ΔΙΑΛΕΞΗ

On two measurement problems: Inferring Autonomous System relationships and Computing network traffic heavy hitters

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Περίληψη

Contractual relationships between Autonomous Systems (AS) affect Internet routing at inter-domain level. In this talk, I will first introduce and formalize the problem of inferring AS relationships and then will outline novel inference heuristics finding customer-to-provider, peer-to-peer, and sibling-to-sibling relationships. I will outline validation results based on a survey with network operators showing inference accuracy between 82.8% and 96.5%. Finally, I will discuss an AS relationships repository we have opened to make our results useful for the community where we archive periodically the Internet AS-level topology annotated with inferred AS relationships.

In the second part of the talk, I will switch to the problem of computing network traffic heavy hitters using limited memory resources and I will present an algorithm called Probabilistic Lossy Counting (PLC) for finding heavy hitters. PLC enhances the well-known lossy counting algorithm using on a tighter error bound on the estimated sizes of traffic flows providing probabilistic rather than deterministic guarantees on its accuracy. Performance comparison experiments show that PLC has between 34.4% and 74% lower memory consumption and between 37.9% and 40.5% fewer false positives than other state-of-the-art algorithms.

Σύντομο Βιογραφικό

Xenofontas Dimitropoulos is a Lecturer in the Communication Systems Group (CSG) of ETH Zurich and in the Open University of Cyprus (OUC), where he heads the Specialization in Networks and Communications of the Master in Information Systems. He received a PhD degree in Electrical and Computer Engineering from Georgia Tech. In the past, he worked in IBM Research on the Aurora traffic flow collector project (now part of the IBM Tivoli suite) and in the Cooperative Association for Internet Data Analysis (CAIDA) of the University of California, San Diego (UCSD). His research interests focus on network measurements and inter-domain routing. He has had various honors, like leading the graduation oath in his BSc degree for the highest GPA, a Fulbright and a Marie Curie scholarship, and a best paper award. Presently, he supervises a group of PhD candidates focusing on traffic measurements, coordinates CSG involvement in a number of funded projects, and teaches topics on computer networks. He was the PC Chair of the 2009 IEEE Symposium on Network Evolution and Routing, while his publications have more than 500 citations and an h-index of 11.

Πληροφορίες: *Ευάγγελος Παπαπέτρου*
Σημείωση: *Ο κ. Δημητρόπουλος είναι υποψήφιος για θέση ΔΕΠ με γνωστικό αντικείμενο «Δίκτυα Υπολογιστών»*

Πέμπτη, 24 Ιουνίου 2010 – ώρα 13:00 - 14:00
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Πανεπιστήμιο Ιωαννίνων