Draft of VoD modeling

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Modeling of Traffic Locality in VoD Streaming Systems

The primary objective is to determine the performance of VoD streaming systems when locality-aware peer selection strategy is applied in the VoD streaming systems. The locality-aware peer selection strategy is that peers have the limited number of neighbors who are in other ISPs. In this paper, we intend to use differential equations to derive the needed downloading time for video chunks demanded by peers.

System Model

There are M ISPs. The number of peers in ISP k is n_k. The distribution of peer numbers in different ISPs can be represented by Zipf-Mandelbrot distribution.

A movie is composed of M chunks. Chunk is used to advertising to neighbors what parts of a movie a peer holds.

Performance

Calculate the downloading time for different video chunks demanded by peers under two situations: locality-unaware peer selection and locality-aware peer selection.