THE CHINESE UNIVERSITY OF HONG KONG
Department of Information Engineering
Seminar

FluidRAN: Optimising vRAN and MEC Orchestration
by
Prof. George Iosifidis
Trinity College Dublin, Ireland

Date : **12 Jan., 2018 (Fri.)**
Time : **4:00pm – 5:00pm**
Venue : **Room 1009, William M.W. Mong Engineering Building**
          The Chinese University of Hong Kong

Abstract

Virtualized Radio Access Network (vRAN) architectures constitute a promising solution for the densification needs of 5G networks, as they enable the virtualization of Radio Unit (RUs) functions and their implementation in cost-efficient Central Units (CUs). vRAN facilitates the flexible function relocation and therefore has less stringent network requirements compared to the state-of-the-art fully Centralized (C-RAN) systems. In this talk we will discuss the important vRAN design problem and will present a novel analytical framework, FluidRAN, that minimizes RAN costs by jointly selecting the splits and the RUs-CUs routing paths. We will also consider the increasingly relevant scenario where the RAN needs to support multi-access edge computing (MEC) services, that naturally favour distributed RAN (D-RAN) architectures. We will also present results from a data-driven evaluation method, leveraging market data for costs, 3GPP specifications and RAN topologies of 3 operational European networks. Our results reveal that (i) pure C-RAN is rarely a feasible solution in existing infrastructures, (ii) FluidRAN achieves significant cost savings as compared to traditional D-RAN systems, and (iii) MEC can increase substantially the operator's cost as it pushes vRAN function placement back to RUs.

This is joint work with Prof. D. J. Leith (TCD), X. C. Perez and A. G. Saavedra (NEC Research Labs, Germany).

Biography

George Iosifidis is the Ussher Assistant Professor in Future Networks, Trinity College Dublin, Ireland. He obtained his M.Sc. (2007) and Ph.D. (2012) degrees from the Department of Electrical and Computer Engineering, University of Thessaly, Greece, and holds an engineering diploma in avionics and quality control. He worked as a Post-doctoral researcher at CERTH, Greece, and Yale university, for 2 years respectively, as an associate research scientist at Yale for 1 year, and as an aircraft engineer from 2001 to 2012. His research interests lie in the area of network optimisation and network economics with applications to wireless networks and edge computing. He is co-recipient of the Best Paper Awards in IEEE WiOpt 2013 and IEEE INFOCOM 2017, a Guest Editor for IEEE JSAC Special Issue in Caching, and has received a 2018 SFI Career Development Award.

** ALL ARE WELCOME **

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