

## ABSTRACT

In the achievement of a country's prosperity, the support of Information and Communication Technology (ICT) become so important, but which is often a constraint is the availability of network infrastructure, both network access and network backbone. The condition of Indonesia's network infrastructure further behind than other countries, so the cost for connections is expensive and the network penetration is still low. In 1990, the Indonesian government began to target the development of telecommunications network infrastructure in order to provide access and services which are cheap and adequate.

Various researches have been developed for designing an optimal network infrastructure in accordance with specific needs. In this study also designed a network infrastructure to support the Government electronic services (*e-gov*) with the case study is the government of Bandung. Here the simulated inter-agency communications using 802.11 *wireless* networks and fiber-optic network. Software used to simulate the network performance (*Quality of Service / QoS*) is the Optimized Network Engineering Tools (OPNET).

From the research and simulation of network performance and network development costs, then the *wireless* network will cost IDR 911 179 300, with an average *Delay* and loss ratio is still in the ITU standard, with a condition there is a limitation which *client* can access *video* and *voice* services, while network

Fiber optics will cost IDR \$ 2.701875 billion, can still provide quality service in the ITU standard with all conditions of the *client* in the LAN can access the data services, *video* and audio. By considering the technology life cycle / transmission media used, the suitability to the needs of *e-gov* applications for the government of Bandung, construction costs, as well as compatibility with standard QoS for data services, VoIP, and *Video*, then the recommended network infrastructure is an *wireless* network 802.11g.

Keywords: networks, QoS, Bandung City Government, *Wireless*, Fiber Optics