSL Training

BY

MD. ARAFAT RAFI

ID: 183-15-12046

This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science in Computer Science and Engineering

Supervised By

MS. FARAH SHARMIN

Senior Lecturer

Department of CSE

Daffodil International University

Co-Supervised By

MS.NAZMUN NESSA MOON

Assistant professor

Department of CSE

Daffodil International University



DAFFODIL INTERNATIONAL UNIVERSITY

DHAKA, BANGLADESH

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APPROVAL


This Project titled “**Internship on Computer Network System in CSL Training**”, submitted by **Md. Arafat Rafi** to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on **06-01-2022**.

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Dr. Sheak Rashed Haider Noori
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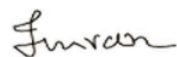
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Assistant Professor
Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University

Internal Examiner



Md. Abbas Ali Khan (AAK)
Senior Lecturer
Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University

Internal Examiner



Shah Md. Imran
Industry Promotion Expert
LICT Project, ICT Division, Bangladesh

External Examiner

DECLARATION

I hereby declare that, this project has been done by me under the supervision of **Ms. Farah Sharmin, Senior Lecturer, Department of CSE**, Daffodil International University. I also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

Supervised by:

Farah Sharmin

Ms. Farah Sharmin
Senior Lecturer
Department of CSE
Daffodil International University

Co-Supervised by:

Nazmun

Ms. Nazmun Nessa Moon
Assistant Professor
Department of CSE
Daffodil International University

Submitted by:

Arafat Rafi

MD. Arafat Rafi
ID: 183-15-12046
Department of CSE
Daffodil International University

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I briefed him on every single moment, and he assisted me in correcting my errors. Because of this, He encouraged and motivated me throughout the process, and he followed up on my report. I'm not sure how to convey my gratitude to him.

In addition, I was able to enlist the help of a large number of people and classmate who provided me with a wealth of knowledge. I am very grateful to each and every one of them for their unfailing assistance.

I am also grateful to my beloved **Prof. Dr. Syed Akhter Hossain (Head of the Department of CSE)** for his valuable advice and kindness.

Additionally, I apologies to all those anonymous individuals that assisted me in multiple ways in order for me to have a successful training. I constantly preserve their affection in the deepest recesses from my soul.

ABSTRACT

My internship at CSL Training has come to an end. The report is a prerequisite of my Bachelor of Science course's internship period. A company may have a large number of devices connected through communication links. A hub can be a computer, scanner, display, or other device capable of transmitting data generated by other hubs on the network. As a result, I was managed to get expertise at the CSL Training. They are a Bangladeshi third-party service provider. They have a number of departments that provide assistance in various sectors. ISP Service was available in my workplace. With license renewal and authentication, software and hardware maintenance is available. There was client monitoring for ISPs, software management for reputable companies, and so forth. Anything is now dependent on computer communication. Each type of organization as well as every computer is fully reliant on internet technology and software communication.

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CHAPTER 1

Introduction

1.1 Introduction

Coursework taught me the fundamentals of systems integration for any institution, such as establishing needs, building the topographical framework for the organization, and using authorization methods to prevent access to essential portions of the organization, among other aspects. This book depicts the period of corporate communication and IT services. We are coming of age with more and more contemporary amenities, and our lives are more dependent on the Internet. As a result, the network infrastructure has become a popular part of the globe. There are several systems in the globe. And they may be found on a variety of platforms. These servers should also be kept up to date. So, everyone concerned in this field must first learn regarding CCNA specifics. CCNA is made up of several components. To complete our task and various jobs, we must choose only one element. The CCNA certification covers a broad range of concepts and organization concepts. In current economy, I'd like to expand my network career, and I like dealing with that as well. Now, I'm convinced that I'm up to any task and that I'll have a successful career.

1.2 Motivation

I'm a CSE student, and I'd like to learn more about networking for that reason. My networking internship is now finished. During my Bachelor career, I earned several courses in a variety of important disciplines. Now I'm in need of some aesthetic and experiential learning. This apprenticeship was created with the goal of understanding about the work situation of IT companies and obtaining networking expertise. I was simply a newbie who wanted to learn stuff before I started this internship. This internship will provide me with a promising career path and an incredible opportunity to advance my career.

1.3 Internship Objectives

The primary goal of the internship is for me to become more skilled and learn how to work properly. I now understand how to handle an industry's networks, as well as how to connect with coworkers, consumers, and some others. I was unaware of the working atmosphere. However, I now have a better understanding of the work place, how to interact with people, how to interact, and how to collaborate with others, all of which will be extremely useful in my future job. My ability level improved as a result of this internship. Now I understand how to provide assistance and services. It contains valuable abilities such as determining tasks, devising solutions to problems, and taking on activities. This entry-level position report covers entire temporary work period, and I completed all of the effective communication, practical expertise, and growth tasks satisfactorily. I can also grasp one key point, which is the bond between coworkers.

1.4 Introduction of company

CSL Training is a corporation that provides 3rd party services. They've been operating on this industry since 2006. Computer technology, Website and Offline Application Departments, Networking Departments, Hardware Departments, and Interior Decorating Departments are just a few of the activities they provide.

Services

- 1.**Server Virtualization
- 2.**VMware integration
- 3.**Cloud solution
- 4.**Server solution
- 5.**Apps development
- 6.**Software development
- 7.**Network solution
- 8.**Network security solution
- 9.** Web design and development

1.5 Report Layout

My report is divided into five sections, each of which has its own title.

In section 1, I address the following topics: Introduction, Motivation, Internship objective, Company introduction and Report layout.

In section 2, I address my transitory entity's style of mind has been depicted. This part also includes details on how the center rank has been linked to grasping this training. Moreover, how we respond to a circumstance in the next. In addition, how were the impermanent activity abilities carried up, concerning the organization, what advantages are supplied by CSL, so what are the components of the CCNA .

In section 3, I've depicted all attempts and actions, as well as Occurrences, Tasks, and Difficulties. There seem to be daily tasks and workouts displayed.

I have depicted the Abilities Gained, Sensible Approach, and Perspectives in section four.

Outcome and Future Scope are illustrated in the diagram. Preference inside or career location in the future. I glance at the CCNA computer network future Points of view form the end in section five.

CHAPTER 2

ORGANIZATION

2.1 Introduction:

CSL Training has delivered all ICT-related trainings on time and on budget. They've previously demonstrated their abilities in design, network administration, cyber security, installation, and web development.

It services:

CCNA

CCNA CyberOps

Red Hat System Administrator

Red Hat Certified Engineer

Linux Server Administration

IT Essential

VMware

Python for Networking

Microsoft Azure Administrator

Ethical Hacking

Office 365 Administration

MikroTik with ISP Setup

CCNP Encore

JNCIA Switching and Routing

Microsoft SQL Server Administration

MS Exchange Server 2019

2.2 Product and market situation

Marketplace conditions are influenced by ongoing and prospective commercial activities, and anybody interested in learning about goods qualities and circumstances should look into local supply regulation and false consumer reputation. Each business has its own information systems. Organizations are always rethinking and adjusting their conduct. CSL has established key industry places as a result of its fair, quick, and reliable expense and business methods. They also provide skills in order such as network services, project management, hardware maintenance, and android application.

2.3 Target group

We give the most useful information. In our network infrastructure, we keep track of all documents. We save information for future ages. We create and distribute data on the internet. So that users from all around the world have connect to our network infrastructure We'll be informed right away. We're working on cross-platform technology so anyone may simply consult our information out of any platform. We choose to overlook false data in order to provide individuals with current and accurate facts. We will upgrade our technology, equipment, connection, and overall process on a regular basis, just as the rest of the planet does. And, of course we will give the greatest training to its employees and anybody else who chooses to learn from us. Someday, we will build a massive server farm where we'll have anything relating to communicate.

2.4: SWOT Analysis

A SWOT analysis is an approach for evaluating these four areas of organization. SWOT identifies the strength, Weakness, Opportunity, and Threat. SWOT analysis is a systematic strategy tool that assesses a project's or company venture's four parts. This is a technique for assessing the ecosystem as well as the industry's position within it.

Strength:

They are good at advice.

Wide network communication.

Well skilled instructor they have.

Weakness:

They are not good as marketing.

All the branches are not so big.

Opportunity:

They give 100% job experience.

Complete direction for quality output.

Threat:

Increasing their field of instruction and the agency's region is proving to be a financial challenge.

2.5 Organization Structure

This structure is about organization structure.

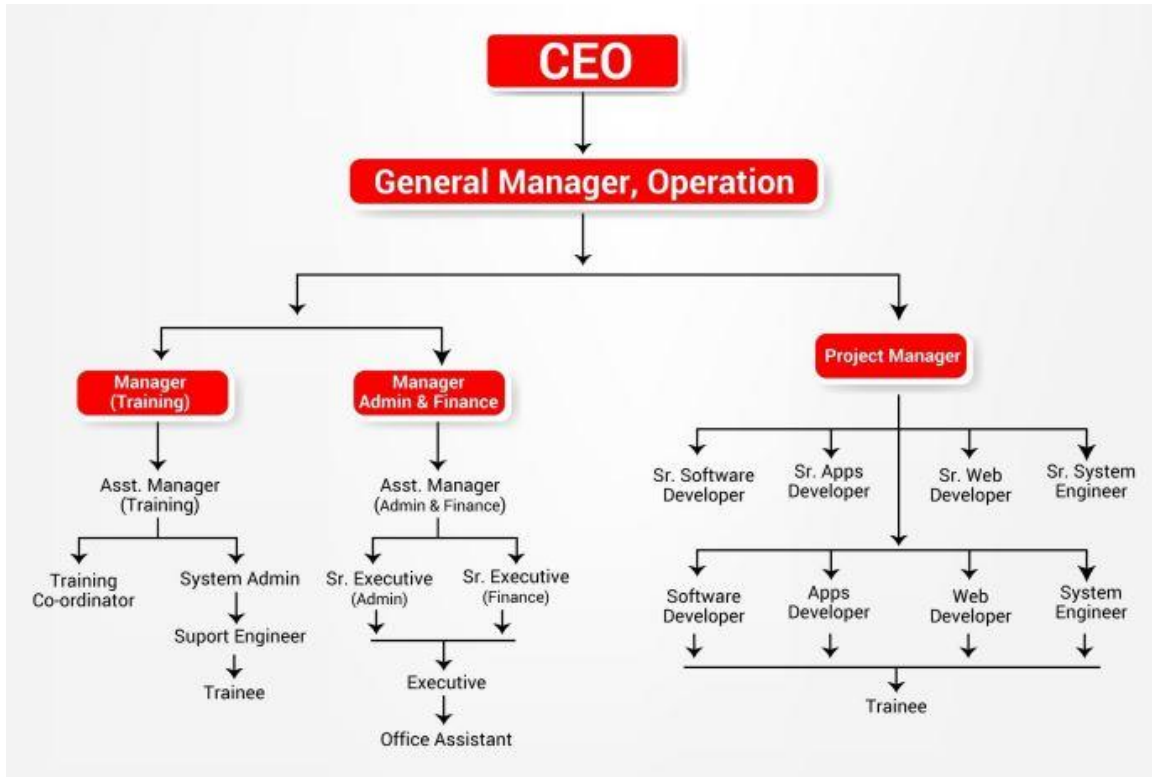


fig2.5: Organization structure

CHAPTER 3

TASKS, EVENTS and ACTIVITIES

3.1 Daily Tasks & Activities:

In first month CSL skilled me as following topics:

- i. About Network
- ii. TCP/IP and OSI references model
- iii. IP addressing & Sub-netting
- iv. VLSM

In second month they skilled up about ,

- i . EIGRP
- ii. VLAN
- iii. VTP

In third month the prepared me about ,

- i . RIP
- ii. Static Routing
- iii. Dynamic Routing
- iv. NAT & PAT

3.2 About Network

A network is a communication area where a wide range of computer or hardware devices are connected altogether.

The following figure is about network structure.

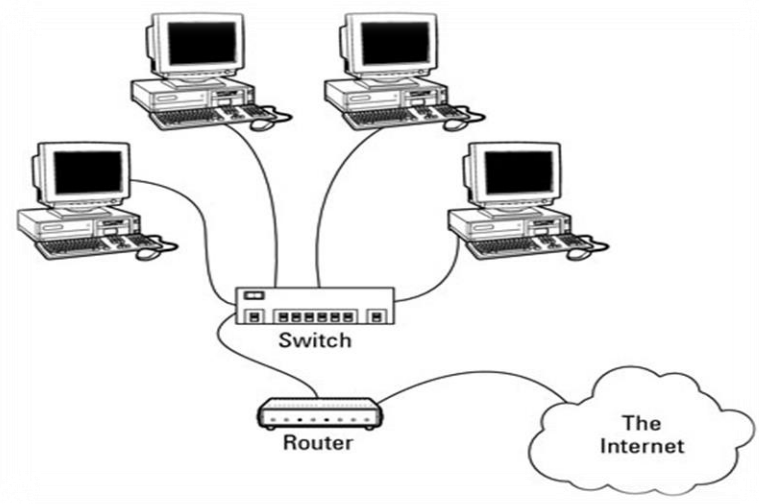


fig3.2: Network Structure

Type of Network:

- i. Local Area Network
- ii. Wireless Area Network
- iii. Metropolitan Area Network
- iv. Personal Area Network

The given figure is about type of network.

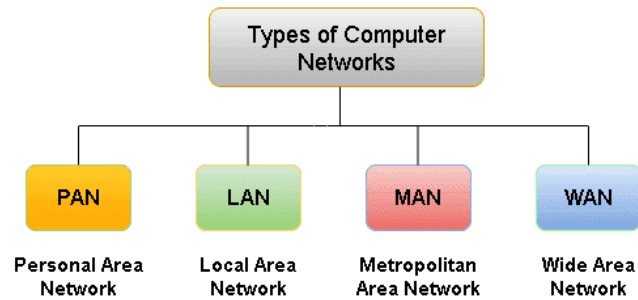


fig3.2.1: Types of network

3.3 TCP/IP & OSI Model

TCP/IP:

TCP/IP is a protocol where TCP means Transmission Control Protocol and IP means Internet Protocol. It is four layer named Host to host, Network, transport and Application. The figure is about TCP/IP model.

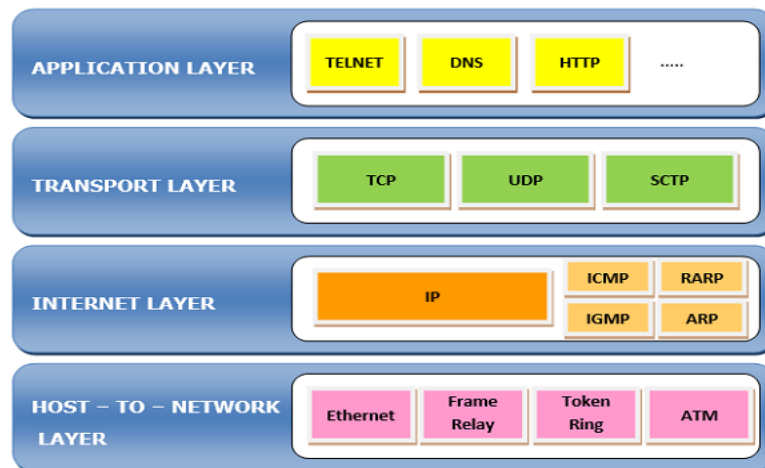


Fig3.3.1: TCP/IP model

OSI Model

The OSI model is stand for Open System Interconnection model. Which represent us the structure of a communication network. OSI model has seven layers of its. Named,

Physical Layer

Physical layer is the lowest layer where data are transmit as bit from source to destination. Hub, Repeater, modem etc are physical resources.

Data Link Layer

Data link layer is a layer where transmit data one node to another node as a packet into frame. Data link layer use MAC for flow data over a network.

Network Layer:

Network layer is responsible for collecting data from data link layer and delivered it to next destination. It finds the receiver IP for complete the task where router is the essential device for the network.

Transport Layer:

This layer is responsible for checking the error and resize, sequence and necessary transmit form system to host in a network.

Session Layer:

This layer is responsible for communicate in various devices in a network.

Presentation Layer:

This layer is responsible for encryption and decryption required its demand. This layer translate data demand on syntax in application layer.

Application layer:

This is the only layer where deals are happen data from user. Data manipulation and protocol are the main works for application layer.

The following structure is about OSI model.

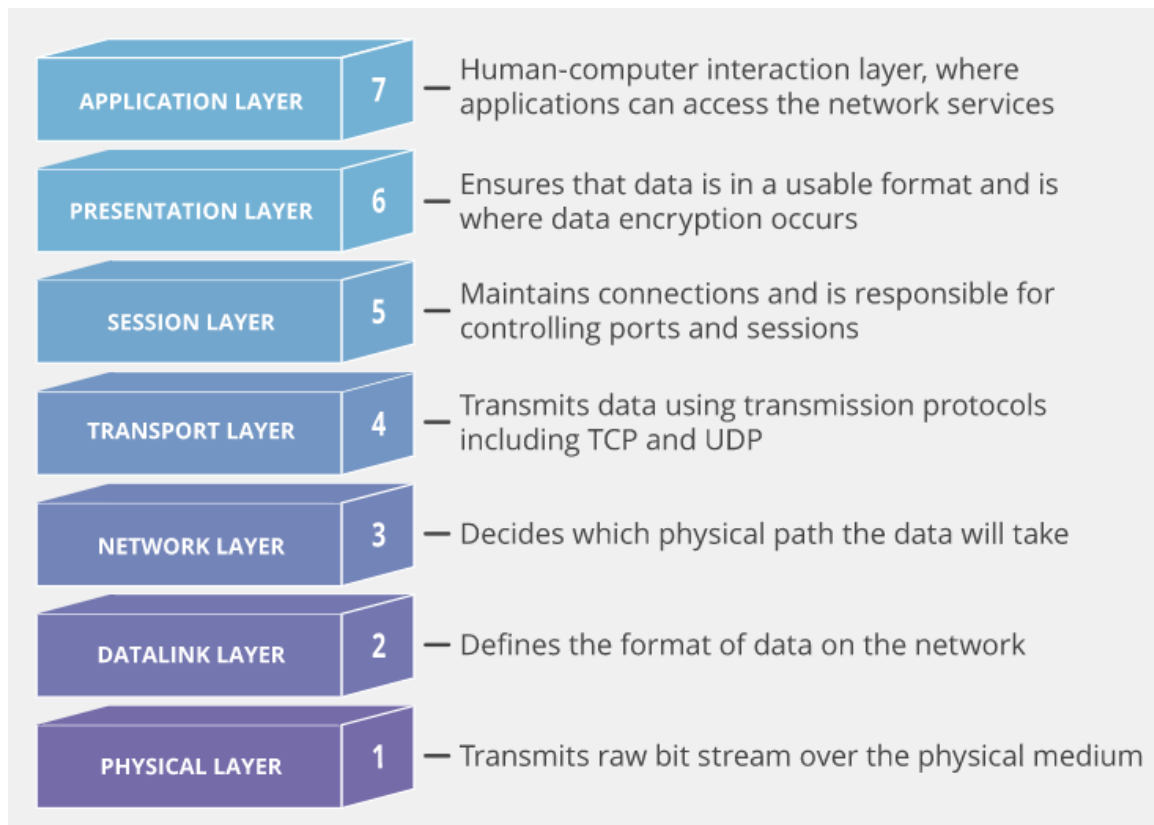


Fig3.3.2: OSI model structure

3.4: IP Addressing and Sub-netting:

An IP address is a unique number for every routing device in a network. Without IP address no router can be part of any network in internet. No router can interact in an ip-based communication without internet protocol.

There are two types of IP using in most commonly which are,

IP version 4 and

IP version 6.

The most commonly usable internet protocol is IPv4. It has 32 bits. Beside, IPv6 has 128 bits. It also used in network. But not much as IPv4.

Classes of IP:

There are almost five classes of an IP address. Which are,

- i. Class A
- ii. Class B
- iii. Class C
- iv. Class D
- v. Class E

From five classes of IP their mainly use first three classes in network now.

Network Address Range:

The given structure is about IP range with subnet mask.

Class	Ip range	Default subnet mask	Network/Host
Class A	1-126	255.0.0.0	N.H.H.H
Class B	127-192	255.255.0.0	N.N.H.H
Class C	193-223	255.255.255.0	N.N.N.H
Class D	224-239		
Class E	240-254		

fig3.4.1: Address range structure.

Sub-netting:

Sub-netting means when a network IP is divide for two or more valid network. We can use these valid IP for host where I needed. The network will increase from blank block which are used for host.

The given structure is about concept of subnet.

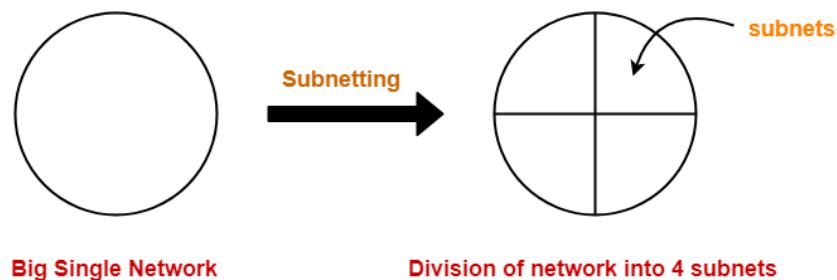


fig3.4.1: Sub-netting concept

The structure is about sub-netting format.

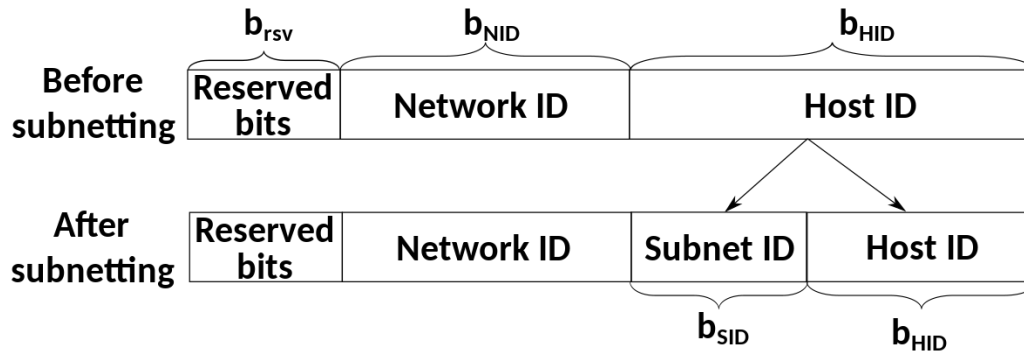


Fig3.4.2: Sub-netting format

3.5: VLSM:

In VLSM we can use the subnet many more times in a network depends on its variable size. In there subnet formats are use many more mask in one network.

The figure is about the concept of VLSM.

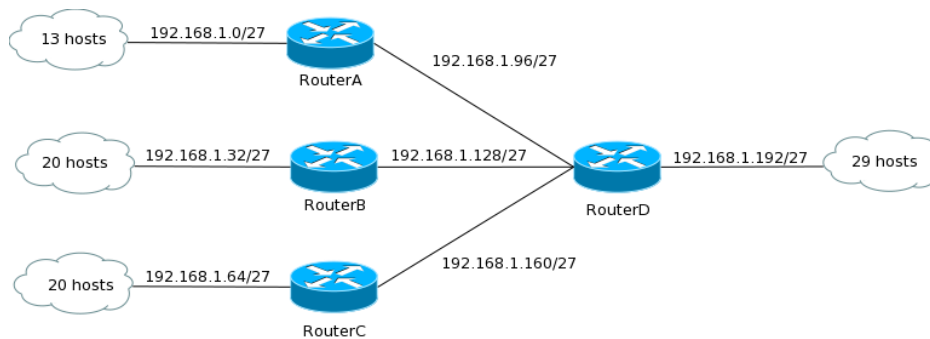


fig3.5:VLSM concept

3.6 EIGRP:

EIGRP is a routing protocol which works for router to transmit data more securely and fast as other network. It is a gateway protocol. EIGRP means Enhanced Interior Gateway Routing Protocol.

The configuration of EIGRP:

Basic concept of EIRGP.

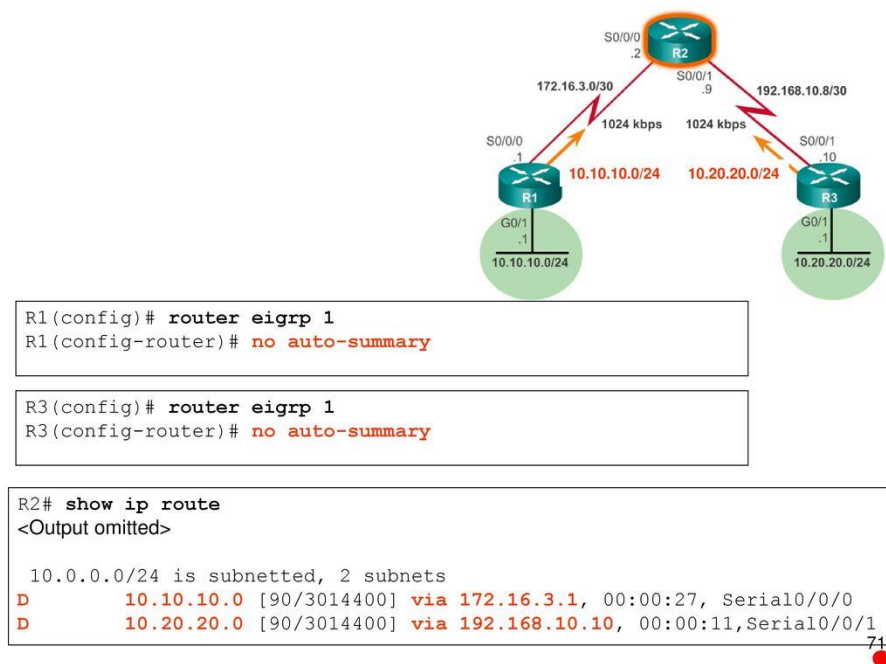


fig3.6: EIRGP configuration

3.7 VLAN

VLAN is a Virtual LAN in a network. Which make the broadcast domain divide on a way. A VLAN is a sub network that may establish a connection on different physical LANs in a network.

The figure is about Vlan.

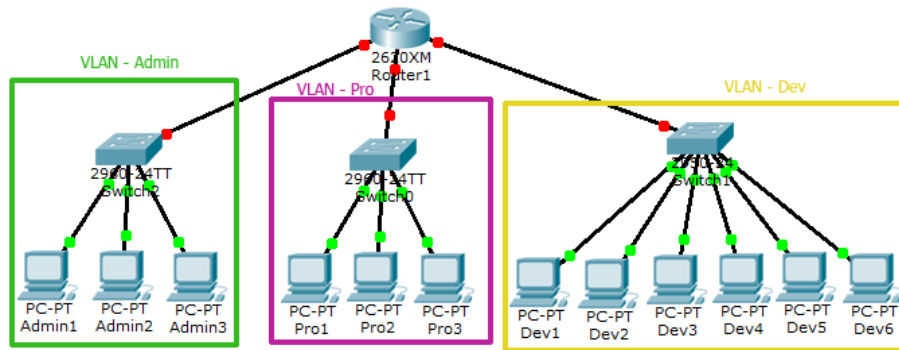


fig3.7: Vlan concept

3.8 VTP:

VTP stands for Vlan Trunk Protocol.

The given figure is about VTP.

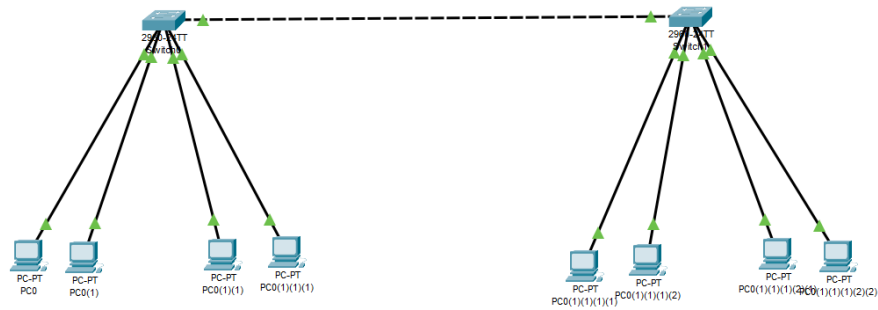


Fig3.8.1: VTP physical mode

VTP Configuration:

The structure is about VTP configuration.

```
Switch(config)#vtp domain network
Changing VTP domain name from NULL to network
Switch(config)#vtp mod
Switch(config)#vtp mode client
Setting device to VTP CLIENT mode.
Switch(config)#vtp pas
Switch(config)#vtp password admin
Setting device VLAN database password to admin
Switch(config)#vtp
Switch(config)#vtp ver
Switch(config)#vtp version 2
Cannot modify version in VTP client mode
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console
```

Fig3.8.2: VTP configuration

3.9 RIP

It is a protocol which send all the documents to a fixed place and alert t nearest routing.
Host can be configured as RIP for a RIP network.

RIP Configuration:

The given picture is about RIP configure.

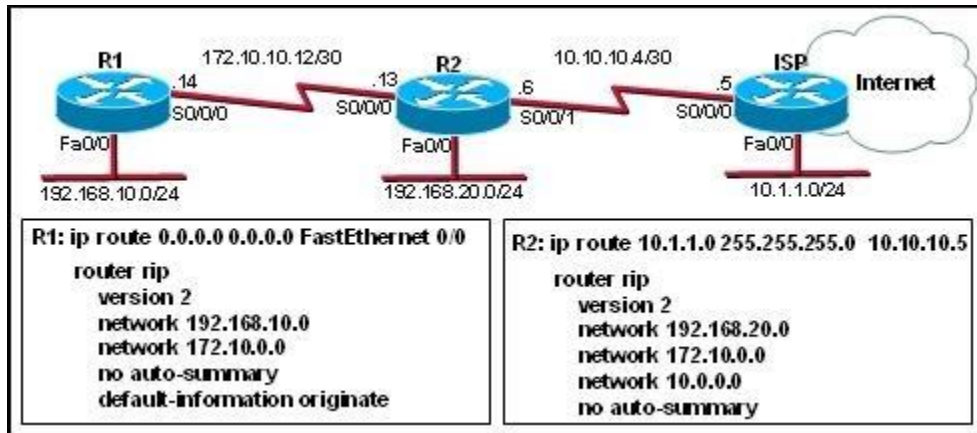


fig3.9: RIP configuration

3.10 Static Routing

In static routing, router can't find the best path for its destination path. The packets are moved to the destination in which path are selected for go through. In this way router can't go forwarded automatically. So source need to decline the destination path.

Configuration of Static Routing

```
Router>en
Router#config terminal
Router (config) #hostname DIU
DIU (config) #int s0/0/0
DIU (config-if) #no shut
(config-if) #ip address 192.168.100.1
255.255.255.252
DIU (config-if) #exit
DIU (config) #int f0/0
DIU (config-if) #no shut
DIU (config-if) #ip address 193.168.12.1
255.255.255.0
DIU (config-if) #exit
```

3.11 Dynamic Routing

In dynamic routing system router works automatically. In this routing system it can change the path dynamically. It has sense for its own shortest path. So router can works in zero to broad network frequently.

The structure is about Dynamic Routing.

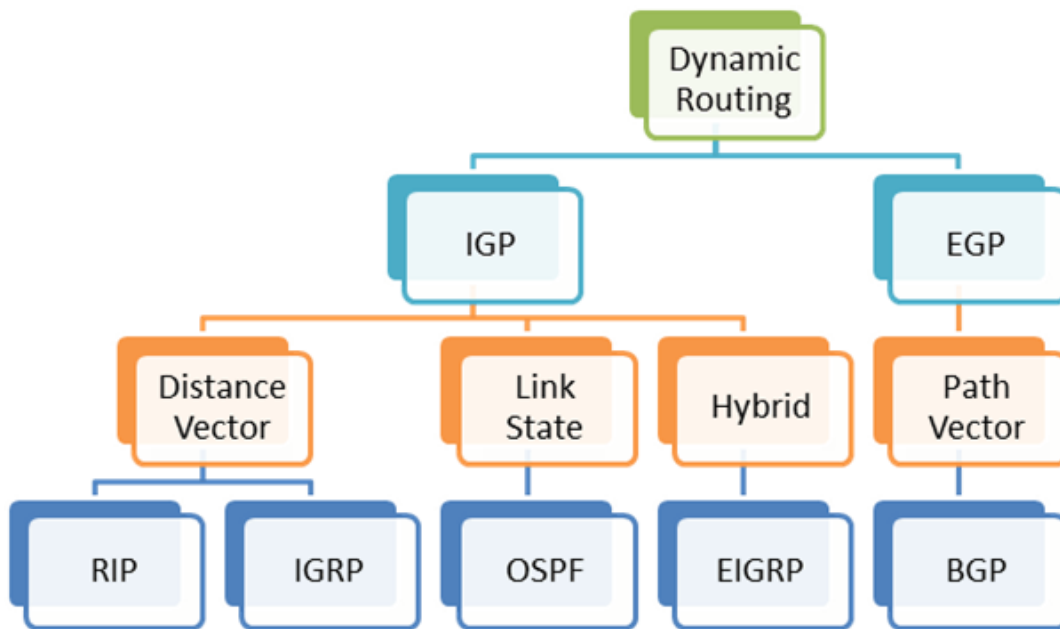


fig3.11: Dynamic Routing Protocol

Difference Between Static and Dynamic Routing

Static Routing	Dynamic Routing
Static router is for a single network.	Dynamic router is use for both small or big network.
It can be easily handle by admin.	Its cost depend on bandwidth and processor on network.
It can't moved the finest way automatically.	It can find the shortest path dynamically.
Routing table can't update routing table automatically.	Routing table update automatically without network administration.

Table3.11: Routing difference

3.12 NAT & PAT

NAT allows aIP address which is not registered in internet for communication. By NAT, this disallowed IP can communicate with a system across internet.

NAT works for a single network in private IP. It modify the source IP into public IP across internet in a network.

PAT is a system where multiple address are allowed to communicate in a single public IP address.

The structure is about dynamic NAT.

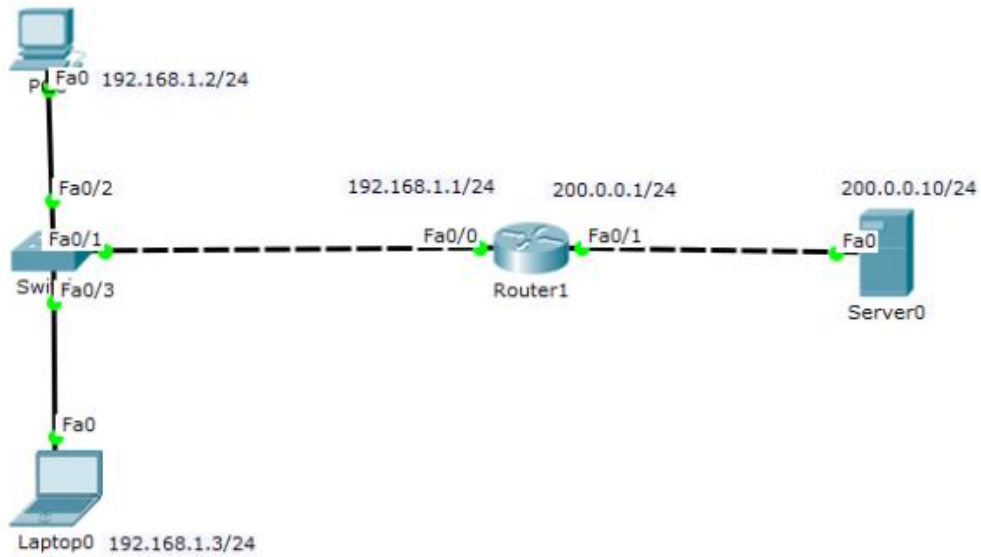


fig3.12.1: NAT Topology

The given structure is about PAT.

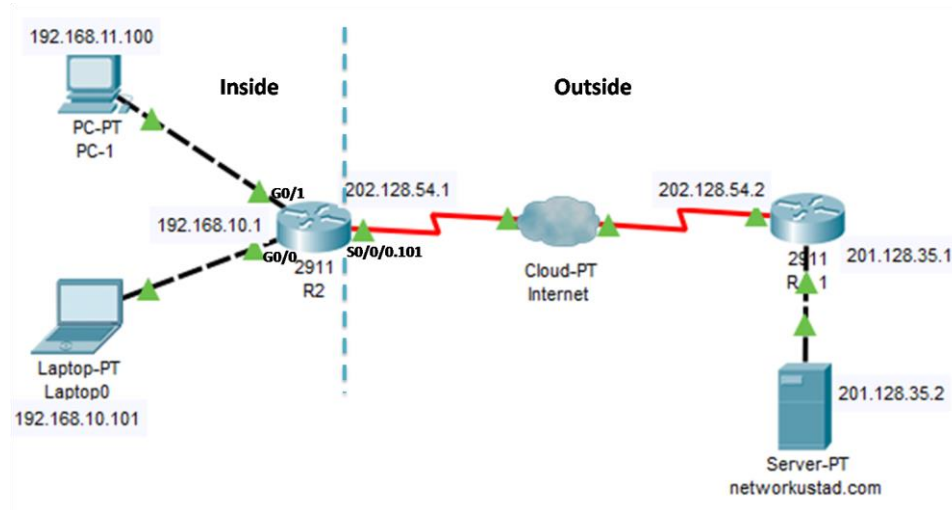


Fig3.12.2: PAT Topology

3.13 Challenges

It is not so easy to complete a task without hassle. In every step it become more difficult than the previous step. Network is like a ocean, where you go through there will more complexity. For a basic miss command whole network will down. This is very challenging to up a network. Basically its like a fun if all the things are appropriate. Ability of solving error in network can move you better next.

CHAPTER 4

Competencies and Smart Plan

4.1 Competencies earned

Every section need a good quality output. In network you can't do anything without your skill. You can't do achieve better position without proper guideline. For me, i think i got a good knowledge about network. So i can easily say that, for great abilities to be gained, one must get familiar with some essential and professional skill work that leads to success.

4.2 Smart Plan

Not only networking but also any other section you need to follow the smarter way our country have. Soi always try to follow the best way for advance networking. Always try to use unique devices for arrange a network. There is a word, if you want to do better performance then you need to work with many equipment in network.

4.3 Reflection

I need to be a expert in networking sector. This training make me pleasure for the way they trained up. From them I gained a excellent knowledge. I need to create a website for my work station and users. I want to do something for my country in network section. If i ableto do it then my dreams will come true.

CHAPTER 5

Conclusion and Future Career

5.1 Discussion & Conclusion

From the start of my bachelor career I always curious for networking. I can gain so much knowledge about networking which make me more skillful for global world. This training period teaches me how to complete a report that encourage me. They motivate me from zero level. Now I can say easily that I can help any IT based organization for their support. A great platform can increase my knowledge further for future. I want to wish the training center from my heart.

5.2 Scope for Future Career

The big challenge is work in best place for future. I think the training institute give me the sharp knowledge for future marketplace.

I can perform as,

- A skillful network engineer
- Any IT based company
- Any ISP
- In information based work
- IT supervisor
- Although can make good communication with others

References

To learn more about available at :<https://www.javatpoint.com/>

To learn more about sub-netting available at :<https://www.forcepoint.com/>

To learn more about CCNA available at :<https://www.geeksforgeeks.org/>

To learn more about basic network available at :<https://www.techtarget.com/>

Learn figure about at :[Online Cisco Training Materials | CCNA Practice Tests | LearnCisco.net](#)

To learn about routing : <https://www.tutorialspoint.com/difference-between-static-routing-and-dynamic-routing#:~:text=In%20static%20routing%2C%20user%20defined%20routes%20are%20used,provides%20higher%20security.%20Dynamic%20routing%20is%20less%20secure.>

Google Site: <https://rb.gy/xutbqn>

APPENDIX

Appendix A: Internship Reflection

This training is more important for me. From this training I learned many things which was dream for me earlier. This training teach me how to handle a consumer, how to support, how can I work with cool head, every basic knowledge to become a administrator. Network become more easier to me by doing this training. Which try to focus me for a bright future and a sharp career although. I did all the job single handed with the help of instructor. The internship reflection suggest me about maintain ability in any pressure which helps me in corporate platform.

Appendix B:

Company Details

Name:	CSL Training
Address:	2/1(2 nd floor), Block-A, Lalmatia,1207 Dhaka, Dhaka Division, Bangladesh
Phone:	01613275275
E-mail:	info@csltraining.com
Website:	www.csltraining.com
Type of Organization:	CSL training is one of the largest ICT training center in Bangladesh

Internship

ORIGINALITY REPORT

12%	11%	0%	9%
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