ABSTRACT

Universal Mobile Telecommunications System (UMTS) is a third-generation cellular network that enables high-speed wireless Internet access. It can provide maximum data-rates ranging from 64kb/s to 2Mb/s in different environmental types. UMTS is designed to provide access to the existing Internet services as well as to UMTS specific services. It is widely known that TCP does not perform efficiently in wireless links where the bit error rate is high enough. This final project has as main target to evaluate the performance of TCP data transfer over the UMTS air interface, by means of a rather detailed simulation model.

We examine the performance of TCP over 4 characteristic UMTS Dedicated Channels (DCHs) with window size variation (5, 10, 15, and 20) . The characteristic of DCH depend on different bit rates and Transmission Time Intervals (TTIs).

From the experiment, the result is as the window size of TCP and downlink bit rate of the DCH increases, the throughput and the percentage of packet loss increase. It is obvious that as the downlink bit rate of the DCH increases, the end-to-end delay decrease and as the window size of TCP increases, the end-to-end delay increase.

Keywords: UMTS, TCP, DCH, window size, Internet.