Analisis efisiensi sumberdaya pada penerapan konsep green networks menggunakan jaringan komputer Berskala kecil berbasis virtualisasi

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Abstrak

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Green Networks adalah konsep tentang perancangan jaringan komputer yang hemat energi, hemat resources, dan hemat biaya. Tujuan utama dari penelitian ini adalah penerapan konsep Green Networks ke dalam infrastruktur nyata. Infrastruktur ini nanti akan diimplementasikan di area laboratorium Mercator FTUI. Pertama, pada penelitian ini akan dibahas mengenai rancangan suatu infrastruktur jaringan komputer dimana infrastruktur tersebut sebisa mungkin dirancang agar memenuhi tiga aspek utama dalam konsep Green Networks. Infrastruktur tersebut nantinya akan banyak berhubungan dengan konsep virtualisasi. Virtualisasi yang akan diterapkan adalah virtualisasi desktop dan virtualisasi hardware. Infrastruktur tersebut juga dirancang menggunakan sistem operasi Linux Ubuntu. Dari pengukuran tersebut didapatkan nilai total penghematan konsumsi daya pada infrastruktur dibanding pada infrastruktur konvensional selama 5 tahun adalah sebesar 5819.95 kWh dan presentasenya adalah sebesar 81.1% (termasuk presentase penghematan biaya), total presentase penghematan biaya pembuatan dan perawatan infrastruktur dibanding infrastruktur konvensional selama 5 tahun adalah sebesar 59.90%, total presentase penghematan biaya pembuatan infrastruktur dan biaya konsumsi daya listrik infrastruktur berbasis dibanding infrastruktur konvensional selama 5 tahun adalah sebesar 61.17 %.
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ABSTRACT
Green Networks is a concept about computer network design which is energy efficient, resources efficient, and cost efficient. The main purpose of this research is implementating the Green Networks concept into a real infrastructure. This infrastructure will be implemented in Mercator FTUI laboratorium area. First, this research discuss about the design of computer network infrastructure where the infrastructure designed to meet three main aspects in the Green Networks concept. The infrastructure will be focused with the virtualization concept. Virtualizations which will be implemented is desktop virtualization and hardware virtualization. The infrastructure is also desgined using Ubuntu Linux operating system. After the building processes, the infrastructure will be tested. From the testing process the total value of power consumption saving on the infrastructure compared to conventional infrastructure during five years is 5819.95 kWh and the percentage is 81.1% (including the percentage of cost savings). From the testing process the total value of power consumption savings on the infrastructure compared to conventional infrastructure during five years is 5819.95 kWh and the percentage is 81.1% (including the percentage of cost savings), the total percentage of cost savings of development and maintenance of infrastructure compared to conventional infrastructure during five years is 59.90%, and the total percentage of cost savings of development, maintenance, power consumption savings of infrastructure compared to conventional infrastructure during five years is 61.17%.