
Abstract

This thesis dissertation presents background push Content Download Services as an efficient mechanism to deliver pre-produced television content through existing broadcast networks. Nowadays, network operators dedicate a considerable amount of network resources to live streaming live, through both broadcast and unicast connections. This service offering responds solely to commercial requirements: Content must be available anytime and anywhere. However, from a strictly academic point of view, live streaming is only a requirement for live content and not for pre-produced content. Moreover, broadcasting is only efficient when the content is sufficiently popular.

The services under study in this thesis use residual capacity in broadcast networks to push popular, pre-produced content to storage capacity in customer premises equipment. The proposal responds only to efficiency requirements. On one hand, it creates value from network resources otherwise unused. On the other hand, it delivers popular pre-produced content in the most efficient way: through broadcast download services.

The results include models for the popularity and the duration of television content, valuable for any research work dealing with file-based delivery of television content. Later, the thesis evaluates the residual capacity available in broadcast networks through empirical studies. These results are used in simulations to evaluate the performance of background push content download services in different scenarios and for different applications. The evaluation proves that this kind of services can become a great asset for the delivery of television content.