Paper Study:

1) A simple Model for Analyzing P2P Streaming Protocols; Authors: Yipeng Zhou, D.M.Chiu, J.C.S.Lui 2007 IEEE

This paper formulated a tractable analytical model to analyzing two chunk selection strategies in p2p streaming protocols: Rarest First and Greedy and figuring out relations between Buffer Size, Peer Population and Continuity from the resolutions.

The paper sees a buffer of a peer caches up to n chunks received from the network. And it references the buffer positions according to the age of the chunks. Then it calculates the probability distribution of the buffer's occupancy, for position i+1, the probability of occupancy is p(i+1), p(i+1) contains two parts, one is p(i) which means that when the oldest chunk in the buffer position n has been played, then position i of the buffer becomes i+1, the other is q(i) which means that if p(i) is empty, then the peer has probability of q(i) to get the chunk from other peers.

The paper calculates q(i) under the two chunk selection strategies: Rarest First and Greedy. After analyzing the two probability distributions, it concludes that the Rarest First is more scalable than the Greedy strategy and for a small sized p2p system, the Greedy Strategy can achieve better continuity. Based on the analysis, the paper proposes a mixed strategy.

2) Modeling and Performance Analysis of BitTorrent - Like Peer-to-Peer Networks; Authors: Dongyu Qiu and R. Srikant Sigcomm 2004

This paper uses a simple fluid theory to analyze the peer evolution and the incentive mechanism of peer selection algorithm.

First it gives the differential equations and calculates the steady-state performance. After that it considers the local stability of the solution.

It also defines a parameter- effective of file sharing and calculates the value of it.