

Telecommunication Service Management of BTCL

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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APPROVAL

This Internship titled “**Telecommunication Service Management of BTCL**”, submitted by Rad Shahamat Hisam, ID No: 182-15-11630 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 9 September 2021.

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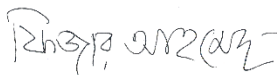
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DECLARATION

I hereby declare that, this internship has been done by me, Rad Shahamat Hisam, ID no: 182-15-11630 to the Department of Computer Science and Engineering, Daffodil International University under the supervision of **Ms. Subhenur Latif, Assistant Professor, Department of CSE** Daffodil International University. I also declare that neither this internship report nor any part of this report has been submitted elsewhere for award of any degree or diploma.

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I really grateful and wish our profound our indebtedness to **Supervisor Ms. Subhenur Latif, Assistant Professor**, Department of CSE Daffodil International University, Dhaka. Deep Knowledge & keen interest of our supervisor in the field of “Telecommunication Service Management of BTCL” to carry out this internship. His endless patience ,scholarly guidance ,continual encouragement , constant and energetic supervision, constructive criticism , valuable advice ,reading many inferior draft and correcting them at all stage have made it possible to complete this internship.

I would like to express our heartiest gratitude to **Dr. Touhid Bhuiyanand** Professor 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.

Finally, we must acknowledge with due respect the constant support and patients of our parents.

ABSTRACT

This Internship is on “Telecommunication Service Management of BTCL”. This reporting need of the internship program for my BSc degree. I was very interested to internship on Bangladesh Telecommunication Company Limited (BTCL). Because now a day telecommunication is talk of the world. In this case I am trying to say what I experience about real filed working process of telecommunication network on BTCL in this internship time. It was great opportunity for my work on BTCL. This company provided telephone services all over Bangladesh. First part of the internship report gives an overview of the history of BTCL. There have main responsibilities data connection check, domain names, rules & regulation, bandwidth provides, submarine cable capacity, telephone data exchange services etc. That’s why I am interested subject Telephone Exchange Service. I have experience practical knowledge about Digital Switch, TDM, STM, NGM, IMS, switch room.

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CHAPTER-1

INTRODUCTION

1.1 Introduction:

I have fulfilled my internship at Bangladesh Telecommunication Company Limited. The internship offering real work experience and an beginning to support in the Soft switch department. My main goal is supported to the Telephone Network. During my intern day I have figured out how to implement Basic Telecommunication Switching, Digital Exchange BTCL. Soft switch, ICX & IGW, NGN General Alarm & Maintenance.

1.2 Motivation:

My internship program builds up my career in Computer Science, Networking, Telecommunication System. BTCL is going through various services of the Telephone Exchange. They can all most better help employees in instruction new strategies and ideas. An internship gives me the best knowledge, huge skill development in networking sites. An understudy can take field experience by doing an internship. As a result, the internship grows the ability Networking is my first choice because I am interested in computer networking and I am highly decided I want to build my career as a networking engineer.

1.3 Internships Objective:

My main internship objective of internship program for learning and filed expertise, as a result of currently days are terribly competitive job market. The internship is very helpful for learning and talent development. I will utilize my technical and management skills for achieving the target and developing the most effective performance. Thats why I choose internship for my future professional life.

- To learning Computer and network
- Skill development of networking technology
- Development of knowledge Telephone exchange
- Study on Submarine cable in BTCL

1.4 Introduction to the Company:

Bangladesh Telecommunication Company Limited (BTCL) is a big telecommunication company in Bangladesh. This company offered many services it has large internet service and landline services such as ADSL, IIG, NIX, IGW, ICX, ISP, and NIX, NTTN, PSTN Operator, and cc domain (.bd). So there are huge server rooms and divisions for controlling these. There is the latest technology for network service. BTCL gives dialup internet access in each of the 64 areas of the Bangladesh.

1.5 Report Layout:

Now I have discuss inspiration of intern, objective of entry level and introduction to BTCL on my report. In this report I written about daily tasks and activities of internship. In this report I am discussed about competence and smart plan. I discuss the conclusion and future career in information technology. In the last page have adding all the references and appendices.

CHAPTER 2

ORGANIZATION

2.1 Introduction:

The communicate branch below the posts and telegraph department was created in 1853 within the then British India and was regulated after below the telegraph Act of 1885. Pakistan Telegraph and telephone department was created in 1962, when the independence of People's Republic Of Bangladesh in 1971, Bangladesh Telegraph and telephone department was setup below the ministry of posts and telecommunications. This was reborn into a company body named "Telegraph and Telephone Board" by promulgation of Telegraph and telephone Board Ordinance 1975. In Pursuance of Ordinance No. XII of 1979 publicized on twenty fourth February 1979. Telegraph and Telephone Board was reborn to "Bangladesh Telegraph and Telephone Board (BTTB)" as a Government Board. In Pursuance of "Bangladesh Telegraph and Telephone Board (Amendment) mandate, 2008" Dated 01-June-2008 (Later on Bangladesh Telegraph and Telephone board (Amendment) Act 2009) an association especially "Bangladesh Telecommunication Company restricted (BTCL)" was incorporated and registered in Bangladesh below the businesses Act, 1994 as a public Ltd. having its registered head workplace placed at 37/E, Telejogajog Bhaban, Eskaton Garden, Dhaka-1000, The Entire enterprise of the BTTB was transferred to BTCL Through a Deed of Agreement between Ministry of Post Telecommunications and BTCL signed on 30-June-2008. From 01-July-2008 BTCL started its journey. BTCL is connected with global upstream through SEA-ME-WE4, SEA-ME-WE5, and ITC. BTCL has PoPs around the entire nation, even at Upazilla and Union levels which guarantee least fiber length to interface every client of the web.

2.2 Target Group:

BTCL has many services such as ADSL, IIG, NIX, IGW, ICX, ISP, and NIX, NTTN, PSTN Operator, and cc domain (.bd). BTCL provide telecommunication and bandwidth services. Help customers with further developing their organization execution by giving elite arrangement by means of I business and IT capabilities that influence our worldwide integrated group f interesting energetic experts.

2.3 BTCL SWOT Analysis:



Fig: 2.1 SWOT Analyses

Strength:

- Customer Support
- Fixed phone services provider
- Broadband services via Landline

Weaknesses :

- Culture Gap
- Poorer organization CSR activities
- Problem Contained offer

Opportunities:

- Quality Services
- Provide Low rate call
- Economic growth of Bangladesh

Threats:

- Development privet land phone
- Prefer mobile phone
- Environment disaster

2.4 Organization Structure:

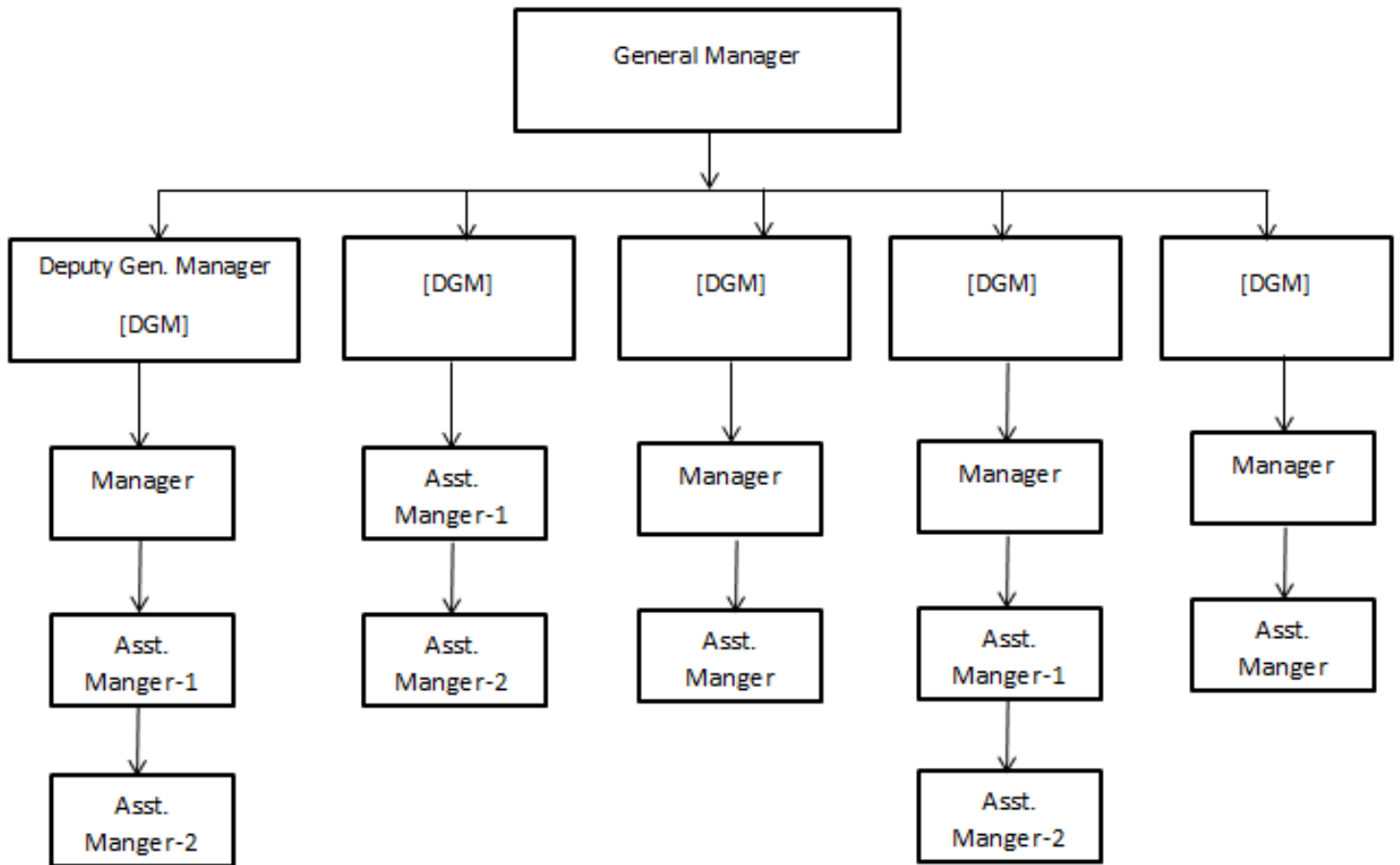


Fig: 2.2 BTCL Organization Structure

CHAPTER 3

Tasks, Projects and Activities

3.1 Daily Task and Activities:

BTCL Sher-e-bangla Nagar West Divisional Exchange office starts at 10:30 am and end time 5 pm. In 3 month duration internship I am working with SOFT SWTCH Division.

3.1.1 Switching System Inlets and Outlets:

Key segments of an switching system or a exchange are the arrangement of information and yield circuits called inlets and outlets. The essential capacity of a switching system is to build up is to develop an electrical way between a given inlet-outlet pair. The equipment used for setting up such an association is known as the exchanging lattice or the exchanging organization. Figure 3.1 shows a model of a switching network .

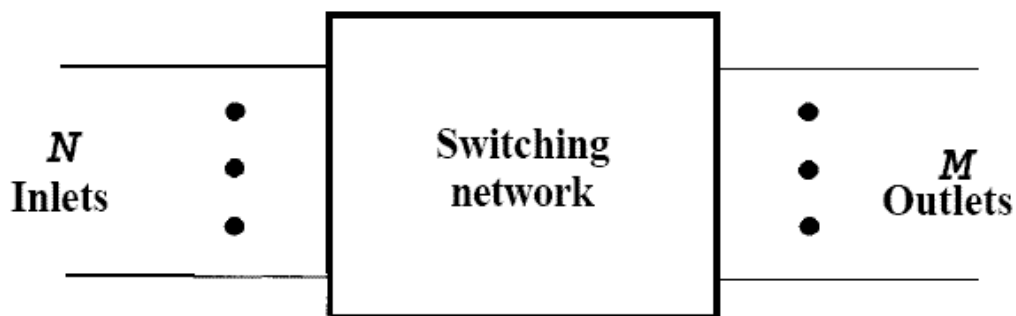


Fig: 3.1 Switching Network

3.1.2 Connection Type:

Four Types of connections in a telecommunication network –

- Local call connection into two subscriber.
- Call connection of outgoing into a subscriber and outgoing trunk.
- Incoming call connection into incoming and a local connection.
- Transit call connection into incoming trunk and an outgoing trunk.

3.1.3 Main Distribution Frame (MDF):

The MDF is an endpoint inside the close by telephone exchange where exchange equipment and termination of nearby circle are associated by jumper wire at the MDF . MDF connected inside telecommunication facilities to wire and user. Each link that connects with customer's telephone line ends up at a MDF and is dispersed.



Fig: 3.2 Main Distribution Frame

3.1.4 TDM Digital Switch:

First ideas of digital switch and transmission were created by several labs within the u. s. and in Europe beginning within the Nineteen Thirties. the primary model digital switch was created by Bell Labs as a part of the county project whereas the primary true digital exchange to be joined with digital transmission systems was American statesigned by LCT (Laboratories Central de Telecommunications) in Paris. the primary digital switch to be placed into a public network in European nation was the Emperor Exchange in London that was designed by the overall Post workplace analysis labs. it absolutely was a tandem bicycle switch that connected 3 Stronger exchanges. the primary business roll-out of a totally digital native switch system was Alcatel's E10 system that began serving customers in French region in Northwestern France in 1972.

Digital switching encode the talking going on, in 8000 time cuts per second. At each time cut, an advanced PCM portrayal of the voice is made. The digits are then sent to the receiving end of the line, where the converse cycle happens, to deliver the sound for the receiving phone. At the end of the day, at the point when you use a telephone, you are by and large having your voice “encoded” and afterward thereafter changed for the edge. Your voice deferred in the process by a little piece of one second.

3.1.5 Next-Generation Network:

- NGN is network dependent on pocket based net that can be used for both telephony and data.
- Enabling to offer types of services.
- Including telecom services Capable of utilizing a few broadband transmission technologies.
- NGN give a limitless subscriber access to the various service providers.
- Unhindered access by customers to different expert organization.

3.1.5.1 NGN Model:

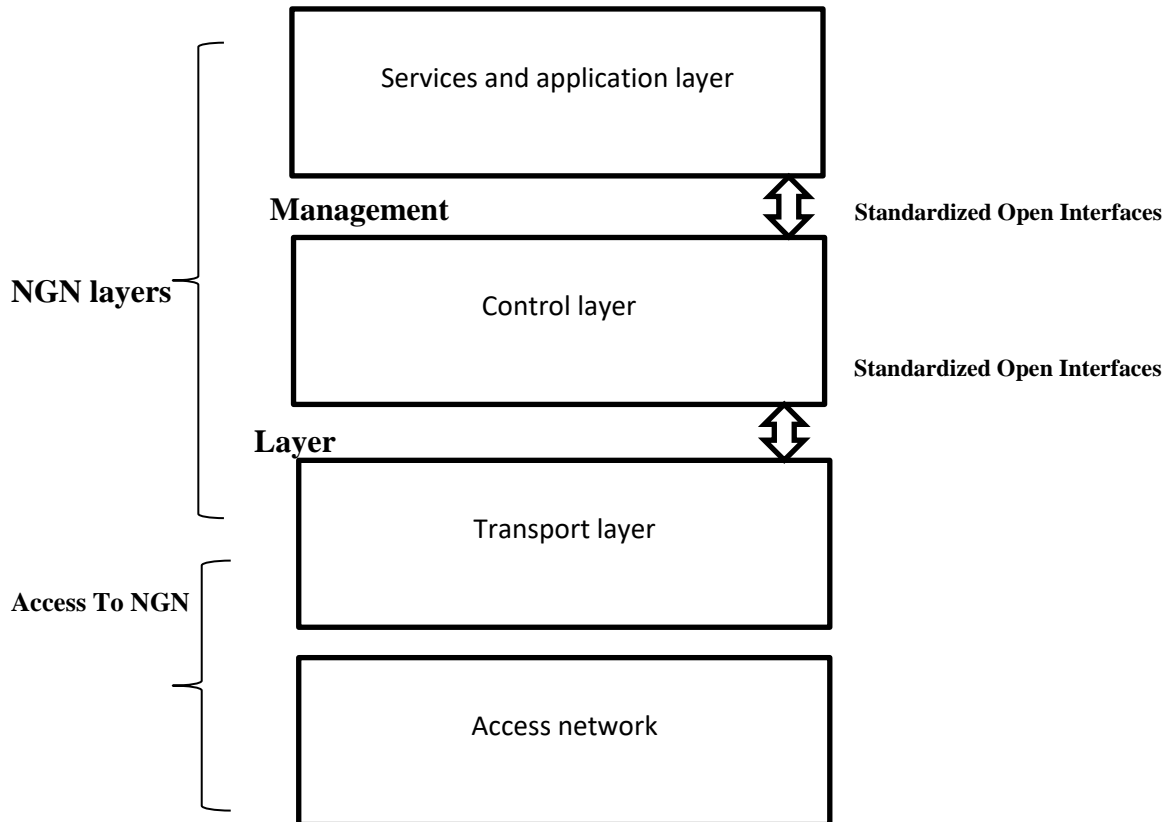


Fig: 3.3 NGN Model

3.1.5.2 NGN Softswitch Based Architecture :

One of the primary gear that offers voice application in NGN network is Softswitch. The main job of Softswitch is to give call control capacities to VoIP calls. Softswitch empowers mix of various conventions inside NGN organization. Call subtleties for charging are produced in Softswitch too. Another significant work is interface creation with existing communication networks PSTN (Public Switched Telephone Network) through Signaling door and Media entryway.

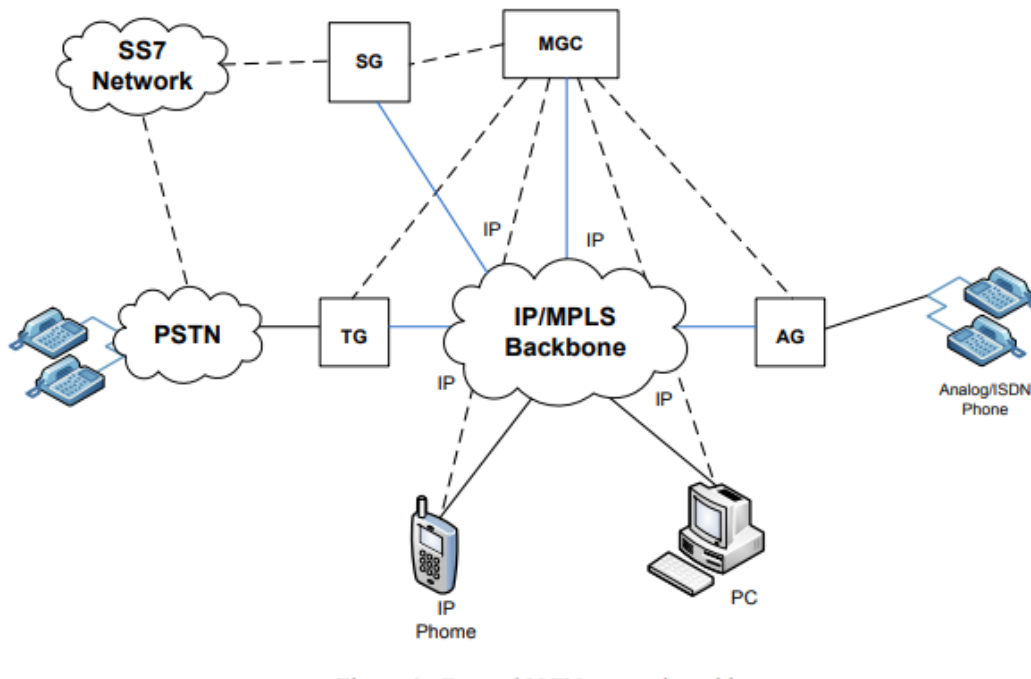


Fig: 3.4 NGN Softswitch Based Architecture

3.1.6 SoftX:

- Softx3000 goes probably as a conventional call controller in the bundle exchanged organization, upholds the between working between PSTN, H.323, SIP and MGCP spaces.
- As a soft switch item, softx300 is arranged at the middle control layer of NGN plot.
- Softx300 gives H.248 and MGCP based carrier control.
- In the NGN arrangement of Huawei, Softx3000 goes about as the center of NGN, between working with other NGN parts through the open organization embracing circulated standard conventions.

3.1.6.1 Packet Multimedia End of office:

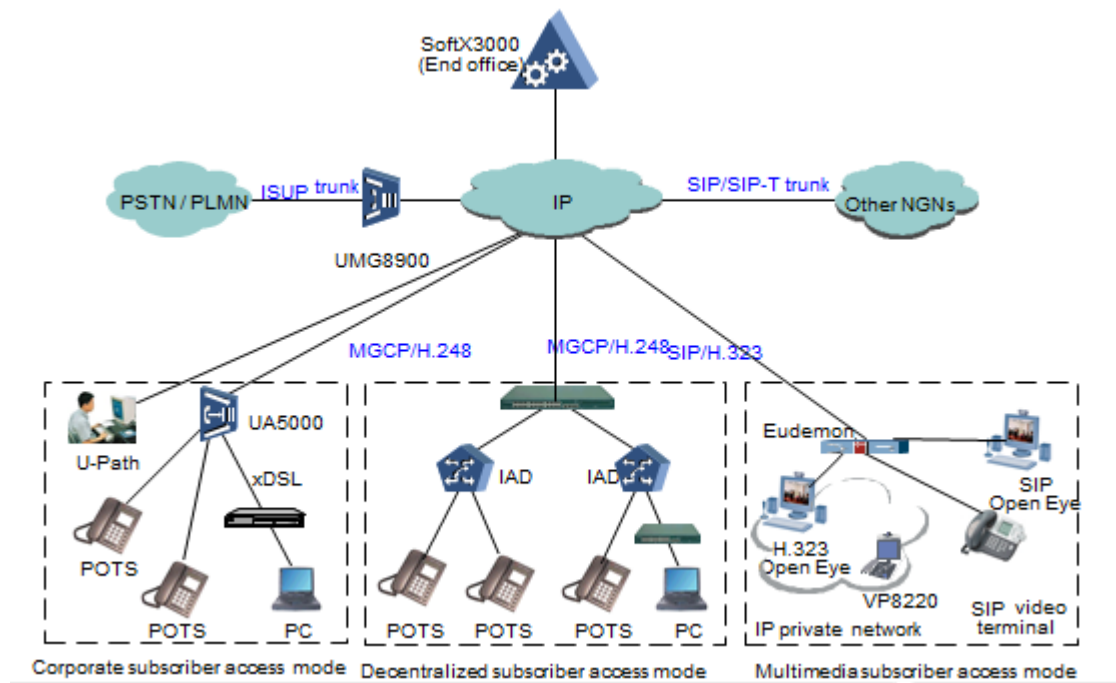


Fig: 3.5 Packet Multimedia End of office

3.1.7 SoftX3000:

- As a Soft Switch item, softx3000 is situated at the center power layer of NGN scheme.
- Softx3000 goes about as a conventional Call Controller in the parcel exchanged organization, upholds the working between PSTN, H.323, SIP, and MGCP

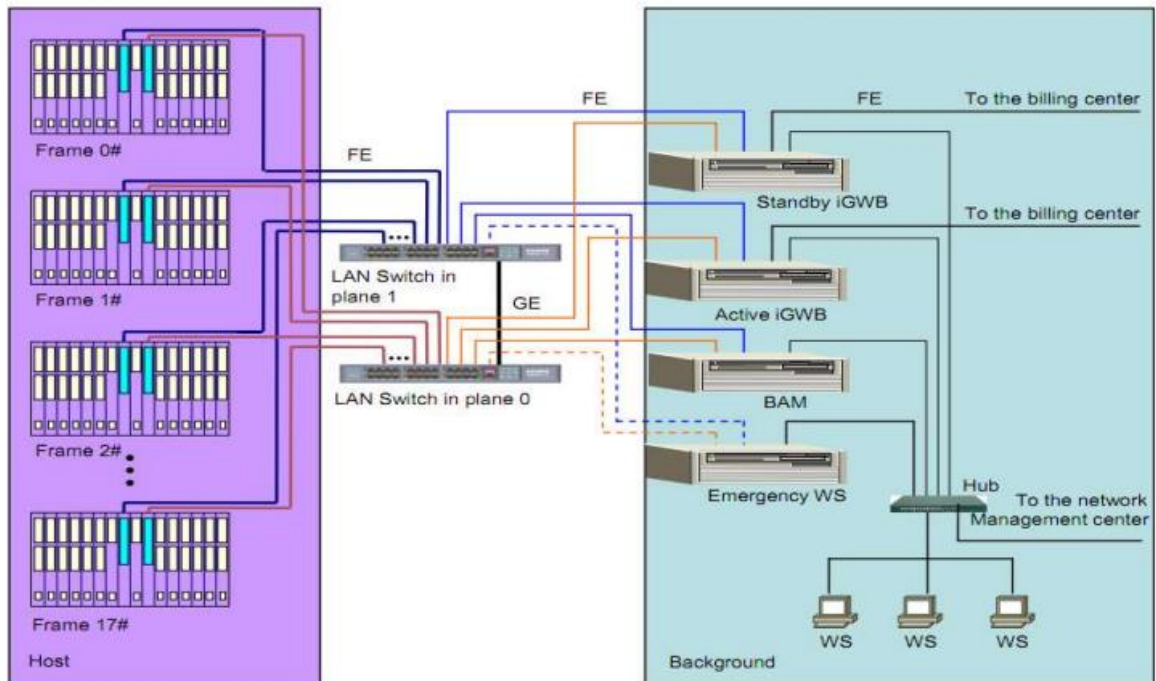


Fig: 3.6 Hardware & Structuer of SOFTX3000

3.1.7.1 Area of SoftX3000:

SoftX3000 is relevant to the network power layer of NGN and conveys call control and connection chiefs of voice, data and media services dependent on the IP network.

3.1.7.2 Open Standards Telecom Architecture (OSTA) of SoftX3000:

One cabinet can have 4 OSTA frames.

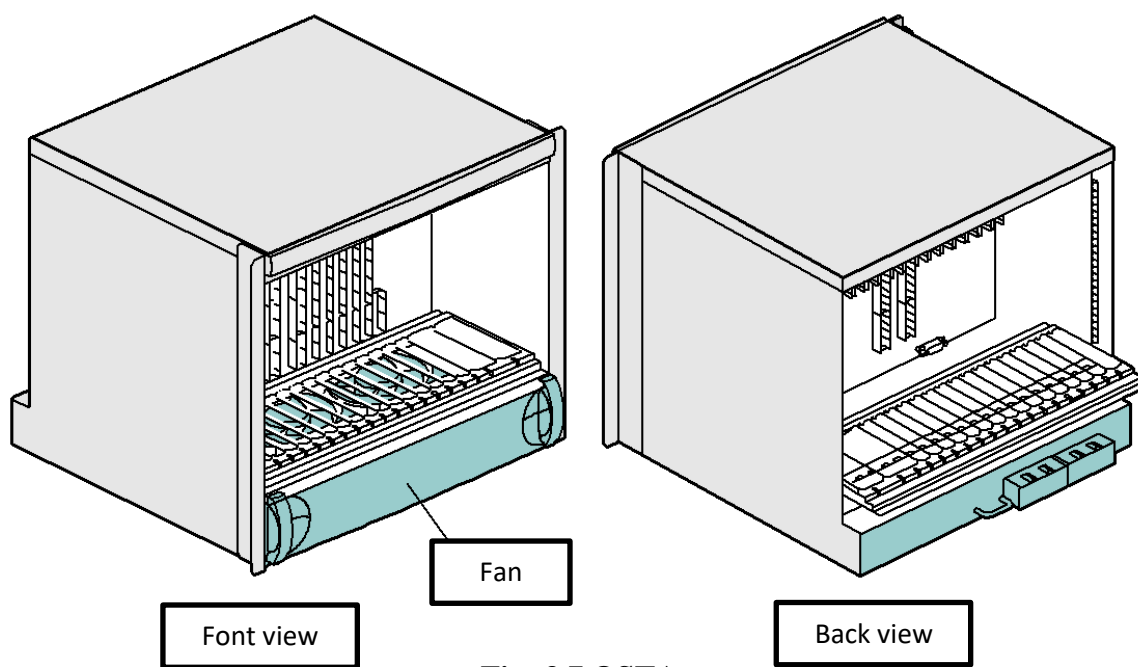


Fig: 3.7 OSTA

3.1.7.3 Frame Classification of SoftX3000:

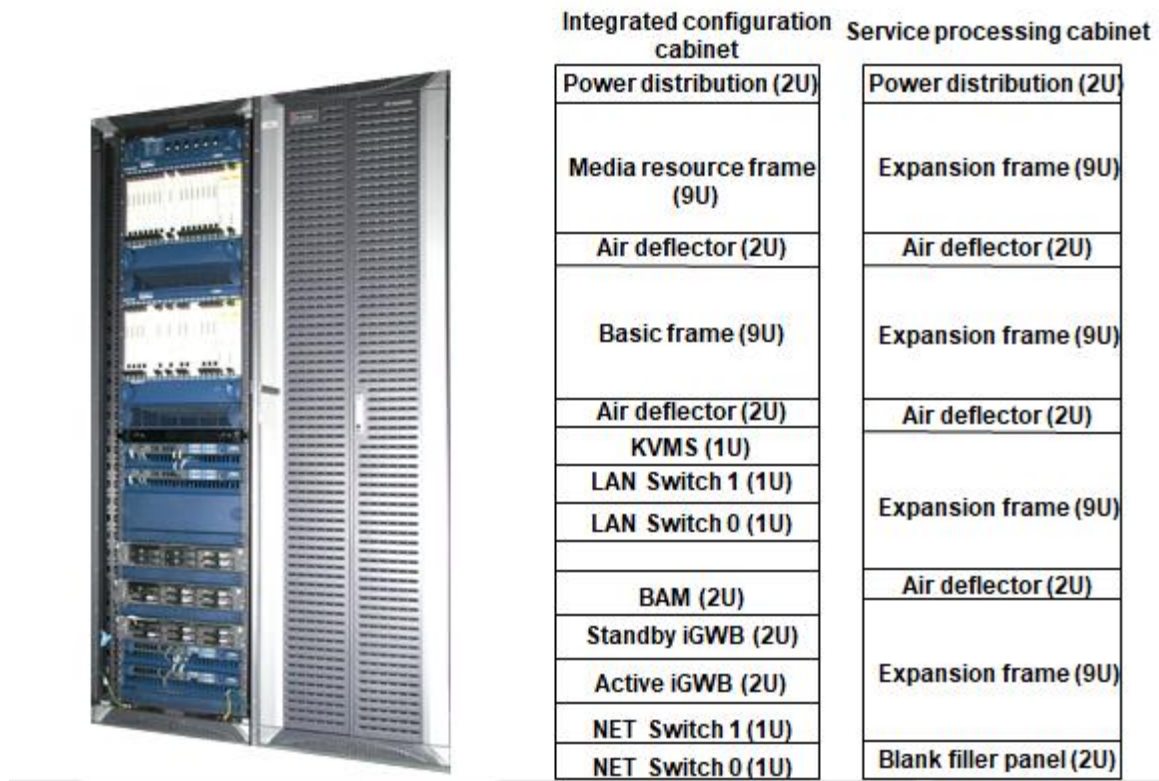


Fig: 3.8 Frame Classification

3.2 Event Task and Activities:

During intern day I was in Sher-e-bangla Nagar West Divisional Exchange I get information about MDF (Main Dissemination Frame) and how to keep up and how to interface with another endorser with SOFT SWITCH. I simply assemble some thoughts regarding cabling and a few kinds of them.

3.3 Project Task and Activities:

In Three month duration internship I solve some task which I was relevant with telephone exchange networking maintenance in BTCL Sher-e-bangla Nagar West Divisional Exchange.

3.4 Challenges:

Many difficulties challenge this work of the main distribution frame is a signal distribution frame to attach the equipment (inside the plant) to wire and subscriber carrier fittings MDF is extremely sensitive & secure place because all information, voice, and delicate data is gone through the MDF so, everyone is not allowed to entrance without skillful engineer. It is exceptionally hard to work under these conditions. With it we are visited switch, Server, and firewall room these places are very secure & safe area.

CHAPTER 4

COMPETENCIES AND SMART PLAN

4.1 Competencies Earned

In this short intern day, I tried to learn Communication and Networking and I could learn something. If I wanted to survive in Market Place, I have to develop my skills. I need to develop my skills the way I need to know about the current market place. I need to know how I handle my work and how I manage my work. I need to know the level of decision making, responsibility, and authority I have to do a lot of research on the skills of the job for managerial and supervisory positions. I need to know the status of Market Place and develop my skill appropriately. The current world is very developed and it's keeping with it. Strong Computer knowledge is highly needed in the competitive job market.

4.2 Smart Plan

I'm now worried about to the future of my career. During the internship time I gather practical knowledge that is helping my future profession in the Networking Part. In this day, its a high demand in current technology. I experience some real-life things in my internship day. My plan completely learns about Network Engineering.

4.3 Reflections

Internship gets useful experience in this case of Network Engineering. It is supporting to improve the experience in engineering jobs. During in internship period, I learned Network Practical knowledge. IT is currently a smart and effective profession at present. This experience will assist me with getting a smart job. The internship provides advanced tricks and trips that practiced by the career. Now I know how to handle Switching related work how to solve real life problem and how to overcome complex situation and gain experience working as a professional.

CHAPTER 5

CONCLUSION AND FUTURE CAREER

5.1 Discussion and Conclusion

My Internship completed on 4 April 2021. When I complementary my internship I get experience of all these things talks over in the previous chapter. I learned continuous In the proposed system the goal was to make to such a internship by which the Networking system can be automated. This internship gives me the opportunity to test help in a specific profession before permanent responsibility is made. This Internship provides the chance to test interest in a particular career before permanent responsibilities are made.

5.2 Scope for Further Career

In Bangladesh there are lots of companies. But BTCL is the largest and popular telecommunication companies in our country. BTCL mainly provided are landline telephone and providing internet services a huge amount of data all over in Bangladesh. Therefore, we will be much ahead of the next recruitment examination and we have a great opportunity.

Reference:

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APPENDICES

Appendix A: Internship Reflection

This Internship has been such a grateful experience for me. I've learned Networking and developed my skill in networking sector. One way to evaluate an internship is first to break it down into its key components. Reflecting on my internship and taking action dependent on what i have learned and experienced can be every bit as significant as the internship itself.

Appendix B: Company Details

The Bangladesh Telecom Company Limited (BTCL) started functioning on JULY 1, 2008 as PLC (Public Limited Company) by taking over all assets liabilities of the now-defunct Bangladesh Telegraph and Telephone Board (BTTB), initially a sole Telecommunications services operator of Government of Bangladesh.

Head Office:

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