Analisis Improvement Jaringan Serat Optik ICONNET dan Implementasi Advanced Metering Infratructure (AMI) pada Cluster Rayon Panam Di Strategic Business Unit Sumatera Bagian Tengah PT PLN Icon Plus = Analysis of ICONNET Fiber Optic Network Improvement and Implementation of Advanced Metering Infrastructure (AMI) at Cluster Rayon Panam in Strategic Business Unit Central Sumatra PT PLN Icon Plus

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Abstrak

Serat optik ialah media transmisi telekomunikasi yang mempunyai bandwidth serta bit rate yang besar sehingga sanggup penuhi kebutuhan layanan data dikala ini dengan kehandalan serta efisiensi yang besar. Aplikasi serat optik terus menjadi luas serta sudah mencakup jaringan dasar laut, jaringan terestrial, jaringan lingkup metropolitan serta regional, maupun jaringan berskala kecil. Sistem komunikasi serat optik mempunyai 2 fakor yang mempengaruhi mutu unjuk kerja jaringannya ialah aspek internal serta aspek eksternal. Aspek internal dan eksternal tersebut bisa merendahkan mutu unjuk kerja dari serat optik yang digunakan dan bisa memunculkan redaman dan rugi-rugi transmisi yang lain. Selaku upaya buat mencegah penuruan mutu sesuatu jaringan secara tiba- tiba serta signifikan, butuh dicoba kegiatan maintenance secara berkala semacam pengukuran mutu layanan jaringan kabel serat optik yang terjadwal. Aktivitas maintenance tersebut bisa menolong memastikan keputusan kenaikan kapasitas jaringan. Salah satu parameter mutu layanan yang kerap dicoba pengukuran merupakan redaman transmisi serta energi sinyal yang diterima (power receive). Riset ini mengkaji tentang meningkatkan kapasitas bandwidth milik PT PLN Icon Plus regional Sumatera Bagian Tengah pada saat terjadi anomali jaringan, yaitu koneksi internet lambat pada link Panam – Rayon Panam, serta hasilnya akan digunakan untuk implementasi Advanced Metering Infratructure (AMI). Sampel yang diambil dari salah satu pelanggan menunjukkan hasil pengukuran kecepatan internetnya sebesar 4-5 Mbps saja, sedangkan layanan yang diambil adalah 10 Mbps. Hasil pengecekkan pada sisi up-link ke OLT Rayon panam ditemukan output data sudah mendekati kapasitasnya, yaitu sebesar 940.919.000 bits/sec atau 0.9 Gb/sec. Meningkatkan kapasitas bandwidth dilakukan dengan pemindahan port OLT pada sisi up-link dari port gigabit ethernet ke port tengigabit ethernet, lalu mengganti SFP tipe SR dengan SFP ER serta penambahan attenuator serat optic sehingga didapat hasil speed test di sisi pelanggan telah kembali sepertinya semula, 10 Mbps. Serta hasil implementasi AMI menunjukkan OpEx yang timbul sekitar Rp. 1.250.000,-. Sedangkan CapEx sebesar Rp. 1.468.000,-.

.....Optical fiber is a telecommunications transmission medium that has a large bandwidth and bit rate so that it can meet the needs of today's data services with great reliability and efficiency. Optical fiber applications continue to be broad and have included seabed networks, terrestrial networks, metropolitan and regional scope networks, and small-scale networks. Optical fiber communication systems have 2 factors that affect the quality of network performance, namely internal aspects and external aspects. These internal and external aspects can degrade the performance quality of the optical fiber used and can cause attenuation and other transmission losses. As an effort to prevent sudden and significant deterioration in the quality of a network, it is necessary to try regular maintenance activities such as scheduled fiber optic cable network

service quality measurements. These maintenance activities can help ensure network capacity increase decisions. One of the quality of service parameters that is often measured is transmission attenuation and received signal energy (received power). This research examines increasing the bandwidth capacity of PT PLN Icon Plus in the Central Sumatra region during network anomalies, namely slow internet connections on the Panam - Rayon Panam link, and the results will be used for the implementation of Advanced Metering Infratructure (AMI). The sample taken from one of the customers shows the measurement results of the internet speed of 4-5 Mbps only, while the service taken is 10 Mbps. The results of checking on the up-link side to OLT Rayon panam found that the data output was close to its capacity, which was 940,919,000 bits/sec or 0.9 Gb/sec. Increasing bandwidth capacity is done by moving the OLT port on the up-link side from the gigabit ethernet port to the tengigabit ethernet port, then replacing the SR type SFP with SFP ER and adding fiber optic attenuators so that the speed test results on the customer side have returned to its original appearance, 10 Mbps. And the results of AMI implementation show that the OpEx arising is around Rp. 1,250,000, -. While CapEx amounted to Rp. 1,468,000, -.