

SABlue: 一种带加速因子的自适应AQM算法

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SABlue: A Self-tune AQM Algorithm with Acceleration Factor

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摘要 该文在分析SBlue算法的基础上, 提出了一种带加速因子的自适应AQM算法SABlue(Self-tune Accelerate Blue)。算法将瞬时队长作为早期拥塞检测参量, 根据队列负载因子控制丢包步长, 实现丢包概率幅度的自适应调整, 最终将路由由队列长度稳定在目标区域内。为了提高网络突变跨度较大情况时算法的响应速度, 在队列警戒区域内引入了加速因子。实验表明, SABlue面对突变流和不同RTT的网络场景, 队列收敛时间短, 丢包率小, 且具有较好的鲁棒性, 算法综合性能优于其他AQM算法。

关键词: 网络拥塞控制 主动队列管理 Blue算法 SABlue

Abstract: In this paper, a self-tune AQM (Active Queue Management) algorithm with acceleration factor is presented by analyzing Blue algorithm and its variants, which is called SABlue (Self-tune Accelerate Blue). In order to make the queue length kept in the aim area, this algorithm adopt instantaneous queue length as the parameter of incipient congestion detection and calculate the step size of packet drop probability by using load factor. Furthermore, for the sake of response speed, the acceleration factor is led into alert area when the network traffic is changed suddenly. The experiments demonstrate that SABlue algorithm is more robust, carrying lower packet loss and shorter convergence time in the situation of dynamic traffic and RTT variation. The comprehensive performance of SABlue is more excellent than other AQM algorithms.

Keywords: Network congestion control Active Queue Management (AQM) Blue algorithm SABlue

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