

## **ABSTRACT**

*Development of Information Technology at this point has been included in all aspects of society. Bandung regency government is a government agency that handles all matters of public administration in the district of Bandung and its surroundings. BAPASI is one of the agencies that deal with infrastructure as well as the entire management information system that is used in Bandung regency government. In the present condition, the network infrastructure is still not meet the needs of all SKPD and not yet fully optimized with the still limited use of bandwidth and topology that do not meet the standards, the necessary optimization of cable network infrastructure in Bandung regency government using Green IT Computing approach.*

*Optimization and designing the cable network infrastructure using methods NDLC with phases Analysis, Design, Simulation Prototyping. GNS3 design process is simulated by a simulator to design a new network infrastructure. Designing and simulation done by implementing Cisco Three-Layered Hierarchical Model, consisting of three layers, namely core, distribution and access.*

*Tests carried out using scenarios to analyze the throughput, delay and packet loss as a parameter, as well as an analysis of the logical network topology and use of the device to support the fiber optic technology. The test results showed the difference in the allocation of bandwidth with a throughput of 12.98 Kbps at peak time and 154.49 Kbps in his spare time, a delay of 0.0421 seconds during peak time and 0.0043 seconds in his spare time and packet loss during the peak time 0.027% and 0.05% in his spare time. From the test results showed better results with the distribution of bandwidth allocation per user instead. From these results show improvement in the design of the proposed cable network for Bandung District Government*

*Keywords: Information Technology, Information Systems, Network Infrastructure, Network Cabling, GNS3, Bandung regency, Cisco Three-Layered Hierarchical Model, Bandwitdh.*