

ABSTRACT

Data Communication has been developing to the high speed communication. The guarantee of end-to-end connection between hosts is the important one. The use of TCP (Transmission Control Protocol) as a reliable transport protocol that implement error detection for packet loss and retransmission in end-to-end connection is still become a protocol standard in system.

ATM (Asynchronous Transfer Mode) technology that recommended for Broadband – Service Digital Network (B-ISDN) with broadband and high speed service already support integration of voice, video, and data applications. One of the classes of service that used to support data application is ABR (Available Bit Rate) besides UBR (Unspecified Bit Rate). ABR uses a rate-based congestion control by using a special cell, called Resource Management cell as the network's feedback that provide network status information for controlling the transmission rate of data from the source.

In this experiment, we analyzes the performance of TCP and ABR control mechanism with parameter metrics such as throughput, cell loss ratio, and fairness index in some various of number TCP source, packet size, buffer capacity at the switch, and the effect of background traffic that has higher priority (in here we use VBR traffic). From our investigation, we find that TCP can achieve maximum throughput when there is no cell loss in the ATM network and uses a sufficient buffer size. But when there is a traffic background, there is degradation in throughput and fairness index due to various allocation rates.

From that, integration between TCP/IP network and ATM-ABR technology in data communication is one of solution to improve performance of TCP/IP over ATM network.

Key word: TCP, ATM, ABR, RM cell.