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THE CHINESE UNIVERSITY OF HONG KONG
Department of Information Engineering

Seminar

Queuing Models for Peer-to-peer Systems

by

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The Chinese University of Hong Kong

Abstract
Recent development of peer-to-peer (P2P) services (e.g. streaming, file sharing, and storage) systems introduces a new type of queue systems not studied before. In these new systems, both job and server arrive and depart randomly. The server dynamics may or may not correlate to the job dynamics. Motivated by these observations, we develop queuing models for P2P service systems and a taxonomy for different variations of these queueing models. For several basic classes of these systems, we show that they are stable, i.e. all arriving job will be served and cleared in finite time, if the average workload does not exceed the average system service capacity. Numerical experiments verify our results, and indicate that higher server dynamics lead to less time a job spends in the system on average.

Biography
Taoyu Li received his Bachelor degree from Tsinghua University, Beijing in 2007. From then he has been working as a Ph.D student at Tsinghua University. Currently he is visiting CUHK as a Junior Research Assistant under the supervision of Prof. Minghua Chen. His research is now focused on the modeling and design of peer-to-peer file sharing systems.

**** ALL ARE WELCOME ****

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