

ABSTRACT

Bekasi city is located on the suburb area of Jakarta; it is included on JABOTABEK. The strategic location makes Bekasi potential of becoming metropolitan city, it is shown from the industrial, residences, trade centers, schools, and the important buildings which grown up rapidly. The growth of those aspects has indicated the possibility of the rapid growth of the needs of technology like internet access which would be the main needs of those aspects supporting factors. In order to fulfil those needs, it is crucial to provide a network planning. Nowadays, the networks provided in Bekasi are still limited; it is use fixed cable technology known as ADSL (*Asymmetric Digital Subscriber Line*) which is pretty expensive and difficult to be expanded.

Because of that reason, in this final project, would be posted a Wireless Metropolitan Area Network (WMAN) using a combination between Wifi and WiMAX which is easy to be implemented and financially reachable. Later, on this network planning, WiMAX would be use as backhaul point to multipoint; it is use to access the end user which needs broadband internet access in the wide area; on the other hand, for certain cases, Wifi would be used to access end user which needs to have reachable internet access in the narrow area.

From the result of the calculation and analysis, this planning needs 18 Wifi cells which each cell have 4 km of diameter and also needs just one WiMAX cell by four areas sectorization. In order to fulfil the maximum network needs for internet access to the society five years forward, each sector needs one channel frequency with frequency allocation of 7 MHz for each channel.