论文

无线网络中实时业务的随机超时早检测缓存管理算法

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摘要
该文提出一种适用于无线网络中实时业务的随机超时早检测缓存管理算法。考虑到无线网络具有动态变化的信道条件和存在传输错误等特点，算法分为3个层次：以保证重传分组不超时为目标，采用类似于拥塞早检测的方法对超时进行早期检测和随机丢弃；根据信道条件的变化趋势对丢弃概率进行自适应调节；根据信道速率的变化对门限值进行调整。在算法设计时，同时兼顾了分组丢弃对TCP性能的影响。仿真表明，采用该算法后，系统性能得到改善。

关键词　无线网络　缓存管理　服务质量　信道条件　TCP

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A Random Early Expiration Detection Based Buffer Management Algorithm for Real-Time Traffic over Wireless Networks

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Abstract
A random early expiration detection based buffer management algorithm is proposed for real-time traffic over wireless networks. Considering the characters of wireless link such as variable channel condition and transmission error, the algorithm is composed of three steps: aimed to guarantee the delay of retransmission packets, using the method which is similar to early congestion detection to detect expiration and discard packets in advance; adaptive adjusting the drop probability based on the trend of channel condition; re-calculating the threshold value when the link rate is changed. The influence on the TCP performance is also considered in the design. Simulation results show that the system performance is improved through using the proposed algorithm.

Key words　Wireless network　Buffer management　QoS (Quality of Service)　Channel condition　TCP

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