



THE CHINESE UNIVERSITY OF HONG KONG
Department of Information Engineering

Seminar

**Introduction to the Network Neutrality Debate.
Description of a related model of ISP Inter-Relations: Traffic
Exchange, Revenue Sharing, and Disconnection Threat**

by

Dr. Bruno Tuffin
Full researcher at INRIA
France

Date : November 28, 2012 (Wednesday)
Time : 11:00am-12:00noon
Venue : Room 833 Ho Sin Hang Engineering Building
The Chinese University of Hong Kong

Abstract

In a first step, we introduce the network neutrality debate, and the arguments of neutrality proponents and opponents. The network neutrality debate originally stems from the growing traffic asymmetry between ISPs, questioning the established peering or transit agreements. That tendency is due to popular content providers connected to the network through a single ISP, and whose traffic is not charged by distant ISPs.

In a second step, we propose to review the economic transit agreements between ISPs in order to determine their best strategy. We define a model with two ISPs, each providing direct connectivity to a fixed proportion of the content and competing in terms of price for end users, who select their ISP based on the price per unit of available content. We analyze and compare thanks to game-theoretic tools three different situations: the case of peering between the ISPs, the case where ISPs do not share their traffic (exclusivity arrangements), and the case where they fix a transfer price per unit of volume. The impact on the network neutrality debate is then discussed.

Joint work with Pierre Coucheney and Patrick Maillé.

Biography

Bruno Tuffin received his PhD degree in applied mathematics from the University of Rennes 1 (France) in 1997. Since then, he has been with INRIA in Rennes. He spent eight months as a postdoc at Duke University in 1999. His research interests include developing Monte Carlo and quasi-Monte Carlo simulation techniques for the performance evaluation of telecommunication systems, and developing new Internet-pricing schemes and telecommunication-related economical models. He is currently Associate Editor for INFORMS Journal on Computing, ACM Transactions on Modeling and Computer Simulation and Mathematical Methods of Operations Research. He has written or co-written two books devoted to simulation: Rare event simulation using Monte Carlo methods published by John Wiley & Sons in 2009, and La simulation de Monte Carlo (in French), published by Hermes Editions in 2010.

His web page is http://www.irisa.fr/dionysos/pages_perso/tuffin/Tuffin_en.htm

**** ALL ARE WELCOME ****

Host: Professor Jianwei Huang (Tel: 3943-8353, Email: jwhuang@ie.cuhk.edu.hk)
Enquiries: Information Engineering Dept., CUHK (Tel.: 3943-8385)