

基于随机线性网络编码的双源交替调度算法

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Random Linear Network Coding Based Alternative Scheduling Algorithms with Two Sources

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摘要

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摘要 为减少单源组播中链路质量最差的组播成员对组播速率的影响, 该文提出了适用于双源可靠组播的静态和动态交替调度算法。算法通过交替传输编码数据包, 可充分挖掘组播成员到不同源节点链路质量的差异性。与单源组播相比, 理论分析和仿真表明: 两种调度算法可以有效提高组播速率, 从而减少期望传输时间。动态交替调度算法通过动态更新参数, 可以获得更低的期望传输时间。

关键词: 无线通信 随机线性网络编码 可靠组播 删除信道 调度算法

Abstract: To lessen the impact of multicast member with the worst link quality on multicast rate in single source multicast, static and dynamic alternative scheduling algorithms are presented for reliable multicast with two sources. Through transmitting encode packets alternately, the presented algorithms exploit the link heterogeneity between multicast members and different sources. Compared with single source multicast, theoretical analysis and simulations show that both scheduling algorithms can effectively improve the multicast rate, thereby decrease expected time for completing transmission. Dynamic alternative scheduling algorithm achieves less expected transmission time by dynamically updating parameter.

Keywords: Wireless communication Random linear network coding Reliable multicast Erasure channel Scheduling algorithm

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