

Deploying FTTH with Distributed Control and Bus Topology

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Abstract—In order to enhance the bandwidth utility and lower constructing and maintaining costs of public access networks, this paper introduces bus FTTH networks in order to deploy FTTH network with distributed control and bus topology.

After the unfair-access problem on optical-bus distributed-control TDMA networks was resolved, bus FTTH network consisting of two optical-bus distributed-control TDMA networks has been presented. This paper compares bus FTTH networks with FTTH EPONs. Bus FTTH networks applied distributed-control mechanism to control access in order that the merit of FTTH is evidently revealed. FTTH EPONs adopts centralized-control mechanisms which consume and waste bandwidth so that the merit of FTTH networks is debased. Otherwise, the constructing and maintaining costs of bus FTTH networks are much lower than FTTH EPONs. Therefore, bus FTTH networks are appropriate to be adopted in the all-fibre optical access environment in which every home is attached to a unit of optical fibres regardless of the size of the required bandwidth of homes.

Keyword—Distributed control, Optical-fibre communication, Time-division multiple access, Medium access control protocols.



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