ABSTRACT

Wireless Multi-path TCP Westwood+ Modification to Achieve Fairness in HSDPA

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Multi-path is a technique to increase the reliability of the internet connection in IP network. The implementation of this technique can be described as a host with more than one TCP paths that work simultaneously, when one of them fails the others back up the connection. The problem of fairness arises when multi-path host uses the same bottleneck link with another single-path host. This problem can be solved by scaling down each sub-flow on the multi-path by modifying the Congestion Control on TCP. This study designs a Multi-path protocol which uses the same weighing method on BMC and a few modification on weight calculation by exploiting the Bandwidth Estimation on Westwood+ congestion control, this multi-path protocol is called Normalize Uniform High-Adaptability (NUHA) TCP. The simulation was conducted on HSDPA air interface to represent the wireless condition using network simulator 2. The results show that the multi-path protocol NUHA TCP works better than using standard congestion control in achieving fairness in high loss wireless network.

Keywords: Westwood+, Wireless Multi-path, Fairness, Congestion Control