Invited Talk

Title: Wireless networks capacity characterization and how to approach it

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Abstract
Wireless systems possess attributes fairly different than those formed the design guidelines of the Internet. Hence novel approaches are needed for architecting networks that seamlessly integrate wired and wireless components and offer the grade of service people are accustomed from the internet. In this talk we will review a number of theoretical advances towards characterizing the capacity of wireless networks and present an optimization based framework for developing algorithms towards achieving that capacity. The necessary interaction among the different network layers for realizing those resource allocation algorithms will be discussed while implementation challenges both in terms of computational complexity as well as state information availability will be presented. Implications on the scaling properties of those algorithms and the associated network capacity will be given. In the last part of the talk we will present attributes of prevailing wireless network standards that support the incorporation of optimization based resource allocation algorithms in practical network designs and discuss current approaches.

Biography
Leandros Tassiulas is Professor in the Department of Computer Engineering and Telecommunications at the University of Thessaly. He holds a Diploma in Electrical Engineering from the Aristotelian University of Thessaloniki, Greece, in 1987, and a Ph.D. degree in Electrical Engineering from the University of Maryland, College Park in 1991. He has held positions as Assistant Professor at Polytechnic University New York, Assistant and Associate Professor University of Maryland College Park and Professor University of Ioannina Greece. His research interests are in the field of computer and communication networks with emphasis on mathematical modeling, architectures and protocols of wireless systems, sensor networks, high-speed internet and satellite communications. He is a Fellow of IEEE while his research has been recognized by several awards including the inaugural INFOCOM 2007 Achievement Award “For fundamental contributions to resource allocation in communication networks”, the INFOCOM 1994 best paper award, a National Science Foundation (NSF) Research Initiation Award in 1992, an NSF CAREER Award in 1995, an Office of Naval Research Young Investigator Award in 1997 and a Bodosaki Foundation award in 1999.