ABSTRACT

Almost all transaction in internet have been done over TCP. Such condition happens because of TCP's realibility in packet transmission over the network. TCP's realibility lies on its congestion control ability. One of the most popular version and commonly used until today is *NewReno* TCP.

Therefore, *NewReno* TCP's AIMD seems less effective in media utilization when congestion occurs also when it through *lossy medium* such as wireless. Many algorithms have been proposed for *NewReno* TCP's perfomance enhancement, such as *Westwood* and *Westwood+* TCP.

Westwood+ TCP basicly is a modification from *NewReno* TCP on the sender side. The main idea is the usage of *end-to-end bandwidth estimation* method and relocate AIMD with AIAD. In this paper, a simulation-based research had been done to investigate effectiveness and improvement given by *Westwood+* over *NewReno.*

Result shows that *Westwood+* increase *goodput* when ACK *compression* happens (0.118 Mbps improvement) and when *lossy medium packet loss* occurs (27% improvement). *Westwood+* also enhances *fairness* (0.02 point of average) between connections in such condition when RTT differences between connections are significant. And *Westwood+* gives higher *goodput* (0.984 Mbps) than *NewReno* (0.882 Mbps) in the presence of route and packet size variations. Also for *friendliness*, *Westwood+* is friendly to *NewReno* (with coeficient point over 0.9).

Keywords : TCP, Congestion Control.