Adaptive Video Streaming: a Survey and Case Study

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Abstract

In the past decade, Internet traffic has seen a significant change from web browsing to video viewing. The ongoing trend raises a challenging problem: how to stream data to heterogeous peers?

The designer of such data streaming architecture should bear the following considerations in mind: QoE, server load, network resource efficiency, scalability, etc. The heterogeneous peer network condition makes the design more complicated. The underlying codec ranges from Multi Description Coding to Multi Layer Coding. The data deliver architecture ranges from unicast, multicast, to P2P network. Researchers have focused on different system settings and optimization objectives.

This paper will first sum up several works in the context of adaptive video streaming. At the same time, we do a case study on a commercial adaptive video streaming system, which combines Multilayer Codec and P2P technology. Possible improvements on this system are proposed with reasoning. Some of the conjectures are verified through a corresponding simulation platform based on NS2.

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MMKP, Knapsack

MCMF, Network Flow

Appendix

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