Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
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Research Seminar

Efficient Broadcasting Area Formation for Cellular Networks.

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12-1pm Friday 27[Th] Nov 2015

Abstract: An effective way to provide popular content in cellular networks is through broadcast and multicast. This requires aggregating cells into areas where transmissions are tightly synchronized in time so that each area broadcasts the same set of content items, on the same radio resources. In this talk, we will first review the fundamentals of broadcasting in current 4G networks and upcoming 5G networks. We then address an aspect of broadcasting in cellular networks that has so far received little attention: how to form broadcasting areas and assign content to them so that radio resources are efficiently exploited and user requests satisfied. We solve the problem through an original clustering approach, named Single-Content Fusion (SCF), that initially aggregates cells into single-content areas by maximizing cell similarity in content interests. Such areas are then merged into multiple-content areas leveraging similarity in spatial coverage. This approach offers remarkable advantages in comparison to altrnatives. We also discuss SCF scalability in large-scale, real-world scenarios, as well as interesting ways in which system factors (e.g., number of served users, broadcast data rate, area size) are intertwined and contribute to system performance.

Short Bio: Claudio Casetti is an Associate Professor at Dipartimento di Elettronica e Telecomunicazioni, Politecnico di Torino, Italy. He has published more than 170 papers in international journals and conferences, has served in the TPCs of the main international conferences in the networking field (IEEE INFOCOM, ACM SIGMETRICS, IEEE GLOBECOM, IEEE ICC) and serves on the Editorial Boards of the IEEE Vehicular Technology Magazine, Vehicular Communications and J. of Computer Networks. He has been a visiting scholar at Umass Amherst (1995), UCLA (2000), UCSD (2003) and Monash University (2012). His current interests are in Vehicular Networks, Mobile Wireless Networks, Wireless Home Networking and Security in Wireless Networks.

Venue: Meeting Room, Dunlop-Oriel/CTVR.

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

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