

Abstract

Network Planning Using Optical Fiber Communication System For Java Ring – Palapa Ring

To build an efficient network that can covered the whole area in Indonesia, government has planned to build a network project called Palapa Ring. The purpose of Palapa Ring is to build and to operate a wide band national network backbone, consist of 6 rings of optical fiber around the main islands of Indonesia with 1 national ring to connect the whole 6 rings. Java Ring is one of the 7 rings which planned by government in Palapa Ring Project, and it will be started to build in the early 2008. Ring topology has advantages in the protection system, because it can reroute the traffic when link failure happened, and also, optical fiber communication system has benefit in higher capacity.

In this final task, Java Ring network planning using optical fiber communication system implemented by using SDH technology integrated with DWDM as a backbone network to connect big cities in Java island. Based on the planning, Java Ring consist of 5 subrings, and determine the traffic forecasting until 2011.

On Java Ring planning, EDFA amplifier is needed, where the amount of EDFA different for every sublink. To solve dispersion problem, DCF is used as a tool to compensate dispersion caused by the transmission distance larger than the maximum limitation of transmission distance. Also, Java Ring using STM-64 with DWDM with maximum 16 channels, to fullfil the demand traffic until 2011. As a protection system, Java Ring use 2-fiber Bidirectional MS Protection Ring with 2 pair of optical cable and using 1550 nm with channel space 100 GHz.