

Abstract

The *Stream Control Transfer Protocol* (SCTP) is a new transport protocol designed to solve some of the shortcomings of the *Transmission Control Protocol* (TCP). SCTP has a new internal structure, which allows a connection, called association in SCTP, to contain multiple streams. These streams give users the opportunity to separate unrelated data into different streams and avoid *Head of Line Blocking* (HLB) situations, which can occur when unrelated data items are transferred in a single stream.

The goals of this study were to gain practical experience of SCTP and reveal information about the performance of the protocol. The means for reaching these goals were therefore naturally practical experiments on a real SCTP implementation with the necessary performance measurements.

Initially, an evaluation of SCTP implementations was performed and the most appropriate for a performance evaluation was chosen. The experiment was designed to compare the performance of multiple streams against multiple TCP connections. The downloading of web-pages serving as an inspiration and the composition of the web-pages varied from 1 to 300 different files, each file transferred separately over a SCTP stream or a TCP connection. The result showed that SCTP can be 10% faster when 300KB are transferred with 50 streams/connections and under some circumstances up to 70% faster. The overhead generated by initializing multiple TCP connections was found partially responsible for TCP's lack of performance. Further, the way the TCP connections were initialized was found to have a big effect on TCP's results in the tests.