INTERNSHIP ON IT SUPPORT AND NETWORKING

 \mathbf{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 Supervised By

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DAFFODIL INTERNATIONAL UNIVERSITY DHAKA, BANGLADESH

9TH SEPTEMBER 2021

APPROVAL

This Project titled "Internship on IT Support and Networking", submitted by Adnan Ahmed, ID: 171-15-9459 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 September 2021.

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DECLARATION

I hereby declare that this internship report has been done by me under the supervision of **Warda Ruheen Bristi, 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 the award of any degree or diploma.

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I would like to thank our entire course Faculty at Daffodil International University, who took part in this discussion while completing the course work.

Finally, I must acknowledge with due respect the constant support and patients of my parents.

ABSTRACT

I was involved in "IT & Network Support" work in an organization called APEX TECHNOLOGY LIMITED. During the internship, I was assigned various jobs and responsibilities. My training focuses on various topics, including operating system troubleshooting, system and network management. What I did during the training included setting up the router and setting up the LAN connection. The hardest part is talking to professionals for the first time and learning new things from them. After a while, it became more comfortable for me. I think I am fortunate to be able to accept guidance in this field. They showed me the right way to be as successful as possible in the future. During this internship, I was able to work in various settings, learn new skills, and quickly complete paperwork.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

In the recent environment, data communication and networking are the world's fastest expanding technology. Nearly every business and industry around us use computers and computer networks. And now that the most up-to-date networking technology is wireless, the data transfer rate is massive. Bangladesh, as a developing country, lags considerably behind developed countries in terms of technological advancement. The major factors could be a lack of trained personnel and unexpected government moves. In any case, Bangladesh has a long way to go in a short period before it can reap the benefits of the information age. it'll best be possible if there may be a will to enhance IT infrastructure, internal networks, country domains, and, most importantly, a high-speed fiber-optic link to the Information Superhighway. By identifying these elements, I can be certain of a revolutionary shift in our IT business, which is why I've opted to expand my networking knowledge and start my internship on Networking at Apex Technology Limited. During my time with Apex Technology Limited, I gained a variety of experiences that would benefit me in the future.

1.2 Motivation

Humans require motivation to achieve their objectives. Every private enterprise, non-government organization, government organization, hospital, bank, educational institute, and it's handled by a significant number of IT gadgets. The computer is used by everyone. A computer with network capabilities is the most important aspect in creating a workplace with several computer systems. I will recognize the significance of obtaining accurate information. This will be extremely problematic to be in any industry without practical expertise. All the practical ideas contribute to a broader understanding of academic knowledge. During my internship, I encountered a variety of issues. When I am confronted

with a situation, I will do everything in my power to resolve it. I think it's a terrific method to learn. In the future, and I've always wanted to build my post as a Network Engineer.

1.3 Internship Objectives

All the ideas of being in an internship was to help me advance my career in IT Support and Networking. In this situation, troubleshooting and network-related tasks such as network design and network maintenance inspired me during my internship term with my company. The aim is to learn about network functions, implementation, difficulties, and solutions, as well as identify and solve problems with software, operating systems, and administer office software.

1.4 Introduction of the Company

Apex Technology Limited Is a private software company that gives a variety of quality IT services, web design, graphic design & e-commerce answers. Everyone, there are very hardworking, jolly-minded person.

1.5 Report Layout

Chapter 1- Here, I described the purpose of the report, the motivation of the report, and the presentation with the company.

Chapter 2- Here, I've written about the purpose of the internship, my motivation for the internship, and my approach to the company.

Chapter 3- Here, I wrote my regular responsibilities and exercises, as well as the activity, events, and challenges I faced during my internship, which I covered.

Chapter 4- Here, I described expertness, sharp plans and reflections.

Chapter 5- Here, it's described the conclusion of my future career plans and where I'd like to put my sights in the future.

CHAPTER 2

INTERNSHIP ENTERPRISE

2.1 Introduction

Apex Technology Limited is an IT Support crew in which you may discover entire IT Ideas or Wire & Wi-Fi Networking Solutions, Domain Web Hosting, Cisco Graphic Design. They are very inquisitive about the purchaser and turn out to be very tense to satisfy the desires of the customers. If anyone is capable, enterprising planner and clear with his thoughts, then there are many opportunities for every Graduate/undergraduate student.

2.2 Product market Situation

The companies remodeling and enforcing their conduct day with the aid of using day. Bangladesh has created a precious marketplace position for its or her honesty and rapidity with known value. They together do school on- Network system, software program development, hardware maintenance, cell software, etc. Digital Marketing is a platform wherein all investors can recognize how beneficial their work is due to the fact it's miles a difficult platform. It is a platform wherein all investors can sell their merchandise and sell them the various people. Businesses additionally make preparations so that clients can view and customize their work. The current virtual marketplace may be very famous and its miles developing day with the aid of using day [1].

Professional Training Services:

- ISP Setup & Administration using Mikrotik.
- MYSQL and PHP for website development.
- ISP setup & Administration using Linux.
- Red Hat Certified Engineer.

2.3 SWOT analysis

SWOT stands for Strengths, Weaknesses, Opportunities, and Threats, and so a SWOT The

evaluation is a method for entering those 4 components of your commercial enterprise.

SWOT and is a based making plans approach that evaluates the ones 4 factors of a task or

commercial enterprise. This is a technique that evolves all the surroundings and the

company's status in it. Swot evaluation is making plans method use to assist someone or

enterprise pick out strengths, weaknesses, opportunities, and threats related to commercial

enterprise opposition or task making plans

Strengths:

• Communication among the human beings separated through distance.

• People operating from home.

Weakness:

• Huge sum of money required

• Competition in the market.

Opportunities:

• Population Changing structure.

• Family number increasing.

Threats:

• The Economic Crisis- Broadband Subscriptions Stock Market loss of the self-assurance

within the Digital-Communications marketplace to the householders.

2.4 Organizational Structure

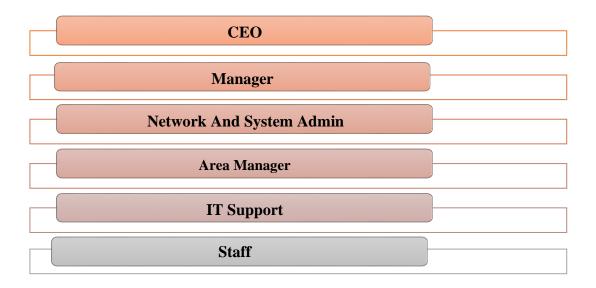


Figure: -2.4.1 Organizational Structure of Apex Technology Limited.

CHAPTER 3

EXERCISE, EVENTS AND ACTIVITY

3.1 Networking

A network is a connection that has one or more computing devices needed to share files and data. The fusion of computer software and network components creates a network. Computers isn't only network. Other devices such as webcams, access controls, satellites, network printers, mobile phones, and radios can connect to computers on the network [2]. Some Networks works:

- a) Sharing Files
- b) IP/TCP configure
- c) Windows 2008 server configure
- d) Local Area Network (LAN)

3.1.2 Types of Networks

- I. Lan
- II. Man
- III. Wan

3.2 Local Area Networking

The local area network is a network of computers located in the same building. This network's data transfer speed is 10 Mbps. The devices used in this network are Repeaters, Hub and Network Interfaces etc.

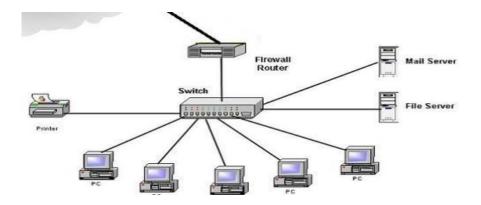


Figure 3.2.: Local area Network.

3.2.1 Metropolitan Area Network

The interconnected interface of a few lanes in the same city is called Metropolitan Area Network. This type of network can extend up to 50-75 miles. This network's data transfer speed is Gigabit cross seconds. The devices used in this type of network are router, switches, microwave antennas etc.

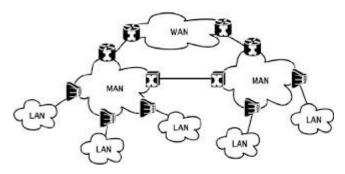


Figure 3.2.1 Metropolitan area Network.

3.2.2 Wide Area Network

The network developed with remote lanes is called wide area network. Data transfer speeds of this type of network are 56 Kbps to 1.544 Mbps. The speed of the wans is slowly changing. The devices used in this type of network are router, modem, wan switches etc.

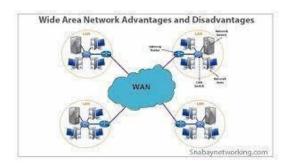


Figure 3.2.2: Wide area Network.

3.3 Types of Network Topology

- a) Bus Topology
- b) Star Topology
- c) Ring Topology
- d) Hybrid Topology

3.3.1 Bus Topology

All computer connected to the network are connected to bus topology by a single cable. Generally, this topology uses co-axial cables as network media

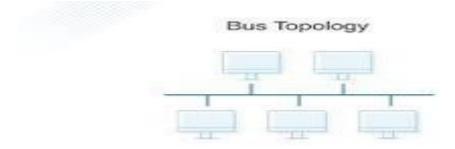


Figure 3.3.1: Bus Topology.

3.3.2 Star Topology

Star topology develop a central switch / hub in Star topology. This | If there is no computer on the network, then there will be no impact on the entire network. Through the server computer, other client computers interact with each other. If the switch or hub is closed in star topology, then the entire network will be closed. Because of communicating with the PC as a switch. It should be remembered that you have to use Straight-through Cable from PC to switch. Because switch and PC is a different device Normal switch does not have any type of configuration.

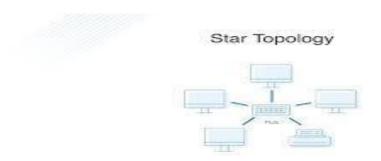
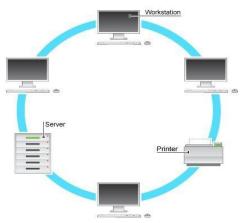


Figure 3.3.2: Star Topology.

3.3.3 Ring Topology

All computer networks in the ring topology are connected by a uniform cable to each other in the ring shape. If there is a breakdown of the cable or a computer that is networked in the network, then the entire network becomes idle. To overcome this problem, the secondary ring-cable system is placed in the ring topology.



3.3.4 Hybrid Topology

Generally, a mixture of star, ring, bus etc. is made up of topology very large and complex in the shape. The network is called hybrid or hybrid topology. For example, the networks of WAN, Internet etc. are usually developed in hybrid topology.

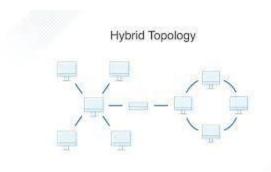


Figure 3.3.4: Hybrid Topology.

3.4 Creating Ethernet Cables

Firstly. We need a cat cable 5 and remove the cover of the cat cable 5 and place it from orange, white green, blue, blue white. Now we will slash the control and insert it carefully into the RJ45 connector. Now put it in the connector in the RJ45 clipping tool using RJ45 clipping tool. Now, carefully push the tool, the hotfix will be completed.

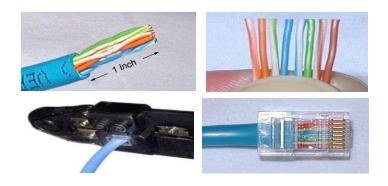


Figure 3.4: Patching Cat5 cable.

3.5 Hub & Switch

When a small device can connect more than one computers in a one-way network forming a local area network are called a hub or switch. The effort is pretty much the same, but the switch is superior and more strong at iterating through sent or received data and identifying each packet. Hubs and switches



Figure 3.5: Hub & Switch

3.6 Router

To connect WAN & LAN, the necessary equipment is a router. It must first be construct to create an ISP-provided network in the local network. It acts as an arch connecting many devices to the network.



Figure 3.6: Router

3.7 Configuring Router

Here, firstly we have to connect the router to a source. After applying the connection to the power, then connect an Ethernet cable from the ISP to wan port. Then the connection will easily establish with the device. Then we have to configure the router by connecting to the router through the router's Lan port or WIFI by entering the default password. press the "Save" button. Login page of the router.



Figure 3.18: Login page of the router



Figure 3.19: WAN Setting of the router

After configuring the WAN settings, enter the Wireless Quick Settings option. Then I changed the name and password of the wireless network and clicked "Next". Then click on the restart to make the changes.

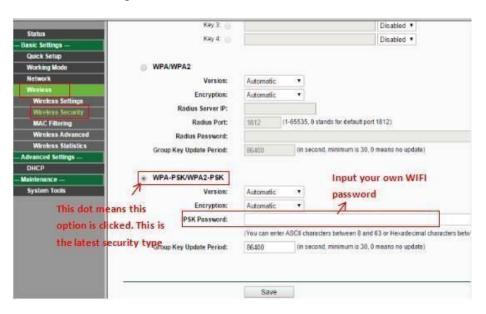


Figure 3.20: Wireless Setup of the router



3.8 Computer Name and Workgroup Setting

From, My Computer we will go to Properties then from computer name to network ID System properties

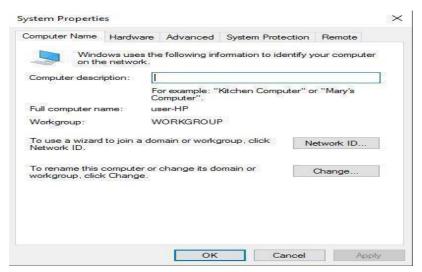


Figure 3.22: System Properties

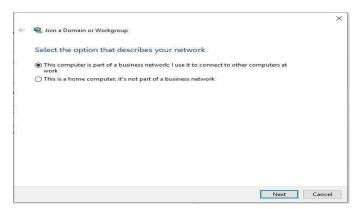


Figure 3.23: Network identification wizard 1

Now we have to select the desired option to identify the company network. Shown below

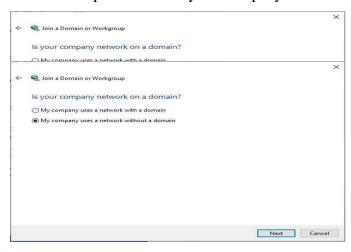


Figure 3.24: Network identification wizard 2

Now we need to type workgroup Name. Shown below

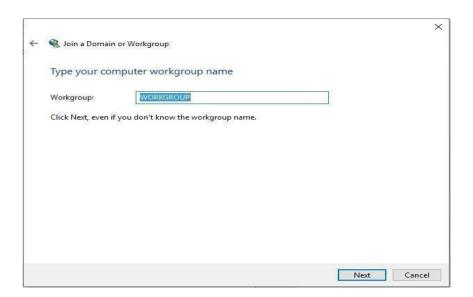


Figure 3.25: Network identification wizard 3

Now it's Finish connecting a computer to the domain. Shown

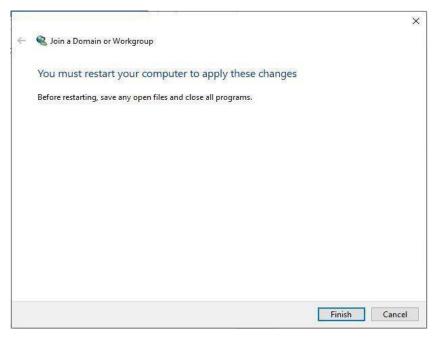


Figure 3.26: Finish connecting computer to the domain

3.8.1 Change the computer name and workgroup

Now from my computer icon to properties to computer name to change select target then press OK then Restart the computer. Shown below:



Figure 3.27: Computer name change

3.8.2 Sharing the pc

Now click the mouse button on the folder to properties to sharing then select advanced to this folder, then press O, Apply Shown below:

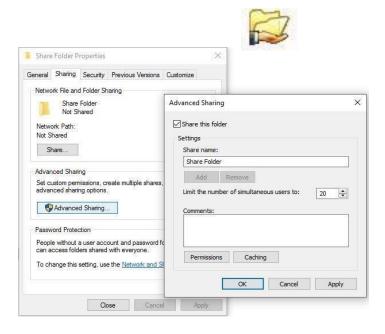


Figure 3.28: Sharing the pc

3.9 Cisco IP address configuration

An internet protocol address is the address of a computer, address has two parts like street name and house number because this computer has a network of network and hosted. An IP address is usually a collection of cord in a single way, to know a computer by any network device such as (router, mobile device, video surveillance). Each network device has its own NIC to assign IP addresses. The abbreviation for version 4 is IPv4.

Setup

All steps of the IP address configuration on a Windows computer.

- Step 1: We have to go to the control panel from the shortcut file or the start menu.
- Step 2: The control panel will appear, go to the network connection.
- Step 3: A new panel will open, select a change in the upper left corner, and then double click or go to the correct NIC (Lan card) properties.
- Step 4: Find and click (TCP/IP4), then double-click or select properties to open. Step 5: Now select "Use the following IP address" to manually enter the IP address and other fields.

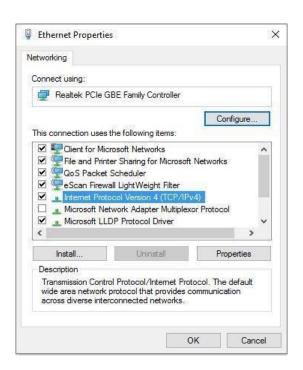


Figure 3.29: Setup of TCP/IP

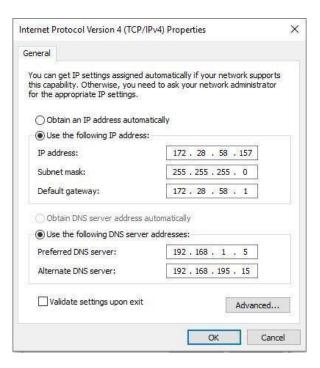


Figure 3.30: TCP/IP Properties

III.9.1 Troubleshooting Networking

- a) We have to check the network cable.
- b) We need to check the faceplate.
- c) Now we have to change the IP Address

3.9.2 Learning of Networking Work

- a) How to check the PC-to-PC connection with the ping command.
- b) Here I know how to set the IP address in another computer

3.9.3 Connecting a Router to a LAN

TABLE NO:3.9.3.1: ADDRESSING TABLE

Device	Interface	IP Address	Subnet Mask	Default
				Gateway
	G0/0	192.168.10.1	255.255.255.0	N/A
R1	G0/1	192.168.11.1	255.255.255.0	N/A
	S0/0/0	209.165.200.225	255.255.255.252	N/A
	G0/0	10.1.1.1	255.255.255.0	N/A
R2	G0/1	10.1.2.1	255.255.255.0	N/A
	S0/0/0	209.165.200.266	255.255.255.252	N/A
PC1	NIC	192.168.10.10	255.255.255.0	192.168.10.1
PC2	NIC	192.168.11.10	255.255.255.0	192.168.11.1
PC3	NIC	10.1.1.10	255.255.255.0	10.1.1.1
PC4	NIC	10.1.2.10	255.255.255.0	10.1.2.1

Step 1 – Configure Router Interfaces

a) Commands to address and activate the GigabitEthernet0/0 interface on R1

R1 (config)

R1 (config-if)

R1(config-if)

%Link-5-changed: Interface GigabitEthernal0/0, changed state to up

%LINEPROTO-5_UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up

R1 (config-if) # description Lan connection on S1

R1 (config-if)

Step 2 - Configure the remaining Gigabit Ethernet interfaces on R1 and R2

a) Enter the IP address and enable the interface from the address table and configure the appropriate description

b) Check the interface configuration.

Step 3-

Save all configuration files on both routers to NVRAM. Click copy run start

3.10 Challenges

I couldn't have hoped for a more perfect internship. Working at Info link allowed me to gain experience in the real world and learn how a multinational corporation operates. It was really enjoyable and memorable moment of my life.

In these three months of my internship, every job has its own set of problems. Adopting a new workplace with new professional individuals was one of the many hurdles I faced. After a long period of study, moving to an organization for employment for the first time is a completely new experience. Communication and involvement with my workplace are the first hurdles I face. The job is confronted and learned, then run the corresponding tasks as well as their work and achievements. So, I tried to adjust all stages step by step and I tried to overcome all things professionally. It was therefore a difficult part of the internship period. I learned how to deal with many challenges and handle the work here and run correctly.

CHAPTER 4

COMPETENCIES & SMART PLAN

4.1 Expertise Acquired

The expertise acquired is the statement that the students have learned as an understanding of the result of the learning process. Fundraising for the Office of the internship learning results information collected and organized in the project Description-Participated in the redesign. Learning Outcomes Software installation and upgrade, software configuration, and network employer service testing. The site supervisor will guide in different methods.

4.2 Smart Plan

A good planning decision-maker will always be known to be a smart person, but sometimes everyone makes blunder when planning. During my internship, I learned a lot and beside I had the opportunity to work with some big mentors and learn from their experiences. Now that I've made a perfect move into the network, I have many goals for the upcoming future, but for the moment, my intent is to spend in this sector a few more years and develop my skills.

4.3 Reflections

Work is always had real challenges for people like us, especially as I had no prior expertise in this field. A successful internship can help me gain work experience. My internship was therefore a success. Think of a good idea, like a good job. I hope that these internships can be obtained through many different professions. I have the opportunity to showmy dedication and find out what I will do in the future and build my career. The purpose of the internship is network engineers, network administrators, regional support engineers, and IT engineers of any type of organization.

CHAPTER 5

CONCLUSION & FUTURE CAREER

5.1 About Discussion and Conclusion

In my internship I enjoyed a wonderful and enriching encounters. It helped me continue to communicate with many people and I will see it again. The main thing is that I have gained self-motivation and a lot of work experience. As I started this event, it was very challenging for me. Seven hours a day and 4 days a week will be able to sit at a desk. This is why I had to maintain time. I loved my job and want to keep working more for future stands there I also learned meeting random people. This event always will be a great experience in my life.

5.2 Scope for Further Career

Information technology and opportunity for advancement are usable in many fields. The IT profession is not just information and technology. Computer systems, printer repair, router configuration, hubs, local area network connections, and computer replenishment. into the domain. Today, any private company, NGO, government agency, hospital, bank, educational institution, etc.

This is why I want my moderator to be an IT and network engineer.

APPENDICES

Appendix A: Internship Reflection

First Day was really simple since I had a lot of involvement through my regular positions at different spots. However, I didn't have experience but though I learned numerous things which been available in my log. I've referenced a portion of my discoveries and encounters which are favors for me. I think the information we gain from the available experience is particularly significant as customary learning. We are continually searching for simple techniques yet we didn't imagine that if we attempt the cycle which is composed on the books is not difficult to carry out. Out essentials have given us much data which is extremely helpful at this point. A temporary position is where we utilize our insight which we acquired for a very long time and carry out those.

Appendix B: Company Detail



APEX TECHNOLOGY LIMITED

39-40/A, Haranat Ghosh Road, LALBAGH, DHAKA-1211, BANGLADESH (Central

Branch))

CONTACT NO:- +8801911399918

Email:- www.apextechbd.com

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