

Understanding the Health of an Access Network

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Understanding the health of a network via failure and outage analysis is important to assess the availability of a network, identify problem areas for network availability improvement, and model the exact network behavior. However, there has been little failure measurement and analysis work on access networks. In this paper, we carry out an in-depth outage and failure analysis of a university campus network using a rich set of node outage and link failure data and topology information. We investigate the attributes of hardware/software and misconfiguration problems of the networks, the relation of link failure and node outage, the node availability, and the correlations between layers of a hierarchical network. Our study shows that the general characteristics of the campus network are very distinct from backbone networks and the hierarchical architecture and redundancy of the network design is fairly effective in the network health.