EAST WEST UNIVERSITY

INTERNSHIP REPORT

On

CALL ROUTING AND CALL TRACKING

At

BANGLADESH TELECOMMUNICATIONS COMPANY LIMITED

BTCL
দেশ ও মানুষের সেবায়

Submitted By

MD. RASEL
ID: 2013-2-55-001
ECE Department

Supervised By

Dr. M. Mofazzal Hossain
Professor & Chairperson
Department of Electronics and Communications Engineering

Letter of Transmittal

25th April, 2017

To
Dr. M. Mofazzal Hossain
Professor & Chairperson

Department of Electronics and Communications Engineering

East West University

Subject: Submission of internship report for completion of course.

Dear Sir,
I am pleased to let you know that I have completed my internship at **Bangladesh Telecommunications Company Limited**. The attaché contain of the internship report has been prepared for the completion of the course, Internship (ETE 498). It is great achievement to work under your active supervision.
This project gave me both academic and practical exposures. First of all I learned about the organizational culture of a prominent Telecommunication organization of the country. Secondly, the project gave me the opportunity to develop a network with the corporate environment.

I shall be highly obliged if you are kind enough to receive this report and provide your valuable judgment. It would be my immense pleasure if you find this report useful and informative to have an apparent perspective on the issue.

Thank you for your co-operation.

Sincerely Yours,

MD.RASEL
ID: 2013-2-55-001
ECE Department
East West University

Declaration

I hereby declare that the internship report is done by me under the course "Research/Internship (ETE498)".Requisite references are quoted to support my work. It has not been submitted elsewhere for the requirement of any degree or any other purpose except for publication.

MD. RASEL
ID: 2013-2-55-001
ECE Department
East West University

Acceptance

This is to certify that MD. RASEL, ID: 2013-2-55-001 Department of Electronics and Communications Engineering, East West University, has done this internship at **Bangladesh Telecommunications Company Limited**. As partial requirement for the degree of BSc in ETE. To the best of my knowledge, this report is original in nature and has been prepared by his guidance and was nowhere submitted for any purpose.

…….

Dr. M. Mofazzal Hossain
Professor & Chairperson

Department of Electronics and Communications Engineering

East West University

Supervisor's endorsement…….

For BTCL

Toufiqul Islam

Divisional Engineer, Overseas

Moghbazar, Dhaka

ACKNOWLEDGEMENT

First of all, I wish to express my gratitude to the almighty ALLAH for giving me the strength to perform my responsibilities as an intern and complete the report within the stipulated time.
I am deeply indebted to my Faculty Advisor Dr. M. Mofazzal Hossain Professor & Chairperson Department of Electronics and Communications Engineering of East West University for his whole-hearted supervision during my organizational attachment period.

I am also grateful to Toufikul Islam, D.E (overseas), moghbazar, BTCL as my organizational supervisor. It would have been very difficult to prepare this report up to this mark without their guidance.

Last but not the least; I would like to convey my gratitude to Md. Shahinur Rahaman, D.E phones (Ext-2) and Md. Humayoun Kabir Bhuiya, D.E phones (Internal), BTCL, for helping me in furnishing the report. Moreover, I would also like to express my gratitude to my Bangladesh Telecommunications Company Limited fellows, seniors and colleagues who gave me good advice, suggestions, inspiration and support. I must mention the wonderful working environment and group commitment of this organization that has enabled me to deal with a lot of things.

Finally I would like to thank my friends and family member who have given me mental and internship information related support to pursue the whole internship properly.

Abstract

I have prepared this report based on my two-month practical experience at Bangladesh Telecommunications Company Limited. This internship program helped me to learn about the practical scenario of a Telecommunication Company. This report has been presented based on my observation and experience gathered from the company.

I attend internship on D.E Overseas of BTCL and D.E phones (15-09-2016 to 14-11-2016).

BTCL is a voice carrier, IGW, IIG, ICX, ISP, NTTN, PSTN operator and cc domain (.bd) registrar. BTCL has copper, optical fiber and microwave networks almost all over the country. BTCL started its journey in 1853 as Posts and Telegraph Department. BTCL is now a Govt owned company. Major services BTCL provide are land line telephone. dial-up internet, ADSL internet, high bandwidth local and international leased line, VPN, MPLS, country domain (.bd), co-location etc. Soon launching NGN soft switch based services and triple play over fiber to home. Btcl has planned to go for LTE wireless services.

Table of contents

Chapter 1
Introduction

1.1 About BTCL

BTCL (Bangladesh Telecommunications Company Limited) is the largest telecommunications company in Bangladesh. The company was founded as the Bangladesh Telegraph & Telephone Board (BTTB) following Bangladesh's independence in 1971. On July 1, 2008 the BTTB became a public limited company and was renamed as BTCL [1]. The Bangladesh government initially owned all BTCL shares, but stated it would sell the shares to the public the following year. The value of BTCL is estimated to be at Tk. 15,000 corer. BTCL has a total of 12,636 officials and staff.

BTCL provides land-line telephone services in Bangladesh's, including domestic long distance calling and international services as well as internet services. In 2004, the Bangladesh Government issued a number of PSTN licenses to private companies, but they were barred from providing services in the lucrative Dhaka market (which accounts for the majority of the nationwide market). The monopoly held by BTCL was broken when other operators started to receive licenses from 2007.

1.2 History

The Telegraph branch under the Posts and Telegraph Department was created in 1853 in the then British India and was regulated afterwards under the Telegraph Act-1885. The Telegraph branch was reconstructed in 1962 in the then East Pakistan as Pakistan Telegraph and Telephone Department.

Post-independence

Figure1.1 Old Logo of BTCL, formerly known as BTTB

Following Bangladesh's independence, the Bangladesh Telegraph and Telephone Department was set up under the Ministry of Posts and Telecommunications in 1971. This was converted into a corporate body named 'Telegraph and Telephone Board' by promulgation of Telegraph and Telephone Board Ordinance, 1975. Pursuant to a 1979 ordinance, the Telegraph and Telephone Board was converted into a government board named the Bangladesh Telegraph and Telephone Board (BTTB).

1.3 Bangladesh Telecommunications Company Limited

On 1 July 2008, BTTB transformed to a government-owned Public Limited Company under a new name of Bangladesh Telecommunications Company Limited BTCL [1]. BTCL has launched a 24-hour call centre for customers' benefit. Customers in Dhaka will be able to call the number 16402 and reach the BTCL for enquiry, according to a company media release issued on Wednesday [2]. BTCL runs a red telephone exchange for the VIPs which is secured and always live [3].

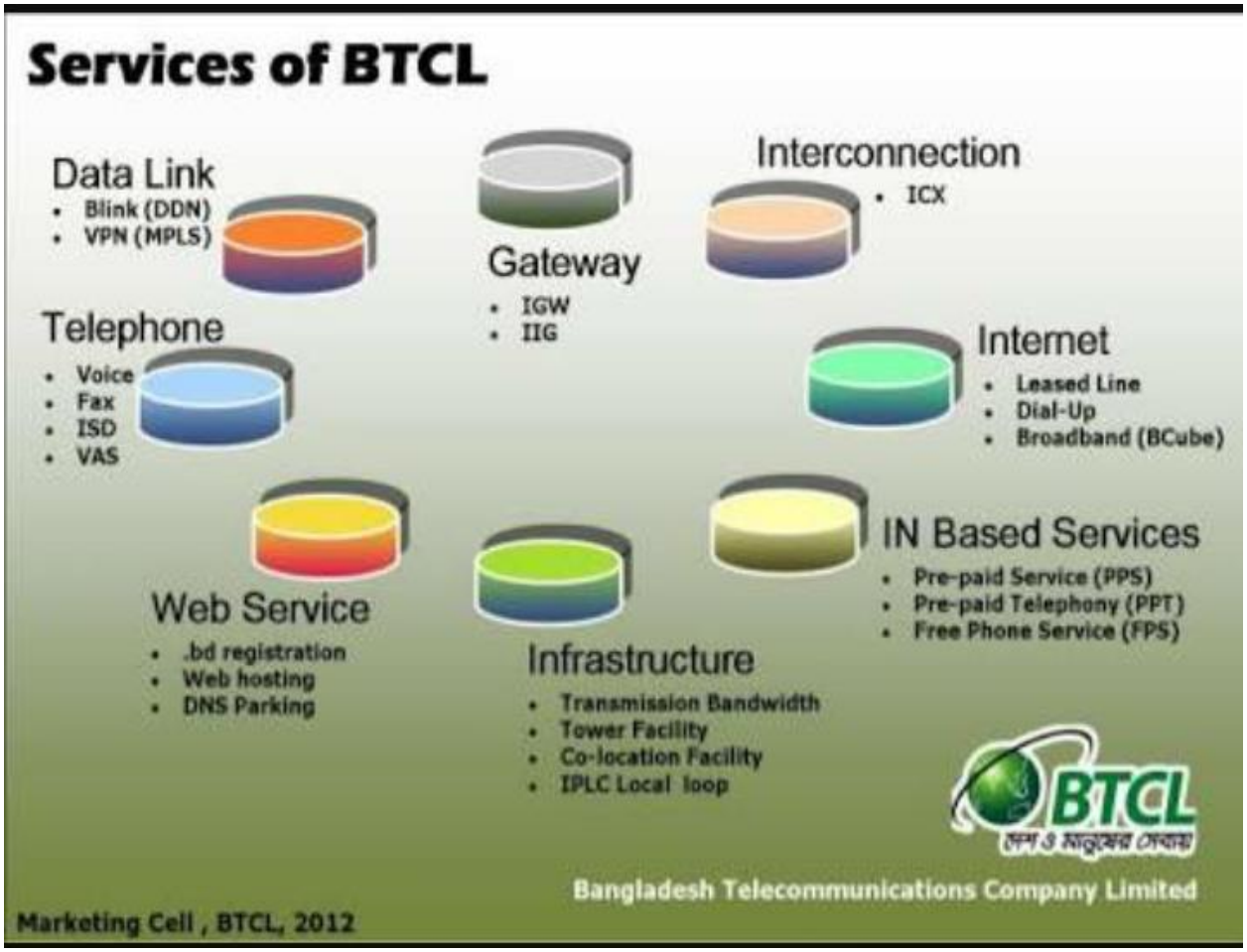

Figure 1.2 services of BTCL

1.4 Internet Services

BTCL provides dial-up Internet access in all 64 districts of the country, making it the most-accessible Internet service provider in the country. As of January 2009 its total dial-up subscriber is 32,433.Since the beginning of 2007 BTCL have improved its Dial-up Internet service for better customer satisfaction. It also handles the .bd domain [4].

BTCL provides consumer-level broadband Internet services under the branding of BCUBE. The service is provided through ADSL2+ technology. BTCL has outsourced its BCUBE sales and customer support to EMEM Systems Ltd, System & Services Ltd (SSL) and Sis view Technologies Ltd. Till now BTCL have got about 15,000 customers. BTCL's monthly income about Tk19, 000,000 per month from this service.

The state-owned telephony firm will develop a broadband wireless access network across the country soon with Korean help to provide uninterrupted upgraded services to its clients, officials said. Bangladesh Telecommunications Company Limited (BTCL) in cooperation with Korean Economic Development Cooperation Fund (EDCF) will establish the modern network [5].

1.5 Satellites

Bangladesh's first satellite on earth's orbit will have 40 transponders to provide telecommunications and broadcast services. US-based Space Partnership International (SPI) has already started designing the satellite and will also help launch it under a contract signed with the government. The two ground stations that will control the satellite will be built at Gazipur's Joydebpur and Rangamati's Betbunia on the land owned by Bangladesh Telecommunications Company Limited (BTCL). The government plans to have the satellite, named after the Father of the Nation Bangabandhu Sheikh Mujibur Rahman, sent to space by June 2017.

Chapter 2
Evolution of Telecommunication

2.1 Telecommunications in Bangladesh

The liberalization of Bangladesh's telecommunications sector began with small steps in 1989 with the issuance of a license to a private operator for the provision of inter aliacellular mobile services to compete with Bangladesh Telegraph and Telephone Board (BTTB), the previous monopoly provider of telecommunications services within Bangladesh. Significant changes in the number of fixed and mobile services deployed in Bangladesh occurred in the late 1990s and the numbers of services in operation have subsequently grown exponentially in the past five years.

The incentives both from government and public sectors have helped the industry grow and it is now one of the biggest industries in Bangladesh. As a populous country, its huge market has attracted many foreign investors.

2.2 Telecommunication History

The telecom sector in Bangladesh is rapidly emerging. Bangladesh Telecommunication Regulatory Commission (BTRC) is the regulatory authority for this sector, overseeing licensing, policy, etc.[6]

- 1853: Telegraph branch under Posts and Telegraph Department, British India.
- 1971 : Reconstructed as Bangladesh Telegraph and Telephone Department under Ministry of Posts and Telecommunications.
- 1975 : Reconstructed as Telegraph and Telephone Board.
- 1979 : Reconstructed as Bangladesh Telegraph and Telephone Board (BTTB) with right to issue license for telecom and wireless services.
- 1981 : Digital Telex Exchange in Bangladesh.
- 1983 : Automatic Digital ITX started in Dhaka.
- 1985 : Coinbox Telephone service introduced in Bangladesh by BTTB.
- 1989 : GENTEX Telegraph messaging service introduced in Bangladesh.
- 1989 : Bangladesh Rural Telecom Authority got license to operate exchanges in 200 upazilla.
- 1989 : Sheba Telecom got license to operate exchange is 199 upazilla.
- 1989 : Cellular mobile phone company Pacific Bangladesh Telephone Limited and Bangladesh Telecom got license.
- 1995 : Card Telephone service introduced in Bangladesh by BTTB and TSS.
- 1995 : Regulatory power of BTTB transferred to Ministry (MoPT).
- 1995 : 2nd and 3rd ITX installed in Dhaka.
- 1996 : GrameenPhone got cellular mobile Telephone license.
- 1996 : Telecom Malaysia International Bangladesh got cellular mobile license.

- 1998 : Telecom Policy.
- 2000 : Global Telecom Service (GTS) Telex Exchange venture with British Teleco.
- 2001 : Telecommunication Act, to establish Bangladesh Telecommunication Regulatory Commission (BTRC).
- 2002 : ICT Policy.
- 2004 : Teletalk cellular mobile launched.
- 2005 : Egypt-based Orascom acquired Sheba Telecom
- 2006 : NGN introduced in BTTB.
- 2008 : BTTB converted into Bangladesh Telecommunications Company Limited (BTCL) with 100% shares owned by Government. The Submarine Cable Project transformed into Bangladesh Submarine Cable Company Limited (BSCCL)
- 2008 : Japanese NTT DoCoMo bought 30 percent stake in Aktel
- 2009 : Bharti Airtel acquired 70 percent stake in Warid Telecom
- 2009 : Internet Protocol Telephony Service Provider (IPTSP) Operators launched.
- 2010 : Aktel rebranded to Robi Axiata Limited
- 2012 : 3G mobile service is introduced by state owned Teletalk in October.
- 2013 : 3G auction held for private companies
- 2014 : 64 districts covered with 3G by Grameenphone, Banglalink and Robi.

Chapter 3

Telecom Structure of Bangladesh

3.1 Structure

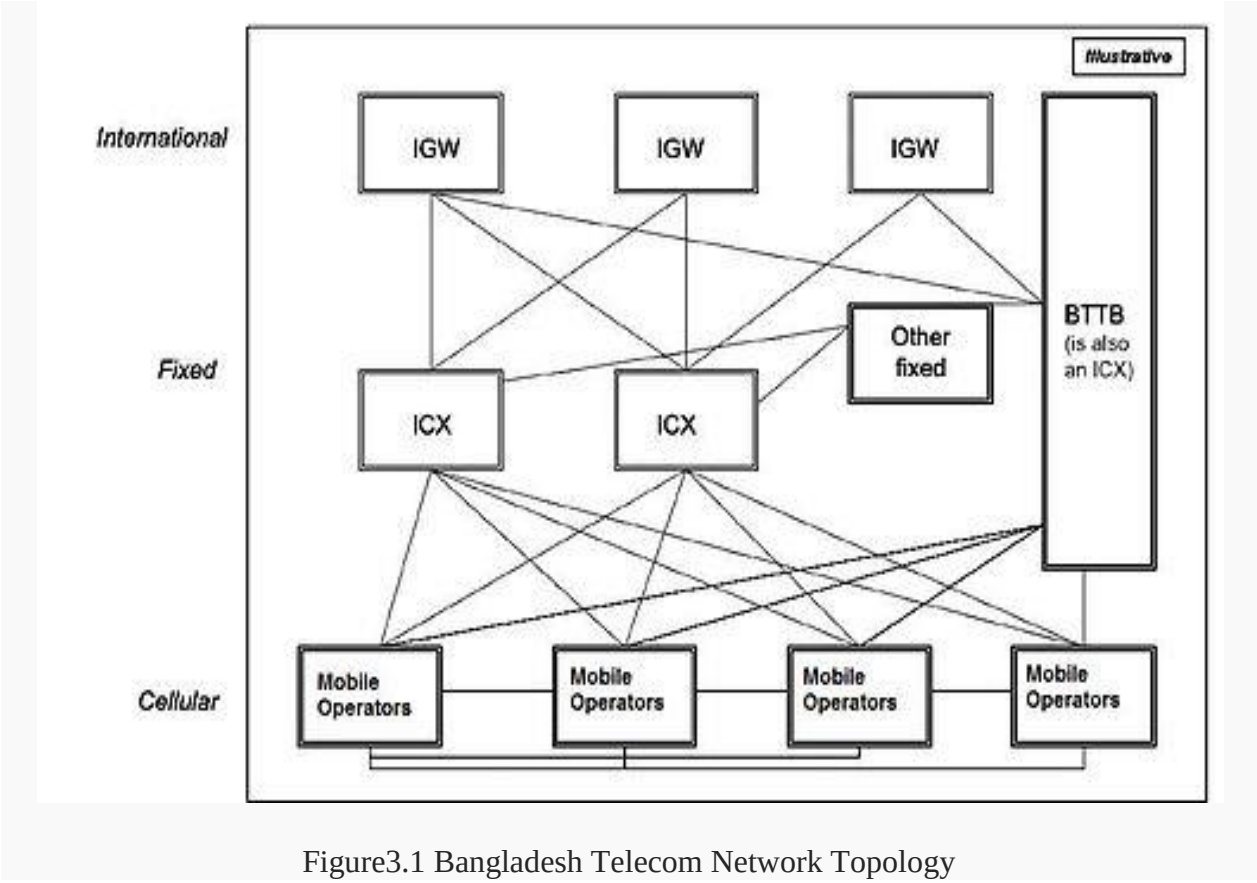

Figure3.1 Bangladesh Telecom Network Topology

As defined in the National Telecommunications Policy 1998 and International Long Distance Telecommunications Services (ILDTS) Policy 2007, all mobile operators is to interconnect through Interconnection Exchange (ICX) and all international calls to be handled by International Gateway (IGW) which is to be connected to the mobile and fixed operators through the ICXs.

The Interconnection Exchange (ICX) will receive all calls from the mobile and fixed operators whenever the call is made to other network and will pass it to the destination network if the call is local, and will pass to the IGWs if the call is international. ICX will also deliver calls received from IGWs where the call is destined [7].

Below illustrate the structure of interconnection between different interfaces.

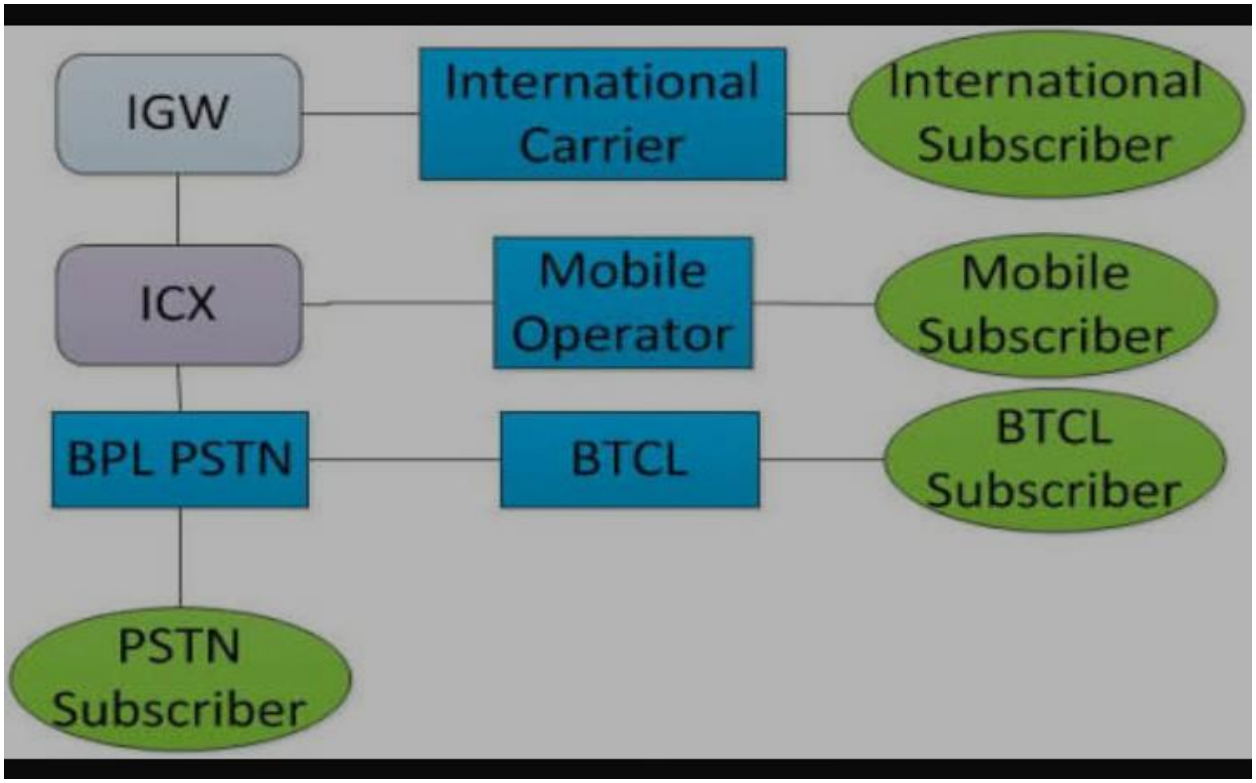

Figure3.2 Relation between IGW to subscriber

3.1.1 Service providers

Public switched telephone network

The number of public switched telephone network (PSTN) subscribers in Bangladesh as of February 2009 was 1.372 million [8]. PSTN operators in Bangladesh include:

- Banglaphone Ltd.
- BTCL
- Integrated Services Limited (ISL) – branded under the name Sheba Phone
- Jalalabad Telecom Ltd. – branded under the name Bijoy Phone
- Onetel Communication Ltd.
- Ranks Telecom Ltd.
- S.A Telecom System Ltd.
- Westec Ltd.
- WorldTel
- Dhaka Telephone Co. Ltd. – *Currently off air, License cancelled by BTRC*
- National Telecom Ltd. – *Currently off air, License cancelled by BTRC*
  - Peoples Telecommunication and Information Services Ltd. – *Currently off air, License cancelled by BTRC*
- Tele Barta Ltd. – branded under the name Jubok phone – *Currently off air*

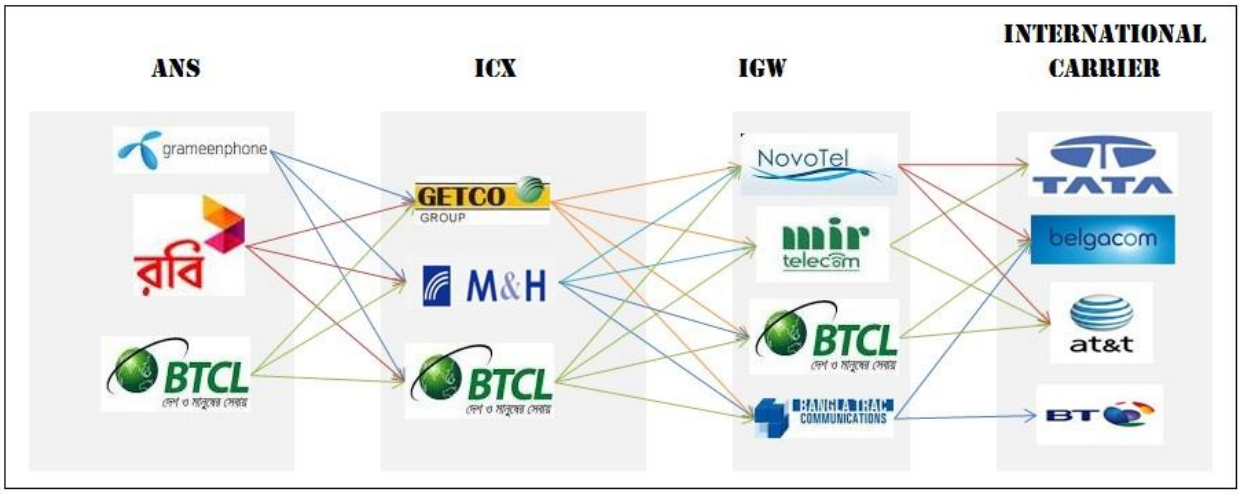

Figure3.3 Relation of ANS ICX IGW and international carrier

3.1.2 Mobile phone operators

There are 6 mobile phone operators in Bangladesh. The number of mobile phone subscribers in Bangladesh as of April 2015 was 124.705 million, having risen from the February 2009 figure of 45.21 million.

Operators
Grameen Phone Ltd. (GP)
Orascom Telecom Bangladesh Limited (Banglalink)
Robi Axiata Limited (Robi)
Airtel Bangladesh Limited (Airtel)
Pacific Bangladesh Telecom Limited (Citycell)
Teletalk Bangladesh Ltd. (Teletalk)

On February 25, 2008 the Bangladesh Telecommunications Regulatory Commission awarded licenses for two Interconnection Exchanges (ICX), three International Gateways (IGW), and one International Internet Gateway (IIG) to six firms through an open auction in February 2008. The incumbent BTTB got the same licenses too. And after then On April 12, 2012 the Bangladesh Telecommunications Regulatory Commission awarded licenses for twenty one Interconnection Exchanges (ICX), twenty two International Gateways (IGW), and thirty International Internet Gateway (IIG) Here is the list of all operators:

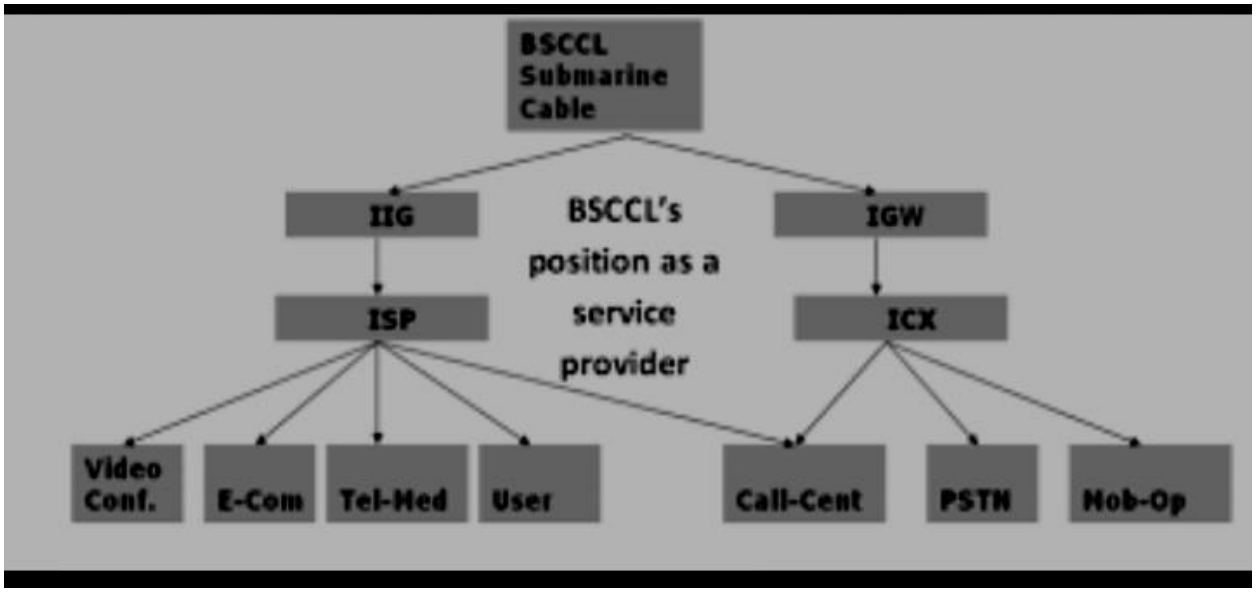

Figure3.4 Two way internet connection

3.2 International Gateway (IGW) operators

1. Mir Telecom LTD
2. 1Asia Alliance Gateway
3. Bangladesh International Gateway
4. CKR International
5. Bangla Trac Communications
6. Bestec Telecom
7. BG Tel
8. BTCL
9. Cel Telecom
10. DBL Telecom
11. DigiCon Telecommunications
12. First Communications
13. Global Voice Telecom
14. HRC Technologies
15. Hub Tel
16. Kay Telecommunications
17. Mos5 Tel
18. Novotel
19. Platinum Communications Ltd
20. RanksTel
21. Ratul Telecom
22. Roots Communication
23. Sigma Engineers

24. SM Communication
25. SongBird Telecom (formerly Hamid Sourcing
26. Telex
27. Unitrac Communications Interconnection Exchange (ICX) operators

3.3 Interconnection Exchange (ICX) operators

1. Summit ICX
2. Bangla Telecom Ltd.
3. BTCL
4. Bangla ICX Ltd.
5. Agni ICX
6. Apex Communication Pvt Ltd
7. CloudTel
8. GAZI Networks Ltd
9. GETCO ICX
10. Imam Network Ltd.
11. Jibondhara ICX
12. M M Communications Ltd.
13. M & H
14. MicroTrade ICX
15. Mother Telecom
16. New Generation Telecom Ltd
17. Paradise ICX
18. Purple Telecom Limited
19. RingTech ICX
20. Cross World Ltd
21. SR Telecom
22. Sheba
23. Softex
24. Tele Exchange Ltd.
25. Teleplus Network Ltd
26. Voicetel Ltd.
27. Bantel Limited.

3.4 International Internet Gateway (IIG) operators

1. 1Asia Alliance Communication
2. Aamra Companies
3. Abir Telecommunication
4. Apple Communication
5. Bangla Phone Ltd
6. bdHUB
7. BD Link Communication
8. BSCCL
9. BTCL
10. Cybergate
11. Delta Infocom
12. Earth Telecommunication
13. Equitel Communications
14. Fiber @ Home
15. Global Fair Communications
16. Greenland Technologies
17. Intraglobe Communications
18. Level3 Carrier
19. Mango Teleservices
20. MaxNet Online
21. NovoCom
22. PeerEx Networks Limited
23. Radiant Communications Limited
24. REGO Communications

3.5 Internet Protocol Telephony Service Provider (IPTSP) operators

On August 18, 2009 the Bangladesh Telecommunications Regulatory Commission commenced awarding licenses for IPTSP. IPTSP operators are regulated by the BTRC. Current IPTSP operators in Bangladesh are:

- Nationwide:

1. Telnet Communication Ltd.
2. Metro Net Bangladesh Ltd, branded as MetroTel (Prefix-09612)
3. Access Telecom (BD) Ltd.
4. ADN Telecom Ltd. (formerly Advanced Data Network Systems Ltd)
5. Agni Systems Ltd.
6. Right soft Systems.
7. Akceycom Ltd.
8. Akij Online Ltd.
9. Bangladesh Export Import Company Ltd.

10. Bangladesh Internet Exchange Ltd.
11. BDCOM Online Ltd.
12. BEXIMCO AND SQUARE
13. BRACNet Ltd.
14. Broad Band Telecom Services Ltd.
15. BTS Communications (BD) Ltd., branded as UbernetBD
16. Communication One (Pvt.) Ltd.
17. Connect BD Ltd.
18. Cyber Net Communications
19. DhakaCom Ltd.
20. Digital Connectivity Ltd.
21. ERGO Ventures Ltd.
22. Global Access Ltd.
23. HRC Technologies Ltd.
24. Idea Networks and Communications Ltd.
25. IDS Bangladesh
26. Information Services Network Ltd.
27. Innovative Online Ltd.
28. InterCloud Ltd.
29. IS PROS Ltd.
30. MaxNet Online
31. Link3 Technologies Ltd. (prefix-09678)
32. Nreach Net (Pvt.) Ltd.
33. Pritty International (Pvt) Ltd.
34. Ranks ITT Ltd.
35. Royal Green Online Ltd.
36. X-Net Ltd.
37. TeleBangla Communications Ltd.
38. RED Data (Pvt) Ltd.

- Central:

1. Fusion Net
2. Grameen Cybernet Ltd.
3. IT Connect Ltd.
4. J F Optical Services
5. M/s. Media & Multimedia
6. Next Online Ltd. (Nextfone)
7. SADIATEC Ltd.
8. Sine-10 (BD) Ltd.

- Zonal:

1. Chittagong Online Ltd.
2. Chittagong Telecom Services Ltd.
3. First n Fast IT Ltd.
4. HN TELECOM

3.6 International Terrestrial Cable (ITC) operator

1. 1Asia Alliance Communication
2. BD Link Communication Ltd
3. Fiber @ Home
4. Mango Teleservices
5. NovoCom
6. Summit Communications

3.7 Internet

The first connectivity in Bangladesh with the internet was in 1996. Though it was somewhat late, over the past few years growth has been rapid. The government's high internet tariff is impeding the growth of this sector. Recently the government has decided to reduce the tariff 50%.

The internet country code of Bangladesh is .bd.

As of 2005 more than 180 Internet Service Providers are operating in the country. ISP's are regulated by the Bangladesh telecommunication regulatory commission (BTRC).

The number of internet users in Bangladesh as of March 2009 is over 600,000, compared to 100,000 in 2000. However, only 0.3% of the population uses the internet, thus making Bangladesh the lowest usage percentage per population of the internet in the world with the exception of North Korea, Myanmar and Sierra Leone.

In April 2010 Akhtaruzzaman Manju, president of the Internet Service Providers' Association of Bangladesh, told Xinhua that the country's six cell phone operators and Internet Service Providers have so far provided over 800,000 internet connections. "We've estimated that nearly 10 million people in the country are using 800,000 internet connections on a shared basis," he said, adding the number of internet users in the country is increasing yearly by around 15–16 percent.

A 2009 study by the Boston Consulting Group found that the number of Internet subscribers in Bangladesh is likely to reach 18.3 million by the year 2020, equivalent to a 32 percent household Internet penetration, which will result in a 2.6 per cent contribution to the country’s GDP while creating 129,000 more jobs, the research added.

3.8 Broadband Internet access

Though broadband internet access is available, the cost of high speed connection is higher than in other south Asian countries. Broadband internet and e-commerce in Bangladesh is slowly progressing. WiMAX service is now available from some internet service providers. In Bangladesh broadband is legally defined as 128/128 Kbit/s, which is not in line with ITU standards.

The ISPs currently providing broadband services in Bangladesh are:

- Banglalion
- Metro Net Bangladesh Ltd
- Infocom Limited

3.9 International

There are 3 satellite earth stations. Talimabad, Betbunia and mohakhali. Bangladesh will send its first ever satellite Bangabandhu-1into space in 2015.

3.10 Submarine cables

Bangladesh is connected to SEA-ME-WE 4 or South-East Asia – Middle East – Western Europe 4. The landing site of the Bangladesh branch is located at Cox's Bazaar. Bangladesh is also a member of the proposed SEA-ME-WE 5, which will provide another submarine cable connectivity for the country when its submarine cable is implemented within a couple of years. The company, BSCCL is the only submarine cable operator in Bangladesh.

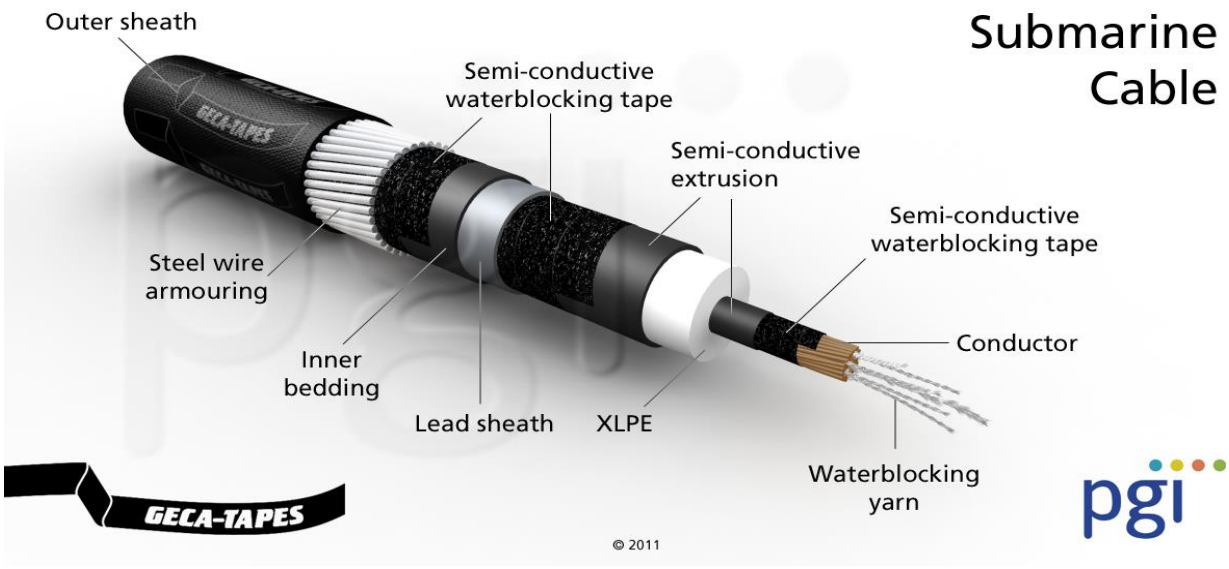

Figure3.6 submarine cable

The following Table depicts the present scenario of telecommunication transmission network

Company	Length of Cables KM	District Covered	No. of Drop-off Points	Average Utilization(%)
BTCL	1806(+650)	36(STM-4, STM-64 Capacity)	44	
Grameenphone	2251	36 (All divisions covered)	49	51
Banglalink	1802	23(Strong in Khulna and Barisal)	43	39
Citycell	1134	17 (Except Barisal Division)	33	32.24
Robi Axiata Limited	682	Robi Axiata Limited, 53 Gulshan South AvenueGulshan-1, Dhaka-1212	21	44
Railway (Leased by GP)	2014	34(Except Barisal Division)	66	52
PGCB(Used by GP)	413	5(Dhk- Ctg, Cox's Bazar Route)	19	42
PGCB	3314	Countrywide(STM- 1, STM-4 Capacity)	115	-
Teletalk	160	9	8	-
Fiber@Home	1200	23	90(in progress)	-
Total	14776	59	490	-

Figure3.7 The present scenario of telecommunication transmission network

Chapter 4

BTCL_IOS

CDR-call details record

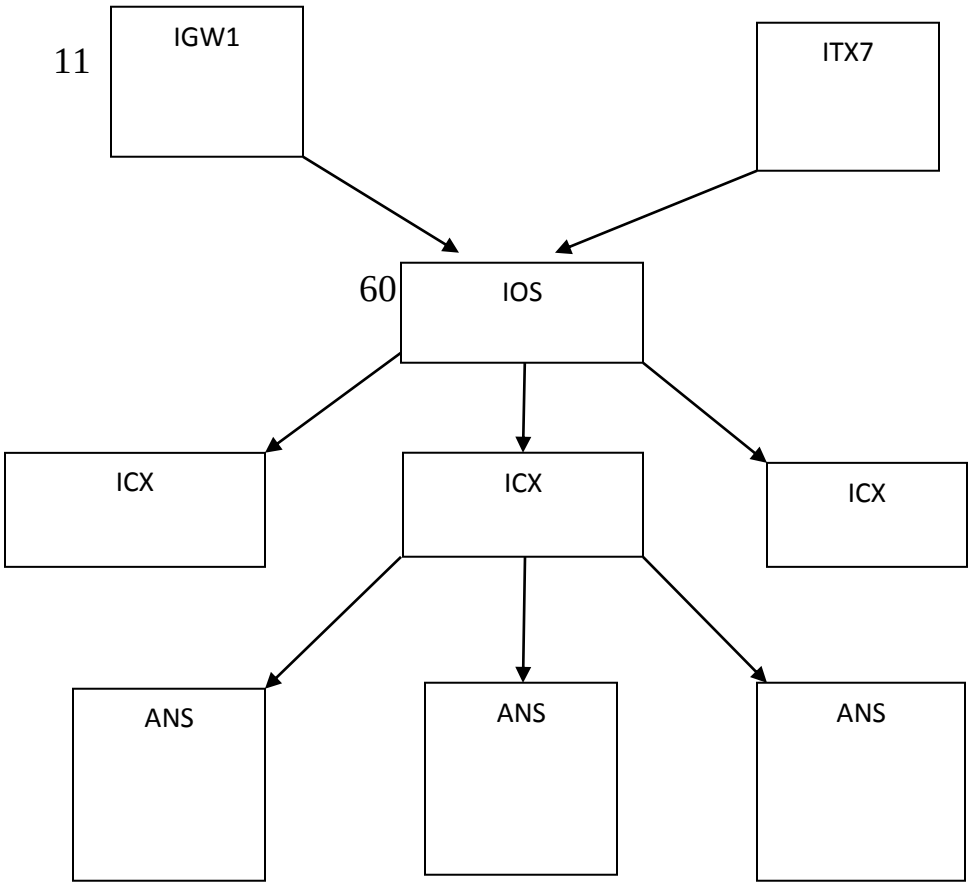

Figure4.1 call details record

+++ BTCL_IOS 2016-10-05 11:02:51+06:00

O&M #2804697

%%DSP OFTK: LT=TG, DT=ISUP;%%

RETCODE = 0 Operation succeeded

Soft Switch Dual-Home Work Mode

DH Work Mode

Assist Deactive

4.1 Trunk module

Trunk of module 22

Status of trunk circuits	Number of trunk circuits	Percentage
Free	4909	41.93%
Busy	4848	41.41%
Block	0	0.00%
Unknown or locked	0	0.00%
Fault	1951	16.66%
Installation number	11708	100.00%

(Number of results = 6)

Trunk of module 23

Status of trunk circuits	Number of trunk circuits	Percentage
Free	4985	42.57%
Busy	4771	40.75%
Block	1	0.01%
Unknown or locked	0	0.00%
Fault	1952	16.67%
Installation number	11709	100.00%

(Number of results = 6)

Trunk of module 24

Status of trunk circuits	Number of trunk circuits	Percentage
Free	5780	49.36%
Busy	5929	50.63%
Block	0	0.00%
Unknown or locked	0	0.00%
Fault	1	0.01%
Installation number	11710	100.00%

(Number of results = 6)

Trunk of module 25

Status of trunk circuits	Number of trunk circuits	Percentage
Free	5552	47.42%
Busy	6155	52.58%
Block	0	0.00%
Unknown or locked	0	0.00%
Fault	0	0.00%
Installation number	11707	100.00%

(Number of results = 6)

Sum of trunk

Status of trunk circuits	Number of trunk circuits	Percentage
Free	21226	45.32%
Busy	21703	46.34%
Block	1	0.00%
Unknown or locked	0	0.00%
Fault	3904	8.34%
Installation number	46834	100.00%

(Number of results = 6)

--- END

+++ BTCL_IOS 2016-10-05 11:03:06+06:00

O&M #2804699

%%DSP TGCALL: TG=2000;%%

RETCODE = 0 Operation succeeded

H323 or SIP Trunk Group Calling Number

Trunk group number = 2000

Trunk group name = MOH_IGW1_SIP

Module number = 65535

Calling number = 2413

--- END

4.2 BTCL TRUNK

+++ BTCL_IOS 2016-10-05 11:00:39+06:00

O&M #2804688

%%LST TG: SSR=YES, SRT=YES, SOF=YES, SL=YES, SC=YES, SS=YES, SOT=YES, CLRDSP=YES, STGAP=YES, SCAC=YES, DIFF=YES, DCMI=YES;%%

RETCODE = 0 Operation succeeded

No7 Trunk Group

Trunk group number Trunk group name OPC DPC Network indicator Master/Slave flag

1000	SBN_ICX-1000	00117D	001108	National network	Master
1010	MOG_ITX6-1010	00117D	00116C	National network	Master
1020	MOH_ICX-1020	00117D	001166	National network	Master
1030	MOH_ITX7-1030	00117D	00116D	National network	Master
1040	MOH_IGW1-1040	00117D	00117F	National network	Master
1050	MOH_ICX-1050	00117D	001135	National network	Master
1060	MOH_ITX7-1060	001165	00116D	National network	Master
1070	MOG_ITX6-1070	001165	00116C	National network	Master
1080	SBN_ICX-1080	00117D	001121	National network	Master
1090	MOH_IGW1-1090	001165	00117F	National network	Master
2010	MOH_ICX-2010	001165	001166	National network	Master
2020	SBN_ICX-2020	001165	001108	National network	Master
2030	MOH_ICX-2030	001165	001135	National network	Master
2040	MOH_ICX-2040	001165	001132	National network	Master
2050	MOH_IGW1-2050	001165	00116B	National network	Master

(Number of results = 15)

No7 Trunk Group (Continue)

Trunk group number	Circuit type	Group direction	Sub-route number	Sub-route name	Master/Slave flag
1000	ISUP	Bidirectional trunk	100	SBN_ICX	Master
1010	ISUP	Bidirectional trunk	110	MOG_ITX6	Master
1020	ISUP	Bidirectional trunk	120	MOH_ICX	Master
1030	ISUP	Bidirectional trunk	130	MOH_ITX7	Master
1040	ISUP	Bidirectional trunk	140	MOH_IGW1	Master
1050	ISUP	Bidirectional trunk	150	MOH_ICX_1135	Master
1060	ISUP	Bidirectional trunk	160	MOH_ITX7_2nd	Master
1070	ISUP	Bidirectional trunk	170	MOG_ITX6_2nd	Master
1080	ISUP	Bidirectional trunk	180	SBN_ICX_1121	Master
1090	ISUP	Bidirectional trunk	190	MOH_IGW1_3	Master
2010	ISUP	Bidirectional trunk	210	MOH_ICX_1165-1166	Master
2020	ISUP	Bidirectional trunk	220	SBN_ICX_5TH	Master
2030	ISUP	Bidirectional trunk	230	MOH_ICX_1165-1135	Master
2040	ISUP	Bidirectional trunk	240	MOH_ICX_1165-1132	Master
2050	ISUP	Bidirectional trunk	250	MOH_IGW1_5TH	Master

(Number of results = 15)

Other Trunk Group Info

Trunk group number Trunk group name Circuit type Group direction Sub-route number Sub-route name Master/Slave flag

440	SIP_TG	SIP	Bidirectional trunk	65535	NULL	Not Configure
550	SIP_TG	SIP	Bidirectional trunk	65535	NULL	Not Configure
2000	MOH_IGW1_SIP	SIP	Bidirectional trunk	200	MOH_IGW1_SIP	Master

(Number of results = 3)

--- END

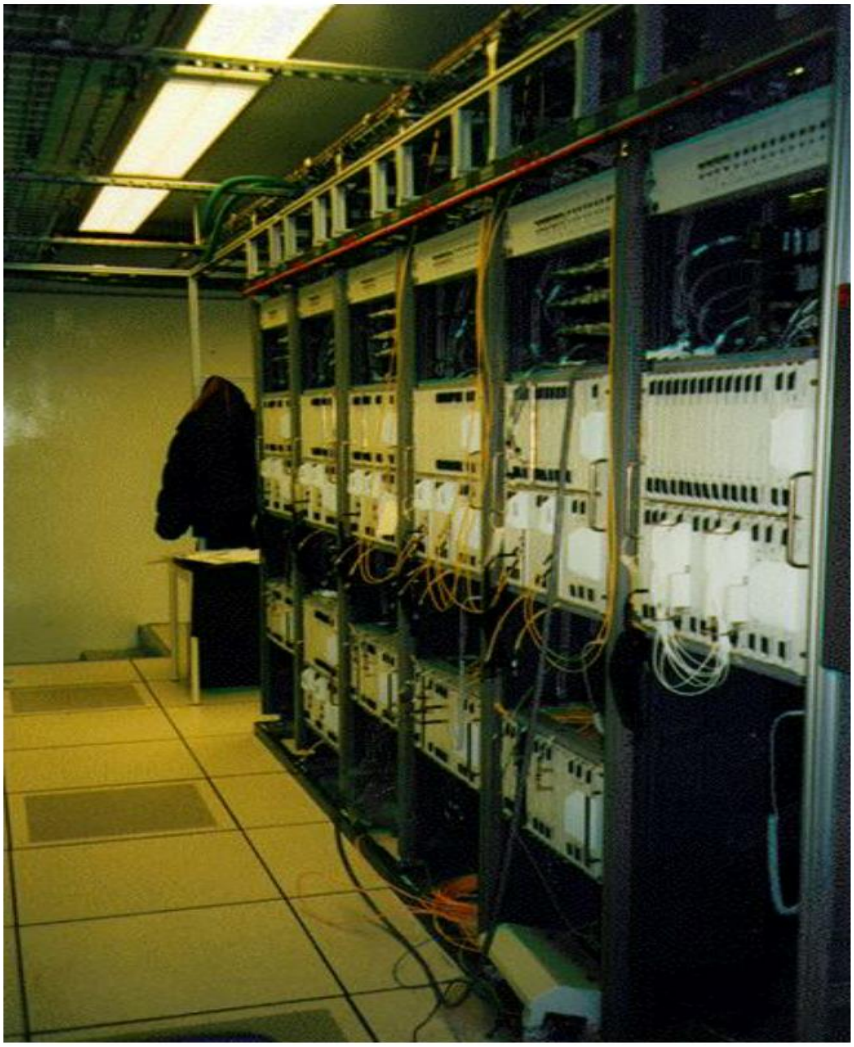

Figure 4.1 IOS in BTCL

4.3 Trunk Route Name

Route No.	Route Name
1	BTCL_ICX
2	BTCL_ITX&IGW
3	BTCLICX_to_IGW1&ITX7
4	BTCL_ICX_SBN_MKH1_MKH2
5	BTCL_ICX_SBN1_MKH1_MKH2
6	BTCLICX_to_IGW1&ITX6_MALAYSIA
7	BTCLICX_to_IGW1&ITX6_QATAR
8	BTCLICX_to_IGW1_BOTH_TDM
9	BTCLICX_to_ITX6&ITX7_KSA
10	SBN_ICX
11	MOG_ITX6
12	MOH_ICX
13	MOH_ITX7
14	MOH_IGW1
15	MOH_ICX_1135
16	MOH_ITX7_2nd
17	MOG_ITX6_2nd
18	SBN_ICX_1121
19	MOH_IGW1_3
20	BTCLICX_to_IGW1&ITX6
21	MOH_ICX_1165-1166
22	SBN_ICX_5TH
23	MOH_ICX_1165-1135
24	MOH_ICX_1165-1132
25	MOH_IGW1_5TH
31	BTCLICX_to_IGW&ITX6&ITX7_UAE
32	BTCL_ICX_to_IGW1&ITX6_CHINA
33	BTCLICX_to_IGW1&ITX6_Singapore
44	Office_44
55	Office_55

(Number of results = 30)

Sub-node

```
--------
          Route No.  =  1
         Route Name  =  BTCL_ICX
 1st sub-route type  =  sub-route
      1st sub-route  =  120
  1st sub-node name  =  MOH_ICX
 2nd sub-route type  =  sub-route
      2nd sub-route  =  100
  2nd sub-node name  =  SBN_ICX
 3rd sub-route type  =  sub-route
      3rd sub-route  =  None
  3rd sub-node name  =  NULL
 4th sub-route type  =  sub-route
      4th sub-route  =  None
  4th sub-node name  =  NULL



          Route No.  =  2
         Route Name  =  BTCL_ITX&IGW
 1st sub-route type  =  sub-route
      1st sub-route  =  140
  1st sub-node name  =  MOH_IGW1
 2nd sub-route type  =  sub-route
      2nd sub-route  =  110
  2nd sub-node name  =  MOG_ITX6
 3rd sub-route type  =  sub-route
      3rd sub-route  =  130
  3rd sub-node name  =  MOH_ITX7
 4th sub-route type  =  sub-route
      4th sub-route  =  None

          Route No.  =  3
         Route Name  =  BTCLICX_to_IGW1&ITX7
 1st sub-route type  =  sub-route
      1st sub-route  =  140
  1st sub-node name  =  MOH_IGW1
 2nd sub-route type  =  sub-route
      2nd sub-route  =  130
  2nd sub-node name  =  MOH_ITX7
 3rd sub-route type  =  sub-route
      3rd sub-route  =  None
  3rd sub-node name  =  NULL

          Route No.  =  4
         Route Name  =  BTCL_ICX_SBN_MKH1_MKH2
 1st sub-route type  =  sub-route
      1st sub-route  =  100
  1st sub-node name  =  SBN_ICX
 2nd sub-route type  =  sub-route
      2nd sub-route  =  120
  2nd sub-node name  =  MOH_ICX
 3rd sub-route type  =  sub-route
```

```
     3rd sub-route  =  150
 3rd sub-node name  =  MOH_ICX_1135
4th sub-route type  =  sub-route
     4th sub-route  =  180
 4th sub-node name  =  SBN_ICX_1121
5th sub-route type  =  sub-route
     5th sub-route  =  220
 5th sub-node name  =  SBN_ICX_5TH
6th sub-route type  =  sub-route
     6th sub-route  =  None
 6th sub-node name  =  NULL


         Route No.  =  5
        Route Name  =  BTCL_ICX_SBN1_MKH1_MKH2
1st sub-route type  =  sub-route
     1st sub-route  =  100
 1st sub-node name  =  SBN_ICX
2nd sub-route type  =  sub-route
     2nd sub-route  =  120
 2nd sub-node name  =  MOH_ICX
3rd sub-route type  =  sub-route
     3rd sub-route  =  150
 3rd sub-node name  =  MOH_ICX_1135
4th sub-route type  =  sub-route
     4th sub-route  =  180
 4th sub-node name  =  SBN_ICX_1121
5th sub-route type  =  sub-route
     5th sub-route  =  220
 5th sub-node name  =  SBN_ICX_5TH


         Route No.  =  6
        Route Name  =  BTCLICX_to_IGW1&ITX6_MALAYSIA
1st sub-route type  =  sub-route
     1st sub-route  =  110
 1st sub-node name  =  MOG_ITX6
2nd sub-route type  =  sub-route
     2nd sub-route  =  170
 2nd sub-node name  =  MOG_ITX6_2nd
3rd sub-route type  =  sub-route
     3rd sub-route  =  140
 3rd sub-node name  =  MOH_IGW1
```

4.4 Call Tracking:

```
                                net_type  =  fixed network bill
                              bill_type  =  Detailed ticket
                  partial_record_indicator  =  single record
                           valid_indicator  =  valid bill
                          clock_indicator  =  No
                           free_indicator  =  charging
                    call_attempt_indicator  =  free call attempt
                        complain_indicator  =  no complaint
                            cama_indicator  =  non-centralized
charging
                       is_credit_indicator  =  non-credit call
                             hot bill flag  =  not hot bill
                    charge_party_indicator  =  charging incoming trunk
                                start_time  =  2016-10-04 00:33:14.41
                 conversation_time(10ms)  =  453
                               end_time  =  2016-10-04 00:33:18.94
                            caller_dnset  =  0
                     caller_address_nature  =  international number
                             caller_number  =  971503819780
                              called_dnset  =  0
                       called_address_nature  =  international number
                             called_number  =  601101879763873
                caller_centrex_group_number  =  65535
                          caller_ctx_number  =  -
                          called_ctx_number  =  -
                             trunk_group_in  =  2050
                            trunk_group_out  =  1000
                          caller_device_type  =  DID_ISUP
                          called_device_type  =  DID_ISUP
                             caller_category  =  Ordinary Call
                             called_category  =  Unknown
                                   call_type  =  tandem
                                Service_Type  =  international toll
                           termination_code  =  NORMAL_CALL_CLEAR
                          terminating_reason  =  peer caller release
                                   CallerSrc  =  25
                                   CalledSrc  =  10
                 supplementary_service_type  =  NEW SERVICE BUTT
                              charging_case  =  0
                                pulse_count  =  1
                            connected_dnset  =  0
                  connected_address_nature  =  international number
                          connected_number  =  601101879763873
                              charge_dnset  =  65535
                     charge_address_nature  =  reserved
                             charge_number  =  -
                            bearer_service  =  circuit,bearer 3.1KHZ
voice
                              dialed_number  =  001101879763873
                            partial_counter  =  1
                              Module_number  =  22
                              caller_module  =  22
```

```
                                called_module  =  23
                              partial_counter  =  1
                                    Local_csn  =  121432
                                  Service_key  =  4294967295
                                Caller trunk CIC  =  3841
                                Called trunk CIC  =  3507
                                    connect_flag  =  connected
                           Query_SHLR_failure_flag  =  No
                                     Answer_flag  =  answer
                                   SCP_fail_flag  =  NO
                                    AS_fail_flag  =  NO
                              Caller_VPN_indicator  =  caller is not VPN user
                         Global Call Reference flag  =  GCR is created by local
offic
                                  route_number_low  =  10
                                  sub_route_number  =  100
                              Incoming_route_identify  =  250
                              Outgoing_route_identify  =  100
                         called_centrex_group_number  =  65535
                                  Release_position  =  253
                                 route_number_high  =  0
                                     WAC_indicator  =  No
                                    CLI_rec_flux_H  =  00000000
                                    CLI_rec_flux_L  =  00000000
                                    CLI_snt_flux_H  =  00000000
                                    CLI_snt_flux_L  =  00000000
                                    CLD_rec_flux_H  =  00000000
                                    CLD_rec_flux_L  =  00000000
                                    CLD_snt_flux_H  =  00000000
                                    CLD_snt_flux_L  =  00000000
                               CallerGK_or_SoftX3000  =  10.10.100.4
                                CallerGW_or_Terminal  =  10.10.100.8
                               CalleeGK_or_SoftX3000  =  10.10.100.4
                                CalleeGW_or_Terminal  =  255.255.255.255
                                      caller_Roam_IP  =  255.255.255.255
                                      called_Roam_IP  =  255.255.255.255
                                  caller_Roam_Mode  =  unknown
                                  called_Roam_Mode  =  unknown
                     caller_local_dnset_before_change  =  0
                caller_address_nature_before_change  =  international number
                        caller_number_before_change  =  971503819780
                     callee_local_dnset_before_change  =  0
                callee_address_nature_before_change  =  international number
                        called_number_before_change  =  601101879763873
                                    ingress_MG_ID  =  10.10.100.8:2944
                                     egress_MG_ID  =  10.10.100.8:2944
                           caller_seize_duration  =  1933
                           called_seize_duration  =  1922
                                             OPC  =  0000116B
                                             DPC  =  00001108
                         TMG_Circuits_seizure_time  =  2016-10-04 00:32:59
                         TMG_Circuits_release_time  =  2016-10-04 00:33:18
                    Start_Date_and_Time_of_Call_Setup  =  2016-10-04 00:32:59
                              call_setup_duration  =  19
```

```
                              Incoming_Route_ID  =  MOH_IGW1-2050
                              Outgoing_Route_ID  =  SBN_ICX-1000
                              local_switch_name  =  BTCL_IOS
                                local_Time_Zone  =  19
                                            CAC  =  -
                               PayerShortNumber  =  -
                                        balance  =  0
                    Ingress_Occupied_Time_Slot  =  1
                     Egress_Occupied_Time_Slot  =  19
                              Caller_Time_Zone  =  255
                              Called_Time_Zone  =  255
                             caller_port_number  =  7873
                             called_port_number  =  5523
                Outgoing_Traffic_Dispersion_ID  =  -
                Incoming_Traffic_Dispersion_ID  =  -
                    Calling_SS_during_the_call  =  00 00 00 00 00 00 00
                                   teleservice  =  unknown
                                    UUS1_count  =  0
                                    UUS2_count  =  0
                                    UUS3_count  =  0
                           post_delay_metering  =  1480
                        Packetization_time(ms)  =  255
         National/international_call_indicator  =  treated as
international call
                  End_to_end_method_indicator  =  no end-to-end available
                       Interworking_indicator  =  no interworking
encountered
              End_to_end_information_indicator  =  no end-to-end info
available
           ISDN_user_part_preference_indicator  =  preferred all the way
                         SCCP_method_indicator  =  no indication
                         ISDN_Release_Location  =  public net. ser.
user(LN)
                                  Packet_loss  =  -
                            PSTN_ISDN_indicator  =  spare
                  ISUP_charge_number_indicator  =  Caller number
                         Connected_number_type  =  no forwarded
                               ISDN_capability  =  Reserved
                          Time_restricted_flag  =  NO
                                       IN_flag  =  ordinary bill of
ordinary cal
                               hongkong_NP_flag  =  non-NP call
                                charging_method  =  Detailed ticket
                    incomplete_call_watch_type  =  No watch
                            caller_ISDN_access  =  Terminal access non
ISDN
                            called_ISDN_access  =  Terminal access is ISDN
                               ISUP_indication  =  ISUP all way
                                         B_num  =  1
                              Caller_CLIR_flag  =  not restrict
          international_transit_call_indicator  =  not internation.
transit cal
          Calling_Party_Category_Before_Change  =  OrdinaryCall
                               Expand_Call_Type  =  National Transit
```

```
                                  Billed_party  =  local call
                                    Service_ID  =  unknown
                                           MCE  =  NULL
                                IP_release_cause  =  65535
                            Caller_equipment_type  =  UMG
                                 org_called_dnset  =  65535
                          org_called_address_nature  =  unknown
                                     org_number  =  -
                                redirecting_dnset  =  65535
                         redirecting_address_nature  =  unknown
                                redirecting_number  =  -
                                   SHLR_MON_Route  =  -
                                SHLR_MON_Operation  =  -
                               caller_WLL_user_type  =  unknow WLL user
                               callee_WLL_user_type  =  unknow WLL user
                   caller_WLL_home_area_information  =  ?????
                  caller_WLL_visit_area_information  =  ?????
                   Callee_WLL_home_area_information  =  ?????
                  callee_WLL_visit_area_information  =  ?????
                   Outgoing_Route_Message_Indicator  =  Void Value
                     Outgoing_Trunk_Group_ID_Number  =  65535
                     Incoming_Trunk_Group_ID_Number  =  65535
                                         IN_CallID  =  00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00
                               Originating Line Info  =  InvalidValue
                                       alerting time  =  2016-10-04 00:33:03.71
                        Caller number plan indicator  =  ISDN numbering plan
                Caller address restricted indicator  =  presentation allowed
                          Caller screening indicator  =  network provided
                        Called number plan indicator  =  ISDN numbering plan
                   Redirecting number plan indicator  =  ISDN numbering plan
           Redirecting address restricted indicator  =  presentation allowed
              Original called number plan indicator  =  ISDN numbering plan
    Original called address restricted indicator  =  presentation allowed
                         Charge_indicator_in_Signal  =  Charge
              local_dnset_of_caller_physical_number  =  0
           address_nature_of_caller_physical_number  =  international number
                           caller_physical_number  =  971503819780
              local_dnset_of_callee_physical_number  =  0
           address_nature_of_callee_physical_number  =  national valid number
                           callee_physical_number  =  001101879763873
               local_dnset_redirecting_physical_num  =  65535
            address_nature_redirecting_physical_num  =  Unknown
                        redirecting_physical_number  =  -
                local_dnset_MON_caller_physical_num  =  65535
             address_nature_MON_caller_physical_num  =  Unknown
                        MON_caller_physical_number  =  -
                local_dnset_MON_callee_physical_num  =  65535
          address_nature_MON_callee_physical_number  =  Unknown
                        MON_callee_physical_number  =  -
                                       Bear_Mode  =  Audio Mode
                                audio_codec_type  =  NULL
                                video_codec_type  =  NULL
                                    Max_Bit_Rate  =  65535
```

```
                                Conference_ID  =  FF FF FF FF
                RouteTree_Congestion_Tone_type  =  None
                           Global Call Reference  =
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
                    Acoustic_Echo_Cancellation  =  no enhanced
                                            NC  =  no enhanced
                                            NR  =  no enhanced
                        Automatic_Gain_Control  =  no enhanced
                                          rate  =  1.0000000000
                                           fee  =  1.0000000000
       The_first_service_access_code_from_SHLR  =  -
                           ans_partial_CDR_time  =  -
                                Disconnect_Time  =  -
                               Receive_CPG_Time  =  -
                                     ICID-value  =  -
                                ICID-generated-at  =  0.0.0.0
                                            TC  =  not charge
                                            OC  =  not charge
                          Complete_call_indicator  =  incomplete call
                                Restart_Indicator  =  no system restart occur
                                  Timer_Indicator  =  no timer set occur
                                 Forced_Indicator  =  normal release
                           Presentation_Indicator  =  presentation allowed
        Calling_party_numbering_plan_indicator  =  spare
         Called_party_numbering_plan_indicator  =  spare
                                 ISDN_Indicator  =  ISUP preference all way
                           Calling_Party_Category  =  unknown source
                              Originating_Address  =  0.0.0.0
                              Terminating_Address  =  0.0.0.0
                                      Date_Seized  =  2000-00-00 00:00:00
                                              TMR  =  speech
                                             ABNP  =  000000000000
                                        Calling_NN  =  -
                                          Called_NN  =  -
                                       ISDNCallFlag  =  ISDN call infor is not
valid
                            SwitchedVideiCallFlag  =  SVC call infor not
valid
                             Forwarding Call Flag  =  Fowarding Info is not
valid
                                    ISDN_Call_Type  =  outgoing call
                                  Bearer_Services  =  speech
                                  Number_with_UUI  =  0
                                        Total_UUI  =  0
                                Calling_Sub_address  =  -
                                 Called_Sub_address  =  -
                                    Video_Indicator  =  not a conference call
                                                OCN  =  -
                                      OCN_Indicator  =  presentation allowed
                                OCN_Numbering_Plan  =  spare
                                       OCN_Address  =  subscriber number
                  Incoming trunk group meter flag  =  NO
                  Outgoing trunk group meter flag  =  NO
              Incoming trunk group type of usage  =  network usage
```

```
            Outgoing trunk group type of usage  =  network usage
                                           RGN  =  -
                                 RGN_Indicator  =  presentation allowed
                               RGN_Numbering_Plan  =  spare
                                     RGN_Address  =  subscriber number
                                Redirection_Counter  =  0
                                    Original_Reason  =  unknown
                                 Redirecting_Reason  =  unknown
                                           OCA  =  -
                                   OCA_Address  =  -
                              InternationalCallFlag  =  International Info not
valid
                                   FreephoneFlag  =  Freephone Info not
valid
                               AutomaticDODCallFlag  =  AutoDOD Call is not
valid
                           AutomaticCollectCallFlag  =  AutoCollect is not
valid
                              AccoutCodeServiceFlag  =  AccoutCodeService not
valid
                                   BICAServiceFlag  =  BICAService is not
valid
                                         Prefix  =  -
                                    Sub-category  =  -
                                        Route_ID  =  0
                                    OI_Indication  =  international
(outgoing)
                                   FreephoneNumber  =  -
                                Re-translatedNumber  =  -
                                       CountryCode  =  -
                                        CardNumber  =  00000000000000000000
                                    RoutingNumber  =  0000000000
                                    AutomaticHome  =  not third country call
                                       CustomerID  =  -
                                         ACS_Type  =  ACS with PIN
                                     AccountCode  =  -
                                HotBillingIndication  =  not hot billing
                                      BICACallType  =  normal access
                              ACSRequiredIndication  =  not required
                                           UserID  =  -
                                TranslatedNumber  =  -
                                     BICA_Number  =  -
                         Incoming trunk group PRA ID  =  -
                         Outgoing trunk group PRA ID  =  -
                    Incoming trunk group interface ID  =  65535
                    Outgoing trunk group interface ID  =  65535
                                Trunk Class Billing  =  3
                          Ingress charge indicator  =  charge to ingress trunk
                           Egress Charge Indicator  =  charge to egress trunk
                                   Incoming_BRA_ID  =  -
                                   Outgoing_BRA_ID  =  -
                       Incoming_trunk_default_number  =  888888888888
                                       Tone_type  =  none
                           Source_Signal_IP_Address  =  10.10.100.8
```

```
                  Destination_Signal_IP_Address  =  10.10.100.8
                  Outgoing_SIP_Trunk_Group_Type  =  unknown
                  Incoming_SIP_Trunk_Group_Type  =  unknown
                1st_Outgoing_Trunk_Group_Number  =  65535
                2st_Outgoing_Trunk_Group_Number  =  65535
                3st_Outgoing_Trunk_Group_Number  =  65535
                                Network_Retry  =  no network retry
                            H223&H245_Indicator  =  No indicator received
                             Caller_Packet_Loss  =  4294967295
                                  Caller_Jitter  =  4294967295
                                   Caller_Delay  =  4294967295
                             Called_Packet_Loss  =  4294967295
                                  Called_Jitter  =  4294967295
                                   Called_Delay  =  4294967295
                             Redirection_Number  =  -
                          Redirection_Number_Type  =  unknown
                                       Caller Call-ID  =
00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000
00000000000000000000000000000000000000000000000000
                                       Called Call-ID  =
00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000
00000000000000000000000000000000000000000000000000
                              Caller IMSI number  =  -
                              Caller roam number  =  -
                              Called IMSI number  =  -
                              Called roam number  =  -
```

4.5 Route details

```
+++    BTCL_IOS        2016-10-05 10:54:58+06:00
O&M    #2804661
%%LST RT: SSR=YES, SRA=YES, SOFC=YES, SPFX=YES;%%
RETCODE = 0  Operation succeeded
```

Relative route analysis

```
               Route Analysis Name  =  MOHITX7_to_MOHICX_Airtel
                 Route Select Code  =  160
          Route Select Source Code  =  13
               Incoming Trunk Type  =  All categories
          Destination Access Class  =  All categories
                      Prefix Index  =  254
                      Sub Category  =  65534
                 Service attribute  =  All categories
                   Caller Category  =  All categories
Nature of callee address indicator  =  All number
                     Caller Access  =  All categories
           Transmission Capability  =  All categories
                        Time index  =  0
                  Time Index Flag  =  Time index mode
                Time Segment Index  =  65534
```

```
                    Active Status  =  Active
                     Route number  =  12
                       Route Name  =  MOH_ICX
          First Sel Control Signal  =  Prefer to select ISUP
        Customize subscriber type  =  All type
      Called Number Plan Indecitor  =  All number plan id
                 Master/Slave type  =  Master
                          Is PRADDI  =  0

               Route Analysis Name  =  MOHITX7_to_MOHICX_GP
                 Route Select Code  =  170
          Route Select Source Code  =  13
               Incoming Trunk Type  =  All categories
          Destination Access Class  =  All categories
                      Prefix Index  =  254
                      Sub Category  =  65534
                 Service attribute  =  All categories
                   Caller Category  =  All categories
Nature of callee address indicator  =  All number
                     Caller Access  =  All categories
           Transmission Capability  =  All categories
                        Time index  =  0
                   Time Index Flag  =  Time index mode
                Time Segment Index  =  65534
                     Active Status  =  Active
                      Route number  =  12
                        Route Name  =  MOH_ICX
          First Sel Control Signal  =  Prefer to select ISUP
        Customize subscriber type  =  All type
      Called Number Plan Indecitor  =  All number plan id
                 Master/Slave type  =  Master
                          Is PRADDI  =  0

               Route Analysis Name  =  MOHITX7_to_SBNICX_Banglalink
                 Route Select Code  =  190
          Route Select Source Code  =  13
               Incoming Trunk Type  =  All categories
          Destination Access Class  =  All categories
                      Prefix Index  =  254
                      Sub Category  =  65534
                 Service attribute  =  All categories
                   Caller Category  =  All categories
Nature of callee address indicator  =  All number
                     Caller Access  =  All categories
           Transmission Capability  =  All categories
                        Time index  =  0
                   Time Index Flag  =  Time index mode
                Time Segment Index  =  65534
                     Active Status  =  Active
                      Route number  =  10
                        Route Name  =  SBN_ICX
          First Sel Control Signal  =  Prefer to select ISUP
        Customize subscriber type  =  All type
      Called Number Plan Indecitor  =  All number plan id
```

```
                  Master/Slave type  =  Master
                          Is PRADDI  =  0

               Route Analysis Name  =  MOHITX7_to_SBNICX_CityCell
                 Route Select Code  =  110
          Route Select Source Code  =  13
               Incoming Trunk Type  =  All categories
          Destination Access Class  =  All categories
                      Prefix Index  =  254
                      Sub Category  =  65534
                 Service attribute  =  All categories
                   Caller Category  =  All categories
Nature of callee address indicator  =  All number
                     Caller Access  =  All categories
           Transmission Capability  =  All categories
                        Time index  =  0
                  Time Index Flag  =  Time index mode
                Time Segment Index  =  65534
                     Active Status  =  Active
                      Route number  =  10
                        Route Name  =  SBN_ICX
          First Sel Control Signal  =  Prefer to select ISUP
         Customize subscriber type  =  All type
      Called Number Plan Indecitor  =  All number plan id
                  Master/Slave type  =  Master
                          Is PRADDI  =  0

               Route Analysis Name  =  MOHITX7_to_SBNICX_Robi
                 Route Select Code  =  180
          Route Select Source Code  =  13
               Incoming Trunk Type  =  All categories
          Destination Access Class  =  All categories
                      Prefix Index  =  254
                      Sub Category  =  65534
                 Service attribute  =  All categories
                   Caller Category  =  All categories
Nature of callee address indicator  =  All number
                     Caller Access  =  All categories
           Transmission Capability  =  All categories
                        Time index  =  0
                  Time Index Flag  =  Time index mode
                Time Segment Index  =  65534
                     Active Status  =  Active
                      Route number  =  10
                        Route Name  =  SBN_ICX
          First Sel Control Signal  =  Prefer to select ISUP
         Customize subscriber type  =  All type
      Called Number Plan Indecitor  =  All number plan id
                  Master/Slave type  =  Master
                          Is PRADDI  =  0

               Route Analysis Name  =  MOHITX7_to_SBNICX_TeleTalk
                 Route Select Code  =  150
          Route Select Source Code  =  13
```

```
              Incoming Trunk Type  =  All categories
          Destination Access Class  =  All categories
                      Prefix Index  =  254
                      Sub Category  =  65534
                 Service attribute  =  All categories
                   Caller Category  =  All categories
Nature of callee address indicator  =  All number
                     Caller Access  =  All categories
           Transmission Capability  =  All categories
                        Time index  =  0
                   Time Index Flag  =  Time index mode
                 Time Segment Index  =  65534
                      Active Status  =  Active
                       Route number  =  10
                         Route Name  =  SBN_ICX
          First Sel Control Signal  =  Prefer to select ISUP
        Customize subscriber type  =  All type
      Called Number Plan Indecitor  =  All number plan id
                 Master/Slave type  =  Master
                          Is PRADDI  =  0

               Route Analysis Name  =  SBNICX_2ND_to_BTCL_IGW1&ITX6_India
                 Route Select Code  =  6
          Route Select Source Code  =  18
              Incoming Trunk Type  =  All categories
          Destination Access Class  =  All categories
                      Prefix Index  =  254
                      Sub Category  =  65534
                 Service attribute  =  All categories
                   Caller Category  =  All categories
Nature of callee address indicator  =  All number
                     Caller Access  =  All categories
           Transmission Capability  =  All categories
                        Time index  =  0
                   Time Index Flag  =  Time index mode
                 Time Segment Index  =  65534
                      Active Status  =  Active
                       Route number  =  20
                         Route Name  =  BTCLICX_to_IGW1&ITX6
          First Sel Control Signal  =  Prefer to select ISUP
        Customize subscriber type  =  All type
      Called Number Plan Indecitor  =  All number plan id
                 Master/Slave type  =  Master
                          Is PRADDI  =  0
```

4.6IOS Call Vol_July_2016

	01/07/2016		02/07/2016		03/07/2016		04/07/2016	
Route at IOS	No. of Calls	Call Duration	No. of Calls	Call Duration	No. of Calls	Call Duration	No. of Calls	Call Duration
SBN ICX-1000	447066	2556158	414270	2328931	403583	2301885	398698	2176759
SBN ICX 2ND-1080	477862	2696127	437851	2416187	429262	2403967	427939	2309311
SBN ICX 3RD-2020	176595	1054475	158003	926551	155535	925327	150627	870143
MOH ICX -1020	498754	2900270	452976	2617766	445755	2602570	431356	2434209
MOH ICX 2ND-1050	487862	2798184	436945	2500985	434662	2491124	421391	2349691
MOH ICX 3RD-2010	527348	2888686	481319	2640228	480501	2652873	465444	2479558
MOH ICX 4TH-2030	527727	2912806	481374	2639882	480456	2646161	465563	2484004
MOH ICX 5TH-2040	263195	1450323	241323	1323912	240326	1336459	232841	1241203
Total	**3406409**	**19257029**	**3104061**	**17394442**	**3070080**	**17360367**	**2993859**	**16344878**

05/07/2016		06/07/2016		07/07/2016		08/07/2016		09/07/2016	
No. of Calls	Call Duration	No. of Calls	Call Duration	No. of Calls	Call Duration	No. of Calls	Call Duration	No. of Calls	Call Duration
447864	2497507	646487	3377214	619104	3438881	462052	2752502	412750	2416115
479429	2639135	682156	3525727	650185	3541216	494744	2899899	442749	2549288
169484	994218	247415	1368862	232338	1349493	175092	1093525	158365	972919
477802	2728193	634910	3428803	620188	3487436	482840	2538597	439942	2036124
467884	2625721	623313	3361666	611477	3392546	473185	2448608	431235	1938738
512977	2775640	664567	3406875	658552	3484540	505749	2599797	471918	2201051
513057	2763811	663912	3402830	658455	3468400	505854	2629224	470717	2201202
255515	1377069	332332	1709412	329303	1741019	252879	1300955	235535	1099170
3498013	**19382532**	**4495092**	**23581389**	**4379602**	**23903531**	**3352395**	**18263108**	**3063211**	**15414606**

10/07/2016		11/07/2016		12/07/2016		13/07/2016		14/07/2016	
No. of Calls	Call Duration	No. of Calls	Call Duration	No. of Calls	Call Duration	No. of Calls	Call Duration	No. of Calls	Call Duration
403973	2273612	423519	2354466	436178	2393805	432571	2386516	426022	2101253
432417	2397932	450038	2468735	462994	2517784	459947	2503533	450421	2198942
156634	933020	160331	924437	177178	993076	202446	1131745	227007	1091148
439625	1960605	332740	1431176	294847	1418372	316965	1747817	325760	1590381
428663	1854686	447219	1831763	391022	1767393	305889	1673308	313395	1499334
471931	2120486	503374	2201542	527719	2491986	474243	2492878	474430	2226555
470834	2120852	503263	2195739	528811	2500013	473631	2483896	474444	2232405
235350	1054414	250977	1092379	273417	1295767	252845	1320292	252990	1190990
3039427	**14715606**	**3071461**	**14500237**	**3092166**	**15378196**	**2918537**	**15739985**	**2944469**	**14131007**

15/07/2016		16/07/2016		17/07/2016		18/07/2016		19/07/2016	
No. of Calls	Call Duration	No. of Calls	Call Duration	No. of Calls	Call Duration	No. of Calls	Call Duration	No. of Calls	Call Duration
441282	2494861	423229	2373574	445862	2417558	441898	2443579	429494	2414397
469871	2606825	450555	2492967	470574	2515860	466907	2563679	453526	2519651
225827	1286487	214193	1218079	228579	1261306	221396	1266795	214624	1248487
325852	1862424	310879	1758638	331764	1826188	331227	1853344	320914	1825394
315933	1771869	300637	1669080	319174	1722408	317133	1749229	307462	1725888
485474	2644224	463567	2463722	494635	2557186	490128	2579529	479500	2555240
484558	2638826	462478	2450480	493474	2544888	489660	2570716	480226	2563438
259198	1408613	246007	1315409	263489	1358904	261448	1365564	255289	1362375
3007995	**16714129**	**2871545**	**15741947**	**3047551**	**16204299**	**3019797**	**16392435**	**2941035**	**16214870**

20/07/2016		21/07/2016		22/07/2016		23/07/2016		24/07/2016	
No. of Calls	Call Duration	No. of Calls	Call Duration	No. of Calls	Call Duration	No. of Calls	Call Duration	No. of Calls	Call Duration
418299	2364297	400312	2263343	422408	2506034	397774	2341601	399173	2306243
442264	2475046	422446	2350244	449114	2614535	421489	2441793	420242	2390042
209516	1225291	201773	1185346	217614	1326651	201416	1227867	199795	1199544
316237	1812303	311311	1793368	337073	2022929	313536	1872187	314826	1847695
302919	1707150	297917	1684811	325999	1924677	303223	1777489	303001	1744700
472450	2529581	461923	2491673	495252	2779142	469265	2619028	478513	2637383
472829	2531958	461746	2493937	495557	2782224	469290	2608843	479447	2630123
251378	1345620	246430	1329448	262415	1473634	250236	1393158	254498	1402689
2885892	**15991248**	**2803858**	**15592171**	**3005432**	**17429826**	**2826229**	**16281966**	**2849495**	**16158419**

25/07/2016		26/07/2016		27/07/2016		28/07/2016		29/07/2016	
No. of Calls	Call Duration	No. of Calls	Call Duration	No. of Calls	Call Duration	No. of Calls	Call Duration	No. of Calls	Call Duration
391192	2235332	410745	2307305	460266	2560218	495061	2718497	522657	2975635
413518	2325418	433595	2406671	486104	2672679	524813	2850075	549654	3088862
197327	1165522	215667	1247072	243147	1377200	263221	1473249	280955	1611124
304063	1753979	324605	1861612	360886	2021009	380286	2100573	316776	1799818
290686	1656676	310957	1754430	346784	1908895	368418	2013122	420674	2345904
458694	2489418	487050	2625586	530770	2807416	564491	2954060	595594	3205428
458662	2496560	486518	2618597	529530	2794832	565470	2948523	595987	3202878
244315	1325626	258835	1396746	278855	1468725	297605	1557423	310946	1678324
2758457	**15448531**	**2927972**	**16218018**	**3236342**	**17610973**	**3459365**	**18615523**	**3593243**	**19907973**

30/07/2016		31/07/2016	
No. of Calls	Call Duration	No. of Calls	Call Duration
493310	2775112	495333	2730765
523188	2903332	525830	2851386
266757	1527711	268416	1506123
345728	1955253	389424	2160926
377182	2099642	376434	2051773
573046	3062007	585591	3083843
574269	3082377	585895	3097939
302498	1618369	308888	1628320
3455978	**19023804**	**3535811**	**19111074**

Chapter 5

Conclusion

This Internship provides the opportunity to test interest in a particular career before permanent commitments are made. It gives me proper scope to gain experience and knowledge which correlate with the theoretical knowledge that learned in university courses. I have learned to be dedicated to the job. Dedicative mindset is the most important thing to work in such a sophisticated environment. It is beyond more official matter. For working in Bangladesh Telecommunications Company Limited, I learn about their working process & rules and regulation. I also learned new concept and new way of thinking. I have learned how to work in a team. I have learned about different types of cables and their uses, call tracking, trunk group, trunk rout, switching, land line telephone, overseas of BTCL. Experience of this internship will help me to make a better career in telecommunication field in future.

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