ABSTRACT

The mobile telecommunication system has been progressing very rapidly. The development of mobile technology began to enter the fourth generation called 4G LTE system (Long Term Evolution). PT.Internux one of the 4G LTE Service Providers company strives to meet customer needs and satisfaction. One of the problems faced is the breaking UP-Link on the Base Transmission Station (BTS) which causes the weakening of the signal received by the customer. To solve this problem, a system designed failover on UP-link using Border Gateway Protocol (BGP) method on Router and Spanning Tree Protocol (STP) method in BTS switch. So have two paths that can back up each other in case of failover in one of UP-link. MTBF, MTTR and Availability values are calculated on a three-month timeframe to find out which network the failover system has implemented is in line with the target Key Performance Indicator (KPI) expected by the company. After implementation of failover system, the network has MTBF value of 1104h, MTTR of 0.001 hours and 99.99% availability, the value has been in accordance with KPI standard.

Keywords : Border Gateway protocol (BGP), Failover, Key Performance Indicator (KPI),   Spanning Tree Protocol (STP), Telecommunication system

ABSTRAKSI

Sistem telekomunikasi seluler sudah mengalami perkembangan yang sangat pesat. Perkembangan teknologi seluler mulai memasuki generasi ke empat yang disebut dengan sistem 4G LTE (*Long Term Evolution*). PT.Internux salah satu perusahan penyedia layanan Data 4G LTE berusaha memenuhi kebutuhan dan kepuasan pelanggan. Salah satu masalah yang dihadapi yaitu terpututsnya UP-Link pada Base Transreceive Station (BTS) yang menyebabkan melemahnya sinyal yang ditermima pelanggan. Mengatasi masalah ini maka dirancanglah system failover pada UP-link menggunakan metode Border Gateway Protocol (BGP) pada Router dan metode Spanning Tree Protocol (STP) pada switch BTS. Sehingga mempunyai dua jalur yang dapat saling membackup jika terjadi failover di salah satu UP-link. Nilai MTBF, MTTR dan Availabilitas dihitung dengan rentan waktu tiga bulan untuk mengetahui jaringan yang telah di implementasikan sistem failover telah sesuai dengan target Key Performance Indicator (KPI) yang diharapkan perusahaan. Setelah diimpelementasikannya sistem failover, jaringan memiliki nilai MTBF sebesar 1104jam , MTTR sebesar 0.001 jam dan availabilitas 99.99%, nilai tersebut telah sesuai dengan *standard* KPI.

Kata kunci : *Border Gateway protocol (BGP), Failover, Key Performance Indicator (*KPI)*,* **Sistem Telekomukasi***, Spanning Tree Protocol (STP)*

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