

專 題 演 講

演 講 者：黃依賢 教授(元智大學 資工系)

演講題目："Fault Management Against Optical Distribution network"
Failures in Ethernet Passive Optical Network

演講摘要：

Ethernet Passive Optical Network (EPON) is chosen for servicing diverse applications with higher bandwidth and Quality-of-Service (QoS), starting from Fiber-To-The-Home (FTTH), FTTB (business/building) and FTTT (office). Typically, a single OLT can provide services to both residential and business customers on the same Optical Line Terminal (OLT) port; thus, any failures in the system will cause a great loss for both network operators and customers. Network operators are looking for low-cost and high service availability mechanisms that focus on the failures that occur within the drop fiber section because the majority of faults are in this particular section. Therefore, in this discussion, first we look at the motivation behind the EPON protection schemes from network operator perspective, as well as ways of delivering increased data service availability while minimizing the impact on the network cost and complexity. Lastly, we introduce an autonomous recovery mechanism that provides protection and recovery against Drop Distribution Fiber (DDF) link faults or transceiver failure at the ONU(s) in EPON systems. In the proposed mechanism, the ONU can automatically detect any signal anomalies in the physical layer or transceiver failure, switching the working line to the protection line and sending the critical event alarm to OLT via its neighbor. Each ONU has a protection line, which is connected to the nearest neighbor ONU, and therefore, when failure occurs, the ONU can still transmit and receive data via the neighbor ONU.