



THE CHINESE UNIVERSITY OF HONG KONG
Department of Information Engineering

Seminar

**Optimal Video Content Placement and
Next-generation Wireless Services**

by

Dr. Seungjoon Lee
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Date : 20 March, 2013 (Wed.)
Time : 10:00am - 11:00am
Venue : Room 833, Ho Sin Hang Engineering Building
The Chinese University of Hong Kong

Abstract

Video streaming and mobile networking are two key components in today's Internet. In the first part of this talk, I will present an approach for intelligent video content placement that scales to large Video-on-Demand library sizes (e.g., millions of videos). We formulate the problem as a mixed integer program (MIP) that takes into account content popularity and resource constraints such as disk space and link bandwidth. To overcome the challenges of scale, we employ a Lagrangian relaxation-based decomposition technique. Our technique finds a near-optimal solution (e.g., within 1-2%) with orders of magnitude speedup relative to solving the LP relaxation via the state-of-the-art software. Using traces from an operational system, we show that our approach significantly outperforms alternative placement strategies such as LRU and LFU.

In the second part of the talk, I will describe complexities in providing today's cellular services and practical challenges related to topology discovery, network design, and resource optimization for a large cellular network. Then, I will present our ongoing effort on a cellular network testbed, which allows dynamic instantiation of a cellular network and enables experimentation of various network and architecture designs. I will describe the current testbed platform and cloud-based control framework, and present a simple use case scenario and its implementation on our testbed.

Biography

Seungjoon Lee is a principal member of technical staff at AT&T Research, Florham Park, NJ. He received his Ph.D. in Computer Science from University of Maryland, College Park in 2006, and Bachelor's and Master's degrees in Computer Science from Seoul National University, Seoul, Korea, in 1996 and 2000. His research interests include computer networks, cloud computing, large-scale systems, mobile computing, and network management.

**** ALL ARE WELCOME ****

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