



ACCESSING RESOURCES IN (CITY-WIDE) NETWORKED ENVIRONMENTS: ISSUES AND ALTERNATIVES

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Speaker

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Abstract



Access to a common (communication) resource has been one of the fundamental problems in the various networking technologies that have emerged over the last half a century. Among those, the problem of accessing a common resource by distributed, non-communicating users (i.e., through an uncoordinated approach) has been a central one and has received wide attention since the appearance of the ALOHA approach. The lack of coordination brings some advantages or keeps complexity low, but it also incurs some cost in terms of resource capacity waste and reduced throughput.

Recent advances in Information and Communication Technologies (ICT) have enabled the generation and dissemination of vast amounts of information that enhance awareness about the environment and its resources. While such resource awareness brings benefits, it also intensifies competition and results in potentially significant congestion penalties for the distributed users attempting to access such resources in uncoordinated fashion.

After a brief review of the classical problem of accessing a common channel by distributed non-communicating users, the problem of accessing city-wide, distributed resources by non-communicating users will be presented through the case of the search for a (public) parking spot. The role of some information that can be available to the competing users will be discussed and optimal or “stable” solutions to this competition will be presented. In the sequel it will be discussed how ICT technologies can provide for some coordination in accessing such resources and also discuss significant side issues that emerge. Finally, a distributed, resource auctioning approach will be briefly presented as a means of bringing some coordination in the resource accessing problem and shifting the competition to the price arena.

This event will be conducted in English and will be followed by a Q&A session.

About Ioannis Stavrakakis

Prof. Ioannis Stavrakakis (IEEE Fellow) (<http://cgi.di.uoa.gr/~ioannis/>), is Professor in the Dept of Informatics and Telecommunications of the National and Kapodistrian University of Athens and a visiting Professor at IMDEA Networks and recipient of the Chair of Excellence comunidad de Madrid in 2017. He received his Diploma in Electrical Engineering from the Aristotelian University of Thessaloniki and his PhD in the same field from University of Virginia, USA. He served as Assistant Professor in CSEE, University of Vermont (USA), 1988-1994; Associate Professor of Electrical and Computer Engineering, Northeastern



University, Boston (USA), 1994-1999; Associate Professor of Informatics and Telecommunications, National and Kapodistrian University of Athens (Greece), 1999-2002; and Professor since 2002. Teaching and research interests are focused on Analysis and Design aspects of networking technologies ranging from link to application layers: Social, mobile, ad hoc, autonomic, information-centric, delay tolerant and future Internet networking; network resource allocation algorithms & protocols, traffic management and performance evaluation; content dissemination, placement and (cooperative) replication in unstructured P2P and social networks;

(human-driven) decision making in competitive environments. His research has been published in over 220 scientific journals and conference proceedings and was funded by USA-NSF, DARPA, GTE, BBN and Motorola (USA) as well as Greek and European Union (IST, FET, FIRE) funding agencies. He has received 2 Marie-Curie grants for training post and has supervised about 20 Ph.D. graduates. He has served repeatedly in NSF and EU-IST research proposal review panels and involved in the TPC and organization of numerous conferences sponsored by IEEE, ACM, ITC and IFIP societies. He has served as chairman of IFIP WG6.3 and elected officer for IEEE Technical Committee on Computer Communications (TCCC). He has been in the editorial board of Proceedings of IEEE (2015-), Computer Communications (2008-), IEEE/ACM transactions on Networking, ACM /Springer Wireless Networks and Computer Networks journals. He has served as head of the Communications and Signal Processing Division, Director of Graduate Studies, Dept Vice-Chair and Dept Chair.

Date & Time

Semana de la Ciencia 2017 ranges from November 6th to the 19th. Our event will take place on November 6th, from 13:00 to 14:30, approximately.

Venue

IMDEA Networks Institute - Avenida del Mar Mediterráneo, 22 - 28918 - Leganés, Madrid

How to arrive: <http://www.networks.imdea.org/contact/directions-to-imdea-networks>

Venue capacity: 60