THE CHINESE UNIVERSITY OF HONG KONG
Department of Information Engineering
Seminar

1) Scaling Online Social Networks without Pains
2) Apollo: Tapping into the Bittorrent Ecosystem
by
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and
Dr. Georgos Siganos
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Date : **4 December, 2009 (Friday)**
Time : **2:30-3:30pm**
Venue : **Room 833, Ho Sin Hang Engineering Building**
The Chinese University of Hong Kong

Abstracts

Part 1 : Scaling Online Social Networks without Pains
Online Social Networks (OSN) face serious scalability challenges due < op: 0px; margin-right: 0px; margin-bottom: 0px; margin-left: 0px; font: normal normal normal 12px/normal Helvetica; ">to their rapid growth and popularity. To address this issue we present a novel approach to scale up OSN called One Hop Replication that combines partitioning and replication in a middleware to transparently scale up a centralized OSN design, and therefore, avoid the OSN applicati transition to a fully distributed system to meet its scalability needs.

One-hop replication exploits some of the structural characteristics of Social Networks: 1) most of the information is one-hop away, and 2) the topology of the network le displays a strong community structure. In this talk we will show using real traces from OSNs such as emails, Twitter and Orkut that one-hop replication has the potential to provide out-of-the-box transparent scalability while maintaining the replication overhead costs in check.

Part 2 : Apollo: Tapping into the Bittorrent Ecosystem
In this talk we present Apollo, a system that can tap into the Bittorrent (BT) ecosystem and efficiently and discretely collect Bittorrent related performance data, without requiring the consent or cooperation of either the ISPs or the end-users. Apollo is highly efficient and scalable and can monitor tens of thousands of Bittorrent clients in parallel by utilizing a single commodity server.

The Apollo system provides a means to capitalize on the millions of existing online Bittorrent users and harvest performance related data. We present several applications that use this new dataset. In particular, we show how we improve Network Transparency from a BT point of view by: (a) identifying in real-time the traffic management policies of ISPs across the globe, (b) proving a means to compare the BT related QoS that different ISPs offer, and (c) enhancing the download speed of existing BT clients. We hope our system will provide the ground for additional research efforts in collecting and analyzing the rich data available in the BT ecosystem.

Biography

Josep M. Pujol is a member of the Telefonica Research Labs in Barcelona http://research.tid.es/ he was a post-doc at the University of Michigan affiliated to the Center for the Study of Complex Systems and the Department of Epidemiology where he worked on infection transmission and dose-response models. Josep earned the PhD from the Universitat Politecnica de Catalunya with his dissertation on the st ieties. Further information is available at http://research.tid.es/jmps/

Georgos Siganos is a researcher at the Internet Group at Telefonica Research in Barcelona. He received his Ph.D. from the University of California, Riverside, and his bachelor's degree from the Technical University of Crete. His research interests include, peer-to-peer systems, scaling social networks, Internet Routing protocols, Internet Routing Registries and Internet measurements.

** ALL ARE WELCOME **