Troubleshooting Process and Solution of client complaint(BANK)

Introduction:

In this episode I will explain my working experience on data connectivity problem. I will show how customer complaint us and what way I will solve this issue. This problem is one kind of critical, therefore, in this career I will describe how the will be solved.

Chronology: December 5, 2022 to -December 7, 2022

Company: ADN telecom

Designation: Engineer (Customer Care Technology Department)

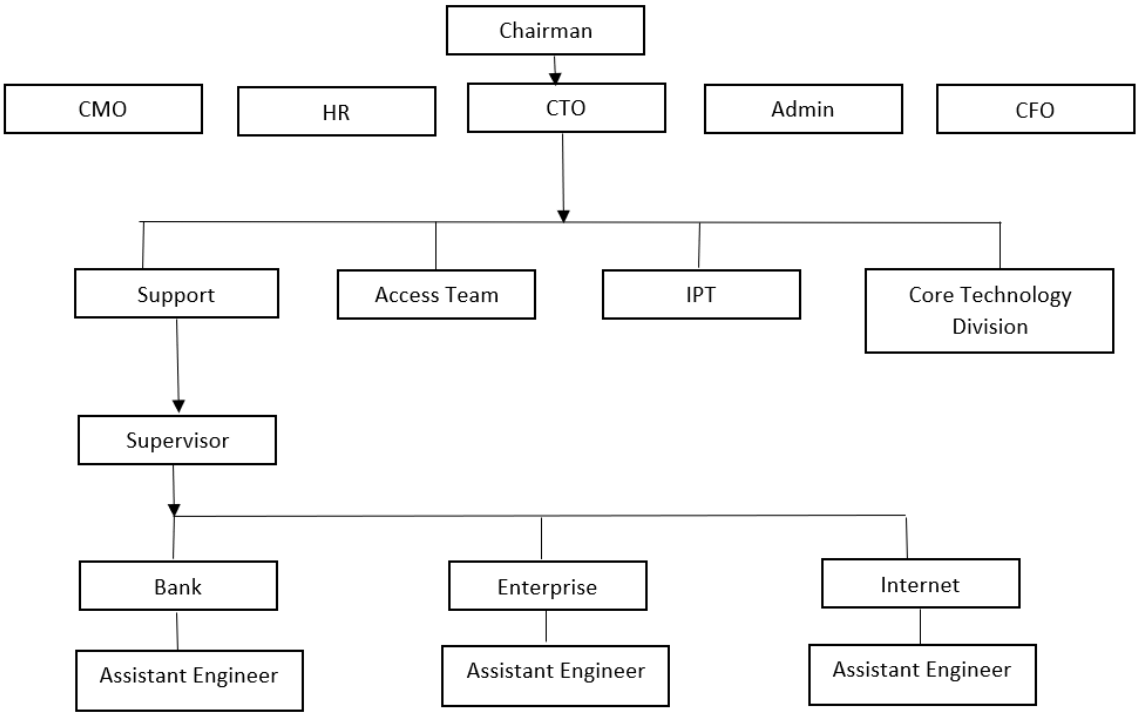
Location: Dhaka, Bangladesh

Background:

ADN Telecom Ltd. (Advanced Data Network) the leading ISP, MPLS, IPLC and IP Telephony service provider in Bangladesh. It is nationwide network coverage access by Fiber, wireless, satellite, MPLS and IPLC services. I am placing here as an Engineer at the department of Customer care, where I took complaint from Customer and my responsibility is to troubleshoot for preliminary stage over the phone or email and escalate to technology team. I also work along with the technology team, NOC department, Regional Team and customer's IT department. My major work is to update the client of every situation with estimate time restoration [ETR]. I shared my basic skill of technological training from the technology department.

Project Objectives:

Department Organogram



CE 1.1 My Project Responsibilities:

1. To acknowledged client complaint
2. To Understand client problem
3. Troubleshoot preliminary stage
4. To check whole connectivity and findings the actual problem
5. To communicate Transmission provider for client's raising problem
6. Coordinating with technology team and technician
7. Communicate with client to share progressive update
8. Create Ticket to keep all documents and update regarding the procedure

Personal Engineering Activities:

In this project I gathered some experiences about data connectivity, [L1] optical fiber and optical laser from technology engineer. For this project I took idea from my graduation degree where I learned about Optical Fiber Communication, Data Communication and Network security. I also did CCNA course where

I learned about routing and switching, from that experience I can also check any connectivity by using Mikrotik, Cisco, and Juniper router. [L2]

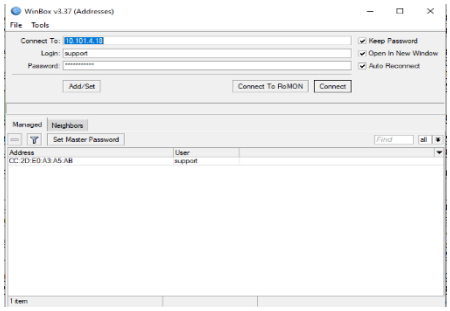
I work in this project as an engineer in Customer care service. As a team leader, my daily duty responsibilities are to distribute customer complaints to my other engineers, which are raised by email, and WhatsApp and I also monitor some Bank's Data connectivity during the duty hours. For the monitoring purpose of Bank service, we generally monitor all Bank branches in four steps. First step, Bank HQ are monitored by 24/7 category. Second step, we monitor ATMs which is requested by any concerned Bank. Third step, we monitor some Bank's all branches on request of any concerned Bank and the final one is monitoring by Alarm, where the alarm is seen by mail. Bank customers are usually data service, MPLS service, GP Connect, Election commission and Internet service. When I checked customer connectivity, I also checked our PoP. Whilst, all customer connection going from PoP [Point of Presence], as an ISP company, our company has available PoP over the 64 districts. Therefore, customer can buy data of internet service from us. In PoP is totally established and installed by router and switches. On the other hand, PoP also has Uplink, such as Summit, F@H, Blanglalink, Garmeen Phone and Edotco. While, we use their bandwidth, power and we also use double uplink to use as a backup connectivity purpose.

Depends on customer complained, my first to check and find the reason why the customer complained has raised and I looking for the findings. So, I check our PoP, if PoP has up I checked destination IP from customer Head office Router or our POP end router. I checked MAC, gateway IP, client end service IP, etc which depends on the router basis. If any client connected through Mikrotik router, I checked MAC and destination IP address which is explain below-

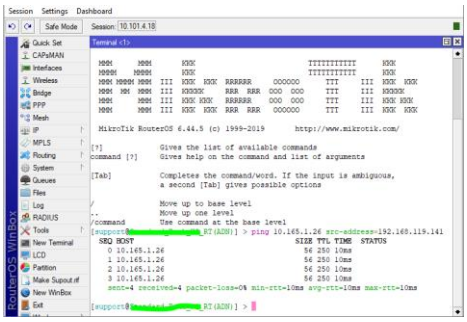
To checking the both MAC and destination IP, First I login to Mikrotik router through mikrotik software Winbox.

Mikrotik

I Connect to Customer HQ Mikrotik router IP address, and then I login to this router to check destination MAC address and destination IP address.

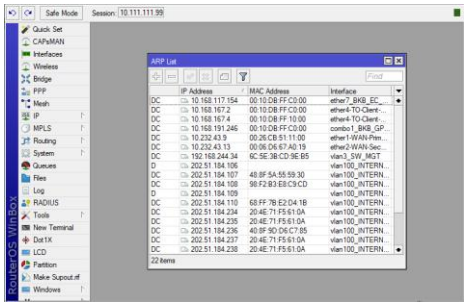


After login Winbox, I checked Customer MAC address to ensure the Device connection availability against customer IP. To check MAC address, I go to IP→ ARP list and check customer device MAC address.



To Check customer destination connection availability and latency, I go to New Terminal→Command

I command client destination IP with source IP and check customer service availability and also I checked connectivity loss or latency.



Cisco:

When I checked customer connectivity through Cisco. First, I login into Cisco router [It could be client router or POP router] from command promt, After that, I telnet desired POP or customer Gateway IP address to check switch port, MAC address or destination connectivity, where I command by below three categories.

To check switch port:

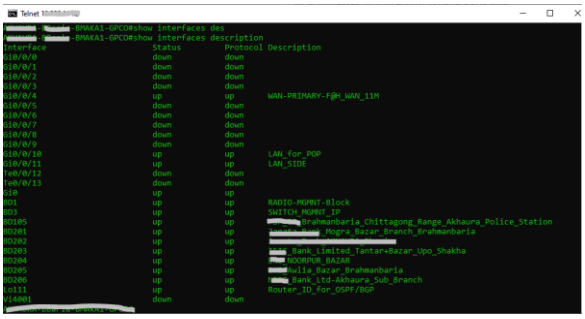
Telnet “pop address”

↓

Login

↓

#show interference description



I can check all client connectivity which is connected from POP switch port. I also can check switch port up or down.

To check MAC address:

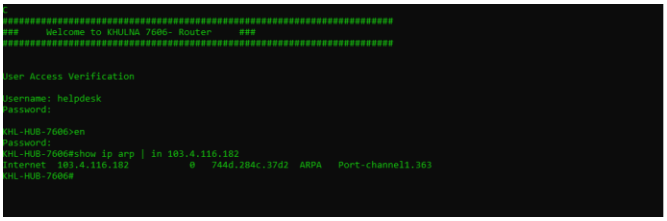
Telnet “Client’s Gateway IP Address”

↓

Login

↓

Show ip arp | in “ client IP address”



To check destination IP address:

>Telnet “Client Gateway IP address”/ POP router

Login Cisco Router

User:***

Password:***

POP router>en

Password:****

POP router# ping “Customer IP address”source “Gateway IP”

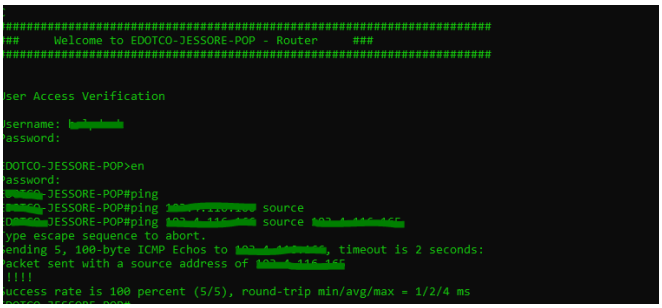
Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 103.4.116.166, timeout is 2 seconds:

Packet sent with a source address of 103.4.116.165

!!!!!

Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms



In this project, in my daily checking basis I got a complaint from the LRTC Portal which is monitored by Bank 24/7 category. The LRTC is the portal name of United commercial Bank, where head office IT customer complaint us about any kind of issues, such as link down, link unstable [loss or latency], etc. This is one of my major responsibilities to frequently check their portals to finding any problems where the United Commercial Bank is one of our major clients. Therefore, from the LRTC I found a complaint about United Commercial Bank Limited Gopaldi Branch SCL Fiber. In this link, I worked with SCL and with our technology Fiber team. SCL is Summit Telecommunication limited; they are transmission provider of our company and they are working as a NTTN [Nationwide Telecommunication Transmission Network]. We use their underground fiber; despite we do not have access permission to lay fiber in underground. Only Summit Telecommunication, F@H Limited have access and we only buy their core or we give them Bandwidth to use their path. Therefore, depends on their fiber path we communicate with them with their mentioned circuit ID or vlan ID.

CE2.1

After the acknowledgment from their Portal, I create Ticket in Zoho and keep client complaint information. Though the complaint name is about the United commercial Bank Gopaldi Branch SCL fiber, I checked this connectivity from Solar wind software and checked by Summit.

From Solarwind, I can check customer live connectivity. This software is use for checking client's IP information, customer address, customer's infrastructure details, link down time, link up time, and other information can be found. I checked client destination IP by pinging 10.127.11.26 from client head office router and from POP router. When I checked from the client head office, I do telnet to the client's Data centre router which is the routing table for checking branch IP. For example- 10.111.111.30. When I found that, this is Cisco Router. Then I ping customer destination IP from Cisco router. While, customer IP is MPLS, so I Ping IP with vrf for example- ping vrf UCBL 10.127.11.26. I found that the link was down, After that finfdings, I checked from PoP [Point of Presence]. This checking is for findings for pint to point connectivity from ADN POP router. Therefore, I found that the connectivity is down; I couldn't reach the destination through POP end Cisco router and also from HQ Cisco router.

```
MPLS-PE-DHK#ping vrf UCBL 10.127.11.26

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.127.11.26, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
MPLS-PE-DHK#
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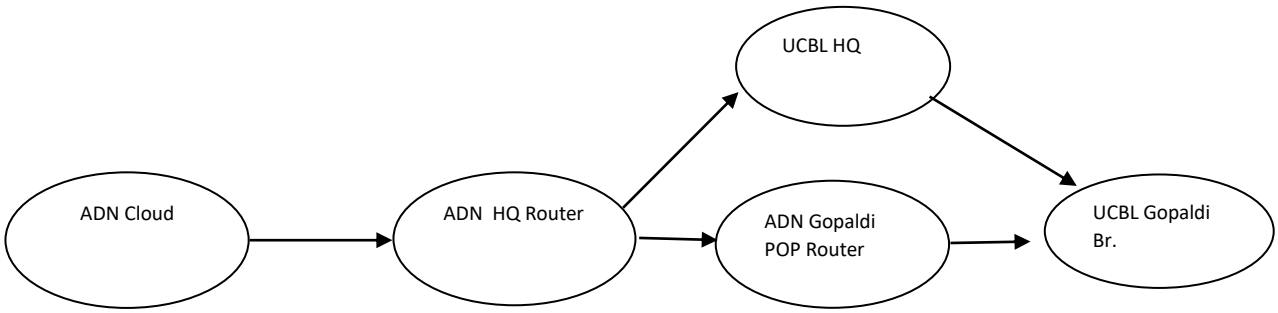


ADN Network

CE2.2

In this stage, I informed Summit to check their portion. For the query, I first create a ticket in the summit portal by complaining to them a connectivity is down. I queried with the circuit ID and VLAN ID and circuit name. Summit has checked and got optical fiber was high power from our last mile. I connected

the summit's fiber last portion with ADN fiber by MC [Media Converter]. However, they checked this portion and found the laser was high which Rx -26.57dBm was. This laser was pretty high because we prefer less than Rx-22dBm. In this information I understand that this problem is coming from our side.

Moreover, I immediately informed to our technology team, we called them Fiber team also. I informed them summit updating information and told them to check laser power from our portion. Our concern Fiber team Engineer was working with their technician to reduce high laser.

CE 2.3

Our Technology Engineer align with technician to reduce laser. Furthermore, our team was gone to the incident portion. In this case our fiber team and the summit team were jointly worked because in the critical portion was belongs to both properties.

Fiber team was checked their optical fiber laser through optical machine. Max tester device is used for checking optical laser, loss or damage issue. To check laser, technician use patch cord to connect one side in optical core and another side into the Max tester machine. After connecting patch cord, by doing OTDR [Optical time-domain reflectometer], team has found damage portion and team was working to reduce the loss where they found. Then, fiber technician was splicing optical fiber. Meanwhile, I updated to customer into their LRTC portal with ETR [Estimated Time repair]. Therefore, customer can wait for until the mentioned time.

Our Fiber team was tried to solve this issue as soon as possible within the Estimated Time. When team splicing has been completing, I again check the loss as the same process. I checked from customer Head Office but I got the link was not stable yet. I was getting loss and I communicate to summit to check laser again. I informed to our fiber team engineer again. He was again checked to found the accurate reason. Therefore, technician was taking 1 day more to reduce the laser. Because Team was found optical fiber damage in another side.

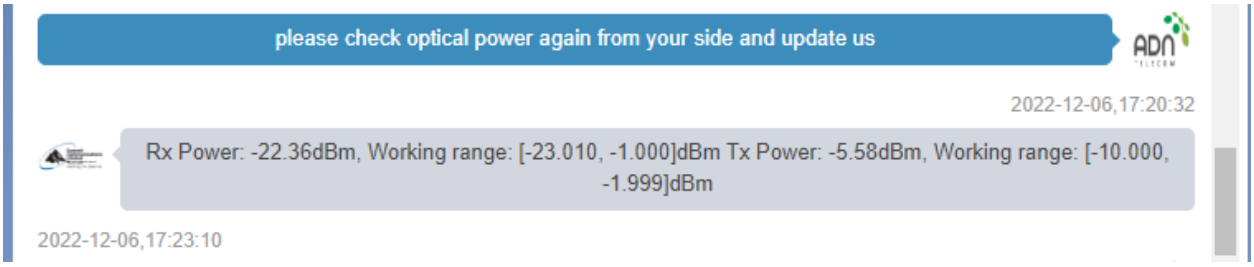
On the other hand, I communicate with UCBL HQ and informed them the progressive working update. Moreover, we shared them details reason that client could understand the reason for delay.

CE2.4

Technology team involve to reduce laser high power for next day. In this stage our technical team went another portion of the customer connection and did OTDR [Optical time-domain reflectometer] again by Max Tester machine and another fiber damage has found after 2400m fiber. After finding damage fiber, team splicing and restore the fiber for the mentioned side.

CE2.5

Meanwhile, I checked customer connectivity as I mentioned before, but problem wasn't accurately solved. Therefore, I communicate with summit from their portal to check power and they got -22.36dBm, which is not good condition for getting stable connectivity. I informed to our technical team that the laser didn't reduce accurately. Therefore, they went to client's branch side and they did OTDR as a same process. Finally, they found the laser was high from client end.



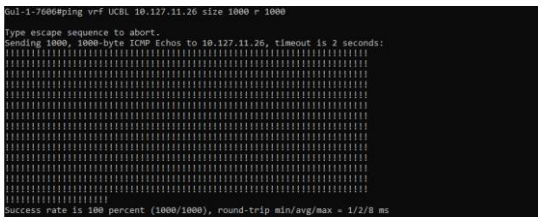
CE 2.6

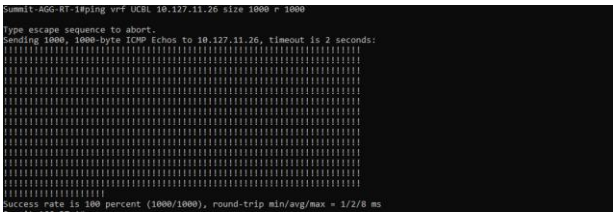
The Fiber team was assigned an engineer at the United Commercial Bank Gopaldi Branch to work on the branch end to reduce fiber loss. Therefore, I took access permission at the UCBL portal for the United commercial bank Gopaldi branch. For access permission I inform to customer the information of our concern engineer's name, contact details and the reason why we want permission, so I inform to the

customer that due to laser high getting from branch end, we need for troubleshooting purposes. After getting permission, the team was working Gopaldi branch and restore fiber damaged issue.

CE 2.7

In this stage, I have checked the United commercial Gopaldi branch in two ways. I checked from United Commercial bank head office and from Gopaldi PoP, where the router was Summit's Cisco router. After checking from both sides and got the service is Up and I checked loss and latency also which is also stable.





CE 2.8

After physical rectification done, I informed to United commercial bank head office IT concern and took confirmation from him. I replied to UCBL portal that the fiber restoration has been done completely. Simultaneously, I asked the Summit that to check their circuit id to confirmed the link. They checked and got that link is stable and laser which is Rx Power: -10.58dBm and Tx Power: -5.56dBm.

CE 2.9

Finally, I updated to LRTC portal [customer portal] that Link is up and stable. I shared exact RFO [Reason for outage] with ping report that customer can understand better. So, I keep all information in Zoho. And did all procedures to close the Zoho ticket.

Before restoration in Solarwinds	After restoration in Solarwinds