User Parameter Tunning for VoD Service Users

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Abstract. This work has been focused on the design of a VoD parameter-measuring tool. This tool works as a video client and additionally provides a set of measurements used to define different user parameters in different network conditions.

1 Introduction

The operation of a VoD service involves a number of engineering decisions that affect the VoD quality of service. Some papers in the literature consider the system performance [1, 4], others, that the bottleneck of the VoD service is the I/O bandwidth [1,2], and there are different proposals to optimise the video server performance by applying different scheduling algorithms to serve the movies [2, 3].

However, there are other parameters that should be taken into account both in the client as in the network side. The client usually uses a pre-load buffer to store the first bytes of the movie to avoid starvation during video playback and there is also a very important decision about the size of the playback buffer of the client player. In the same way, it is necessary to measure the effect of the network during the movie transmission.

2 Measuring Tool Architecture

The measuring tool has been developed based on the DirectX graph filter architecture for Windows [5]. It provides a flexible and adaptive tool as it can work with all the registered filters in Windows.

The measuring tool consists on a filter graph built by the filter manager (see figure 1). An asynchronous input filter has been developed ad-hoc to provide the measuring tool characteristics (see figure 1). The other necessary filters are the same to those needed to play the file from the hard disc.

The asynchronous input filter manages the data transmission between the video server and the player. The received data from the network is stored in a circular buffer and when the next filter asks an amount of data the developed input filter gives the data from the circular buffer. Consequently, DirectShow is used to make the necessary

conversions and to render the samples correctly. In addition, the input filter allows monitoring parameters as the bytes/s, packets/s, and so on. In addition, it provides the graphical representation of the parameters. Moreover, the developed input filter manages different possible critical circumstances (see figure 1 a, b).

Fig. 1. A filter graph built in the video client to play an MPEG video file

3 Conclusions

This experience has shown from the point of view of the client that many points have to be considered in a VoD service. The developed tool allows setting different user parameters and evaluating the VoD service.

References

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