

Abstract

The current Internet which is based on TCP/IP protocol have been used widely on our daily routines. Along with the widespread of TCP/IP based Internet usage, the benefit of using TCP/IP has increased.

TCP/IP protocol architecture basically does not include the discrimination between services. All the services runs on best-effort method. This will give rise to a network congestion and thus disrupt other services which use a low bandwidth and small delay.

For that reason, the Internet Engineering Task Force (IETF) has proposed a draft and RFCs to enhanced the quality of TCP/IP protocol. One of them is the Differentiated Services (DiffServ) architecture that is regulated in RFC2474 and RFC2475. The basic concept of DiffServ is creating a priority discrimination between services based on their aggregate transfer rate. These transfer rate is further classified into different service levels.

The Linux operating system nowadays have provided many high level traffic controlling schemes, of which these functions are included in the *kernel*. This system uses a few moduls to facilitate its traffic control scheme. This modular arrangement allows the implementation of Diffserv architecture.

This final assignment implement an edge router on Differentiated Services based network that will be controlling all traffic that passing through it. For testing purposes there will be two kind of traffic that being generated, one is an audio stream that will be classified into the EF (Expedited Forwarding) class, and the other is a flood stream that will be classified into the BE (Best Effort) class.

The audio stream that being generated is an MP3 audio format that will be running on Real Time Protocol (RTP). RTP is commonly used for Voice over IP (VoIP) communication.

The implementation of the Differentiated Services edge router resulting an improved performance on the network parameters such as throughput, packet loss, delay and jitter.