

**INTERNSHIP ON INFORMATION TECHNOLOGY  
ADMINISTRATION**

**SUBMITTED**

**BY**

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

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**DAFFODIL INTERNATIONAL UNIVERSITY**

**DHAKA, BANGLADESH**

**SEPTEMBER 2019**

## APPROVAL

This Project/internship titled “**Internship on information technology administration**”, submitted by **MD.Mazedur Rahman**, ID No: 163-15-8490 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 13/09/2019.

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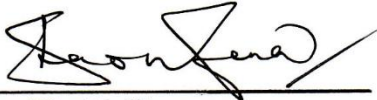


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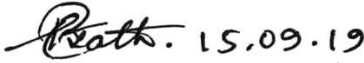
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## DECLARATION

I hereby declare that, this internship report is prepared by me, **MD.MAZEDUR RAHMAN**, ID No: 163-15-8490 to the department of Computer Science and Engineering, Daffodil International University. Under the supervision of **Refath Ara Hossain, Lecturer, Department of CSE**, Daffodil International University.

I also declare that neither this internship report nor any part of this internship report has been submitted elsewhere for award of any Degree or Diploma. I also declare that, I collect information from EXIM Bank Limited, Data Center, Books and Internet.

**Supervised by:**

 Refath. 15.09.19

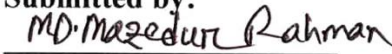
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I might want to offer heartiest thanks to **Dr. Syed Akhter Hossain, Professor and Head, Department of CSE**, for his kind help to finish my internship and also to other faculty member and the staff of CSE department of Daffodil International University.

## **ABSTRACT**

I need to build the quantity of PC's and trade information or data starting with one then onto the next that time I require some extraordinary PC's are called Server. If two and more PCs are interconnected and ready to trade information or data then we call Network. There is different kind of work in the system that is the reason additionally unique sorts of server have. For Example-DSN Server, Web Server, Mail Server, Proxy Server, FTP Server, Firewall. Every one of them works contrastingly and without them it is difficult to keep up a system. I pick this subject of my report is **“INTERNSHIP ON INFORMATION TECHNOLOGY ADMINISTRATION ”**. The report talked about the reason for the particular server utilizing on ISP, equipment necessity for the server, picking programming and establishment procedure of the product, well ordered server setup process and straightforward investigating of the server.

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# CHAPTER 1

## Introduction

### 1.1 Introduction

Day by day our country is moving toward improvement and our country has become a digital country. And the biggest contributor to making this digital country is e-commerce, online shopping business. The online shopping or e-commerce is most needed in the banking sector, and bank offers many services such as banking online transaction, ATM, debit card, credit card access etc. Bank admits all their candidates through training exams and hard work. So that is why the officials of the bank members are very expert. Bank jobs are lot of gorgeous and smart so that is why everyone likes the bank job.

### 1.2 Motivation

The Banking sector is a very challenging sector for career. The Internship teaches me how I can work in the banking sector. And internship teaches me weather I am perfect in the banking sector or any others corporate sector. The internship gives me eight (8) to ten (10) hours working experience and that will at a lot to my end of study. Internship is a one kind of a job. This four-month internship will teach me something that will benefit me a lot for my next job life. This internship teaches me how to become a skilled employer and skilled leadership and how to get off the teamwork. I always try to get something good from an internship that will take me to the forefront and help me do something better.

### **1.3 Internship Objectives**

Incorporate the skills found there into each unique resume objective write. Find appealing training internship resume skills on the list below:

- ✓ Will help to create a skilled employer.
- ✓ Will teach how to get a leadership and team work.
- ✓ Develops the power and attitude to work consistently.
- ✓ Learn better about IT and networking.
- ✓ Get a better understanding of how networking works in the banking sector.
- ✓ To know the router configuration of corporate office.
- ✓ Knowing the responsibilities of an IT officer.
- ✓ Implement professional skill well.
- ✓ Know my duties and duties well.

### **1.4 Introduction to the Company**

Exim Bank well believes in their work and business policy. They make their business smaller. Exim bank is an example of great leadership and teamwork. Exim bank always takes care of their employer, partner, government investor and customer. Exim Bank was first recognized as an Islamic bank in 2004. Exim bank is always involved in their social activities. Exim bank always helps poor talented students by their education. Exim bank established their foundation in 2006. Exim Bank always strives to spend their money and good work. Their customers are increasing day by day for better service of Exim bank.

## **1.5 Report Layout**

**In the chapter (1)** I showed in chapter 1 introduction, motivation of internship, internship object and introduction to the company.

**In the chapter (2)** I showed in chapter 2 the company introduction, bank organization and banking weakness, strangeness and threats.

**In the chapter (3)** I showed in chapter 3 how to exercises, Events and work of internship.

**In the chapter (4)** I showed in chapter 4 Competencies Earned, Smart Plan, and Reflections.

**In the chapter (5)** I showed in chapter 5 Conclusion and Future Scope.

## CHAPTER 2

### Internship Organization

#### 2.1 Company Introduction

After our independence from Pakistan, apart from the foreign Banks all the commercial Banks were nationalized. In 1983, the government of Bangladesh gave permission to establish private Banks in this country. After this regulation most of these nationalized Commercial Banks were shifted into the private sector. Many private Banks were established in this country. EXIM BANK emerged as Islamic Bank on 1<sup>st</sup> July 2004. The Banks rules and procedures are based on” Islamic Sharia” of course; the Dhanmondi Branch was Islamic Branch from its opening. Recently the EXIM Bank offered shares. Identifying the reliable and real clients in providing cash, Foreign Exchange and advances is essential for banking business and application of appropriate services can help this respect. As customers are one of the most important considerations in the personal banking, they should be given a chance to exchange their views and ideas about the Bank’s products and services.

#### 2.2 Services and Market Situation

The various operations are being functioned in the EXIM BANK LTD, the major functions of EXIM Bank can be described briefly-

- ✓ Deposit mobilization,
- ✓ Payment function,
- ✓ Collection function,
- ✓ Fund Transfer,
- ✓ Investment functions,
- ✓ Issuing Letter of Credit (LC),
- ✓ Issuing Bank Guarantee,
- ✓ Foreign trade services e.g. export, import, remittance etc.
- ✓ Issuing PO/DD/TT/MT/FDD/FTT,
- ✓ SWIFT operation,

## 2.3 SWOT Analysis

### 2.3.1 Strength

**Strong Board of Director:** The Board of Director of that Bank is stronger of than other Bank.

**Top Management:** The top management of the Exim Bank Bangladesh Ltd. They contributed yearly towards the growth and development of the Bank.

**Positioning of Exim Bank:** Strong positioning of the Exim Bank Bangladesh Ltd. in the Banking industries of Bangladesh.

**Financial stability:** The employers of Exim Bank Bangladesh Ltd. are very stable business persons in Market such on Nassa Group, Bexine group of industries etc.

### 2.3.2 Weakness:

Important weakness for Exim Bank Ltd. this weakness pushes the bank for behind from the other competitor.

Advertised are –

- ✓ **Billboard:** There are few Billboard of Exim Bank Ltd. it is not sufficient marketing Activities.
- ✓ **Incorporate Image:** Save the environment by young plant seedling.

### 2.3.3 Opportunity

There are 7s framework for business success of Exim Bank Bangladesh Ltd.

The part there elements-

- ✓ Strategy
- ✓ Structure
- ✓ System

### 2.3.4 Threats

There are 53 Bank of Bangladesh. But a few Banks functioning by Islamic Banking system such as Islamic Bank (BD) Ltd. Al-Arafa Islamic Bank, Exim Bank, Based on Islamic Banking system. Conflict is a part of life. It is a reality conflict has a positive side as well as negative side. Negative side conflict is bad. Bad conflict is harmful for organization and must be avoided. The negative consequence from conflict can be devastating.

### 2.4 Organizational Structure

**EXIM Bank** is organized as per the existing business locations. It has twenty-four branches each of which is a separate entity shows fig: 2.4 organization structure

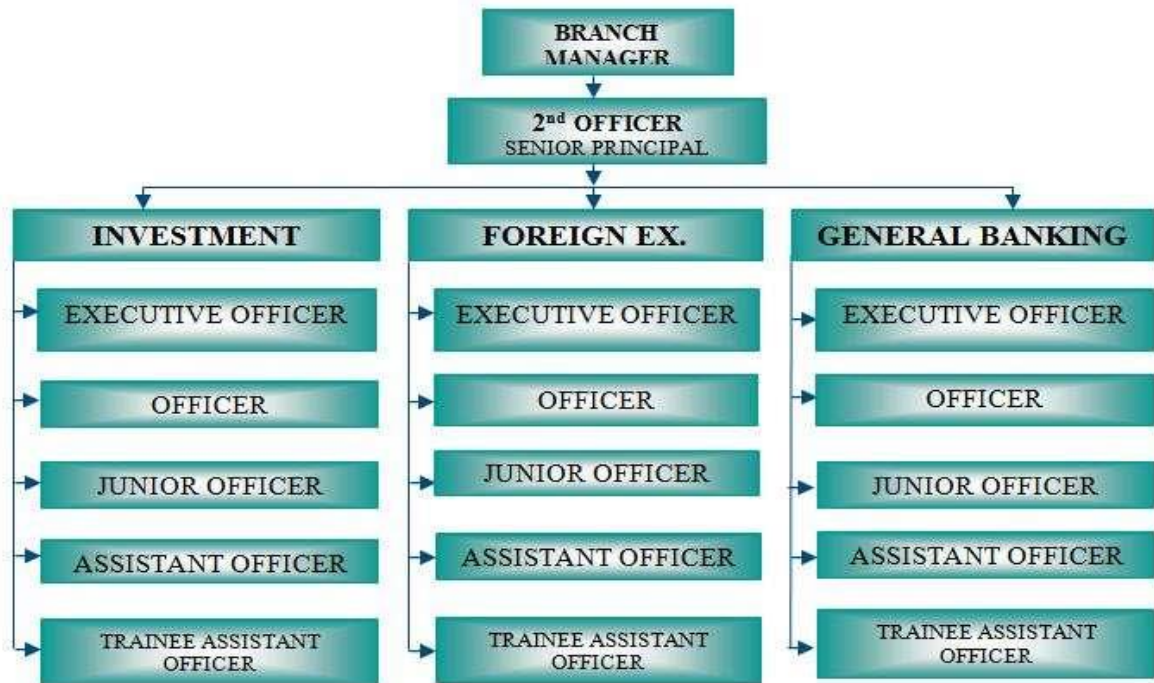


Figure: 2.4 Organizational Structure of EXIM Bank

## CHAPTER 3

### Exercise, Events and Activities

#### 3.1 Daily Task and Activities

##### 3.1.1 Basic Router Configurations:

- Set router clock to the current date and time

```
Router#clock set 03:35:00 13 mar 2019
```

```
Router#show clock
```

```
*3:35:3.965 UTC Wed mar 13 2019
```

- Configuring the router hostname to NB1

```
Router(config)#hostname NB1
```

- Set Banner Message of the Day to *Unauthorized Access Prohibited!*

```
NB1(config)#banner motd #Unauthorized Access Prohibited!#
```

- Newly-entered passwords must have a minimum length of 6 characters.

```
NB1(config)#security passwords min-length 6
```

- Protect device configurations from unauthorized access with the encrypted password. Set the password to Ars@321.

```
NB1(config)#enable secret Ars@321
```

- Secure all the ways to access the router. Set the passwords to Ars@321.

- Prevent all passwords from being viewed in clear text in device configuration files.

```
NB1(config)#service password-encryption
```

- Prevent device status messages from interrupting command line entries at the device console.

### 3.1.2: Assign IP address to Hosts and test Intra-VLAN communication

Assign IP address to Sales PC1, MKT PC1, Printer, Sales PC2, and MKT PC2 from their corresponding subnet. At this point you should be able to reach the hosts of the same VLAN. But you won't be able to reach hosts of other VLAN. In order for you to reach hosts of different VLANs, you now need to configure Inter-VLAN routing.

Try to ping Sales PC1 (172.16.1.66) to Sales PC2 (172.16.1.67) and you should be successful.

```
PC>ping 172.16.1.67
```

```
Pinging 172.16.1.67 with 32 bytes of data:
```

```
Reply from 172.16.1.67: bytes=32 time=0ms TTL=128
```

```
Reply from 172.16.1.67: bytes=32 time=3ms TTL=128
```

```
Reply from 172.16.1.67: bytes=32 time=0ms TTL=128
```

```
Reply from 172.16.1.67: bytes=32 time=1ms TTL=128
```

```
Ping statistics for 172.16.1.67:
```

```
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds:
```

```
Minimum = 0ms, Maximum = 3ms, Average = 1ms
```

Now try to ping Sales PC1 (172.16.1.66) to MKT PC1 (172.16.1.98). It will not be successful.



### 3.1.3 : Configure VLAN, Voice VLAN, VTP and Inter-VLAN Routing

Configure Trunking on SB1DLSW, SB1ALSW1 and SB1ALSW2 Trunking ports for SB1DLSW, SB1ALSW1 and SB1ALSW2 are all ports attached to another switch or router. Set all trunking ports to trunk mode, and assign VLAN 6 as the native VLAN. On SB1DLSW, configure port Fa0/1-4 and Gig1/1 as trunk port. The range command greatly reduces the amount of repetitive commands you must enter when configuring the same commands on multiple ports.

```
SB1DLSW(config)#int range g1/1, f0/1-4
```

```
SB1DLSW(config-if-range)#switchport mode trunk
```

```
SB1DLSW(config-if-range)#switchport trunk native vlan 6
```

```
SB1DLSW(config-if-range)#exit
```

On SB1ALSW1, configure port Fa0/1-4 as trunk port.

```
SB1ALSW1(config)#int range f0/1-4
```

```
SB1ALSW1(config-if-range)#switchport mode trunk
```

```
SB1ALSW1(config-if-range)#switchport trunk native vlan 6
```

```
SB1ALSW1(config-if-range)#exit
```

On SB1ALSW2, configure port Fa0/1-4 as trunk port.

```
SB1ALSW2(config)#int range f0/1-4
```

```
SB1ALSW2(config-if-range)#switchport mode trunk
```

```
SB1ALSW2(config-if-range)#switchport trunk native vlan 6
```

```
SB1ALSW2(config-if-range)#exit
```

To view trunk ports, use the following command:

```
SB1ALSW2#show interfaces trunk
```

### 3.1.4 Configuring Syslog:

Network administrators have a variety of options for storing, interpreting, and displaying these messages, and for being alerted to those messages that could have the greatest impact on the network infrastructure. The most common method of accessing system messages that networking devices provide is to use a protocol called syslog. Shows figure 3.4 syslog server

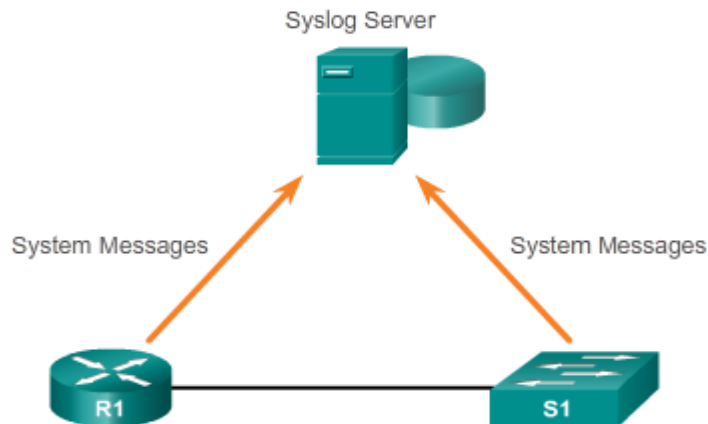


Fig 3.4.1: Syslog Server

- Every syslog message contains a severity level and a facility.

Severity Name	Severity Level	Explanation
Emergency	Level 0	System Unusable
Alert	Level 1	Immediate Action Needed
Critical	Level 2	Critical Condition
Error	Level 3	Error Condition
Warning	Level 4	Warning Condition
Notification	Level 5	Normal, but Significant Condition
Informational	Level 6	Informational Message
Debugging	Level 7	Debugging Message

### 3.1.5 Configuring SNMP:

SNMP is an application layer protocol that provides a message format for communication between managers and agents. The SNMP system consists of three elements:

- ✓ SNMP manager
- ✓ SNMP agents (managed node)
- ✓ Management Information Base (MIB)

The SNMP agent and MIB reside on networking device clients. Network devices that must be managed, such as switches, routers, servers, firewalls, and workstations, are equipped with an SMNP agent software module. MIBs store data about the device operation and are meant to be available to authenticated remote users. The SNMP agent is responsible for providing access to the local MIB of objects that reflects resources and activity. SNMP uses UDP, port number 162, to retrieve and send management information. For SNMP to operate, the NMS must have access to the MIB. To ensure that access requests are valid, some form of authentication must be in place. SNMPv1 and SNMPv2c use community strings that control access to the MIB. Community strings are plaintext passwords. SNMP community strings authenticate access to MIB objects.

## 3.2 Events And Activities

### 3.2.1 Configuring SSH:

- Use SSH version to 2. Use the value 1024 for encryption key strength. Set time out to 60 seconds and limit authentication retries to 5.

```
NB1(config)#ip domain-name smaviation.com
```

```
NB1(config)#crypto key generate rsa
```

The name for the keys will be: NB1.smaviation.com

Choose the size of the key modulus in the range of 360 to 2048 for your General Purpose Keys. Choosing a key modulus greater than 512 may take a few minutes.

How many bits in the modulus [512]: **1024**

% Generating 1024 bit RSA keys, keys will be non-exportable...[OK]

```
NB1(config)#ip ssh version 2
```

```
NB1(config)#ip ssh time-out 60
```

```
NB1(config)#ip ssh authentication-retries 5
```

Create a user having username: admin and password: **admin123**.

Configure user authentication for in-band management connections.

```
NB1(config)#username admin secret admin123
```

```
NB1(config)#line vty 0 4
```

```
NB1(config-line)#transport input ssh
```

```
NB1(config-line)#login local NB1(config-  
line)#exit
```

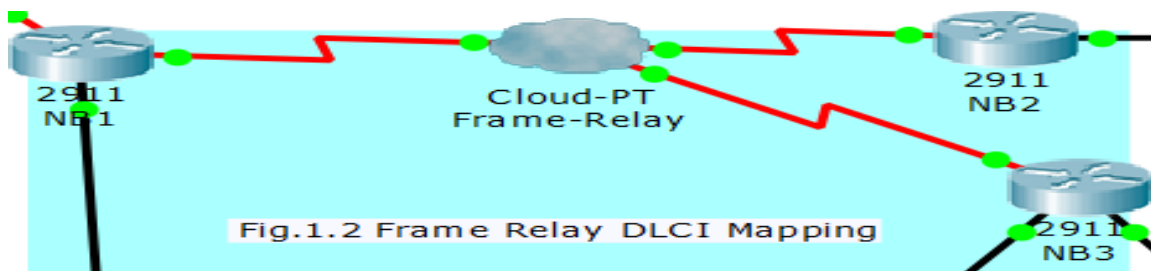
### 3.2.2.NBI Router Information:

#### ➤ Basic Router Configuration

- ✓ Set router clock to the current date and time
- ✓ Configure the router hostname: NB1
- ✓ Set Banner Message of the Day to *Unauthorized Access Prohibited!*
- ✓ Newly-entered passwords must have a minimum length of 6 characters.
- ✓ Protect device configurations from unauthorized access with the encrypted password, Set the password to ars@321.
- ✓ Secure all the ways to access the router. Set the passwords to ars@321.
- ✓ Prevent all passwords from being viewed in clear text in device configuration files.
- ✓ Prevent device status messages from interrupting command line entries at the device console.
- ✓ Prevent the router from attempting to resolve command line entries to
- ✓ IP addresses.

#### Frame Relay DLCI Mapping:

A data link connection identifier (DLCI) is a Frame Relay 10-bit-wide link-local virtual circuit identifier used to assign frames to a specific PVC or SVC. Frame Relay networks use DLCIs to statistically multiplex frames. DLCIs are preloaded into each switch and act as road signs to the traveling frames. Show figure 3.2.2 frame relay DLCI Mapping.



#### 3.2.2 Frame Relay DLCI Mapping (Point-to-Point) north.

### 3.2.3 About ISAKMP:

ISAKMP (Internet Security Association and Key Management Protocol) is a protocol defined by RFC 2408 for establishing Security Associations (SA) and cryptographic keys in an Internet environment. ISAKMP only provides a framework for authentication and key exchange and is designed to be key exchange independent; protocols such as Internet Key Exchange and Kerberized Internet Negotiation of Keys provide authenticated keying material for use with. Shows figure 3.2.3 ISAKMP Working System.

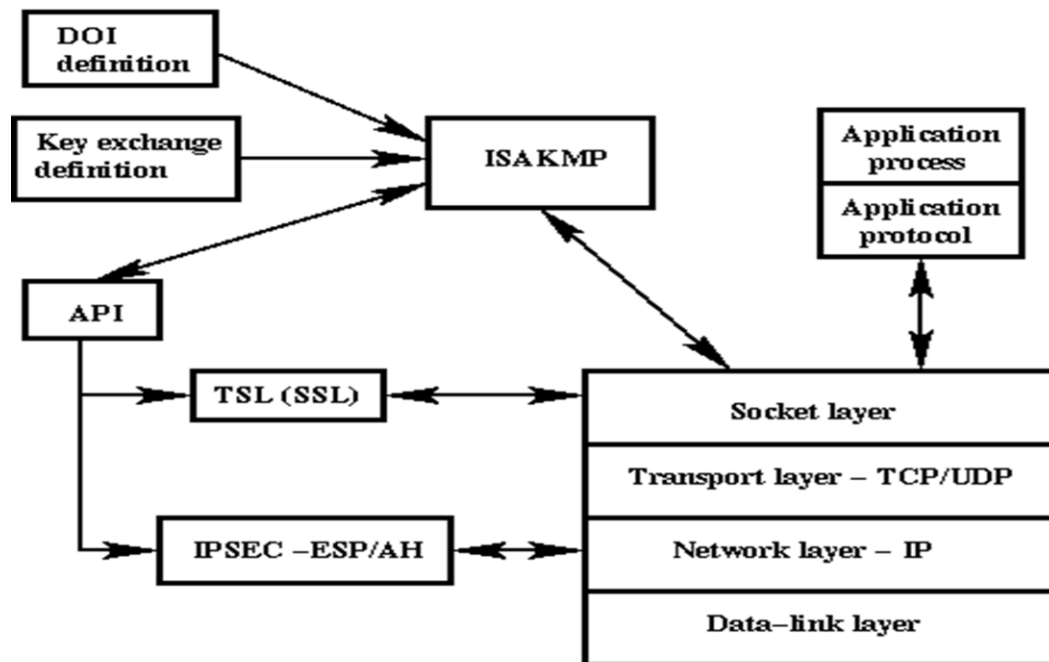


Fig: 3.2.3 ISAKMP Working System

### 3.3 Project Task and Activities

#### 3.3.1. About IPsec:

In computing, **Internet Protocol Security (IPsec)** is a secure network protocol suite that authenticates and encrypts the packets of data sent over an internet protocol network. It is used in virtual private networks (VPNs). Shows figure 3.3.1 IPsec working system.

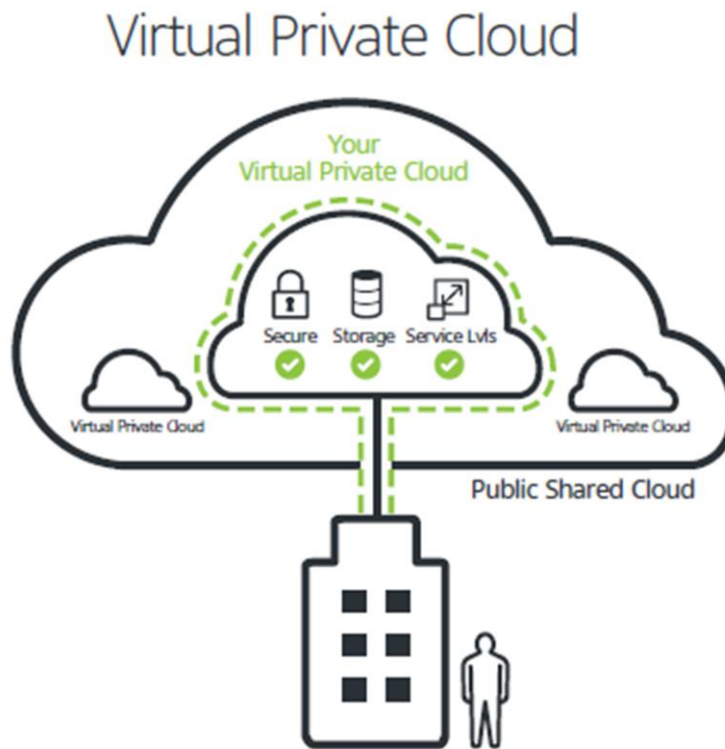


Fig: 3.3.1 IPsec Working System

### **3.3.2. About EIGRP:**

Enhanced Interior Gateway Routing Protocol (EIGRP) is an advanced distance-vector routing protocol that is used on a computer network for automating routing decisions and configuration. The protocol was designed by Cisco Systems as a proprietary protocol, available only on Cisco routers. Partial functionality of EIGRP was converted to an open standard in 2013 and was published with informational status as RFC 7868 in 2016.

EIGRP is used on a router to share routes with other routers within the same autonomous system. Unlike other well-known routing protocols, such as RIP, EIGRP only sends incremental updates, reducing the workload on the router and the amount of data that needs to be transmitted. EIGRP replaced the Interior Gateway Routing Protocol (IGRP) in 1993. One of the major reasons for this was the change to classless IPv4 addresses in the Internet Protocol, which IGRP could not support.



### **3.3.3 about Multi-Area OSPF:**

Multi area OSPF (Open Shortest Path First) is a way of limiting the amount of neighbors in an area. In a single area all routers must peer with the DR (Designated Router) and BDR (Backup Designated Router if used) for the broadcast domain. All routers in an individual area know about all links and their states in the area. Multi area OSPF means that we can logically separate groups of routers into areas and they only need to know about the links in that area (reducing the memory footprint, and flooding link state information). A router that has an OSPF process in two area is known as an ABR (Area Border Router). Filtering and summarization can be done on the ABR as prefixes pass through the ABR.

#### **Configure Multi-Area OSPF**

- Configure multi-area OSPFv2 to route between all internal networks.
- Use the area numbers shown in the topology.
- Use the correct wild card masks for all network statements.
- Prevent routing updates from being sent to the LANs.

### 3.4 Challenges

**Network Address Translation (NAT)** is a widely-used solution to the shortage of IP addresses. NAT introduces the concept of a "private" IP address that is valid only within a Local Area Network (LAN) and must be translated to the "public" IP address that's used on the Internet. With NAT, we can have multiple private IP addresses share a single public IP address, thus delaying the need to deploy long-term solutions to the shortage of IP addresses.

A related but somewhat different concept to NAT is **Port Address Translation (PAT)**. PAT allows incoming sessions, that are initiated from an external host, to map to a specific internal host and port

➤ Configuration of NAT

- ✓ Define an access-list named NAT-SOURCE that will match the inside private IP addresses
- ✓ Configure PAT

**About Wireless Router:** A wireless router is a device that performs the functions of a router and also includes the functions of a wireless access point. It is used to provide access to the Internet or a private computer network. Depending on the manufacturer and model, it can function in a wired local area network, in a wireless-only LAN, or in a mixed wired and wireless network.

## **CHAPTER 4**

### **Competencies and Smart Plan**

#### **4.1 Competencies Earned**

Better to learn how to configure computer programming routers, router configuration, network configuration, and networking operating system under gains expertise about everything. Internship skills are achieved in the networking sector. IP configuration the new is all achieve through the networking.

#### **4.2 Smart Plan**

Networking internships are a must of all organization to work well in networking. If all the organizations work well with smart plan, they will go out and more towards brilliant arrangement. The smart plan is to use all the experience and more ahead efficiently.

#### **4.3 Reflections**

They work for good organization and national organization and for good repute. They provide computer networks solutions and telecommunication high technique. They handle the entire networking system through corporate network.

## **CHAPTER 5**

### **Conclusion and Future Career**

#### **5.1 Discussion and Conclusion**

I have discovered that one of the principle issues and time administration aptitudes and in addition self-inspiration. When I initially began I was eight hours per day. Better to learn how to configure computer programming routers, router configuration, network configuration, and networking operating system under gains expertise about everything. Internship skills are achieved in the networking sector.

#### **5.2 Scope for Further Career**

Career opportunities are accessible in various zones under Linux. The profession openings in Linux's saying not just the Linux stage, it covers part of various regions like: Desktop Application Development,

## References

<https://en.wikipedia.org/wiki/IPsec> f Access time 1/3/2019 10:23PM

[1] [https://en.wikipedia.org/wiki/High-Level\\_Data\\_Link\\_Control](https://en.wikipedia.org/wiki/High-Level_Data_Link_Control) Access time 2/5/2019 1:23PM

[2] [http://leighfinch.net/cisco\\_wiki/index.php/ - OSPF](http://leighfinch.net/cisco_wiki/index.php/-_OSPF) Access time 13/6/2019 6:23PM

[3] [https://en.wikipedia.org/wiki/Challenge-Handshake\\_Authentication\\_Protocol](https://en.wikipedia.org/wiki/Challenge-Handshake_Authentication_Protocol) Access time 9/7/2019 10:23PM

<https://en.wikipedia.org/wiki/IPsec> f Access time 15/7/2019 11:23PM