

Lightpath Tracing in All-Optical Reconfigurable Wavelength Routing Networks

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Abstract

In an all-optical reconfigurable wavelength routing network, the lightpath of the optical data packets can be reconfigured, via the optical cross connects residing at each network node. To facilitate the network management, lightpath tracing is desirable to identify the exact network nodes that the optical data packets have traversed and thus the complete lightpath can be estimated at the receiving node. Such information is indispensable to detect any possible network routing error due to possible malfunction of the reconfigurable optical routing devices and diagnose the possible causes of signal quality degradation in the received optical data packets by examining the optical impairments along the retrieved lightpath. It is more efficient to adopt optical techniques to perform such physical lightpath tracing on the optical layer so as to realize connection management in optical packet-switched networks. In this talk, we will review different reported lightpath tracing schemes and discuss their design issues.