Mobile edge-Networking Systems and Data Offloading Markets for 5G Systems

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Abstract: The increasing demand for ubiquitous, high-speed and high-performance Internet access challenges the economic viability of mobile network operators which cannot cope with the rate of increase of wireless traffic. Alternate means are considered to deal with the excessive traffic demand that exploit the increase of wireless networks in unlicensed parts of the spectrum, as well as of handheld devices with multiple radio interfaces. We will first present a scheme where operators may gain access to WiFi networks and negotiate with their owners permission to offload mobile traffic from the cellular network. This carrier-grade offloading mechanism is based on a double auction algorithm that allows both the cellular operators and the access point owners that seek the most beneficial arrangements for themselves to reach an agreement for efficient traffic offloading. Additionally, we will discuss edge-Networking architectures where mobile users cooperate to address key network impairments in a bottom-up fashion and improve their mobile Internet access and cost. We will first present a resource allocation and incentive mechanism that optimizes performance and encourages user participation in such crowd-sourced Internet provisioning schemes. Accordingly, we will analyze the architecture and the operation of a novel system design which supports such edge-networking solutions by leveraging SDN-enhanced mobile devices and cloud services.

Short Bio: George Iosifidis is an associate research scientist at the Department of Electrical Engineering, and the Institute for Network Science (YINS), Yale university. He obtained his M.Sc and Ph.D degrees from the ECE Department, University of Thessaly, Greece, in 2007 and 2012, respectively. He also holds an engineering Diploma from the Greek Air Force Academy. He worked as a Post-doctoral researcher at CERTH, Greece, for 2 years, and as an engineering officer in Greek Air Force from 2001 to 2012. His research interests lie in the broad area of network optimization and network economics with applications to wireless networks. Recent topics of focus are carrier-grade mobile data offloading and caching, edge-Networking architectures for 5G systems, video delivery and green-networking in 5G systems, and advanced network sharing mechanisms.

Venue: Meeting Room, Dunlop-Oriel/CTVR.

Further Details: http://www.scss.tcd.ie/doug.leith/seminars.php