

Invited paper

Novel Network Architectures for Survivable WDM Passive Optical Networks

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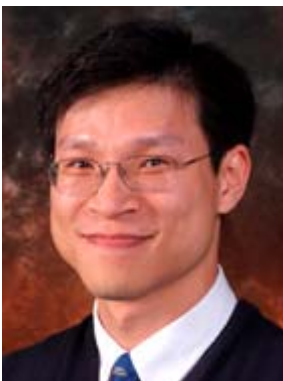
Abstract

As WDM-PON has been emerging to be the next generation optical access network, the issue of network survivability has recently aroused much attention. In this talk, several considerations in designing survivable WDM-PONs will be discussed. Besides, several feasible protection schemes and architectures for automatic traffic restoration upon any fiber cut in WDM-PONs will be reviewed.

Extended Abstract

Over the past decade, passive optical networks (PONs) have emerged as an attractive and promising approach to deliver broadband services to a large number of subscribers. With the recent availability of the low-cost optical components, PONs using wavelength division multiplexing (WDM) technique have been emerging as the next generation optical access network. However, with conventional PON architectures, which have limited protection feature, any component or fiber failure would lead to huge loss of data or even business. Therefore, the issue of network survivability has aroused more attention over the recent few years. In order to facilitate effective and prompt network protection and restoration, it is highly desirable to perform network survivability measures in the optical layer. For PON applications, equipment failure at either OLT or ONU can be easily remedied by having a backup unit in the controlled environment. However, for any fiber cut, it would take a relatively long time to perform the repair. Therefore, it is highly desirable to have survivable PON architectures with protection switching against any fiber cut.

In this talk, several considerations in designing survivable network architectures for WDM-PONs will be discussed. Besides, several feasible protection schemes and architectures for WDM-PONs will be reviewed.



Calvin C.K. Chan

Calvin C.K. Chan received his Ph.D. degree from the Chinese University of Hong Kong (CUHK). He was a member of technical staff at Bell Laboratories, Lucent Technologies in Holmdel, NJ, in 1999-2000. In 2001, he joined the Department of Information Engineering at CUHK and now serves as an Associate Professor.

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