Fair and Popularity based Content Allocation Scheme for IPTV Delivery Networks

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Abstract

IPTV gained a significant attention from researchers and Internet service providers due to its ability to benefit from the capabilities of IP based networks to deliver TV related services with high level of QoS. One of the main problems in IPTV Delivery Networks is how to manage the huge amount of multimedia contents efficiently to meet the demands of users especially for Video on Demand (VoD) services. IPTV Delivery Networks is employed to manage the storage of VoD contents in IPTV system but the dynamic changes in both VoD contents and users interests make the need for efficient content management is crucial. Many content allocation schemes are proposed for IPTV Delivery Networks to manage the contents efficiently in hierarchical and distributed architectures. Peer-service architecture of IPTV Delivery Networks is efficient and provides high level of QoS but does not take load balance factor of storage servers into consideration. This paper aims to investigate load imbalance problem in IPTV Delivery Networks, modify peer-service architecture, and propose a novel content allocation method that solves the load imbalance in peer-service content network by replicating the contents based on their popularity and the workload of servers within the service area.
Experimental results show that this proposed balanced and popularity based content allocation method can maintains the load balancing among servers and avoid the over/under utilization of servers.

References

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Index Terms

Computer Science

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Keywords

IPTV, IPTV Delivery Networks, Content Allocation, Peer-service architecture, VOD.