Construction of Multicast Tree for Single Node Failure Protecion

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ABSTRACT

As the development and popularization of internet technology in recent years, the quality and reliability of network transmissions are becoming more significant. In order to reduce the influence of node failure in networks, the study on protection strategy is an important issue. For the protection problem on multicast communications, Wang [1] proposed the RT-SNP method, which constructs a transmission tree and a redundant tree at the same time. When a node failure occurred, the transmission tree can be quickly repaired by using paths of the redundant tree. Because both trees constructed by RT-SNP utilize all nodes in the network, which leads to large transmission delay and network resource waste. Therefore, in this thesis, we present the partial redundant tree algorithm combined with single node protection (PRT-SNP). Instead of building trees over the entire network topology, the construction of both trees in PRT-SNP only connects all destinations to the source. Moreover, when some node crashed, PRT-SNP can also capture appropriate paths from the redundant tree to repair the transmission tree. According to our simulation result, PRT-SNP has lower transmission delay and better network resource utilization than RT-SNP.

Keywords : multicast transmission、redundant tree、single node failure protection

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