Algortihm for Cost-effective Distribution of VoD Contents

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Abstract. The Video on Demand (VoD) has become one of the most popular services offered by the Telecom operators due to the wide (deployment) expansion of the IPTV and the variety of the video services that come with it. The increasing popularity of the VoD is result of the personalized experience that it offers to the clients since they can watch any video from a large variety of contents at any time. However, this convenience for the clients comes with a price that has to be paid by the operators and that is the large amount of traffic generated in the network because each request for a video requires a dedicated unicast stream. This traffic can originate from different servers of the core of the network depending on the distribution of the contents throughout the network. Therefore, the placement of the videos according to their popularity is one of the key factors for reduction of the traffic in the core of the network. In this work we propose a redistribution algorithm for an architecture for VoD streaming that takes into consideration the state of the network as well as the popularity of the video contents in order to reduce the overall cost of the traffic. The main objective of the algorithm is to use the behaviour of the clients to concentrate the streaming traffic in the periphery of the network by placing the most demanded videos in the servers closer to the clients and thus to alleviate the servers in the core of the network. Our experimental results show that the redistribution algorithm is highly responsive to the change of the popularity of the videos which significantly reduces the cost of the traffic generated in the core of the network.

Keywords: VoD, cost, optimization, popularity.