



THE CHINESE UNIVERSITY OF HONG KONG
Institute of Network Coding
and
Department of Information Engineering
Seminar



Towards Cost-Effective Low-Delay Cloud-Assisted Video Conferencing

by

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Abstract

Video conferencing with diverse applications such as in tele-health-care and online education, is witnessed as the most widespread multimedia application; video conferencing is the fastest-growing multimedia service with 51.7% annual user growth and VC users will surpass audio conferencing users by 2015.

With the upsurge of cloud computing, it is a promising vision to employ resource-rich cloud agents to improve the performance of video conferencing. In this architecture, several users with heterogeneous devices join a conferencing session by subscribing to cloud agents, e.g., virtual machines. In this way, the users only care about sending/receiving video streams to/from the agents, and cloud agents accomplish all resource-intensive tasks.

In this talk, we revisit the cloud-assisted video conferencing problem from the perspective of user subscription to cloud agent with the goal of minimizing provider's cost while keeping the conferencing delay low. By formulating a combinatorial optimization problem and applying the recently-proposed Markov approximation framework, we present a parallel and adaptive solution that achieves the optimal solution.

We also present the evaluation of our proposed solution by both prototype system implementation and trace-driven world-wide experiments using PlanetLab and Amazon EC2, which demonstrate that our design reduces the traffic cost of the previous approaches by 77% and simultaneously yields better conferencing delay.

This is a joint work with Prof. Minghua Chen and Lok To Mak from The Chinese University of Hong Kong, Prof. Zhi Wang from Tsinghua University, Prof. Chuan Wu from The University of Hong Kong, and Prof. Ahmad Khonsari from The University of Tehran.

Biography

Mohammad H. Hajiesmaili received his BSc in Computer Engineering from Sharif University of Technology, Iran, in 2007, and MSc in Computer Engineering from University of Tehran, Iran, in 2009. He is currently a Research Assistant in the Institute of Network Coding, and a PhD student in University of Tehran, Iran. From 2009 to 2013, he worked as a Research Assistant in the School of Computer Science, Institute for Research in Fundamental Sciences (IPM), Iran. His research interests are multimedia network optimization and micro-grid energy systems.

**** ALL ARE WELCOME ****