National Fiber Network Reliability Report (October-December, 2018)

Division of Telecom and Space
Department of IT and Telecom

Executive Summary

In order to check and monitor the national network reliability, the DITT/MoIC has prepared the following report.

The data is collected from the stakeholders (BPC, TICL, BT) and 20 Dzongkhag ICTOs on a monthly basis and the report is prepared on a quarterly basis.This is the Second report for the financial year 2018-2019.
DITT has been collecting National fiber reports from the two ISPs (BT and TICL), BPC and 20 dzongkhags.

Introduction

Department of Information Technology and Telecom (DITT) under MoIC (Ministry of Information and Communications) has implemented National Broadband Master Plan Implementation Project (NBMP) to establish a fiber optic backbone network throughout the country. Under the said project, 18 Dzongkhags have been connected with OPGW cables and remaining two Dzongkhags and 201 Gewogs have been connected with ADSS cables.

DITT is the sole owner of the National Fiber network. DITT leases the fibers to Telecom operators and Internet Service Providers for free of cost in order to ensure a level playing field for operators and to help improve competition at the service level. In addition, the fibers is also used by the department to establish connectivity to Community Centers.

BPC manages the Operation and Maintenance of the National Fiber Network.As of now, there are no fiber monitoring system to conduct online detection and rectification of fiber outages. The fiber breakages are manually detected and rectified. According to the agreement signed between DITT and BPC on September 30th, 2011, BPC is mandated to maintain 98% point to point availability of fibers, except where disruptions are caused by force majeure conditions. Therefore, in order to check the consistency and availability of fibers, a monthly fiber reliability reports are collected from the stakeholders (BT, TICL, BPC) and 20 Dzongkhags. Data collected for the months October to December, 2018 are reported below.

Objective of the study

To study the National Fiber Network Reliability in Bhutan

Methodology

A dashboard was prepared for maintaining the Fiber network reliability based on different parameters listed as follows:

- Fault Time (Time at which the fault occurred/detected)
- Fault Resolution (Time at which the fault was rectified)
- Outage Time (Duration of outage)
- Availability (Availability= ((Service Uptime/Total time)*100), Service Uptime=Total Time-Outage Time, Total Time=24*No. Of days in a month)
- Fault Type (Fiber breakages,Force Majeure, Equipment Faults, Schedule Maintenance)
- Customer Impact (No. of Dzongkhag affected, No. of sites affected)

This dashboard is shared with the relevant stakeholders (BT, BPC and TICL) and Dzongkhag ICTOs who uses the Fiber network.The stakeholders and ICTOs were given instructions on the usage of the dashboard via email, letter and telephone after which they were asked to maintain records on above parameters on a monthly basis. This data collection is an ongoing process.

Key Findings

Based on the data submitted by the stakeholders and Dzongkhag ICTOs average availability for the month July-September, 2018 has been compiled in tables below.

1) **Fiber Network Reliability report submitted by TICL**

Months	Availability in percent
October	100
November	99.55
December	99.54

Average availability was 99.696%

2) Fiber Network Reliability report submitted by BT

Months	Availability in percent
October	99.88
November	99.375
December	100

Average availability was 99.751%.

3) Fiber Network Reliability report submitted by BPC

Months	Availability in percent
October	100
November	100
December	100

Average availability was 100%

4) Fiber Network Reliability report submitted by Dzongkhag ICTOs

Dzongkhags	October	November	December	Average	Remarks
Punakha	100	100	100	100	
Tsirang	100	100	100	100	
Dagana	100	100	100	100	
Zhemgang	100	100	100	100	
Bumthang	100	100	100	100	
Chhukha	100	100	100	100	
Tashigang	100	100	100	100	

Thimphu	100	100	100	100	
Tashiyangtse	100	100	100	100	
Haa	100	100	100	100	
Trongsa	100	100	100	100	
Pemagatshel	100	100	100	100	
Samtse	100	100	100	100	
Lhuentse	100	100	100	100	
Mongar	100	100	100	100	
Wangdue phodrang	100	100	100	100	
Samdrup Jongkhar	100	100	100	100	
Sarpang	100	100	100	100	
Gasa	100	100	100	100	
Paro	100	100	100	100	

Conclusion

The above analysis was limited to the monthly network reliability reports submitted by the Telcos/ISPs, BPC and Dzongkhag ICTOs. From the reports collected for October to December 2018, both the ISPs were able to maintain availability above 98%. The average availability between the two Telecos/ISPs is 99.7235%.

From the report submitted by BPC and Dzongkhag ICTOs, the availability was 100% for the month of October to December 2018.

Constraints

1. There is delay in input from the Dzongkhag ICTOs even after repeated reminders and follow up made through the department. This creates delay while publishing the quarterly report for DITT.
2. While calculating the fiber availability some of the fault types are mainly because of equipment faults such as switch and media converter faults. Such type of faults are not considered while calculating the fiber availability.